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SCIENTISM, ANTI-SCIENCE, AND SCIENTIFIC ACTIVITIES AS AN EXPRESSION OF RELIGIOUS BELIEFS

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Abstrak

Artikel ini berupaya untuk menunjukkan bagaimana penganut agama-agama dapat melakukan kegiatan ilmiah dan mengapresiasi riset ilmiah sebagai ekspresi kepercayaan. Tujuan ini akan dicapai dengan menunjukkan dua perbedaan penting, yakni 1) perbedaan antara posisi penolakan saintisme dan anti-sains, 2) perbedaan antara posisi penolakan atas saintisme dan penerimaan atas realitas teisme. Selanjutnya, penulis akan menunjukkan bagaimana bagaimana narasi konflik antara penganut saintisme dan penentangnya dapat diatasi dengan melokalisasi narasi konflik tersebut pada situasi historis lokal dan pada akhirnya akan dijelaskan sebuah narasi alternatif yang diambil dari sumber-sumber internal tradisi agama Kristen terkait tiga hal, yaitu 1) asumsi-asumsi tentang hubungan antara iman dan akal budi, 2) sikap terhadap upaya kritis manusia, dan 3) sikap terhadap alam dan kegiatan penelitian alam. Tawaran ini diharapkan dapat menjadi contoh bagaimana sains dan iman dapat saling memperkaya dalam hubungan yang dialogis-kritis.

***Kata kunci**: Saintisme, Agama, Sains, Kristianitas, Kritis*

Abstract

This paper seeks to show how religious believers can carry outscientific activities or appreciate the results of scientific research as an expression of faith itself. This goal will be achieved by demonstrating two important distinctions, namely: 1) the difference between the rejecting scientism and anti-science stance, 2) the difference between rejecting scientism and accepting the reality of theism. Later, I will show how the narrative of conflict between the adherents of scientism and its opponents can be overcome by

localizing the narrative of the conflict to local historical situations and at the end an alternative narrative taken from internal sources of the Christian religious tradition will be explained in relation to three things, namely: 1) assumptions about the relationship between faith and reason, 2) attitudes towards human critical efforts, and 3) attitudes towards nature and natural research activities. This proposal is expected to be an example of how science and faith can enrich each other in a dialogical-critical relationship.

***Keywords**: Scientism, Religion, Science, Christianity, Critical*

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INTRODUCTION

The development of science and scientific way of thinking has revolutionized almost all aspects of human life, especially in the last few hundred years. Modern science's challenge to old ways of thinking manifests itself in various areas, from cosmology, epistemology, anatomy, political science, history, and theology. Copernicus, Galileo, Newton, Einstein, and Georges Lemaître presented a picture of the universe that was very different from that imagined by previous thinkers. In scientific methodology, the contributions of Rene Descartes, Francis Bacon, Karl Popper, and Paul Feyerabend have significantly enriched the discussion about knowledge, truth, and validation. This is also the case in the realm of social sciences and religion. Wherever knowledge and the process of knowing are taken seriously, including knowing truths that intersect with the reality of faith, the revolutions in science and scientific methods during the last five hundred years or so cannot be taken for granted.

The greatest contribution of the Modern scientific way of thinking lies in relatively stricter standards for accepting a statement as "true" or can be called "knowledge." Changes in science and its methods over the past five hundred years have radically changed humanity's view of truth and knowledge. Humanity's ways of gathering, selecting, and evaluating so-called "knowledge" have

substantially changed and one might say for the better. Through the modern scientific revolution, the quality and quantity of knowledge acquired by mankind regarding the universe, living things, social reality, and the workings of the knowledge itself have increased significantly (Gibbons, et. al., 1994). So far, the development of science and the scientific method has been well received by almost all groups, but in some cases there has been widespread and radical rejection of the progress of science and the scientific method. For example, the anti-science movement that emerged among some circles, especially from some religious circles, triggered by some Modern scientific findings regarding the origins of the universe, human origin, and a new view of the "soul" are considered inconsistent with religious teachings (Ezell, 2022).

