

Joint Institute for Nuclear Research  
Institute of Philosophy of Russian Academy of Science  
Moscow Academy of Theology

SCIENCE PHILOSOPHY THEOLOGY :  
SCIENCE IN CHRISTIAN WORLD

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**Joint Institute for Nuclear Research, Dubna, Russia,  
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## *Opening of the conference*

**A.N. Sissakyan**

Dear guests, dear colleagues! It is a great honour for me to open the 5-th "Science, philosophy, religion" conference being held in Dubna at the Joint Institute for Nuclear Research. This conference has been supported by a large number of scientific and religious organizations in our country and in other countries.

Holding such conferences at the Joint Institute has become a good tradition. Here, people of apparently extremely different philosophies assemble at a round-table meeting. But, as far as I am concerned, I think the cosmos inside us and outside us must be tackled from various viewpoints. For this reason the triple union joining the participants of this conference seems to me to be very fruitful. It is extremely significant that such meetings are held at times difficult for science and spiritual life (at least in Russia).

This audience is well aware that, together with recent, definitely positive, achievements (greater openness, the democratization of society), our country is witnessing Russian science, and many spiritual activities as well, being kept on a hungry diet. We of the Joint Institute are optimists and regard this as a transient phenomenon. In the JINR we also feel all the difficulties of the present times. To a great extent we are safeguarded by the international collaboration established around the Joint Institute, by the support of scientists from other countries all over the World. We are also protected by the profound traditions installed in our institute by our teachers, the scientists of the older generation. One of these traditions consists in holding meetings such as the one we are now attending. Back in the 60-ies D.I.Blokhintsev and then, after his death, N.N.Bogoliubov supported the organization of such meetings. At that time the meetings were actually methodological conferences gathering philosophers and scientists. We are now holding the 5-th such conference under the symbol of triple union of science, religion, and philosophy.

It is a pleasure for me to convey to you the greetings of our Director General, RAS corresponding member, Prof. V.G.Kadyshevsky, of our Directorate, and of the entire JINR staff and to wish you successful work. This conference is to become an important event in the life of our town and of the Institute; it will doubtlessly be fruitful and provide support for scientific and spiritual initiatives. Once again, it is with pleasure that I greet our guests engaged in work in the spiritual field. It is good to see here, besides our compatriots, representatives of other countries and of other churches. Once more I wish your conference much success, and I thank you all for coming here for joint work.

**V.N.Pervushin** I would like to thank our benefactors who made possible holding the conference: JINR; the Catholic centre "Caritas"; the Dubna mayor's office; V.I.Tsovboun, a Dubna entrepreneur - everyone knows his shop "Repka"; and the Moscow charity organization "Salus".

Let me read a telegram from Orthodox bishop Juvenalii: "I am grateful for the invitation to your conference. It is not possible for me to come. I wish the participants success and appeal to God for blessing".

## *Science in christian world*

V.N.Pervushin

Modern science emerged in medieval West Europe and differs greatly from all other historical forms of science in that it is based on experiment. As early as the 12th and 13th centuries, learned Catholic monks (Robert Grosseteste, Rodger Beckon, Thomas Akviant) substantiated the necessity of experimental investigation through the dogma of Jesus Christ's incarnation (see, e.g., Crombie A.C., Robert Grosseteste and the Origin of Experimental Science, Oxford, Clarendon Press, 1953). The might of the Church, the Pope's absolute power, strict hierarchy and the discipline of scholastic debates – all of this created unique conditions for the emergence and development of European science in Catholic universities and dictated its main goal – to prove the existence of God and reveal His Plan.

Thanks to Byzantium and the Arabs, European universities received intellectual treasures of ancient civilizations. All western scientists – from Kopernik to Newton and Leibnitz, creators of modern physics and mathematics – worked under the slogan: "The Plan of God's creation of the Universe is harmonic, and mathematical truths are absolute" (Moris Klein "Mathematics – Loss of Definiteness, Mir: Moscow, 1984).

During the 18th and 19th centuries, the confession of God's Plan was gradually replaced by the dominating ideology of power and scientific superiority over Nature, which was anticipated by Francis Bacon in his watchword "Knowledge is Power". Science did not achieve the goal dictated by the Church, i.e. to prove the existence of God; it made its way precisely in the opposite direction, creating scientific antireligions: materialism and positivism.

Western European science spread all over the world, offering the fruits of the scientific and technological revolution.

Science became like the biblical tree from which Adam and Eve, without God's knowledge, picked the fruits to learn about good and evil. Their sin lay in their godlessness, and the modern civilization, picking the fruits of scientific knowledge without God, as if this sin continues now.

To understand such a methomorphosis of science, christian by origin, it is worth to compare the historical directions of the western and eastern branches of Christianity after its division at the beginning of the 2nd millennium. The architecture of churches itself in this period determined the historical fortunes of the West and the East.

In the West, Gothic temples resembled rockets rushing towards God who was outside the temple and expected His existence to be proved.

The eastern temples were built with domes symbolizing the completeness of the world, including God himself, and the ultimate end of man's existence – complete merging with God.

In attempting to prove God's being, the western learned monk tried to avoid inconsistency and ignored the incompleteness of any logic, rational evidence.

The eastern monk wanted to melt into the Lord and did not see inconsistency of completeness in this way.

