
SCIENCE AND RELIGION IN MODERN CULTURE INTERACTIONS AND INTERDEPENDENCIES

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Abstract

Historical aspects of cultural development have close ties with religion. Meanwhile, Science is also an integral part of modern-day culture. Culture without religion loses its deeper meaning. The mind - the tool required for any scientific activity - loses its ability to function properly, to choose a rational goal. It becomes incapable of setting rational goals and learning the truth in the ontological sense if it loses relationship with God as the basis of being. Because of that, the main functions of the mind to determine the goal of cognition and transform reality cease to be rational and begin to follow traditions, obey the world's powers, or even become arbitrary. This may result in a threat to human existence and life in general. Science and religion must interact with each other. This is all the more important because sometimes, modern technologies interfere with morals and ethics that are also based on religion and spirituality. This paper aims to highlight the issues of interface between Science, culture and religion and to find possible compromises in the event of controversial issues between them.

Keywords: science, culture, religion, mutual, influence

1. Introduction - opportunities for interface between Science and religion

Social studies demonstrate that religious faith is common among scientists of different countries, regardless of their fields of study [1]. It turns out that among people of Science, religion and engagement in Church activities are less common than in other population groups [1]. This does not mean that high intellect, scientific achievement and academic activities are incompatible with religious belief. Religiousness in various scientific institutions always exceeds 7-10% though the proportion of religious scientists varies depending on factors

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like sex, age, background and country of residence. It should be noted that Science is part of human culture and the basis of human culture is religion. People cannot engage in creative activities, including Science, without awareness of the meaning of life, which determines our existence and stems from God. Thus, religion is a state of ultimate interest, giving us experience of the sacred, which determines our being or non-being [2]. Or, in other words, religion is a uniform system of beliefs and practices associated with sacred things, the ones that are separate and forbidden. These beliefs and practices unite all their adherents into one sacred community called the Church [3].

Science is an activity aimed at describing and explaining the Universe's structures and relationships in such a way that they can be verified by experiment and reflected in calculations. Thus, any scientific truth is preliminary and may be subject to correction as knowledge about the world is accumulated. The element of uncertainty does not reduce the value of scientific knowledge verified by experiment, but prevents its absolutisation. At the same time, people will always be tempted to give ultimate meaning to temporary and finite things, i.e. to make quasi-religions [2]. The realms of Science and religion have no direct contact points. Yet, scientific technologies can interfere with morals and ethics rooted in religion, thus provoking a pushback from religious communities. On the other hand, faith can hinder scientific developments that contradict religious views.

This paper aims to highlight the issues of interface between Science, culture and religion and find possible compromises in the event of disputes between them.

2. Specifics of religiousness among scientific communities

Recent social studies show that the level of religious commitment among scientists may differ depending on cultural traditions, sex and scientific environment. Religious observance itself, however, is not homogenous. For example, the number of scientists identifying themselves as spiritual persons is generally larger compared to those identifying themselves as religious ones [1]. It has also been proven that female scientists tend to be more religious than their male counterparts [1].

Religiousness is largely due to the scientist's ethnic characteristics. In India, the number of scholars identifying themselves with any religious tradition reaches 94%, compared to only 30% in France [1]. Religious affiliation does not always imply having a faith established in beliefs and religious practices. It only indicates belonging to a particular culture.

Culture's impact on religiousness is demonstrated by the fact that only about 10% of US and 9% of UK scientists claim to have no doubt that God exists, compared to 26% and 61% in India and Turkey, respectively [1]. Scientific activities generally have a negative influence on religious affiliation, with the percentage of religious scientists being lower than in other social groups

