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Theology in the tree of academic disciplines

A Teologia na árvore das áreas de conhecimento

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Abstract

The advent of modern Science has subjected Theology to new demands. Our scope is to justify methodologically the presence of Theology among scientific disciplines. Bibliographical research method is used. We demonstrate the features both methods have in common, and the particular characteristics of each. The postulates of each method are emphasized. Such approach is unprecedented. On the one hand, the common features they have in common can be demonstrated. First, the act of faith. In Science an act of faith is made in those methodological postulates, for they do not have full evidence, neither they are subject to falsifiability. Such approach is also unprecedented. Eight of such postulates are pointed out. One of these postulates is pure nature, which origin is particularly discussed. It's the first time this postulate is systematically discussed in the field of scientific methodology. Second, the sequence of five methodological steps. On the other hand, this paper highlights the distinctive features of each method. Adherence to a religious confession is the main epistemological difference between Theology and modern Science, in particular Sciences of Religion. That fact brings consequence to the latter.

Keywords: Scientific method; Theological method; Science; Sciences of Religion; Epistemology.

Resumo

O advento da Ciência moderna e seu método expôs o método teológico a novas exigências. O objetivo do artigo é justificar metodologicamente a presença da Teologia entre as disciplinas científicas. A metodologia é a da pesquisa bibliográfica. O artigo evidencia os elementos em comum entre o método científico e o teológico e suas peculiaridades, com ênfase nas premissas de ambos. Essa abordagem é inédita na literatura metodológica. Isso permite, por um lado, evidenciar os elementos em comum. Primeiro, o ato de fé. Em Ciência faz-se um ato de fé naquelas premissas do método, pois para elas não há demonstração cabal, nem estão elas abertas à falseabilidade. Tal abordagem é também inédita. São evidenciadas oito dessas premissas do método científico. Uma das premissas é a da natureza pura, cuja origem é examinada. Essa premissa é pela primeira vez trazida à reflexão sistemática sobre o método científico. Segundo, o seguimento da sequência de cinco passos metodológicos. Por outro lado, o artigo evidencia os elementos distintivos entre os dois métodos. A adesão a uma confissão religiosa é a principal diferença epistemológica entre a Teologia e a Ciência, em particular as Ciências da Religião. Para essas isso traz consequência.

Palavras-chave: Método científico; Método teológico; Ciência; Ciências da Religião; Epistemologia.

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Introduction

A great asset of the academic scene in the past decades has been the intensification of studies dealing with religion. Not infrequently such studies, carried out in a number of different branches of knowledge, converge into instances in which they comprise a whole. In Brazil, the congresses of the National Association of Postgraduate Courses and Research in Theology and Sciences of Religion (ANPTECRE) and the Society of Theology and Sciences of Religion (SOTER) have been particularly noteworthy. To many, such studies on religion matters have led to questions concerning methodology. Studying religion through the disciplines belonging to the subset of Sciences of Religion is one thing. Studying religious themes from the point of view of Theology, which constitutes another subset, is quite a different task. The object of research of the two subsets shares a common element, and the two optics mutually enrich each other, but "we should not leave in the shadows what is constitutive of them, both from the point of view of the material object, and from the point of view of the formal object. [...] The debate on the respective epistemes is open, aware of its key relevance for the interrelationship between these areas of knowledge" (EDITORIAL, 2007, p. 160). Theologians' inquiries about their method have been frequent in the last decades, seeking to acquire greater insight into what constitutes their specific perspective (LONERGAN, 2012; BAENA, 2007; ELLACURÍA, 2000).

Our focus here is not the Latin American theological method, although this is a theme of great relevance. We focus on examining the theological method over a wider horizon, which allows us to recognize, as a product of the same methodology, theological works from different continents and ages.

We take as a challenge Walter Kasper's comment, which manifested a certain urgency in the methodological issue. His remark maintains great relevance, even though it was written half a century ago:

> Reflection on the methodological foundations is part of the priority tasks of post-conciliar theology. Such methodological reflection is now inevitably subjected to a demand for methodological precision stemming from modern Science. In its understanding of reality and truth, our time is distinguished by both Science and technology. The core of Science is its method, that is, the planned, pondered, always critically secure path towards a certain cognitive goal. [...] This modern methodological consciousness has changed not only Theology, but all Human Sciences, to a hypercritical situation. (KASPER, 1967, p. 12) [1].

Relying on bibliographic research, this article will outline, at first, some elements of the theological method and the steps of the scientific method. This will constitute the *status quaestionis*. In a subsequent moment, we will also bring to light the presuppositions of both methods. In literature, there is no study that, at the same time, outlines their assumptions, confronts them and discloses the consequences that follow. It will be made explicit: 1) the act of faith in the presuppositions, an act that is part of the very nature of the scientific method (it will be emphasized the assumption of the existence of a "pure nature", which is an unprecedented reflection in the methodological literature), and 2) the citizenship that the steps of the scientific method have within the theological method in its current form. It is therefore legitimate the inclusion of Theology in the tree of academic disciplines. Such theme will be developed in the last part of the article. There we will complete the outlining of the theological method and its assumptions, in light of the previous reflections. There we will also highlight the similarities (as well as the differences) between the theological method and the scientific method that justify such inclusion.