The historical ways of the West and the East vividly illustrate the culmination of science in the 20th century – two of Gödel's mathematical theorems:

- 1) Any logically consistent system is incomplete;
- 2) Any complete system is logically inconsistent.

Figuratively speaking, if there is a "law", there is no "completeness" and if there is completeness, there is no "law".

According to these theorems, the famous dispute that took place in the 16th century between Gregory Palama and Thomas Akviant's followers is a dispute concerned with that is more important: "fullness of grace" or "consistency of law". The West chose "consistency", the East, "fullness".

God made part of Christian society to develop "law" so as to penetrate both sides of life, material and spiritual, so deeply that the attitude of believers towards God assumed the character of juridical law. The other part of society was compelled to keep up the fullness of traditions of "grace". God kept the people of "grace" apart from "law", as He did when He saved the people of the Old Testament, the people of Israel, from pagan idols, sending them famines and dispersions, uprisings and revolutions. Law became the symbol of the West; and absence of law, of the East.

The false start of the western scientific rocket is the result of the choice of "incompleteness", and the economical lag of the East is due to the choice of "inconsistency". To catch up with the West, the East followed blindly western science and, in the long run, almost lost its uniqueness. The result is the same in both cases – the fall.

Gödel's theorems and the history of society testify to the fact that it is impossible to combine consistency and completeness. The way of convergence of law and completeness was shown by Jesus Christ as the way of salvation.

While society happily supposes that science is "powerful" and its methods are "absolute", fundamental science itself rediscovers in throes of creation this christian way of salvation.

At the same time, Gödel's theorems deny the absolute power of science, absolutization of mathematical methods and acknowledge their limitedness and relativity. Physics gave up these absolutes much earlier.

The acknowledgement of space and time relativity and of velocity limitedness in transmitting information brought about the creation of the theory of relativity; the acknowledgement of limits of simultaneous measurement of the coordinate and velocity of a particle gave rise to quantum mechanics.

Every time scientists repent their narrow-mindedness, they purify themselves from the old theory's definiteness and receive new definiteness and a new theory.

Repent and you will purify yourself, ask and it will be given you.

In modern science, positivists have no "absolute power" and materialists have no absolute definition of matter. Matter lost absolute observability and absolute independence of observation means and became the delusive amplitude of probability without clear space and time limits. The quantum laws can describe the entire Universe. Somebody writes down its wave function in his observer's note-book. It was not until the 20th century that science learned that the Universe has origin in time as described in the Old Testament.

Science in the 20th Century discovered that "experience" is superior to "word", experiment causes theory to be changed. With its "ascent", the word grows dumb and scarce, as was claimed by saint fathers of the first Oecumenical Councils. The way of christian science in the 2nd millennium, started by western monks, resembles, as a whole, the spiritual ascent of the eastern monk who is convinced of the consistency and completeness of Nature and Tradition and of the unity of matter and spirit.

# *Atheism and science*

**E.L.Feinberg**

It is the first time I take part in such a conference. My talk being one of the first is to a certain extent provocative. The point is that I am a convinced atheist. The issue of religion always interested me merely because I saw intelligent, educated, honest, broad-minded persons who were religious. Whenever I came to know a religious person sufficiently well to ask him: "How do you believe?", I used to receive answers differing essentially from each other. But we never had arguments reminiscent of the passage from Ilf and Petrov: God exists, God does not exist. I have always tried to understand why people are religious and why they have to be religious. I would never have said, what I shall say now, in past years, when religion was persecuted and cathedrals were destroyed. I respect seriously religious people, for whom religion is a form of existence. Regretfully, at present religion is only a fashion for many people, and this fashion certainly has nothing to do with any profound comprehension of religion. I have now decided to speak out openly, although I am obviously among profound believers. I do hope my talk, although being contradictory to their beliefs, will not be taken as an offence. Maybe I will just be considered boorish and uncultivated.

First. From personal contacts with religious people I see that there exist different levels of religiousness. It starts from the very lowest level expressed, for instance, by Sakharov: there exists something beyond the material world, something has to give it warmth. He stressed that religion is a great strength. I mean religion, not the church! The Church has still a far way to go in its development before it realizes its strength.

There is another level which is about the same. One person who was close to me and whom I highly respected said there existed something which claimed his responsibility. Nothing more concrete. This, actually, represents conscience becoming objective.

I shall speak of different levels, distinguishing between levels that do not contradict the scientific activity of a natural researcher and those that do and interfere with his work, that hinder scientific activity, if they are fully adopted.

The second group of issues: what underlies the need of religion in people.

Third. This comprises some comments on the Church, which I shall take the liberty to make. And, finally, the conclusions and several words on the conditions in which religion is compatible with scientific work. Notwithstanding, my general conclusion reduces to the following: atheism is more natural for a scientist.

From an historical viewpoint, the relationship between religion and science has undergone essential changes. In the Middle Ages the belief in God was simply not even questioned by any person from a vassal serf peasant up to the higher minds, the philosophers and scientists. Gradually, the relationship between religion and science underwent transformation. Copernicus was a canon, and in no way did he doubt the authority of religion. Newton considered the success of his scientific activities to be evidence of the wisdom of God. He devoted the last decade of his life to religious studies of the Trinity problem. Truly, to a certain extent, he was an heretic. He was an Arian. At any rate, he was profoundly religious. One hundred years later, Laplace said his well-known words to Napoleon: "I have found no necessity in the hypothesis of God". Some 100-150 years later Einstein became an atheist and, to a certain extent, antireligious. Such is the historical development of science, of its freeing itself from religion.