Rejection of the scientific method and the conclusions of Modern science may still be tolerated if it is still limited to personal beliefs that do not have a broad impact, or as differences of opinion that are common in scientific discourse. However, as often happens, the impact of religious beliefs also spills over into aspects of life outside private life and seeks to dominate areas that are beyond the scope of his competence. For example, when a person or group of people makes political, economic, or medical choices based on certain religious texts that are read literally or dogmas that appear in very different historical contexts (De Smidt, 1998). For example, in the context of the COVID-19 pandemic, many studies have been conducted showing a strong correlation between certain religious views and “anti-science” or “anti-vaccine” attitudes (Corcoran, et. al., 2021). Thus there is a correlation between religious views, or more precisely, views regarding the *relationship* between religious beliefs and science and cooperative attitudes in society at certain critical times. Anthony Fauci, for example, commented that in the face of the COVID-19 pandemic, the polarization between the “anti-science” and “anti-vaccination” camps and the medical authorities and the state created many difficult tensions (Prasad, 2022). On the other hand, this rejection of science and its methods created a strong reaction among some scientists, both religious and not.

For followers of radical scientism, scientific method is "the only way to attain valid knowledge" and the implications of Modern science's discoveries should be applied to all kinds of questions previously answered by "other methods" (Rosenberg, et. al., 2017; Rosenberg, 2020). Adherents of radical scientism believe that opinions which are not based on the scientific method or in harmony with scientific findings can only be called personal opinions or beliefs. They consider the scientific method to be the only path to valid knowledge. According to adherents of this ideology, "the language of science must be denotative, literal and not use metaphorical and analogical versions of language" (Sutrisno, 2009). Thus scientism has the potential to marginalize the contribution of classical humanities studies such as literary studies, religious studies, history, and philosophy as sources of scientific knowledge. This is what radical Scientists like Rosenberg mean by "other methods," which are considered to be less authoritative for answering ultimate human questions such as "why are we here for?" or "is there a universal basis for morality?" (Rosenberg, 2020).

The term scientism itself is often used as a pejorative. F. A. Hayek who first popularized the term, defined scientism as a "slavish imitation of the method or language of Science" (von Hayek, 1942). Scientism is rejected for several reasons. Keith Ward rejects scientism because he believes this belief system is internally incoherent. For instance, scientism requires that knowledge must be "proven scientifically and logically, and can be demonstrated empirically" but these three conditions themselves cannot be proven scientifically, logically, and empirically (Ward, 2007). Several other philosophers of science view scientism as a "religion" smuggled into the scientific conversation—as a "free-rider" on the scientific label whose credibility is widely accepted in modern society (Popper, 1972).

This paper investigates how the strong polarization between the two camps can be softened, without denying the reality of the conflict, so that the discourse around scientism and those who reject it do not degrade into a shouting match between those who act in

the name of science, knowledge, and truth against those who want to retain values of religion in the modern world. There is something that can be learned from the outcomes of scientific research to enrich the life of faith; and on the other hand, religious faith can also be contributive to science. Both the science and faith communities will benefit more from dialogue than from suppressing opinions and perspectives, whether in the name of religion or in the name of science. This dialogue between the science community and the faith community requires a framework that is able to accommodate the best of both worlds.

Many studies have been conducted in this research area. For example, what was done by René Descartes at the beginning of the Modern era in his classic work *Meditationes de Prima Philosophia* (1641). The subtitle of this work shows what Descartes wanted to achieve: *in qua Dei existentia et animæ immortalitas demonstratur* (in which the existence of God and the immortality of the soul are demonstrated). In the preface to this work, Descartes said that he wanted to answer Pope Leo X's challenge to disprove the thesis which stated that "according to human reasoning, the human soul will perish with the body and only faith can convince people of the opposite" (Descartes, 1641). Descartes' philosophical analysis clearly intersects with the areas of religious belief and theology. More recently, the polemic between scientism and anti-science was also discussed by Alvin Plantinga (2011), Rick Peels (2017), Jeroen de Ridder (2018), and Gregory Dawes (2021). The discussion that has been carried out has shone a lot of light on the history of scientism, its position in the study of philosophy, and whether scientism's claims regarding the methods of Modern science as the sole source of human knowledge have sufficient basis. Although the studies that have been carried out do not attempt to answer the research questions posed by the author in this paper, the results of the research will become a very useful starting point for the purpose of this writing.