The theological sources and documents used will be within Catholic Theology, the field in which the present work is developed. An exception will be made to Wolfhart Pannenberg's book (1973). Several of the elements shown here will be

[1] "Eine methodische Grundlagenbesinnung gehört zu den vordringlichsten nach konziliaren Aufgaben der Theologie. Eine solche Methodenbesinnung sieht sich heute unausweichlich dem Anspruch methodischer Exaktheit ausgesetzt, wie er von der modernen Wissenschaft ausgeht. Unser Zeitalter ist in seinem Verständnis von Wirklichkeit und Wahrheit durch Wissenschaft und Technik bestimmt. Das Wesen dieser Wissenschaft ist die Methode, das heißt der planmäßige, reflektierte, dauernd kritisch abgesicherte Weg zu einem ganz bestimmten Erkenntnisziel [...]. Dieses moderne Methodenbewußtsein hat nicht nur die Theologie, sondern alle Geisteswissenschaften in eine äußerst kritische Lage versetzt".

developed more extensively in a work that will be published by Edições Loyola in São Paulo, Brazil [2].

The present study does not fall within the natural and supernatural duo of concepts. Jewish-Christian revelation has as a solid premise that everything in creation can only come to be, and keep existing, due to divine grace. Therefore, theologically we do not use here the distinction between an act of theological (or supernatural) faith and an act of natural faith. Any and every act of faith can only come to be by bearing, before and under itself, the foundation of the God's grace as the condition of its very possibility to exist.

1 Beginning to outline the theological method

On the history of the theological method, some of the most significant authors are Johannes Beumer (1972), Guido Pozzo (1994) and Clodovis Boff (2012). The study of the structures that, in the past, configured the exercise of theology is relevant to that same exercise in the present.

1.1 Patristic Period

The Patristic Period represents "the moment of the 'birth' of Theology" (POZZO, 1994, p. 607). Patristic literature is extremely diverse. In addition to the Greco-Latin sphere, it also includes authors in Syriac, Coptic, Armenian, Georgian and Arabic languages. Even in such a diversity, it is possible to retrieve elements of a method there. The core on which the patristic authors based their reflections was the revelation in Israel culminated in Christ. It is in the light of 1 Cor 3:11 ("no one can lay a foundation other than that which has already been laid: Christ") that the theological method is developed, for which "the transmitted Christ-event is and remains the foundation, together with the spiritual experience which stems [...] from it, made by the Church, but [...] that same foundation calls for further

[2] This article was originally submitted in May 2018. The book appeared in 2019 under the title *Método teológico e Ciência*.

building on it" (BEUMER, 1972, p. 17)[3]. Two phrases of St. Augustine became famous, summarizing the importance of both the foundation and the "further building on it" through faith and reason: "*crede ut intellegas"* and "*intellege ut credas*", "believe so that you may understand" and "understand so that you may believe".

In the Theology of the Patristic Period, the theological method is characterized by the recognition of an apostolicity expressed by the term *parádosis* (Tradition). This term designates a living and active reality maintained in succession with the apostles. A formula of the time is "*parádosis katá diadokén*" (literally, "Tradition according to succession") (PIE-NINOT, 1994, p. 86). Already found in texts of Irenaeus of Lyon, this principle "became a law accepted by Patristics" (PIE-NINOT, 1994, p. 86). The apostolicity expressed as *parádosis* or Tradition was the experience of communion with Christ, who remains truly alive and active in the present time of the Church. In the patristic understanding, *parádosis* or Tradition is also the self-communication of God. It is a living salvific revelation that gives new insight into what was originally revealed at the summit of the revelation that is Christ.

In the Patristic Period, another element of the theological method is the recognition that certain writings – Sacred Scripture – are an indispensable record of the revelation that took place in Israel and in Christ. They are the only writings in which divine authorship is recognized besides human authorship, and for this reason they compose a crucial instance.

In the Patristic Period, the theological method is also characterized by the dynamics of clarifying things in a context of diversity, resisting what falsifies the very fundament, the salvific revelation culminating in Christ. Not everything is valid. There are things that tamper with that revelation, and such forgeries must be set aside (BEUMER, 1972, p. 18).

[3] "Das überlieferte Christusereignis zusammen mit der daraus entspringenden Geisterfahrung der Kirche ist und bleibt das Fundament. Sobald aber [...] verlangt dieses Fundament selbst danach, daß auf ihm weitergebaut wird".

As the unity of the different local Churches produced decisions through synods and councils, these also became instances of the manifestation of *parádosis* or Tradition. Remarkable relevance was also accorded to the teachings of the apostle Peter's successor as *epískopos* of Rome. Something similar happened with the reflections of previous generations of theologians.

Finally, in the Theology of the Patristic Period, the theological method is also characterized by being a reflection conducted with the intellectual resources then existing (BEUMER, 1972, p. 17-18). Patristic authors often make the original message of Christian salvific revelation pervade a cultural environment that had emerged independently of Christians. They employ the categories of an existing philosophical world, and they do so using the elements of Christian revelation (POZZO, 1994, p. 607).

1.2 Scholastic Period

In the Scholastic Period, Theology maintained, on the one hand, the methodological elements of Patristics: anchoring reflections on the revelation culminating in Christ, and deepening the faith-related elements taken from Sacred Scripture, Sacred Tradition, the teachings of the councils and the successor to Peter, and the life of the Church (POZZO, 1994, p. 608). St. Augustine's ancient expressions – "*crede ut intellegas*" and "*intellege ut credas*" – continue to summarize the theological reflection. In the 11th century, S. Anselm of Canterbury synthesized these ideas in his *Proslogion* through the expressions "*credo, ut intellegam*" and "*fides quaerens intellectum*": "I believe, in order to understand" and "a faith that seeks intelligence".

On the other hand, another element was added to the methodological principles inherited from the Patristic Period: the Aristotelian philosophical instrumentality (BEUMER, 1972, p. 75; POZZO, 1994, p. 608). In particular, the paradigm of the Aristotelian concept of science is adopted. Science in serious terms –

the first science – is Metaphysics, which goes beyond the sensorial realm and reaches the knowledge of immutable truths.