Serious misunderstandings arise from incomprehension of the methodological basis of science and religion. Up to the 20-th century, a fetish was made of logic and of logical proof. Drastic changes took place during the 20-th century. Goedel's great theorem has already been mentioned here, the theorem which reveals a strict logical theory, even a deductive theory stemming from an intuitively established set of axioms, not to be possible, i.e. to be always incomplete. Back at the beginning of the century Einstein said that the ultimate task of a physicist consists in logical deduction of the entire picture of the world from intuitively established basic laws. But already after 15 years he said something different: we must always be ready, as our experience extends and as new facts are obtained, to alter the axiomatic basis of the theory, i.e. to continuously introduce into logical arguments intuitive reasoning, which cannot be logically proved or disproved. Here one can see the parallel between physics and mathematics: in both sciences there exist points that can be logically neither proved nor disproved. In attempting to overcome the restriction following from Goedel's theorem we are compelled, as the sciences - both physics and mathematics - undergo development, to continuously introduce more and more intuitive arguments, which cannot be proved, into the set of fundamental principles (axioms).

Believing in God in a religious philosophy, like in science, is also intuitive reasoning based on a generalization of personal experience, knowledge and half-knowledge possessed by the given individual, who has become a believer. However, intuitive reasoning in religion differs fundamentally from the intuitive reasoning which accompanies science during its entire development. The difference is the following: in science, any intuitive reasoning whatever must contradict neither logic nor positive knowledge. In religion, intuitive reasoning may not only contradict logic and positive knowledge, it even demands miracles. Pascale, who was a deeply religious person, wrote: "Where is your God? His Miracles reveal Him to me... If there were no miracles, I would not be a Christian". Thus, both religious belief and scientific knowledge are essentially based on extra-logical, intuitive reasoning, but the reasoning differs in principle, in the two cases.

Reasoning such as the following: there exists something behind the material world providing it with heat; there exists something to which I feel responsible; there exists something in accordance with which I orient my moral behaviour; and even if this something is God, this does not hinder scientific research - I intend natural sciences and mathematics. In the 20-th century changes took place, about which I have written in detail. At the beginning of the century, the conviction prevailed that all the concepts occurring in mathematics could be substantiated quite consistently and rigorously, from a logical point of view. For 200 years before Einstein, physicists also believed that Newton had found a complete set of fundamental laws, which required no updating. At present an understanding exists of the fundamental role in science of intuitive arguments, which do not in themselves require religious belief. By the end of the century this has led to the removal of antagonism between the two branches of culture: the natural sciences and mathematics, on the one hand, and the humanistic sciences and philosophy, on the other. They were considered antagonistic even in the Middle Ages. C. Snow wrote about the irreconcilable difference between them, their representatives are just not capable of speaking with each other. Now, owing to the success in computerization, when the volumes of logical operations becoming the responsibility of machines are continuously increasing, the role of intuitive reasoning in science has been revealed. I consider this fact an intellectual revolution. C. Snow's words concerning the irreconcilability and mutual misunderstanding between the representatives of humanistic and natural sciences have simply become irrelevant. Mathematicians work in close contact not only with physicists, but also with psy-

chologists, philologists etc. For 20 years, science has been undergoing an intellectual revolution, which has stressed the necessity of intuitive reasoning.

Now, let us leave the lowest level of religious thinking, which can be quite consistent with scientific research work, and proceed to a higher level. Here, significant difficulties are encountered. First: one is supposed to believe ethical laws to be established forever, once and for all. But science itself is known to undergo continuous changes, as do its principles; thus, accepting laws, that were taught 200 years ago, as invariables would contradict the psychology of scientific research. The Orthodox Church is very conservative; I do hope this will not be taken as an insult. It demands total invariableness of once taught laws. The same is true of the Catholic faith. But the very rise of the Lutheran Church, of Calvinism, and of other branches within Christianity reveals that the principles of Christianity have also been subject to changes. Not all branches of Christianity recognize the invariableness of dogmats, including ethical laws. Second: religion demands belief without questioning, canonized dogmas permit no doubt. Notwithstanding, the essence of scientific activity is formulated by the requirement: doubt is the mother of truth. A scientist must have doubts, and, first of all, a scientist should doubt what he was taught by esteemed teachers, since his task is to go farther and to discover what his teachers did not know. Thus, faith without doubt is contrary to scientific activity. Objections are also raised by the thesis of interference of a divine force into Nature, according to which not a single hair may fall from one's head against God's will, while the World exerts no reaction in response. This is contrary to the psychology of scientific research. I like the modification of this thesis formulated by Drouskin, a religious philosopher of the Soviet period. It asserts that "God wants even what He doesn't want". I understand it as follows: In the Christian faith God gives man the will and freedom to make decisions. Let us recall the well-known antinomy: is God capable of creating a rock too heavy for Him to lift up? An antimony is a polite saying belonging to that era, when faith fully dominated all people. One way out of the contradiction is formulated as follows: yes, God did create such a rock. Man is this rock. God created man, but He cannot draw man nearer to Himself against man's will. Thus, the aphorism "God wants even what He doesn't want" (I like this aphorism) means, that God granted man the will-power to decide. Erroneous decisions of man are anyhow consequences of God's will.

