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THE RELATIONSHIP BETWEEN SCIENCE AND RELIGION IN THE COPERNICUS CENTRE IN KRAKOW (MICHAEL HELLER, JÓZEF ŻYCIŃSKI AND OTHERS)

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Abstract

In the present paper I present the problem of relationship between Science and religion elaborated in the Copernicus Centre for Interdisciplinary Studies in Krakow. This institution plays a special role in the shaping of the model of dialogue between faith and reason in Poland. I particularly analyse the concepts of Reverend Professor Michael Heller and Archbishop Professor Józef Życiński concerning the Theology of Science as well as the relation between evolutionism and theism.

Keywords: naturalism, theism, evolutionism, theology, science

1. Introduction

In comparison with the other countries of the Communist Bloc, the religious situation in Poland after World War II was relatively good. Despite the numerous limitations of religious freedom and atheistic propaganda (according to which the achievements of Science contradict religion), many people (also amongst the intellectuals) kept their faith. The comparatively high level of religious education on the one hand and the great heritage of the philosophical investigations rooted in the tradition of original Polish Lvov-Warsaw school of scientific philosophy (Kazimierz Twardowski, Kazimierz Ajdukiewicz, Tadeusz Kotarbiński, Stanisław Leśniewski, Jan Łukasiewicz and Alfred Tarski [1]), the Krakow Circle (especially the thought of Jan Salamucha, Jan Drewnowski and Józef Bocheński) and Krakow philosophy of nature (Władysław Heinrich, Tadeusz Grabowski, Joachim Metellmann, Leon Chwistek, Bolesław Gawecki) on the other hand created favourable conditions for the development of interdisciplinary studies. The tradition initiated by the above mentioned scholars has been continued until now.

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At the turn of the 1970s and 1980s Father Michael Heller and Father Józef Życiński established the Centre of Interdisciplinary Studies (OBI, or Ośrodek Badań Interdyscyplinarnych [2]). At the heart of the Centre lies the monthly interdisciplinary conservatoriums which were held at the Archbishop's palace in Krakow (sometimes with the participation of Archbishop Karol Wojtyła) which gathered together numerous famous physicists, mathematicians, biologists, chemists, philosophers, theologians and enjoyed much popularity among intellectuals [3]. The reason for this success was quite simple. As Professor M. Heller explains, "during Martial Law and the banning of 'Solidarity' many people searched for some 'solid ground under their feet' and found it to be in Science and Philosophy" [4].

The political and social changes in Poland after the fall of Communism generated considerable interest in the above mentioned topics. "When the social transformation, inspired by the rise of 'Solidarity,' facilitated international contacts, many prominent scholars from the West were invited to take part in the Cracow interdisciplinary seminars. Among those who at that time visited Copernicus' city to discuss the philosophical and theological importance of modern science were Arthur Peacocke (Oxford), John Polkinghorne (Cambridge), Charles Misner (Maryland), Ernan McMullin (Notre Dame, Indiana), William Wallace (Washington, D.C.), Jean Ladrière (Louvain) and Carl Friedrich von Weizsäcker (Germany)." [5]

It is worth mentioning that after the election of Archbishop Karol Wojtyła as Pope in 1978 these meetings turned into the interdisciplinary Papal seminars 'Science – Religion – History' that were held in Castel Gandolfo every two years from 1980 (the last meeting took place in Krakow in 2011). The Krakow seminars and discussion had a great influence on the shape of the future papal documents dedicated to the relationship between faith and Science, in particular, the famous Letter of His Holiness Pope John Paul II to the Reverend George V. Coyne SJ, Director of the Vatican Observatory (1988) and the Message to the Pontifical Academy of Sciences: On Evolution (1996).