A striking feature of Scholastic Theology is the natural and supernatural duo of concepts. They presuppose a conception of reality differentiated in planes. On the one hand, the natural realm is that of creation, the realm of the human being and his initiative. On the other hand, the supernatural plan is that of God the uncreated, the realm of the things that only happen because of the gratuitous divine initiative, such as revelation. The supernatural term is "in precise parallel with the metaphysical term (= after, behind, beyond, and, in this sense: above nature)" (NEUFELD, 1994, p. 909). In the thirteenth century, the duo of concepts was driven by St. Thomas Aquinas, and would characterize Theology for some centuries to come.

1.3 Considerations

Beginning to outline the theological method, we already find an evidence: 1) whoever makes the reflection is not in a neutral position with regard to a religious confession. A leap of faith accompanies reasoning. Methodologically, in Theology the act of faith and the act of reasoning are constantly intertwined: "believe so that you may understand" and "understand so that you may believe". In our case it is Christian confession. Theology can also be done in other religious confessions, resulting then in Islamic Theology, Jewish Theology or Umbandist Theology. Another evidence is: 2) whoever makes a theological reflection does not start from scratch. There is a lot that must be known before that undertaking. The classical expression to refer to this is *auditus fidei*, listening to the faith: listening to the different previous instances. A third evidence is: 3) reasoning is mandatory "for further building on [the foundation, the Christ-event]" (BEUMER, 1972, p. 17)[4]. The classical expression to refer to this is *intellectus fidei*, reasoning about faith through the conceptual instruments of that time.

[4] "auf ihm [dem Fundament, dem Christusereignis] weitergebaut wird".

2 Outlining the scientific method

Not long after Scholastics, human acumen brought to light a strategy to generating reliable knowledge: the scientific method. The literature on the history of science and its method is generous, and we refer here only some samples (HEGENBERG, 1976; HENRY, 1998; ACHINSTEIN, 2004). In our consideration of the scientific method, we will first consider it briefly in a summary of its steps, something that is common in the literature. Then we will bring to light its presuppositions, or assumptions. This is an important theme rarely covered (AAAS, 1990, p. 2; GAUCH, 2012, p. 73-95).

2.1 Steps or movements of the scientific method

Substantial summaries of the steps of the scientific method are already offered in the academic literature (MEDAWAR, 1979; LEITE, 2008; RAMPAZZO, 2009; KÖCHE, 2012). In the several presentations of the scientific method, its substance is always the same, but the number of steps or movements differs from author to author because such steps are differently condensed or fragmented. We present here a synthesis of the scientific strategy, or method, through five steps or movements:

1. The starting point is to find a subject about which one wants to obtain reliable knowledge. A general characterization of this subject is then made: the question under study is defined, attempting to clarify the elements of meaning in the question; the pertinent evidences on the subject are gathered by surveying the explanations already given by other researchers; the object under consideration is examined as well as observations and measurements are made. It is vital to look for the explanations already given previously, it is crucial to have a satisfactory grasp of the previous patrimony of knowledge. But knowledge alone is not enough.

2. Imagination and creativity are at the center of the second step or movement. In order to explain the question, hypotheses are formulated on that subject about which we want to obtain reliable knowledge. Richard Feynman – one

of the most important scientists of the 20th century and winner of the 1965 Nobel Prize in Physics – summarized: "What we need is imagination, but imagination in a terrible strait-jacket" (FEYNMAN, 1992, p. 171)[5]. It is not a trivial thing to add to the previous knowledge of step 1, the hypothesis or supposition of this step 2. The imagination and creativity that generate hypotheses are at the forefront of the greatness of Science. The formulation of hypotheses about the elements of a question is an art (MEDAWAR, 1979, p. 84-85; FEYNMAN, 1992, p. 162).

3. Imagination and creativity continue to work at this step or movement 3. It is now a matter of elaborating a reasoning that leads to deductions. The set of hypothesis (made in step 2) and prediction (now established in step 3) is generally something never before achieved. The predictions made from the hypotheses are crucial because if the subsequent fourth step shows that the predictions are not realized, then the hypothesis formulated in step 2 is simply false. Even a Science that works with bibliographic research can make predictions. For example, an historian may formulate predictions about documents that have yet to be found, predicting that what will be found in them about certain facts will coincide with what is written in already known documents (FEYNMAN, 1992, p. 114).

4. The time has come to validate, or invalidate, the hypotheses and predictions imagined in steps 2 and 3. Composed so far of logical reasoning that leads to deductions, the predictions established in step 3 are finally tested. Some Sciences demand experiments with nature. Others study the human being, who for ethical reasons should never be handled as an object. There are those that have as object things produced by the human being, or human phenomena. Others are formal, abstract. Being all Sciences and following the scientific method, on the one hand each one of them will have epistemological idiosyncrasies to validate their hypotheses. Such idiosyncrasies are "secondary logical-methodological particularities" (COSTA, 1999, p. 23). As a whole, "empirical Science, in a certain sense, is one, mainly due to its general logical-methodological dimension" (COSTA, 1999, p. 23). In all of them, the aim is to corroborate the consequences that were

[5] Original text.

foreseen from the previous hypothesis, in order to demonstrate or reject this hypothesis. If such a validation process shows that the predictions arising from the hypothesis occur, then the hypothesis is on the right track. If the predictions made on the basis of the hypothesis are not confirmed, then the hypothesis is false. All science revolves around this double principle. If the hypothesis is validated, however, merely this individual verification is not enough.

5. Diffusion to and corroboration by others are at the center of the fifth step. If any success achieved in step 4 is left only to those who have achieved it, it has not yet become reliable knowledge. "This is the fundamental requirement of scientific knowledge: it must be accepted by other scientists" (VOLPATO, 2007, p. 29). The publication of the research enables knowledge to be repeated and proven in different times and spaces. It is in this way that a certain knowledge is integrated into the heritage of that specific Science.