Such is the standing as concerns various levels of faith. Now, let us turn to needs giving rise to religious faith. Such needs are common to all mankind. Consider, for instance, the formula: God is father, the priest is father. Which need is satisfied by this formula? The need of authority, safety, care. To have a confessor, consolation. This essentially represents a rudiment of a child's psychology, reflecting the presence of a father who provides authority, safety, who is capable of consolation, of forgiving or punishing.

Religion is said to make life have sense. How is it possible to apprehend the meaning of life? Here it is necessary to distinguish between the meaning of life for an individual and the meaning inherent in the existence of the Universe. I have no time to deal with this issue. The religious formula, in this case, reduces to consolation via promises of afterlife. It is difficult for a scientist to accept this, although I can give an example of a scientist, who does fully believe it, now. Finally, religion satisfies the need of man in miracles, in mystery. Being active in science one encounters numerous remarkable mysteries. I cannot understand why a scientist needs still another source of miracles and mysteries.

In religion, there exist certain incompatibilities, let's say antimonies, to which a sole response can be provided: they are great secrets. Owing to my declining years I



can no longer create anything of special value. But I still experience admiration for every discovery made in science, I live in expectation of the revelation of mysteries as yet incomprehensible. My personal experience permits me to say that admiration for the miracles of science, for the miracles of revealing mysteries serves as a source of great happiness. I speak about myself, but this is true for most scientific workers. The spirit is highly elevated by science and to a great extent by art. Great music leads to the same elevation of the spirit as religion. It is not by chance that religion widely makes use of art.

What must be done with religion to make it more acceptable, more consistent with scientific thinking? Religion has to develop, it cannot remain at the level prescribed 2000 years ago. The World is developing, matter is developing, knowledge is developing, social transformations are completely altering the life of man. I beg you not to consider what I say an insult, but the Catholic Church does seem to take into greater consideration the development of the World. It has turned out to be capable of rehabilitating Galileo and of many other deeds. It retains considerable conservatism, such as, for instance, priests being under the vow of celibacy, the prohibition of contraceptives, and so on. At the same time, just look at the cathedrals: the new catholic churches exhibit modern architecture. It may be said that the situation in our country is different. Our country has been mutilated by the prohibition of dissidence, for example, of religion, for many decades. This has resulted in an enormous number of people having lost the criteria of what is permissible and what is forbidden according to the laws of conscience or the laws of religious faith. It must be said that the Church is also guilty, here. When, during the First World war, like in many other wars, priests blessing battles did not call upon soldiers "not to kill", but "to kill as much as possible", this undermined the standing of religion. This undermined the principle very principle "kill not". We now speak of the evil deeds of the Soviet period, but we speak very little about and actually never take into account the changes that occurred in the psychology of common people during the three years of the First World war. It became too simple to kill, to shoot, to put someone up against a wall, to eliminate. It all served to prepare subsequent evil acts.

There exists still another way to bring secular and religious thinking closer to each other. I heard of it from a friend of mine, a western physicist of high level, in response to the same question: how do you believe? Not only is my friend a believer, he a religious worker. His answer was striking: "But that's just an artistic hyperbole". Many aspects in religion become quite acceptable, from such a viewpoint. Consider the apocalyptic parables which preach behavioural norms and take advantage of artistic devices for imprinting on the minds of people ethical norms, the understanding of good and evil, and are thus very useful.

To end I shall repeat my conclusion: atheism is most reasonable for a natural scientist, although certain aspects of elementary religious thinking do not interfere with a scientist's professional activities. I personally knew many scientists who were of the generation that came before mine, and who were atheists. I knew many religious scientists. But, as a rule, they were humanists. Religion spreads among humanists much more readily, to a large extent owing to a lack of understanding that science is certainly not a code of pure logic.

**V.N. Pervushin.** Before inviting Yu.A. Schreider to deliver his talk I shall present a short conclusion. Maxim the Confessor has said the following words: God created us from love, and He expected love in response. Yevgenyi L'vovich has spoken here about natural scientists, from whom God has already seen love for His creation, but not for Himself, yet.

## *Atheism and faith*

**Yu.A. Schreider**

It is not an easy task to speak after the brilliant talk given by Yevgenyi L'vovich.

In spite of the talk by Ye.L. Feinberg being clearly atheistic, I think it quite appropriate to remind a well-known phrase: the spirit breathes where it wants, meaning that the spirit speaks out in words of believers, and in words of atheists, also, with no less success, so for truth to triumph this talk was extremely important. For those, who apprehend the words of the Gospel seriously, Jesus Christ is the very truth.

I cannot agree with Yevgenyi L'vovich in two points: I regard atheism as unnatural both for a person having nothing to do with science, and for a scientist, also. I shall try to provide arguments, even though I do not consider the speaker's thesis to be blasphemous; there does exist a certain truth, a partial truth, in it. I shall further try to analyze, what makes up this truth.