2. Copernicus Centre for Interdisciplinary Studies

Recent decades have brought various lines of research concerning the relationship between Science and Theology in Poland. The most prominent and influential milieu of investigations of this problem is located in the historical capital of this country and it certainly is the Copernicus Centre for Interdisciplinary Studies (CC) created on the base of the previous institution (OBI). This is a joint-venture between the Jagiellonian University and the Pontifical University of John Paul II in Krakow and was founded in 2008 by Reverend Professor Michael Heller, the winner of the prestigious Templeton Prize.

Since the creation of the Copernicus Centre for Interdisciplinary Studies a number of new aspects regarding the relationship between Science and religion have been worked out. On October 2, 2008, during the inauguration ceremony of the Copernicus Centre, the four main goals of this institution were presented:

(1) research in the area of mutual relations between Theology, Science and Philosophy in general, as well as Astronomy, Cosmology, Biology, Physics, Mathematics and Theology and History of Science;
(2) publication of periodicals and monographs;
(3) education;
(4) popularization of Science [6].

The first event organized by the Copernicus Centre was the conference entitled 'Will Science Replace Religion?' which took place over the two days after its opening.

Within the Copernicus Centre eleven research groups were established:

(1) *Copernican Group* which studies the creativity of Copernicus and the advocates of Copernicanism as well as the reception of the prominent Polish scholar teaching.
(2) *Science and Religion* closely cooperating with the 'Fides et Ratio' commission at the Polish Academy of Arts and Science in Krakow. One can distinguish four lines of research in this field: 1. methodological approaches; 2. history of the relationship between Science and religion (and technology and religion) both from Western and Eastern perspectives; 3. Intersection of Theology and various aspects of Science (especially the theory of evolution) and logical systems; 4. practising the respective philosophical topics (such as Philosophy of nature, Philosophy of Science, Philosophy of Logic, History of Philosophy, Metaphysics, etc.) through the prism of the relationship between Science and faith [7].
(3) *Philosophy of Physics and Cosmology*. This team conducts research concerning the philosophical presuppositions and implications of the various aspects of cosmological and physical theories.
(4) *Mathematical Structures of the Universe*. The main goal of this group is "to study modern mathematical structures which aim to fill in the gap in our understanding of fundamental Physics. This includes, but is not restricted to, models based on non-commutative geometry, cosmological models of the early Universe as well as the study of their experimental evidence." [6]
(5) *Philosophy and History of Physics*. In contrast to the group *Philosophy of Physics and Cosmology* the philosophical questions of Physics are regarded in the context of their evolution and development over the course of time.
(6) The next group (*History of Mathematics: People–Ideas–Philosophical Aspects*) is also of a historical character and is dedicated to the studies in the changeability of the key notions as well as differences between ancient, modern and contemporary (including Polish) Mathematics.
(7) *Neurobiology* group conducts "research connected with experimental work on the functioning of the human brain as well as the question of its interpretation and methodological connection with Neurobiology" [6].

(8) *Methodology and Philosophy of Science* deals with both classical and contemporary models of Science.
(9) *Analytical Metaphysics* team considers the metaphysical implications of some physical results.
(10) *Polish Philosophy of Nature in the First Half of the 20th Century*. The members of this group investigate the peculiarity of Polish philosophy against the backdrop of the international Philosophy of Science and Nature.
(11) *Biological Foundations of Law and Ethics* group studies the connection between Law, Ethics and Neuroscience as well as evolutionary models of language and Social sciences.

The activity of the aforementioned groups (which bring together many scholars from all over Poland and other countries) covers various spheres. A publishing house was also established: the Copernicus Centre Press has printed numerous books (in Polish and in English) and journals: the information bulletin 'Copernicus Center Reports' and topic-specific periodic 'Zagadnienia Filozoficzne w Nauce' ('Philosophical Issues in Science').