2.2 Assumptions of the scientific method

2.2.1 Philosophical assumptions (AAAS, 1990, p. 2; GAUCH, 2012, p. 88)

Newton C. A. da Costa (1999, p. 55) refers to five "norms or principles that shed light on the march of Science". These are epistemological principles that are valid, but for which "there is no full and licit, deductive or inductive demonstration" (COSTA, 1999, p. 57). Four of them are:

1. The possibility of scientific knowledge.

2. The character of scientific knowledge as an exchange of experience and thought.

3. The logical and experimental character of the justification criteria.

4. The use of systems of categories or of concepts.

Newton da Costa's fifth principle corresponds to the first of the four following presuppositions, which complement and add to the four ones above indicated.

5. Realism. There is "a universe of things and facts that exist independently of us. We achieve, without doubt, certain structures that are, at least in part, real" (COSTA, 1999, p. 55). For modern Science, there is an external objective reality that is independent from the person who is understanding. In this sense, "however, scientific realism is a mitigated realism. Physical objects are outside of us, although we reconstruct them conceptually" (COSTA, 1999, p. 50).

6. Existence of laws of nature. The fundamental things of external objective reality do not work capriciously, but follow patterns called laws. Such "laws of nature [...] exist independently of the minds which attempt to grasp them" (ARMSTRONG, 1999, p. 7)[6], that is, they also follow the principle of realism.

7. Universality or constancy of the laws of nature. "The best characteristic of physical law is its universality" (FEYNMAN, 1992, p. 87)[7]. The laws of nature are constant in time and space.

2.2.2 Theological assumption

8. Pure nature. The texts on scientific methodology never mention this eighth presupposition. By nature it is understood here the whole reality of the cosmos. "Pure nature" – *natura pura* – means all this reality as a "complete, consistent, sufficient nature, independent by itself in regard to any superior 'order' " (DE LUBAC, 1946, p. 174)[8].

Such an expression is originally part of a triad of closely linked concepts: natural, supernatural and pure nature. In Catholic Theology, the distinction between natural and supernatural was launched into great circulation in the 13th century by Thomas Aquinas. Only later, in the 16th century, was the concept of pure nature

[6] Original text.
[7] Original text.
[8] "[cette] nature comme complète, consistante, suffisante, indépendante par elle-même à l'égard de tout 'ordre' supérieur".

introduced into theology, now by Tommaso Gaetano, known also as Cardinal Cajetan. The concept of pure nature "was introduced as if in a biased way, without ever having been the object of an appropriate discussion" (DE LUBAC, 1946, p. 129)[9]. In Theology, since the 16th century the concept of pure nature has merely remained as an unreal hypothesis, but capable of being considered. The intention was to articulate more easily the divine grace (the supernatural realm) with a hypothetical purely human activity (the natural realm). In the 17th century the concept of pure nature was already consolidated in Theology, and its main defenders were the renowned Jesuits of Paris and Leuwen (DE LUBAC, 1946, p. 162).

What, on the one hand, was an unreal hypothesis in Theology, on the other hand has had not small consequences for the thought of those outside Theology, but who were living in the same environment of Christendom. Already in the 16th century, the concept of pure nature habituated generations of brilliant scholars to think such hypothesis no longer as unreal, but as plausible. The presupposition of pure nature, which leads to consider the cosmos as a "complete, consistent, sufficient nature, independent by itself in regard to any superior 'order' ", is distinctive from the scientific method implemented on the European continent from the 17th century onward. Brilliant thinkers transfer the motive for the existence and functioning of the cosmos to the interior of nature, depriving it of its horizon of transcendence. We observe then a cultural fermentation that leads to think of the nature of the human being as independent of any superior or transcendent order. In 1651 Thomas Hobbes' *Leviathan* was published. The first chapter, entitled *De homine* (About the human being), considers it exclusively in a materialistic way. Other influential works, developed on the same epistemological assumption of pure nature, would come to light in the 18th century. At this point, more relevant than 1755 Jean-Jacques Rousseau's famous *Discourse on the origin* (which refused the existence of the human being in such a pure state of nature, reputed as utopia), are the works of two other authors. In 1758, Claude Helvétius' work *On the Spirit* was published, and in 1770 it was released the book *System of Nature*, by Paul-Henri Thiry, known as the Baron of Holbach. In these works, the

[9] "[Elle] s'y introduit comme de biais, sans jamais faire l'objet d'une discussion en règle".

independence of the realm of nature in respect to any transcendence appears clearly manifested: “the beings that are considered as above nature or distinct from it will always be chimeras, of which it will never be possible to constitute true ideas” (HOLBACH, 2010, p. 31).

It was in such a context of Christendom, in which on the one hand in Theology the concept of pure nature was consolidated (as an unreal hypothesis) that, not by coincidence, on the other hand the powerful wave of the scientific revolution has risen in the West. The concept of pure nature shifted from a hypothetical and unreal concept in Theology to an epistemological assumption of the modern scientific undertaking. The presupposition of a pure nature would be consolidated as a distinguishing feature of this new stage of the scientific methodology. Methodologically, from that time on, it has been considered as a presupposition that any order superior to nature does not have any influence on the results, and that modern Science can do without God. “Any entity that, by definition, exists beyond the natural laws, is beyond the sphere of Science” (GLEISER, 2011). Methodologically, the religious act of faith that the scientist may have becomes irrelevant by premise. The results of the scientific undertaking should be the same if another scientist (whose act of faith was given in another religion, or was an act of faith in the inexistence of God) does the same research under similar objective conditions. During the exercise of scientific work, the religious act of faith remains as if in parentheses, without interfering in the results.