in most countries (Italy, the USA, the UK, France, Turkey, India) [1]. In some countries, however, the proportion of religious scholars is higher than the average in the population (Hong Kong, Taiwan). Over 80% of scientists do not think their profession made them less religious, and over 50% consider religion and Science to be separate and independent areas of knowledge [1]. Some studies indicate a negative correlation between scientific activities and religious belief [J. Liu, *Scientists and Belief. Religion and science in the United States*, Pew Research Center, 5.11.2009, <https://www.pewresearch.org/religion/2009/11/05/scientists-and-belief/#:~:text=According%20to%20the%20poll%2C%20just%20universal%20spirit%20or%20higher%20power>]. Among the general US public, 83% of respondents believe in God, and 12% believe in a universal spirit or higher power, while this percentage among scientists is 33% and 18%, respectively [J. Liu, *Scientists and Belief. Religion and science in the United States*]. Scientists' religious faith is partially associated with age and specialty. 32% of scientists aged 18-34 do not believe in God, a universal spirit, or higher power, compared to 48% of scientists aged above 65; thus, religiousness is generally lower among aged scientists [J. Liu, *Scientists and Belief. Religion and science in the United States*]. The lowest percentage of people holding religious views was among physicists and astronomers (29%), and the highest - among chemists (41%) [J. Liu, *Scientists and Belief. Religion and science in the United States*]. Another major study has proved that religious faith largely depends on the scientific area: 6.1% of healthcare professors identified themselves as atheists or agnostics, compared to 29.3% of humanitarian professors, 32.6% of STEM professors, 39.4% of social science professors, 42.4% of physicists, 60.8% of biologists and 60.9% of psychologists [4].

Religious belief is slightly affected by sex, as 44% of male and only 36% of female scientists responded not having faith in God, higher power, or the universal spirit. At the same time, 33% of both male and female scientists claimed they certainly believed in God [J. Liu, *Scientists and Belief. Religion and science in the United States*].

Research shows that atheism and agnosticism are common among scientists, especially those who work in elite institutions. A survey has demonstrated that most members of the US National Academy of Sciences do not believe in God's existence (72.2%), 20.8% are agnostics, and only 7% are theists [5]. Later studies demonstrated similar results, with an opinion on faith varying in scientific environments [4, 6]. The religious scientists percentage is lower in elite institutions of higher education than, for instance, in colleges. In general, most respondents have no objection to the idea of God's existence, with 34.9% believing in God, 16.6% believing in God while having certain doubt, 4.3% believing in God for a short time, and 19.2% believing in some kind of higher power [4]. There are several explanations for the fact that religious affiliation is less spread among scientists than in the general population. For instance, academic circles tend to be somewhat biased against religious scientists. For example, 39.1% of employers said Evangelist Christian

candidates would have fewer chances to get a position; the same bias applies to other religions [7]. Another explanation is that religious people may be somewhat prejudiced against scientific activities [8]. As a result, theists have less trust in scientific activities, become unable to accept scientific endeavours, and lose interest in Science. Others believe the decisive factor is the difference in how religious people and people of science think, with the former more prone to intuitive thinking and the latter - to analytical. Analytical thinking negatively correlates with religious faith, while teleological ideas and belief in God are explicitly interconnected [9]. Nevertheless, this argument is more applicable to believers espousing literalist views. Many theologians of the past had profound analytical thinking skills, and their works are a monument to human thought. There is no imperative interdependence between analytical abilities and atheism; some studies even suggest that the development of intellectual abilities can make faith in God stronger [10, 11]. Faith strengthening associated with knowledge accumulation, development of intellectual skills is typical for respondents who do not take the Bible literally. This makes them capable of revising religious principles they learned in childhood and in the process of conversion [12], such as the creation of man from the dust of the ground (Genesis 2.7). Thus, it would be incorrect to assume that intuitive religious thinking contradicts analytical scientific thinking; they rather complement each other [13].