Faith does not reject doubt; on the contrary, the path of doubt is very often the path leading to faith. Doubt may result in a crisis, in total scepticism, but it may also lead to faith. It is sufficient to analyze the story of Abraham of the Old Testament. Being quite old, he doubted his wife would give birth to a son. By all laws of Nature this was actually impossible. By the way, there exists an explanation by the geneticist Golubovsky showing late fertility to be a genetically transmitted characteristic; late fertility is quite often encountered in the Bible and is transmitted in accordance with the laws of genetics, reflecting the Biblical genealogy. So there does exist a scientific confirmation of the Biblical legend, although this is not so important for me, now. I suppose Abraham experienced strong doubt, when he was ordered by God to sacrifice his only son, of whom he was promised numerous descendants. Nevertheless, he fulfilled this deed of faith. Someone else would have, most likely, broken down. So, doubt is not far from faith, on the contrary, they are quite organically interrelated. This, for instance, is what late father Sergei Zheludkov often used to think about. We spoke about it. We discussed the relationship between science and religion. He used to say that it was very important to understand the essence of doubt.

But that was just a small introduction.

I shall proceed from an episode presented in the story "The blue cross" by Chesterton, where Father Brown is the main character. If you remember, the situation was the following: Father Brown had to deal with a false priest, who was actually a thief and who was to steal a precious object from Father Brown. When the thief was unmasked, he asked how Father Brown understood he was not a priest. "You attacked reason," said Father Brown. "It's bad theology."

No arguments are required to prove that Christianity was never contrary to reason, and never an enemy of science. Scientific activity is the natural field for the application of reason. It's another thing that reason may go beyond the limits of science. Remember the process against Galileo. It was not a conflict between science and religion, but between the Aristotle paradigm and the newly rising science of the new era. Investigations revealed there to be serious misunderstandings on both sides. The judges were also aware of this. Does everyone know the sentence passed on Galileo? It has been established that no tortures were applied. In those times torture used to be applied, but it was always documented, and no such signs or protocols have been found. This is an invention of the 19 century. Well, the sentence was the following: exile, i.e. residence in a suburban house belonging to the archbishop of Florence. Life in a suburban house isn't really like the penal servitude of a convict or

life in a Stalinist camp. Galileo was also instructed not to write about the heliocentric concept as if it were an established truth, but only a hypothesis. By the way, the arguments which proved scientifically that Copernicus was right, appeared 150-200 years later, with the discovery of the parallax. Tikho-Brage tried to measure the parallax of stars. He did not succeed in finding it and so rejected the hypothesis of Copernicus. He decided he had obtained no experimental proof. (Actually, he could not have obtained it, owing to his instruments not being accurate). And to conclude: Galileo was supposed to read 7 psalms in repentance, but this was done by his daughter, who was a nun. The sentence itself shows that Galileo was not accused of heresy. The trial against Giordano Bruno was something totally different. But G.Bruno was not a scientist. That was acutally a political process. So, here, one must not speak of science and religion.

I would now like to dispute the opinion of Yegenyi L'vovich, when he pools mathematics and natural sciences. From a methodological standpoint they are opposite to each other. A mathematician deals with his own constructions and reasons as follows: if A is true, and the statement that A leads to B is also true, then B is true. In this case, B cannot be disputed logically. The truth of A relies on axioms adopted by the mathematician. Hence, he obtains absolute truth. But it is related to the constructions he himself creates. Another question is how these constructions are related to the real World created by God. This issue is beyond the reach of mathematics. A mathematician may have various ideas. He may consider himself the creator and master of the world, created by himself. Then, an antireligious stand would be natural for him. On the other hand, he may think that in creating his constructions he partially simulates the Creator and promotes revelation of the truth about the real, created, world. Here, various approaches are possible. Now, a natural scientist adheres to deductive-hypothetical reasoning. He constructs a hypothesis, a model, the truth of which initially does not follow from anything, then, he derives logically true consequences from it. So, there is A, then A is shown to lead to B, then the truth of B is established by facts, hence follows the truth of A. Anyone having studied logic understands that the above is an illegal sillogism, but it, nevertheless, underlies all natural science. I am not saying that one cannot reason in this way, especially that a natural scientist usually derives several consequences, instead of one. It is very essential that some of them are not tests of already known facts, but predictions of novel ones. And when the predictions of theory are confirmed by experiment, this significantly enhances the reliability of the initial assumption. Nevertheless one cannot speak of achieving the absolute truth. For this reason, natural sciences do not deal with undisputed truths. They make use of statements which are readily agreed upon by the scientific community and just as readily rejected, when arguments contradicting them are revealed. Therefore, natural science develops by creating new concepts and rejecting old ones. Mathematical facts are never rejected, if no formal errors were made in proving them. But facts accepted by natural science are rejected or corrected. So, mathematics and natural science are essentially different.

Thus, the issue is not the hostility of science and religion, but something totally different: the numerous attempts to make use of psychological directives of natural science for obtaining conclusions disputing the religious view of the world. What are these scientific directives? I shall deal with them very briefly.