The consolidation of the concept of pure nature is closely related to the predominance, in modern Science, of the mechanistic paradigm for the comprehension of the world. In such paradigm “nature can no longer be conceived as the manifestation of a living principle, but as a system of matter in movements that are governed by laws” (JAPIASSU, 2007, p. 182). Through this view, “nature must be explained by itself. Faith, grace and revelation cease to play the role of epistemological obstacles” (JAPIASSU, 2007, p. 179). The mechanistic paradigm consisted of a new image of cosmos “as a great machine, a large and precise

mechanical clock, establishing the vision of an ordered and predictable universe" (BORGATTI, 2012, p. 37).

On the basis of such a mechanistic paradigm, also the human being is considered as a machine. Already in the 18th century, in the aforementioned books *On the Spirit*, by Claude Helvétius, and *System of Nature*, by the Baron of Holbach, human beings are conceived only as a complex mechanism. "For a deficiency of knowing the energy of the human machine, [men] assumed [...] that it was animated by a spirit" (HOLBACH, 2010, p. 138). Notions such as spirit and soul are left aside because seen as invention. "The word soul was invented to express weakly the energies of our life [...]. The soul, which means our memory, our reason, our passions, is therefore only a word in itself" (HELVÉTIUS, 1988, p. 289-290). Already at that time, the realm which controls the human being is considered only as an element of nature, the brain:

> Those who have distinguished the soul from the body seem to have done nothing more than distinguish their brain from themselves. In fact, the brain is the common center where all the nerves scattered throughout all parts of the human body come to be taken and merged. It is with the help of this internal organ that all operations that are attributed to the soul are performed (HOLBACH, 2010, p. 136-137).

In line with this notion, he word freedom does not boast true consistency: "when this term freedom is applied to the will [...], no clear idea can be linked to this term freedom. [...] Free is, then, only a synonym of enlightened" (HELVÉTIUS, 1988, p. 158). The human being is considered to be deprived of freedom. More recently, this old conception of the human being as a complex mechanism has been taken up again with new terms and concepts, such as neurons, genes and DNA, by authors such as Richard Dawkins (1976) and Galen Strawson (1994).

2.3 Considerations

First of all, we will comment on the rich results achieved by the scientific method. This method is based on a particular intention. "The core concept of the theory of Science is that of truth. Some kind of truth is sought in the various

Sciences" (COSTA, 1999, p. 22). The result has been the production of reliable knowledge about reality, distinct from such understandings that constitute the easily misleading common sense. However, "Science does not reach the truth" (POPPER, 1975, p. 305). The history of Science continuously shows that, when scientific methodological validation is granted to theories or laws, new facts may subsequently arise that show that these theories are false. The use of the scientific method remains open to new results that invalidate that theory or law and that attest to its falsity. The scientific method is structurally open to a permanent critique of reliable knowledge and their falsifiability. The results obtained by the scientific method are quasi-true, i.e., approximately true. One tries to obtain results closer and closer to reality as it is. Theories are like networks that are launched to capture reality and explain it (POPPER, 1975, p. 41-44; 82-98).

A second consideration about the results of the scientific method is the evidence that those who obtain these results do not start from scratch. There is a heritage of knowledge already obtained previously. Methodologically, the researcher needs to hear what has already been achieved before him.

A third consideration about the results of the scientific method, i.e. the reliable knowledge obtained, is that their validity does not depend on the religious confession of the person who achieves them. The religious faith of the researcher will remain inactive, as if it were placed in parentheses.

A fourth consideration is the character of true belief that distinguishes these results or reliable knowledge obtained through the scientific method. Not every belief is true. A belief can be false. "The term 'knowledge' is reserved only for true beliefs" (COSTA, 1999, p. 26). Those who use the scientific method did not experimentally check or validate the reliable knowledge they use, but accepted it on the basis of the credit they give to their origin as a result of the scientific method and its acceptance by the scientific community.

Secondly, we have considerations about the presuppositions of the scientific method. The method is like the supporting pillars of Science:

> Science rests on solid rock. The structure of its theories rises, so to speak, in a swamp. It resembles a building built on pillars. The pillars are buried in the swamp, but not in any natural or given base. If we stop burying these pillars more deeply, we do not do so because we have reached firm ground. We simply stop when we think that the pillars are sufficiently settled to support the structure (POPPER, 1975, p. 119).

In this analogy of the pillars, the presuppositions or assumptions of the scientific method are in a more primordial position than the method itself. They are not mere presuppositions located already in the construction that rises above, assumptions of a theory or theoretical system as considered by Popper (1975, p. 74-79), but methodological presuppositions that sustain the building in which such theories or systems arise secondarily with their also secondary assumptions. Just as Theology declares "loudly and clearly, by epistemological demand, its assumptions" (BOFF, 2012, p. 118), for modern science it is also appropriate to do so.

The first consideration is that the presuppositions of the scientific method are not results. They were not obtained as a result of the exercise of the scientific method.

The second consideration is that although they are not results, although they have not been obtained through the scientific method, these assumptions also constitute reliable knowledge present in every exercise of the scientific method.

The third consideration is that the epistemological situation of the assumptions of the scientific method is distinct from the epistemological situation of the results. On the one hand, results: 1) must be obtained, validated and proven; and 2) are in a constant condition of falsifiability. On the other hand, the assumptions of the method: 1) are not the result of the scientific method; 2) their

validity is affirmed without proof, for them "there is no full and licit, deductive or inductive demonstration" (COSTA, 1999, p. 57); and 3) the presuppositions are not open to falsifiability.