In this work, the author wishes to develop a framework for a more informed dialogue between faith and science, especially for

those within faith communities, by answering research questions as follows, "How can believers, as believers, carry out scientific activities or appreciate research results?" Or to put it more starkly, "How to do and appreciate science as an expression of faith itself?" The author hopes that if this question can be answered, then there will be more space for dialogue between religious people and those who are "outside religion" without getting caught up in a protracted polemic between "scientism" which tends to be "anti-religious" and "fundamentalism" which tends to be "anti-science." The assumption of this research question is the observation that many scientists, both past and present, clearly come from certain faith communities, such as: Galileo Galilei, Isaac Newton, Blaise Pascal, Michael Faraday, Georges Lemaître, and Abdus Salam. Of course it is not impossible for a believer to carry out scientific activities in the true sense, but it is necessary to explain *how best* to do this in order to answer the various polemics that have arisen around the dispute between proponents of scientism and proponents of anti-science. This question needs to be answered, because there is a common interest between the two. Both those who are "religious" and "non-religious" can share a love for scientific activities or share interests in relation to scientific results (for example regarding how to end the COVID-19 pandemic). Therefore a more civilized dialogue between the two can obviously be very useful.

To answer the research question and achieve the purpose of writing, first of all the writer will show two distinctions, namely: 1) the difference between rejecting scientism and adhering to anti-science, 2) the difference between rejecting scientism and accepting theism. After that, the writer will show that there is a narrative of conflict in the debate between the adherents of scientism and the opponents who come from religious fundamentalists or literalists. In this paper, the writer will attempt to relativize and localize the conflict narrative in order to avoid hasty generalizations, as if the conflict between scientism and anti-science is universal in all contexts. In the final part, the author will offer an alternative to conflict narratives that are often found in scientism discourse for

better learning. The proposal is rooted in religious tradition that the author himself is familiar with, namely Christianity. An analysis would be conducted in relation to three things, namely: 1) presuppositions about the relationship between faith and reason, 2) attitude towards human critical efforts, and 3) attitude towards nature and nature research activities. In line with Watloly (2000), in the author's opinion, the liberation of scientific inquiry programs from scientism will restore the human position as the "point of reference" and "orientation" for human development, especially through the "re-humanization" of scientific research programs.

A similar narrative may also be constructed from other religious and traditional sources, but that is beyond the scope of the investigation in this paper.

DISCUSSIONS

1. Important Distinctions

Rejecting scientism, i.e. rejecting "excessive reliance on scientific methods" (Haack 2012) is different from radically rejecting science as "no different from other belief systems" (Lynch, 2020). If the methods of science and the results of its research do not differ from the beliefs of religions and political ideologies then no advancement of knowledge of any kind is produced by science. In this view, science is only seen as an extension of economic, political, social, or religious interests and power without a significant critical function (Kobylarek, 2020). This article attempts to demonstrate that there is a significant difference between believing in science and its methods as *one of* the most important ways to achieve knowledge and believing, dogmatically without basis, in science and its methods as *the only* valid way to get knowledge, as emphasized by adherents radical scientism like Alex Rosenberg's stance. Radical scientism tends to dogmatically assume positivism, logical positivism, materialism, and ontological naturalism as its epistemological and cosmological models. These dogmatic assumptions has been rejected by many philosophers as a weakness of the proponents of scientism who tend to impose these groundless

criteria on various types of knowledge and the realities of human life (Tibbetts, 1982).