In natural sciences the reasoning often proceeds from simple to complex, from lower to higher. I remember my schoolyears, when I could not stop reading the textbook by Khval'son and wanted very much to become a physicist (actually, I became a mathematician and, subsequently, stopped being one). I admired molecular theory,

which from simple arguments on the kinetics of atoms permits deriving remarkable thermodynamic relations. Here, the frequency of collisions between particles and how they exchange momenta is computed. At first I was astonished by the simplicity and elegance of this theory, but then doubt arose: with the aid of atomic concepts one can explain a broad range of phenomena, but how is one to explain the actual existence of atoms? Maybe I shall start working in science, and then I'll resolve this problem? Now I would formulate it as follows: why does structure exist at all in the universe? An now, at old age, I understand, that this problem cannot, in principle, be solve by science, because science always assumes something to be essentially the most simple. The existence of this most simple can only be explained, is something is considered the highest. But, as the late M.Mamardashvili said, consciousness is possible only in the presence of higher consciousness. Thus, simple elements are possible only because there exists something more complex, more consistent, than these simple elements. This concept is not adopted by modern science. Naturally, one can proceed along the line from the lowest to the highest and obtain certain results, for instance, for religious apprehension of the universe. But there are problems that cannot be solved in this way. Therefore, no hope is to be found in attempts at explaining the phenomenon of consciousness by the evolution of man from the ameba to the monkey and further to present-day homo sapiens. Conscience, morals, and ethical principles cannot be reduced to evolutionary devices. Conscience is only possible as a gift of God, as something arriving from above, as an invariant. If conscience were only a convention due to evolution, then, upon my word, I would not treat conscience with more respect, than I do the rules of traffic. Naturally, I try to abide by the rules. But, if I have to cross the street where it is forbidden, and doing so presents no great risk, I just do it. This act is not so sinful. Anyhow, I try not to take risks. But you do understand that treating the rules of traffic in the same way as conscience, as God's directions, is ridiculous. These are concepts of differing orders. Consequently, attempts at explaining moral principles proceeding from below actually result in their denial. They acquire the status of some convention, of a certain historical fact, instead of a fundamental point.

Ye.L.Feinberg spoke well about the conservatism of the Church. It permits retaining the high status of absolute truth. Truths that form the symbol of faith and which we understand to be the expression of ontological reality, not artistic images, should remain invariant. But life changes and gives rise to new problems, including ethical problems. In dealing with absolute moral principles, we must how they are to be applied in the present-day changed world. Before mankind invented abortions and contraceptives no-one could even think of applying the concept of murder in relation to an unborn child. To-day the Church explains to us: interruption of pregnancy or artificial prevention of conception is murder. At any rate, it is quite right to say that abortion results in the death of a being possessing all the characteristics of a human being. In the times of the Old Testament this problem was unknown. In his encyclical "rerum navarum", Leo XIII speaks of application of the absolute truths of Christianity in the present-day social situation. The issue is raised of altering the interpretation of biblical canons. Mindless following of the conservative tradition will lead to erroneous interpretation of the biblical canons. It will turn out that conservation of ancient truths without their reinterpretation destroys them. These will be other truths.

Science, like any activity of man, may be fruitful or not. Working in science seriously, fully exerting our mind and conscience, we master the high ontological status of truth. Science is not a game involving artificial models. A scientist would not indulge in science, if he thought he was joking, that he was taking part in cards

games, playing solitaire on the basis of theoretical principles. No. Science is the revelation of truth about the universe. Its starting-point is the assumption that creation of the universe was based on reason. Natural science presumes creation of the universe to have been free, i.e. that it cannot be deduced from postulates. Its comprehension requires experimental science, observations, a serious attitude to experiments.

One must be very careful with the possibilities presented by science to man. Some of them may just turn out to be devilish temptations. We know this all too well. But natural science is not to be blamed. Science itself is neutral. It is the fault of man who turns the fruits of his reasoning against himself.

Science is capable of cultivating human qualities permitting one to arrive reasonably and freely at apprehending religious truths. This does not mean that science replaces or controls religion. But it can serve as the site where man cultivates and strengthens his spirit in preparation for his encounter with God. Man can serve God being a craftsman. Recall the story about the the Blessed Virgin's juggler. He served the Blessed Virgin Mary by standing on his head and juggling with balls. The priests wanted to flog him, but the Blessed Virgin stood up and wiped the sweat from his face. Thus did she appraise his effort and faithfulness. From this parable one can conclude that, while exerting full effort and devotion in scientific work, one can serve God. But this requires a serious attitude towards science, towards religion, towards reason, and towards one's capability of faith.

**V.N.Pervushin.** Yulyi Anatol'yevich is right: the light of reason is not the flame of divinity, as the Holy Fathers claim, but let us now proceed with our discussion. We have just started the conference, and we still have time for free discussion.

**Ye.L.Feinberg.** I would prefer we agreed to separate the problem of materialism and faith from the nightmare, that our country went through the last 60-70 years. Democritus, Lucretium Kar, Francis Bacon, Lokk, Hops and other materialists never demanded that the clergy be shot dead or any other terror. The idea of materialism was utilized for justifying totalitarism. Do not forget that the Stalinist constitution of 1937 declared the most noble ideals: individual freedom and rights, the rights to publish, to strike. Those were criminal lies. It should not be allowed to throw the shadow of blame on materialism, atheism etc. It should not prevent us from speaking out now, and evaluating everything from the same starting points.

**A.I.Osipov.** I wish to express sincere and heartily gratitude to Yevgenyi L'vovich for his talk, for his frankness. I regret you were not with us at the preceding conferences. Many issues raised by you here could have been discussed and clarified earlier. We shall now have to proceed to discuss them. This will be very useful for all of us. The worst thing is to leave unsolved problems somewhere in the dark and to hide them. Everything must be discussed. The truth is always light; no life exists, where there is no light. It is no chance that the Gospel says God is light and that there is no darkness inside it. I think any person will agree with this point, whether he is an atheist or a believer.