The last title expresses the particular feature of the Centre which is philosophizing in the context of Science – taking into account both the History of Science and contemporary scientific theories [8]. "The traditional problems of the interconnection of Science and Philosophy quickly gave rise to research concerning some more specific subjects, such as particular mathematical and physical theories and their philosophical implications, issues connected with the evolutionary theory and its history, particular problems of logic and methodology, and the rapidly expanding questions surrounding Neuroscience." [6, 9] Such an approach allows one to avoid different misinterpretations stemmed from ignorance of well-confirmed mathematical data and empirical evidence. Also Theology, remaining faithful to the Christian dogmas, has to respect the results of Science, otherwise, "if a theologian uses the outdate world image (openly or implicitly), his pastoral efficiency is very limited" [10] – theological discourse would be incomprehensible for the recipients of the Gospel. As Professor Heller says, "the development of Science kept creating new theological problems" [11]. It means that theologians must be to some extent familiar with the recent scientific investigation. For instance, the theory of evolution "creates a new conceptual environment for the rethinking of old theological problems; it fulfils what theologians call *locus theologicus*" [12].

In 2011-2014 the Copernicus Centre implemented the project 'The Limits of Scientific Explanation' supported by the John Templeton Foundation. The research goal of the project was to look at the limits of scientific explanation from different perspectives and in different domains (Cosmology, Cognitive science, normative sciences, Theology). In order to realize this purpose, three research groups were created on the basis of the abovementioned teams: *Physics and Cosmology*, *Mind and Normativity* and *Philosophy and Theology*. Several dozen specialists from all over the world were engaged in carrying out the grant program. Here I am not intending to present its results in detail. It is suffices to say that due to this project the bilingual, two-year MA program 'Philosophy and

Science' and the postgraduate diploma blended learning 'Science and Religion' at the Pontifical University of John Paul II in Krakow were launched. Course material has been translated into English and Russian and presently will be available for free on the Copernicus Centre websites [13]. A total of 18 international conferences were organized, with 56 local seminars and 70 open lectures delivered by many outstanding scholars from Poland and abroad. Within the scope of the grant 44 valuable books were published (including forthcoming editions) in Polish, English and Russian, 272 articles, 187 video recordings (including the series of lectures organized within the Copernicus Centre College), and this list can be continued. Since 2013, the Copernicus Centre has been working on another project entitled 'Science for Ministry in Poland'. Its main goal involves the popularisation of scientific knowledge and education in the field of the relationship between Science and religion.

3. Theology of Science according to Michael Heller

Now, let me present the original concept of the founder of the Copernicus Centre for Interdisciplinary Studies, Reverend Professor Michael Heller – a theologian, philosopher, mathematical physicist and cosmologist, the winner of the 2008 Templeton Prize. He is professor in the Faculty of Philosophy at the Pontifical University of John Paul II in Krakow and the author of nearly 40 books and more than 400 articles. Following Leibniz – his philosophical hero– Heller poses the question: "Why is there something rather than nothing?" and searches for "the root of all possible causes" [14]. In order to solve this problem, the Polish scholar regards "the mathematical nature of Nature" which corresponds to the laws of Physics and may be considered as "a counterpart of the medieval *intelligibilitasentis* – the comprehensiveness of being" [9, p. 21]. As Father George Coyne, the former director of Vatican Observatory stressed, "Heller sees the comprehensibility of the Universe as due to its mathematical structure. He challenges the notion that Physics is limited to the investigation of matter. He put the emphasis on the fact that Physics constructs mathematical models of the world and then confronts them with empirical results. (…) Furthermore, Heller senses that chance and random processes are an essential ingredient of this mathematical structure of the universe planned by God." [15] For Heller, Mathematics is not only a language which describes the world, but also the foundation of the Universe as such. Hence, the mystery of rationality (or mathematicity – the possibility of the application of Mathematics for the explanation of the Universe) of nature is a common element of Science and religion. "A rational method of the exploring of the world is efficient, because the world is penetrated by the sense." [16] The *Logos* (the nomic stricter of Cosmos, or the Mind the God) determines the comprehensibility of nature, although as such it is still beyond our capability to give a complete and final explanation of the whole Universe. The horizon of transcendence saturates both scientific data and the truths of Christian faith.