The second distinction that is neccessary to be made is the distinction between rejecting radical scientism from accepting the existence of God or the reality of religious faith. Not everyone who rejects scientism is religious or believes in the existence of God, and not everyone who accepts scientism is atheist or hostile to religion. In addition, of course not all atheists are hostile to religion, and not all religious people are hostile to atheism or atheists. In fact, many opponents of scientism are not theists. For example, the atheist philosopher, Thomas Nagel. Nagel argues that the popular fanboy of scientism, Sam Harris, conflates all empirical knowledge with scientific knowledge, as if "scientific criteria" can determine what can or cannot be accepted as human empirical experience (Nagel, 2010). The Marxist literary critic Terry Eagleton argues that another proponent of scientism, Christopher Hitchens had an "outdated scientific notion of what counts as evidence" which reduced knowledge to what could and could not be proven by scientific procedures (Eagleton, 2009). The agnostic philosopher, Anthony Kenny criticized Alex Rosenberg's book *The Atheist's Guide to Reality* for reusing outdated and contradictory logical positivism epistemology by assuming all knowledge about reality can be reduced to physics (Kenny, 2012). Atheist philosopher, Susan Haack argued how scientism is precisely the opposite of the values upheld by the best scientists of any faith (Haack, 2012).

As observed by Esther Chan (2018) in a study on the religiosity and orientation of religious adherents towards science in various contexts, it seems that a negative correlation between religiosity and belief in the authority of science is only found consistently in societies in Western countries. Although it is often suggested that there is a positive correlation between anti-science attitudes and religiosity, this tendency is more characteristic in Western countries than in non-Western countries. Thus it is necessary to examine the special conditions in the history of modern Western society which

produced a negative correlation between religiosity and belief in the authority of science and the methods used.

2. The History of The Conflict Narrative

The author does not wish to provide an exhaustive description of the historical narrative of the conflict between scientism and anti-science. In the following section, only two representative events will be briefly discussed to explain the emergence of this conflict narrative. The first event was the trial of Galileo Galilei (1633) and the second was what is often referred to as the "monkey trial" in the State of Tennessee, USA (1925).

Of course scientism does not start with Galileo Galilei, but scientism will be understood more clearly by reviewing the "Galileo case" (Markos, 2019). What really happened during the trial at the headquarters of the Inquisition in Rome on June 22, 1633? The Roman Catholic Church seems to be using all its might to oppose this famous scientist. Under threat of torture, imprisonment and even burning at the stake, old Galileo was forced, on his knees, to "reject, condemn and hate" his own scientific theory, the results of his own brilliant and dedicated work. The Galileo trial is often cited as evidence of the church's narrow-mindedness towards science. Events that seem to show a strong clash between these two methods of seeking and testing the truth (namely the "scientific" method and faith) are often used as "evidence" for adherents of scientism to get rid of and discredit the role of faith and religious institutions in science. Through the repeated telling and re-telling of the trial of Galileo, religious institutions and religious people are often portrayed as power mongers and insecure by the emergence of modern science which exposed all the fragility and hollowness of the "truth" that has been proclaimed by the church for thousands of years. This is a conflict narrative built by adherents of scientism (Finocchiaro, 2001).

The second moment which solidifies adherents of scientism in a narrative of conflict with "Christianity" or "Religion in general," is

the "monkey trial" that took place in the USA in 1925 between a science teacher named John Scopes against the State of Tennessee over the violation of the Butler Act which banned the teaching of Darwin's Theory of Evolution in schools. The Scopes trial became one of the most spectacular public sensations of the 20th century. About 1.000 people and more than 100 newspapers throng the courtroom every day. The trial, which gathered major news agencies both nationally and internationally, was the first to be broadcasted live on radio. An editorial in The New York Times pointed out that the case, "provided scientists with a better opportunity than they have ever had to deliver their lectures to millions of people" (De Camp, 1968).

As was the case with the Galileo case, the monkey trial also shows how both bearers of this conflict narrative as "innocent victims." "Christian fundamentalists" see themselves as victims of "secularization" or "decadence of society" that have "faded their Christian faith" while on the other hand those who see themselves as "modern", "open-minded" and "advanced" see the power of religion as part of the "ignorance and arrogance of the past" who ridiculously believe that they need to "save the world". For the proponent of "academic freedom" the monkey trials have demonstrated the stupidity and irrationality of the fundamentalists who hold a literal and dogmatic reading of the Bible. They became a laughing stock throughout the United States. This event produces at least two implications: *First*, discrediting of Christianity as the credible source of truth; *Second*, there has been a solidification of Christians with literalist views from various groups who used to be enemies with each other, such as for example adherents of fundamentalism and Evangelicals, between Catholic fundamentalists and Protestants (Smith, 2010).