The fourth consideration is about the character of true beliefs that the presuppositions of the scientific method have. By true belief we do not mean: 1) a justified belief, i. e., belief in the reliable knowledge obtained by other scientists, which are learned by the specialist and which spare him/her from the need to repeat the countless previous researches; and 2) neither is it about the "non-scientific, metaphysical faith" (POPPER, 1975, p. 306), that belief in the certainty of the hypotheses imagined in advance and that will pass through the experimentation sieve. By true belief we mean here faith in what, methodologically, occupies the most primordial position: faith in the presuppositions or assumptions that also constitute reliable knowledge, but that are not open to falsifiability, and that are assumed on the basis of an act of faith. The presuppositions we have shown constitute true beliefs that support the method upon which modern science stands, even if for them there is no full and licit demonstration.

The fifth consideration concerns the internal decision of the subject who assumes the objectivity of such true beliefs. It is an act of faith (in Theology also called *fides qua*). An act of faith refers to the subjective dimension, and designates the decision of a person kept in constant renewal within it. In the scientific method, the adoption of those true beliefs, which are the presuppositions of the method, is a consequence of an act of faith (EDITORIAL, 2010, p. 315). The theoretical view which holds that, in the scientific method, reason is acting without interference of an act of faith is therefore wrong. In the scientific method, reason operates only because, previously, the subject was disposed in an act of faith to accept methodological assumptions. Whoever makes the reflection by the scientific method is not in a purely rational position, but executing a methodological and previous leap of faith. It is not an act of faith that stems of a religious confession, but this does not diminish its nature of an act of faith. Methodologically in modern

Science, act of faith and act of reasoning are also intertwined. Clarity in this regard enriches the understanding of the affinity between Theology and Science, and allows one to state properly that Theology is Science.

3 Theology in the classifications of Sciences

The theoretical and practical framework of the scientific method allowed the edification of a solid heritage of knowledge in several academic disciplines. These disciplines developed their idiosyncratic methods conformed to the steps of the scientific method. It is usual to group the numerous scientific disciplines into two basic branches: 1) Formal Sciences (such as Mathematics and Statistics, which use a rational method *a priori*, instead of the rational and experimental method *a posteriori*). 2) Experimental Sciences (or Reality Sciences, in the sense that they deal with reality). The last one is subdivided in two others: 2-a) Natural Sciences. 2-b) Human Sciences. As all scientific knowledge is interpretative, the denomination of the Human Sciences as Hermeneutical Sciences "has lost much of its relevance" (GEFFRÉ, 1989, p. 6). In Brazil, the Coordination for the Improvement of Higher Education Personnel (CAPES) organizes a detailed classification of scientific disciplines. In the CAPES document, at the beginning are the Formal Sciences, followed until the end of the document by Experimental Sciences (CAPES, 2017, p. 1-2; 2-28 respectively).

In the customary division of the Sciences into two basic branches and sub-branches, Theology is usually placed within sub-branch "2-b", Human Sciences. On the part of both the academic scene and the State, there has been a change of view in this regard, leaving aside the influx of the marginalizing positivist scientism of the 19th century and part of the 20th century. It appears in this way also in the CAPES classification, in which Theology has been included (CAPES, 2017, p. 23). Historically, however, the insertion of Theology in the tree of academic disciplines is not exempt from controversy.

History registers a period of marked hostility between modern Science and Theology in the past. On the one hand, on the part of Theology against Science, the 17th century processes against Giordano Bruno – burnt alive at a stake in Rome – and Galileo Galilei are famous. The harshest period of hostility to Science probably took place between the 18th century (around the French Revolution) and the beginning of the 20th century.

On the other hand, on the part of modern Science against Theology, there is often a posture inspired by the classic positivist ideology, which naively believes that reason can operate independently of any faith. Such view leads to exclude Theology from any list of Sciences, not letting it be even among the Human Sciences. A similar perspective was already manifested in 1770 in Baron of Holbach's *System of Nature*:

> The theological notions only seem to have been invented to disorientate man's reason, to confuse his judgment, to make his spirit false, to subvert his clearest ideas within all Sciences. In the hands of the theologians, logic – or the art of reasoning – was nothing more than an unintelligible jargon intended to sustain sophistry and lies [...]. An enemy of experience, Theology, this supernatural science, was an insurmountable obstacle to the advancement of Natural Sciences (HOLBACH, 2010, p. 730).

Such a vision reached its apex from the 19th century onwards and was loaded with hostility to Theology, with statements in line with that of philosopher Friedrich Nietzsche in 1888: "whoever has theologian's blood in the body, already has, before all things, a biased and dishonest attitude. What a theologian perceives as true has to be false" (NIETZSCHE, 2007, p. 15-16). Academic environments marked by similar ideologies of anti-theological rebellion maintain that it makes no sense to consider as Science a branch of knowledge that deals with God and that appeals to faith and divine revelation, because acts of faith would signal, at least, an infantile human condition, and probably its perversion. However, getting into this mutual stirring up of spirits hinders rationality.

3.1 The scientific status of Theology

Discussions on the scientific status of Theology compose a classical topic in theological studies, approached in a number of ways (LATOURELLE, 1971, p. 47-53; PANNENBERG, 1973, p. 225-348; FRIES, 1987, p. 146-176; HERCSIK, 2004).

A milestone in that respect is St. Thomas Aquinas' STh I, q.1, a.2, which examines the issue with the assumption of the Aristotelian notion of science and from a metaphysical point of view. On the one hand, Science (*scientia*) in Aquinas means knowledge on the essence of things and on their causes, being elevated from the field of events perceptible through the five senses, and reaching the field of Being and Essence. On the other hand, Theology is referred to in St. Thomas as *sacra doctrina*. Aquinas has a positive view of the relationship between both: "I answer by saying that the sacred doctrine is science", adding in the sequence: "and thus [... :] accepting the principles revealed to it by God" (STh I, q.1, a.2, c).