For this reason, Science harmonizes with faith. However, these areas retain their peculiarity. Heller believes that, while they "are not mutually dependent and can be practised independently, a dialogue between them is not only a possibility but a must" [17]. At the same time, he requires that the attempt of synthesising of these domains should "not disturb autonomy of the parties, i.e. Science, Philosophy and Theology" [17]. Professor Heller warns us: "One could do Theology or Natural theology without any contact with scientific theories or models, and in fact many theologians and philosophers prefer this way of pursuing their disciplines. However, in such a case, there is danger that instead of scientific theories or models, some pseudoscientific ideas or outdated concepts will serve as a background for theological or philosophical speculations. The point is that neither Theology nor Philosophy can be studied without a 'cultural environment' of a given epoch, and a general image of the world constitutes a vital element of this environment. If the image of the world is not taken (critically) from the Science, it will certainly infiltrate theological or philosophical speculations from various, intellectually suspect sources of human imagination." [18]

Professor Heller "surmounted the antireligious dictates of the Polish authorities, opining new vistas for the faithful by positioning the traditional Christian way of viewing the Universe within a broader cosmological context and by initiating what can be justly termed by the termed 'theology of science'". [14]. Firstly the concept of the theology of Science was presented in 1992 in his book *Nowa fizyka i nowa teologia* (the English edition: *The New Physics and a New Theology* [19]). How does the program of the theology of Science look like? Theology of Science is not an additional or different subject of Theology as such, but a special manner of theologising. Heller explicates that "the task of theology of Science is the same as that of Theology in general, with the proviso that it is directed to the specific subject of interest of this theological discipline; that is, to the critical reflection on those Revelation data that allow us to look at Science as a specifically human value" [10, p. 32]. More precisely, "as a theological reflection upon the sciences, theology of Science would investigate the consequences of the fact that the empirical sciences investigate the Universe, which has been created by God" [10, p. 30]. This allows theology of Science to see some aspects of the world in large perspective determined by both dogmas of creation *ex nihilo* and different philosophical presuppositions concerning the scientific methods and their limits. Another task for theology of Science is "to contemplate the sciences in the light of values" [10, p. 31] which impregnate the Universe and manifest the realisation of the Goodness and the Rationality (with capital 'R') in the empirical world. According to Heller, "rationality and religion are more deeply interconnected than one would be ready to admit at first glance. Rationality is a value, and embracing this value could be thought of as a religious act." [20]

It is common knowledge that the scientific method cannot refer to Theology in the context of justification, although it is possible in the context of discovery. On the other hand, Theology as such should (or even must) interpret

the scientific data. Theology of Science arises as a result of the mutual intersection of these spheres which, nevertheless, remains their specific character. "Science gives us an understanding of the Universe as a whole and its variety of processes and structures, which contributes to a better understanding of ourselves and of our role in the Creation, therefore "Theology (…) must enter into an exchange with Science as it once had with Philosophy and other forms of knowledge. Indeed, theology's mission for humanity depends, in a profound way, on its ability to incorporate scientific findings, especially as far as they concern the concept of human person and the intelligibility of nature and history. Theologians might ask themselves whether they have accomplished this difficult task with respect to Science as well as their medieval predecessors did with respect to Philosophy. Could contemporary Cosmology offer something to illuminate our reflections on creation? Is an evolutionary perspective able to shed any light on theological anthropology, the meaning of the human person, the problem of Christology, or even on the development of doctrine itself? To pursue these questions fruitfully some theologians should be trained in the sciences, in order to prevent theologians from making uncritical and overhasty use for apologetic purposes of such recent theories as that of 'Big Bang'." [21]