Thus these two trials, or more precisely the two versions of the narrative that the two conflicting parties kept repeating to explain what "really happened" in the two trials gradually gave birth to conflict narratives that increasingly drain energy and hinder useful dialogue between "religious" and "scientific" circles, especially in

the context of Western society. This conflict narrative needs to be replaced with another narrative that is more dialog-friendly.

3. Relativization and Localization of Conflict Narratives

As Gregory Dawes said, before discussing the relationship between Science and Religion, it is necessary to explain in advance which science and which religion are being discussed, and also what aspects are to be compared (Dawes, 2021). It would be unwise to narrow down the definition of Science as a mere epistemology which developed in the Aufklärung. Within this narrow definition there is an *"isolationism"* or *"provincialism"* which occurs between what is commonly referred to as "science" in the Modern West and what they call "religion". In a less polarizing view, as proposed by Dawes, both "science" and "religion" each try to present a kind of "meaningful explanation" of the reality of this world (Dawes, 2018). Religion and science need not be in conflict.

Following relativizing and localizing the conflict narrative, now the author will enter into a discussion of the grand narrative of the relationship between "religion" or "faith" and "science" by focusing attention on three factors in the dynamics of the relationship between religion and science in a society, namely: 1) the view of "faith and reason" (*fides et ratio*) that underlies the relationship between religion and science, 2) the attitude of the religious authority towards critical efforts, and 3) the attitude towards investigation of nature as such.

4. Scientific Activities as An Expression of Religious Beliefs

In this section the author attempts to construct the foundations for understanding scientific activity as part of the expression of religious beliefs. It will be done from the religious perspective of the author himself, in relation to the three factors previously mentioned.

In the conflict narrative described above, there are indications that those who have an anti-science attitude often hold the view that reason is contrary to faith, or at least separate from the life of faith

(Gauchat, 2008). Such a view is not the sole conclusion that can be drawn from within religious sources. For instance, in Christianity, both the Old and New Testaments of the Bible, as well as in later theological sources, there are efforts to provide "reason to believe" about the truth of certain dogma such as belief in the creation of the universe and human beings, the origin of evil and suffering, as well as the hope for a "solution" or "future" that is found in God's various "works" or "providence" in various historical events experienced by the people. Christian theologians such as Augustine of Hippo, Anselm of Canterbury, and Thomas Aquinas did not understand faith as contrary to reason and critical thinking. For instance, Anselm in *Proslogion* (Anselm, 1077) shows how a healthy faith always seeks understanding of what is believed (*Fides quaerens intellectum*). This healthy attitude of faith, in the Augustinian tradition is actually contrary to credulity or gullibility. Credulity is not an indication of strong faith. The author proposes "methodical skepticism" (in the sense of postponing decisions for a more thorough examination) of important beliefs as a healthier attitude and more in line with this theological tradition (cf. Williams, 2010).

The God of Abrahamic religious traditions, is often described as someone who has authority but "gives room to human opinion". His decisions can be "questioned" or even "contested" by figures like Abraham, Moses, David, and later prophets. For example, when YHWH in the later stages of the kingdom of Israel wanted to rebuke their sins, He invited His people for a "lawsuit" (Isaiah 43: 26). God is often portrayed as being "open to discussion" (e.g. in a conversation with Abraham regarding the city of Sodom and His plan to destroy that city [Genesis 18:16-33]). In the New Testament an open attitude to criticism and a willingness to be accountable to those who question religious beliefs is reflected in the introductory words of the author of the Gospel of Luke to Theophilus, "With this in mind, since I myself have carefully investigated everything from the beginning, I too decided to write an orderly account for you, most excellent Theophilus, so that you may know the certainty of the things you have been taught." (Luke 1:1-4, NIV). In this quote, it

can be seen that Luke was accountable to the reader and he valued "thinking for yourself" *(sapere aude).* He wrote the Gospel of Luke so that the reader can weigh for himself the evidence and arguments presented by the author to decide whether "what he was taught" (religious dogma) was "true". The figure of Jesus described by the gospels in the New Testament is also portrayed as inviting his disciples to have a free and authentic opinion about who he really is (e.g. Matthew 16:15, Mark 8:29, and Luke 9:20). High standards for accountability can also be seen in the Epistle of 1 Peter, specifically chapter 3:15, "... Always be prepared to give an answer to everyone who asks you to give the *reason for the hope* that you have. But do this with gentleness and respect." Being accountable for what is held as truth is in accordance with what William Clifford calls "ethical beliefs"- although the author disagree with what he proposes as a *necessary condition* for such ethical beliefs (cf. Clifford, 1877; James, 1879; Plantinga, 1981; Van Inwagen, 1996).