However, for the modern understanding of Science, Thomas Aquinas' conclusion is not very helpful because, although the word science is identical, the meaning of the concept has undergone great transformation. According to the current understanding, the term Science indicates a discipline that has its own object (which can be of an experimental, human, historical or abstract nature), an idiosyncratic method shaped in the scientific method, and which leads to a synthesis that is communicable and verifiable by others (HERCSIK, 2004, p. 52).

On the one hand, Theology as a Science takes advantage of and benefits from the systematic methodological path of modern Sciences. Theology is a discipline that has its own object and an idiosyncratic method molded in the scientific method, which leads to a communicable synthesis that can be verified by others. Theology is Science (in the modern sense of this term) in a given perspective. On the other hand, the theological method also incorporates elements

that are not part of the modern scientific method. Theology is not Science from another perspective. Such parameters will be systematically regrouped in the following two topics.

In the issue of the scientific status of Theology we probably have a case in which Paraconsistent Logic[10] can be applied. In terms of Paraconsistent Logic, both statements are probably significantly valid: Theology is Science, and Theology is not Science. They are contradictory by the conceptual system of Classical or Aristotelian Logic and its principle of no contradiction: a proposition cannot be true and false at the same time, without incurring "doxastic collapse (everything is believed) or triviality (everything is demonstrable)" (COSTA, 1999, p. 63). Paraconsistent Logic handles "systems of propositions that can contain contradictions (inconsistencies), without the permanent danger of trivialization (of everything being demonstrable)" (COSTA, 1999, p. 86-87; 289).

3.2 Some differences between the theological and scientific methods

3.2.1 Religious confession

During the exercise of Theology, insertion into a religious confession is methodologically mandatory. This applies to any Theology: Catholic, Protestant, Jewish, Islamic or Umbandist Theology. A theologian is not sitting on the fence as far as belonging to a religion is concerned; he or she works from a perspective within a religious confession. For the work at the interface between Theology and other scientific disciplines, especially Sciences of Religion, it is worth knowing this. It is the most substantial epistemological difference between the two areas: "reflection 'from outside' (Science of Religion) and [...] reflection 'from within' (Theology)" (HOCK, 2010, p. 214).

[10] A brief definition of the differences between Paraconsistent Logic and Classical Logic (which is Aristotelian Logic, with its non-contradictory principle) is found in Costa (1999, p. 86). A historical outline of Paraconsistent Logic is also found in Costa (1999, p. 101-104; 289-290; 298-300).

In Theology and Sciences of Religion, the material object of study is similar: issues on religion. On the one hand, Sciences of Religion study immanent religious phenomena. On the other hand, Theology affirms that these are second-to-last elements, raised up by the manifestation of a transcendent reality. The main focus of Theology studies is on this last element.

Although the material object of study is similar, the formal object (i. e., the point of view or perspective) would be quite different. To study religious themes with the perspective of Theology, which is confessional, is one thing. It is such methodological adherence that legitimizes the theological discourse on the ultimate element, that transcendent reality. It is quite another thing to study religious topics from the perspective of the Sciences of Religion, which will be a non-denominational point of view. Methodologically, modern Science does without God. “Any entity that, by definition, exists beyond the natural laws, is beyond the sphere of Science” (GLEISER, 2011). During the exercise of his or her work, the scientist of religion will place religious faith as if in parentheses, without letting it affect the results of the scientific research. Now, statements about equality or inequality of value of divinely originated things overcome the limit set by the modern scientific method of doing without God, and therefore have no scientific status. This is relevant in the case of that studies that adopt the pluralist theory of religions. This is a theory that makes judgments about divine revelations. The pluralistic theory of religions holds that, in general, the different divine revelations of different religious traditions around the world have similar value. This is a statement that cannot be found in any religious confession. Therefore, from the methodological standpoint, it is not theological. Because it addresses an entity that exists beyond natural laws, such a theory is also unscientific, incompatible with the Sciences of Religion.

3.2.2 Conversion

Another distinctive element of the theological method is conversion. It keeps an analogy with the scientist's appreciation of ethics. However, ethical and honest life, although praiseworthy, does not represent an element of the scientific method. On the contrary, conversion is an element characteristic of the theological method and always impacts on the Theology that is produced (LONERGAN, 2012, p. 303). Conversion means entering into a relationship of dialogue and coexistence with a reality that is not something, but Someone who is in dialogue and is recognized as the Saint *par excellence* (1 Pet 1:15; Lev 19:1-2). Entering and persevering in conversion places a theologian in a dynamism called the Kingdom of God (AQUINO JÚNIOR, 2010, p. 187-197). It means insertion in a certain way of proceeding that has relevant existential consequences. It is a kind of holiness that makes a loss by mercifully doing good to others. It is also a holiness of closeness to the suffering, the poor and the weak. Conversion is carried out in a world whose way of proceeding goes generally in the opposite direction, in the dynamism called anti-Kingdom, taking profit in everything and distancing itself from the humble, poor and suffering. The insertion in one direction, living in the world that goes in another direction, makes conversion "something conflictive and that unleashes great resistance and opposition" (AQUINO JÚNIOR, 2010, p. 197).

3.2.3 There is no pure nature

For the theological method there is no such thing as a pure nature, that is, a "complete, consistent, sufficient nature, independent by itself in regard to any superior 'order' " (DE LUBAC, 1946, p. 174). The whole reality of the cosmos depends in its existence on an order that is beyond it, that transcends it and, in this sense, is superior to it. Such superior order does not consist of any form of energy, nor of a vast impersonal system, as a mechanical and neutral principle. It is Someone without any mechanical connotation, who in full freedom has a bias or inclination that, in human language, can be palely described as free and unconditional love that makes a loss by doing good to others mercifully.