Despite the difference between scientific and theological methods, both spheres lead to the cognition of the Truth. Heller maintains that the theology of Science allows one to enhance a scientific point of view with those theses which are evident only due to using theological methods. Indeed, "the universe of Science is only a part of the universe of Theology. This is true not only in the sense that the universe of Science contains only that which is defined as the 'material world', while the universe of Theology goes beyond the domain of the material, but also in the sense that Theology can pronounce statements about the 'material world' which go beyond the empirical method, that is, which do not pertain to the universe of Science. Thus, the material world in the theological perspective is, in a sense, richer than the material world as seen in the perspective of the Natural sciences." [22] Hence, the program of theology of Science brings about the new interpretations of the articles of faith in the light of scientific theories (i.e. theory of evolution).

The concept of a relationship between Science and religion of M. Heller is shared by many members of the Copernicus Centre and other scholars in Poland. Another great example of the harmonisation of Science and faith was the creativity of co-founder of the Centre for Interdisciplinary Studies (OBI), Archbishop Józef Życiński (1948-2011).

4. The concept of Józef Życiński

The activity of Professor Józef Życiński, the brilliant Polish philosopher, theologian and writer, had not only an academic, but also a considerable pastoral dimension. He was "respected by both John Paul II and by Pope Benedict, who as cardinal once commented to Pope John Paul, 'Bishop Życiński is really somebody'" [22]. As Bishop of Tarnów and subsequently Archbishop of Lublin

he favoured spreading the idea of a dialogue of 'three cultures': Science, Humanities and religion in the broad circles of Polish society. One can distinguish two of his main research areas. The first was the study of the thought of Whitehead. As Professor Heller claimed, Życiński "perceived Whitehead's philosophy to have advanced in a direction that would give a satisfactory interpretation of Science, as against the neo- positivist and materialist approaches. Życiński was seduced by the poetic aspect of Whitehead's thought, a predilection that he retained for life. (…) Życiński proposed at least two postulates vis-à-vis Whitehead's system: first, it should be clarified through a broader usage of analytical methods, and second, it should be developed without inhibitions concerning the extension of the system beyond Whitehead's own claims." [23] The other sphere of the academic activity of Życiński was philosophy and the theology of process in the context of the analysis of the connection between God and man, as well as investigation of the evolutionism and its possible implication for theism. In Życiński opinion, "The God kenotically hidden in nature engages human species in the process of evolution which, on the level of our existence, manifests itself above all in the sphere of culture. In the emerging reality of cosmic growth, our pain is not eliminated but it receives a radically different meaning. The sense of rationality can be discovered both in the immanent divine Logos and in emerging structures of the evolving Universe." [J. Życiński, *Evolutionary Theism and the Emergent Universe*, http://www.jozefzycinski.eu/index.php?option=com_content&view=article&id=196:evolutionary-theism-and-the-emergent-universe&catid=6:wystpienia-publiczne&Itemid=11]

Examining the philosophical and theological implications of the theory of evolution, Życiński also analysed the documents proclaimed by Pope John Paul II, especially in his Message to the Pontifical Academy of Sciences. Życiński himself shared the position of John Paul II, according to which there is "any possibility of reconciling with Christian thought the extreme version of sociobiology in which the entire content of culture, including the content of scientific theories, is treated as a consequence of genetic causes" [24]. This concept could be treated as "the source of many sharp conflicts in contemporary controversies about evolutionism", whereas the teaching of John Paul II "shows (…) the concrete possibility of overcoming both a narrow intellectual isolationism and senseless conflicts. It brings an opportunity for a coherent integration of our scientific knowledge and the theological and philosophical convictions that form our worldview." [24]