Christian scriptures do not state explicitly what are the necessary conditions of scientific inquiries. Instead, they conveyed the Christian view of what is the universe, human beings, and how to understand history. This can be an important starting point for answering our research question. There is a general consensus among Christian thinkers to view the three as "God's creation" (Clouser, 2010). Understanding the universe, human beings, and history as a "God's workmanship" (*karya ilahi*) begets some implications, one of which is to see it as an "eccentric structure" that cannot be understood only from within itself. A work of art or writing, for example, must be understood in *terms* of things outside itself, such as the social context in which the painting or writing appears. The intentions of the painter or writer may also have a role in shaping the meaning of the work. Likewise, the cosmos, humans, and human activity which are seen as "divine works" demand to be understood in terms of origins that are not themselves (Dooyeweerd, 1976). Thus, in this view scientific research subjects can be investigated in order to gain a deeper and richer understanding of the intentions of the One who created them.

In the author's opinion, the new paradigm provides wider space for scientific activity as part of faith expression, namely as a human action to "research" or "listen" to nature which is understood as "divine work"—diligently and carefully to understand His good intentions and His majesty. In this way, believers in God, on the one hand, can accept the challenge of adherents of scientism to a rigorous investigation of nature and seriously consider the results of scientific investigations even at the risk of relativizing religious dogmas - and on the other hand, avoiding the narrow dogma of scientism which is basically based on a baseless world view of positivism and materialism (cf. Rosenberg, et. al., 2017; Dennett, 2007).

There are no significant objections from the sources of the Christian faith to admit that what has been held as true about a natural phenomenon by Medieval men (e.g. cosmology of Geocentrism) is actually wrong. Or using Aristotelian terminology, there is no problem, in fact, there should be a gratitude, when through interaction with scientific investigations a believer realizes that what he has so far held dearly as "knowledge" (ἐπιστήμη) is actually a mere "opinion" (δόξα).

As Dennett (2017) warns, "scientism" is often used as a "wildcard" thrown to an opponent in order to avoid unfavorable results from a scientific research. In this case, believers need to be aware of the human tendency to be influenced by what Daniel Kahneman calls "confirmation bias" (Kahneman, et. al., 2011). Therefore, those who are anti-science need to consider Karl Popper's suggestion (1963) to at least listen to various falsifications, and not just collect a verification of the truth which he considers to be absolute, especially if what is considered true is within the realm of natural inquiry.

As Halvorson (2016) observed, scientific investigations that focus on "intra-natural" factors, in fact, did not motivated by atheism or ontological naturalism, but stem from the intention of believers to express religious beliefs about nature as a creation of God. Thus "methodological naturalism" is inseparable from

religious motives, especially of the Abrahamic religions (cf. Plantinga, 2011).

Those who believe in God think that a Creator existed before all things. Classical theists believe that God exists "outside time-space" (Williams, 2013). God creates the cosmos as a free act, arranged everything in ways that He freely chose, and He Himself is neither subject to nor bound to "natural laws". Therefore, they necessarily believe that knowledge about creation can and must be obtained through empirical observation of how nature works. From this axiom, it is presumed that knowledge about nature cannot be deductively derived from divine characteristics which are known through revelation because even though God's work is certainly influenced to some extent and comes out of His unique characteristics, He created the cosmos freely. Analogically, an artist or an author surely creates a work that reflects their unique personalities—but one cannot deduce the meaning of their work by looking at or knowing the author. To accomplish that, one needs to read their poem, look at their painting, or listen to their music - closely and diligently. If you want to appreciate *As You Like It* you have to read that book, and not just get acquainted personally or read anecdotes about Shakespeare. Knowing Shakespeare personally may help to understand his work, but to understand his drama, one needs to read the drama itself. Analogously, to understand God's work it needs more than studying religious scriptures or "knowing God personally"—one needs to study nature as such.