3. Science and scientific creativity as culture

The Latin word *cultura*, meaning ‘cultivation’, ‘care’, ‘education’, ‘development’, derives from *cultus* - ‘veneration’, ‘worship’, ‘cult’. That demonstrates religious roots of culture. Having created the first man, God placed him in the Garden of Eden and ordered him to cultivate and preserve His creations (Genesis 2.15). Fathers and Teachers of the Church emphasised the divine origin of culture. Clement of Alexandria believed culture to be a fruit of human creativity under the guidance of the Logos: “Scripture gives every secular science or art, invented by the human intellect, the common name of wisdom, for art and knowledge are from God” [*The Basis of the Social Concept of the Russian Orthodox Church*, June 9, 2008, <http://www.patriarchia.ru/db/text/419128.html>]. Gregory the Theologian wrote: “Just as in subtle musical harmony every string produces a different sound, one high, another low, the Artist and Creator-Word, appointed different inventors of various occupations and arts, and gave everything to all those who wish, in order to tie us by the bonds of fellowship and love of man, and make our life more civilised” [<http://www.patriarchia.ru/db/text/419128.html>]. By the Russian Orthodox Church definition, scientific activity is a special case of culture.

Currently, there is no single definition of the notion of culture. Culture is unique to every society and is inherited by it [14]. The broadest definition of culture is lifestyle comprising certain cultural concepts (beliefs, values, styles, thinking), cultural behaviour (languages, habits, gestures, diets), and cultural

products (literature, art, professions) [15]. Science and scientific creativity are also considered cultural products. The notion of scientific culture was introduced in 1959 and was understood as the presence of common values and behaviour standards shared by scientists [16]. C.P. Snow believed that culture is what makes people act in the same way without thinking, and this is its significance.

Scientific culture is impossible without spiritual guidelines or values, such as seeking truth, non-commitment, honesty and rationality in obtaining research results, mutual respect and cooperation. Scientific culture demands an ethics-defined behaviour, as modern-day scientists are dealing with high uncertainty, and their activities can sometimes contradict the values established in society and religion. For example, gene editing, organ and tissue transplantations, AI technologies, and IVF can have different connotations in different social groups and religious environments [3, p. 21; 17]. The answer to challenges put forward by scientific and technical achievements can be found in morals and religion that like culture are products of spiritual life [18]. Science cannot be separated from culture and morals, as they are inherent in any society. However, the relationship between religion and Science is less evident, since many scientists think their specialty is secular by default; some even believe that Science helps drive secularisation [19]. A deeper analysis of this matter shows that this is not the case: Science is not the moving force of secularisation and can interact with religion [20; *Towards a Pastoral Approach to culture*, Pontifical Council for Culture, https://www.vatican.va/roman_curia/pontifical_councils/cultr/documents/rc_pc_pc-cultr_doc_03061999_pastoral_en.html]. From the viewpoint of religious people, if Science strives for the absolute and replaces the divine, it turns into a demonic power that can cause many troubles alienating people from God, the source of life and meaning [20, vol. 2, p. 389-394]. When the mind, as an essential tool of any scientific activity, loses its relationship with God as the basis of being, it loses its profoundness; without profoundness it becomes unable to set rational goals and explore the truth in its ontological understanding. Because of that, the main mental functions (determining the goals of knowledge and transforming reality) stop being rational and become determined by traditions, authoritative figures, or even arbitrary, thus creating results that could threaten human existence and life in general [20, vol. 1, p. 88-100]. To overcome this alienation, the mind and scientific activity need transcendence [21, 22].

4. Some aspects of transcending science

Defining the meaning and opportunities of scientific knowledge goes beyond the boundaries of Science [23]. People are constrained by time and space limits, so integral and exhaustive knowledge of the world becomes unavailable to them. The human mind can only think in terms of causality and is unable to comprehend eternity, the root cause, absolute space and universal substance [18, vol. 1, p. 100-115]. The phenomenon of consciousness involves striving for

knowledge, which people do not initially have. And in many cases, when we accumulate knowledge, we realise we know almost nothing or nothing at all. Moreover, growth of knowledge is accompanied by growth of ignorance, which is facilitated by lack of confidence in the knowledge we have already gained. Sometimes, searching for the best scientific explanation demonstrates that the obtained knowledge is fragmented and imperfect, i.e. it misses the qualities of perfect truth. Uncertainty over the obtained experience can be caused by cognitive distortion or incorrect methods applied to solve a scientific task. At the same time, the limited nature of the subject itself determines a limited resource for obtaining scientific knowledge [24]. So, questions about the meaning of Science and the search for the utmost truth are related to Theology and religion, as the ultimate meaning is rooted in God as the foundation of being [25].