As a bishop, Życiński was concerned about the phenomenon of postmodernism on the one hand and the phenomenon of religious fundamentalism on the other. He opposed the attitude of irrationalism in the intellectual life of the Church and "was critical both of those who used the initial singularity discussed in traditional Big Bang cosmology as an argument for Creation and of those who found recent notions such as Hawking's denial of the Universe's having a beginning as evidence against creation" [25]. Życiński also defended human dignity and postulated that man – despite his unquestionable

belonging to the sphere of nature – could not have been reduced just to the entity of evolution. As he emphasised, "While remaining an element of created reality and remaining subject to the laws of Biology and Physics because of his physical nature, man has been able to create a rich world of spiritual values, art, poetry and beauty. At the threshold of the European culture one finds important intellectual elements which go beyond the biological principle of the struggle for survival." [J. Życiński, *The search for truth in the dialogue between science and faith*, http://www.jozefzycinski.eu/index.php?option=com_content&view=article&id=225:the-search-for-truth-in-the-dialogue-between-science-and-faith&catid=6:wystpienia-publiczne&Itemid=11] More precisely, "in our intellectual development there are many elements which are not in any way related to the attainment of a biological advantage. Among these elements one could mention Ethics, Mathematics, Metaphysics, religion, and Aesthetics" [26]. As a consequence, "in medical praxis the recognition of human dignity should be reconciled with a hierarchy of values in which scientific success and social needs play the basic role" [26].

The premature deaf of Archbishop Życiński broke down his numerous plans and projects. It was not a coincidence that the conference dedicated to his creativity (held in Krakow in 2011) was entitled 'Unfinished work'. Two of his last books were published after his depart: *Evolutionary Theory for Religion Teachers* (under the title *God and Creation*) and *The World of Mathematics and Its Material Shadows* (the text originated from his lectures, titled 'Platonic elements in the foundations of Mathematics' delivered at the Catholic University of Lublin in 2006-2007). It is clear that Życiński (as well as Heller) was a Platonist (or, more precisely, a mathematical Platonist). He believed that the structures of the Universe had been prior to the scientist who had simply discovered them. Życiński described this specific ontological, mathematical feature of nature as 'the field of rationality' which determined also our understanding of the world.

Both Heller and Życiński distinguish between methodological naturalism and ontological naturalism [27]. The first type of naturalism involves the postulate that Science cannot refer to supernatural factors. In turn, ontological naturalism supposes that these factors do not exist. The difference between methodological naturalism and ontological naturalism has important implications for the question of relationship between Physics and Biology and religion: it allows one to defend the autonomy of scientific explanation (i.e. the theory of evolution) and, at the same time, its limits. As Życiński put it, "There is no opposition between methodological naturalism and the Christian doctrine of creation. On the level of philosophical views, the supporters of methodological naturalism not only accepted God's continuous presence in His creation but also criticized deistic explanations in which God was supposed to act mainly in special interventions." [J. Życiński, *Evolution and the Doctrine of Creation*, http://www.jozefzycinski.eu/index.php?option=com_content&view=article&id=220:evolution-and-the-doctrine-of-creation&catid=6:wystpienia-

publiczne&Itemid=11] This perspective leads to the 'new theology' and 'new physics' postulated by Heller.

5. Conclusions

Heller and Życiński built up the foundation and key principles of the dialogue between Science and faith in Poland. Their books have been republished many times and they have played a great role in the process of shaping of the integral worldview of several generations of Poles. The members of the Copernicus Centre for Interdisciplinary Studies belong to the Committee of the Doctrine of the Faith and the Scientific Council at Polish Bishops' Conference (i.e., Father Józef Kloch, a press officer, also comes from the Centre of Interdisciplinary Studies).

In the country that gave the world the great personalities of Copernicus and John Paul II, the tradition of dialogue between Science and religion is still alive. Moreover, the last decades have brought about numerous new initiatives and educational programs in this field (provided especially by the Copernicus Centre for Interdisciplinary Studies).The activity of the Copernicus Centre for Interdisciplinary Studies is not limited to Krakow and Poland, but is of an international character. Nowadays it is one of the largest institutions of this type in Central and Eastern Europe.

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