3.3 Some similarities between the theological and scientific methods

3.3.1 Act of faith

In this subject, there is a current difference between Theology and modern Science. Theology states "loudly and clearly, by epistemological demand, its assumptions" (BOFF, 2012, p. 118), while the corresponding issue is scarcely found in studies developed in the field of scientific methodology. We have seen that, in the scientific method, the adoption of true beliefs, which are the presuppositions or assumptions of the method, is a consequence of an act of faith. "Science is often contrasted to belief, but the truth is that belief plays such a big role in Science as in most other areas of human activity" (LONERGAN, 2012, p. 58).

It is not merely about: 1) the justified belief, that is, belief in the reliable knowledge obtained by other scientists, such knowledge that is learned throughout the scientific formation and that saves the scientist from the need to repeat all the countless researches that generated them; 2) nor is it about that "non-scientific, metaphysical faith" (POPPER, 1975, p. 306) regarding the authenticity of hypotheses imagined in advance and that will pass through the sieve of experimentation.

Rather, it refers here to faith in the truthfulness of the presuppositions of the scientific method, for which "there is no full and licit, deductive or inductive demonstration" (COSTA, 1999, p. 57). Eight of them have been shown here. They also form a reliable knowledge, and are assumed on the basis of an act of faith. They were not obtained as a result of the use of the scientific method, nor are they open to falsifiability. Clarity in this regard establishes parameters to enrich the understanding of the affinity between Theology and Science. In both, the functioning of reason occurs subsequently to an act of faith made by the person. In Theology, the methodological act of faith takes place within the framework of a religious confession. In Science, it is not done inside, but outside a religious confession. It is an act of faith in the assumptions of the scientific method. These make up valid epistemological principles that are present in every exercise of the scientific method,

but which are affirmed without proof, without that full and licit, deductive or inductive demonstration.

3.3.2 Five steps or movements

The five steps or movements of the scientific method that we have previously considered have their citizenship in the exercise of theological work.

1. The starting point is a subject that needs to be clarified. Liking the subject is essential. For example, in Theology there is a classic scheme of working on a theme in an "author", as long as both are relevant. By "author" we mean, for example: a book of Sacred Scripture; a Father of the Church; a Council; a theologian of Scholastics or of modern times. In such a classical scheme, it can be seen that in that author we find the important element X, which is relevant to the reason Y and which presents the subject or problem Z that needs to be clarified. A general characterization of the question is then made, gathering the relevant data. The *status quaestionis* is composed with them. In Theology this first step or movement is usually called *auditus fidei*, listening to the faith. A satisfactory mastery of the previous heritage of knowledge is essential.

2. With the second step or movement begins what in Theology is called *intellectus fidei*: the reflection on faith. Whoever makes Theology then formulates hypotheses on the question he/she proposes to clarify. This is an art, but in order to be carried out, it requires prior mastery of the previous heritage of knowledge. It is a *sine qua non* element for the art of step 2. In the case of the common scheme that we take as an example, of working on a question in an author, it is the art of formulating some hypothesis on that question that we propose to clarify.

3. The reasoning about faith – *intellectus fidei* – continues with the deduction of predictions from the hypotheses formulated on the question. In Theology, predictions can be like those of a Science that works with bibliographic research, such as History. In bibliographic research, data are collected in documents and written works. In this methodology, predictions are also made.

These are about sources or documents that can still be found. The Science of History is not inferior, nor does it leave anything to be desired in this respect, in relation to Experimental Sciences (CLELAND, 2001). Similarly, in Theology it can be predicted that what will be found in new sources or still unknown documents will coincide with what is stated in the documents already known. In the case of the common scheme that we take as an example, of working on a question in an author, it is predicted that the documents of that author that are found, if they speak of that question they will say such and such a thing.

4. *Intellectus fidei* goes on. It is now a matter of verifying the truth of the prediction, or demonstrating that it is false. In bibliographic research, data are collected in documents and written works, and then analyzed and interpreted. If the literature search shows that the prediction arising from the hypothesis happens, then the hypothesis is on the right track. However, if the hypothesis is in disagreement with what is obtained in the literature search, then the hypothesis is false.

5. Finally, the study and the results obtained are published. This fifth step or movement is neither less important nor optional. It allows the work to be scrutinized and verified by other researchers in the field and, after passing through such an evaluation, it will be integrated into the patrimony of theological knowledge.

Conclusion

Many fundamental elements of the theological method were already clear before the advent of modern Science. The emergence of modern Science meant the establishment of a powerful path for the production of reliable knowledge. The path of the modern scientific method has acquired a leading position and has shaped the current academic scene, which exposes the theological method to the demands of both precision and criticism.

Through the delineation of both theological and scientific methods, special emphasis was given to the theme of the presuppositions or assumptions of the last one. On the one hand, there are elements in common between the two methods. In

the first place, in both methods the functioning of reason takes place after an act of faith. In the scientific method, it is an act of faith in the truthfulness of the eight presuppositions of the method. They constitute reliable knowledge, but for them there is no scientific demonstration. Nor are they open to being declared false. Secondly, both methods can be schematized in the same five steps or movements.

On the other hand, it can be seen that the theological method has elements that do not correspond to the scientific method: religious confession, conversion and the inexistence of a "pure nature".

In the current academic scene, an important interface has been that between Theology and Sciences of Religion. On the one hand, Sciences of Religion study immanent religious phenomena, which Theology calls second-to-last elements, raised up by a transcendent and ultimate reality. On the other hand, the main focus of the theological studies is on this last and transcendent element. From the methodological point of view, what legitimizes the theological discourse on the divine realm is the adhesion to a religious confession. The modern scientific method, with its presupposition of pure nature, sets the limit of not considering any order superior to the laws of nature. When a Science *tout court* elaborates discourses (like the pluralist theory of religions) about similarity or dissimilarity of value of things that originate from such a superior order, it surpasses that limit and generates statements that are unscientific in their status.

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