A number of issues raised by you indeed deserve that we try to discuss them to-day

My first question is for V.N.Pervushin, since he was the first speaker to-day. Actually, it is a question not only for him, but for Y.L.Feinberg, also, and for other people present here. Victor Nikolaevich claims quite definitely, as if it were obvious, that in its development science has come to antireligion: to materialism and positivism. In my opinion this gives rise to doubts and misunderstanding. I could never

believe science to have created materialism and positivism as antireligion. I know of no rigorous scientific statement contradicting religion. In this connection I would like to receive some consultation as to precisely how science is capable of creating antireligion. I do understand that pseudoscience could do so. There may exist hypotheses contradicting religion. This is comprehensible. But it is difficult for me to imagine how science can lead to antireligious conclusions. Evidently, the history of science also is contrary to this. There are many believers and non-believers, who are known as outstanding scientists. This is evidence that their being religious or not is certainly not based any scientific arguments, but on something else. Hence my first question to Victor Nikolaevich: how is such situation to be understood? My second question: is it true that any complete set of axioms is logically inconsistent? Being an ignoramus, I would be grateful for an explanation.

**V.N.Pervushin.** I beg your pardon for the formulation being not accurate. Science has not created, but has historically led to materialism and positivism.

**Ye.L.Feinberg.** Thank you for your kind words. A comment is due on the creation of antiscience. You are absolutely right in saying that true science cannot give rise to antireligion. Only mistakes in science can create antireligion. Positivism originated from an erroneous trend in the development of science, due to the fetishism of logic. Positivism considers that everything can and must be explained by logic. But, actually, the objective existence of any particular thing cannot be proved logically. The category of existence is introduced out of logic, intuitively.

**V.N.Pervushin.** We shall ask Yulyi Anatol'yevich to answer the question on the completeness of axiomatic systems.

**Yu.A.Schreider.** Gödel's theorem states the following: any consistent and sufficiently extended set of axioms is incomplete, i.e. it contains assertions that can be neither proved nor disproved. A system that is not inconsistent is incomplete. A complete system may be consistent, but it will, then, be very deficient. For instance, the algebraic system of logic is complete, but it is very deficient. It cannot be used for expressing a complete set of numbers, it does not include infinity.

Yevgenyi L'vovich explains the misuse of science by the neglect of the intuitive components of creativity. I would like to stress still another point. The experience of natural science has resulted in people becoming used to the possibility of proceeding from lower to higher levels in constructing descriptions. From the law of motion of a material point one obtains the picture of development for the entire universe. Laplace was sure he could describe the development of the universe, if only he were given the initial conditions. This was satanic arrogance! Now, the inconsistency of such prediction has been understood, owing to the instability of complex statistical systems. We have discussed with Victor Nikolayevich why it is impossible to predict the weather accurately. He wisely said: somewhere an ant will go in the wrong direction, and the weather may also change. The atmosphere is sensitive to small changes.

There exist phenomena that cannot, in principle, be explained by arguments proceeding from higher to lower levels. An important role in cosmology is played by the anthropic principle. It shows that the laws of physics cannot be altered arbitrarily. Even small corrections to known laws and constants give rise to conditions incompatible with the existence of life. This means, that the Universe has been created so that man can live in it. This point is quite well substantiated in cosmology.

**V.N.Pervushin.** We shall have a special report on this issue presented by Thomas Sharp, who represents the Protestant Church. Now we shall listen to com-

ments by V.N.Katasonov.

**V.N.Katasonov.** I would like to come back to our program: can science reveal the essence of the life of man and deal with the theses proposed to us for discussion from this standpoint. This is a very important question.

Permit me a rejoinder to the talk by Yevgenyi L'vovich. When one speaks of the essence of life, one actually intends the relation with the entire surrounding, the integral structure of the universe and of man in it, the relationship with the whole individual life of a concrete person, our relationship with history, with the Cosmos. Here is where the essence of life is to be sought. If, contrariwise, one adopts Ye.L.Feinberg's attitude towards general development (matter, history, man all undergo development), then the integral structure vanishes, as does the idea of the meaning of life. It is inconceivable, how one can raise the issue of truth, when everything changes, and there are no stable criteria for judging it. Take the issue of ethical norms. It sounded quite respectable and polite, but actually, the attitude is dangerous. The point is that if ethical norms are conventional and can be altered, then no immoral act can be condemned. Suppose I violated certain ethical norms. Now, I may happen to be a genius, a precursor of the future. You have no grounds for condemning me, since no absolute exists: morals vary, just like everything in science changes. Given such an attitude, the idea of reality itself vanishes. The notion of truth vanishes, since it appeals to the absolute. If so, it is difficult to understand why a scientist is proud of his work, what serves as a basis for the conviction that science proceeds along the correct way. I think this is a psychological phenomenon of a social nature. The history of mankind reveals that the existence of cultures always involved a religious horizon. Naturally, it can be said that they were erroneous. In the same manner it can be said that about the experience of marxism in our country, that it was a wrong marxism, that it can be corrected and free of totalitarianism and cruelty. This can be said, but it is my deep conviction, that the existence of a materialistic ideology is only due to violence. The historical experience of mankind reveals that all stable and significant cultures were charged with religious meaning.