When claiming its ability to find absolute truth and rejecting other aspects of human knowledge, Science can turn into a dogma, stop developing and obtain demonic traits. Scientists must remember that the ultimate truth is always transcendent: realisation of perfect knowledge shapes the horizon that moves away every time we try to reach it [24]. This statement seems correct, since perfection belongs neither to the world nor to man if they are alienated from God. Perfection is the divine attribute, and knowledge about it can be obtained only thanks to God when the spiritual realm of a person comes into contact with the divine spirit [26, 27].

Nowadays, there are several concepts of the relationship between Science and religion. They can be described in the following way: Science and religion contradict each other and thus irreconcilable; Science and religion are indifferent to each other, as they do not share the same areas of application; religion is primary to Science, as the latter is an element and substance of culture. There can be another type of relationship between religion and Science: they are generally independent of each other but may have certain shared areas of interest. The model of conflicting relations currently holds the minority position, as the conflict involves scientific materialists and proponents of biblical literalism [28]. Religion and Science have different tasks that do not overlap [29]. The interaction concept implies that religion and Science have a shared basis, enabling them to use shared methods, concepts and prerequisites. Close to this model is the idea that religion is the basis or substance of culture and Science. Without religion in a scientist's cultural realm Science itself can become a religion taking on the role of the ultimate interest, thus replacing God and obtaining demonic traits [2]. The danger posed by this quasi-religion is that Science will lose its genuine meaning, its ultimate goal and humanity.

Products of such kind of science can inflict significant damage to the world and the people and have a devastating effect on human personality, deforming morality and the culture. From this standpoint, Science conflicts with religion taking on the role it does not fit [2].

5. Science, culture, state, society and religion - prospects for interface

Eastern Orthodox Christians find the dissociation between state laws and Church views on certain procedures quite painful. Christians adhere to their religious beliefs, yet it is impossible to demand government bans on technologies that oppose Christian ethics. After all, the principles of democracy require respect for various worldviews. This is especially relevant to ethnically and religiously diverse communities. The state must take into account all aspects of the social environment and provide rational solutions to existing issues. Yet, it is desirable that the authorities realise that earthly well-being is unthinkable without respect for certain moral norms, the ones which are also essential for eternal salvation of man. That is why the objectives and activities of the Church and the state could coincide in terms of both achieving earthly results and enabling spiritual salvation [<http://www.patriarchia.ru/db/text/419128.html>]. Meanwhile, scientists should be able to anticipate theologians' opposition against some methods that contradict religious views. In some cases, disapproval of scientific developments by religious institutions can hinder public recognition of Science and scientific education; that is especially important because social norms stem from religion. If the scientific community shows respect for the moral wisdom of religious traditions, that will help use scientific knowledge with care and prevent any harm to people, animals and the environment. At the same time, religious leaders must be open to scientific knowledge and offer guidance on its use in accordance with moral and ethical values. Every Christian hopes that someday God will let them join eternal life, where there will be no government, culture, or other human endeavours separated from Him. The state is a part of the earthly world. It does not belong in the Kingdom of Heaven, where Christ is everywhere and in everyone (Colossians 3.11), where there is no coercion or conflict between the human and the divine [<http://www.patriarchia.ru/db/text/419128.html>]. Culture is the infinite manifestation of the divine through people carrying the Holy Spirit [18]. Science as a part of the finite earthly culture transforms into graceful and perfect knowledge of God, unbound by earthly constraints.

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