Thus, scientific investigation not only does not conflict with faith life —more positively, it is even a religious invitation to be fulfilled. In *Confessio Belgica* (1976), Guido de Bres (1559) says that there are two ways given by God to know Himself. The first path, according to de Bres, is by studying how God created, sustains, and governs His creation—that is, by examining the universe as one reads a book. In a literary analogy, this is akin to the effect reading of Shakespeare's works had on close friends. The reading of these works will produce the kind of knowledge that enriches the

knowledge that Shakespeare's friends already have through personal encounters. That is why Pope John Paul II, recognizes Galileo's contribution in adding knowledge of truth that is *complementary* to the knowledge produced by theologians. In an event commemorating the 350th anniversary of Galileo at the University of Padua, the Pope stated, "Galileo has endeavored to make a contribution to a better knowledge of the truth—a common vocation of both scientists and theologians" (Artigas, 2014). Thus the Papacy ultimately acknowledged that Galileo had "contributed to the knowledge of the truth" (including "truth about God") and that producing knowledge of the truth was and is a common vocation of scientists and theologians. The Pope also acknowledged the injustice that the church had done to Galileo, and in that regard, the church apologized. I think this is a clear indication that there are alternatives to conflict narratives between science and faith.

CONCLUSION

To answer the question, "How can believers carry out scientific activities or appreciate the results of scientific research as an expression of faith itself?" The author has shown that, at least in the Christian tradition—but it is not impossible that there are also in the traditions of other religions—there are sources that support the accountability of reason for what is believed to be truth. Thus, faith is not always understood as contrary to reason and human critical faculties. This brings at least the potential for religious authorities to provide space for dialogue on critical questions that arise as implications from the results of scientific investigations that are independent of the tradition.

Within the Christian tradition itself, there are narratives regarding the origins of the belief regarding the identity of Jesus of Nazareth as the "Messiah" or "Christ" which was founded on the basis of Peter's confession which did not merely follow the traditional teachings of the mainstream of Judaism or alternative opinions which existed before, but based on his personal considerations and decisions. In addition, in the Christian tradition

in particular, and in the traditions of Abrahamic religions in general, there is also an understanding of the universe as a "creation." This opens the widest possible space for understanding the investigation of nature as "human responsibility" because the Creator does not provide direct answers to questions that originate from human curiosity when dealing with nature and his or her own existence. To understand nature, humans must observe nature as such, investigate it, make hypotheses, test these hypotheses, and discuss them with other human beings from all walks of life to get better answers. This activity, which is commonly referred to as scientific investigation, is valued by the Christian religious tradition as an inherent part, although neither necessary nor obligatory, in the life of every believer. Scientific inquiries, according to the author's reading of several Christian religious sources, can be understood as one of the most essential expressions in religious practice, namely as "gratitude," "worship," and "praise" to Him who created, sustains, breathes, and rules over all that exists.

From this perspective, the author believes that a believer does not need to set aside his faith in carrying out scientific investigations, even though there are many scientific research results that question critically, even radically, what he believes, because there is a call of faith to use reason, listen to criticism, no matter how sharp it is, in order to understand the criticism better. And together with everyone else, observe the universe and history to get a better "knowledge of the truth" because in the teachings of the faith itself there are no detailed answers to scientific questions even though there is wide open space to do it as part of faith.

The polarization between scientism and anti-science, although not unique to Western society, has very contextual and local causes in the history and narratives of conflicts between European church authorities in the Middle Ages and the investigations that developed among researchers and thinkers who try to carry out scientific investigations more independently. Realizing the locality and relativity of this conflict narrative is very useful for realizing alternatives to carry out scientific activities, on the one hand as

critical as possible as a thinking being, and on the other hand as faithful as possible as a believer in God.

In this paper, the author has attempted to explain how this narrative of conflict can be replaced with a narrative that is more open to dialogue with those who are both carrying out scientific activities and both seriously consider what results from modern scientific research methods and activities. This narrative can be used as a better paradigm for the lives of believers in modern society.

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