**Father Boris Nichiporov.** I adhere to the works of Alexei Il'yich that the talk delivered by Ye.L.Feinberg during the first of our conference was essential and very important. The other speeches also seemed very likeable to me.

The internal contradictions in Ye.L.Feinberg's talk leave place for the absolute. Some time ago a very good book, "The ethics of the transformed eros", was published by Vysheslavtsev. He writes that consciousness always transcends towards the absolute. If it does not do so, it invents idols. Such is either science, or one's own self, which actually becomes self-idolatry. Therefore, reason goes beyond the limits of science and, there, encounters mysteries. Yevgenyi L'vovich dismisses mysteries, but he repeated the word about 10 times in his speech. The reconciliation of science and religion consists in recognizing the antimony of mystery. Man may stop in front of it, in reverence, and not go farther, not because he has no wish to or cannot do so, but because mystery implies silent contemplation with thoughts about the infinitive and absolute. Such may be the mystery of creation or the mystery of the path to God.

To-day we have started to communicate with each other with calm, benevolently, and I am prepared to consider atheistic theses, even though they are in dissonance with my philosophy.

Here, an idea was voiced on conservatism. I also liked the preceding speaker very much. I consider myself to be dogmatic. There exist dogmas which must not be overstepped. Example: the dogma of the love presented us by Jesus Christ. The moral dogma concerning the love towards neighbours and towards God should be

recognized as unchanging, and, in a certain sense, we should be conservatives, we are just obliged to be conservatives to-day. It is another thing, when we speak of social development, of new projects, in which the Church is to take part. Here, development is necessary. Here, one must acknowledge criticism blaming the Church of lagging behind life. It could be that the Church has not yet found the key words for effective work with society.

One more comment. Why should symbolism and mysticism, or symbolism and truth, be made to oppose each other? The Divine liturgy is symbolic, but this does not mean it is not true. Therefore, there is no need for such contrasting.

Permit me to comment on myths and artistic fantasy. In its practice the Church makes use of mythologems: parables and legends. That they are true cannot be negated, since they have reached us as facts of history. Thus are they comprehended by the philosopher Losev.

The talk by Ye.L.Feinberg presents us a typical example of normal, natural-scientific, atheistic reduction, when the revelation of God is reduced to intuition, the Divine is reduced to human conscience. Such life is possible, when the inheritance of decency exists. But we all very well know that it falls into decline in absence of a Divine source. Reverence for the grace, beauty, and perfection of the Divine world is degraded, if ties with the Creator are severed. From where, then, is the sense of grace to arrive? Everything in Nature falls into decline. The next generation will, most likely, see no reverence in atheists for mystery. Where can it originate? Only religious symbols are involved! The decline results in the number of immoral acts multiplying in the atheistic environment. Within the framework of atheistic philosophy, there exists no criterion appealing to the absolute for the condemnation of such acts.

One more comment on miracles. The Church does not acknowledge the so-called magic miracle. For this reason we are very careful in dealing with the extrasensory. But we do acknowledge mysterious miracles. This concept, however, requires additional explanation, for which I have no time, here. Examples of miracles are represented by the hand of man, the stars in the sky, and even our meeting here in Dubna.

**A.L.Kuzemsky.** I would like to briefly complement the words said by the preceding speaker. I quite agree that the talk by Ye.L.Feinberg demonstrates scientific reductionism. He said that Christianity is based on the evidence of Jesus Christ. This is not quite correct. Christianity itself bears Christ. Christ, as a live individual, represents the basis, the corner-stone of Christianity.

In discussing the relationship between science and religion one must fully understand that no faith is based on philosophy. No philosophy represents faith, till an encounter with God takes place, or till there arises a personal relationship with Him. Speaking of christening, i.e. of entering a new life, apostle Paul says a person who dies with Christ and who revives with him, a person who bears the death of Christ and his infinite life can be christened, while it is not possible to christen a person who has acquired an standpoint towards life, in which there is place for God, for Christ, for the Church, for mysteries, and for other objects, but which leaves no place for any live relationship with Christ. For this reason people literate and illiterate, people educated and ignorant have been christened in different centuries. But that is not the point. Who has died with Christ, who has revived with him, belongs to another world. Who only has some idea of all this and considers it true and convincing, or just interesting, has still not acquired inspiration, has not yet grown accustomed to these mysteries of faith.

The antimony of science and religion itself is a creation of marxism. Science



and religion coexisted in the universities of the Middle Ages, as correctly pointed out by V.H.Pervushin. Each day, life in a college started with prayers. And only our time started to separate these two mutually dependent cultures. A Christian does not consider reason and science enemies of faith. Knowledge blessed by the spirit of faith strengthens our comprehension of the greatness of the Creator. A believer considers all things that are beautiful, creative, kind as property of God, as a blessed act of Christ's grace. Christianity is not an ideology, an abstract doctrine or a petrified set of rituals. The Annunciation entered the world as a dynamic force, embracing all aspects of life, open to anything created by God in Nature and in man. Christianity is not just a religion, which existed throughout centuries, it is a road that reaches out toward the future. Now, science represents an excellent, generous, elevating service to the truth. But it is only a part of the whole. Heisenberg, the great physicist, who became a believer by the end of his life, founded religious seminars and wrote a book entitled "A part and the whole". The purpose of our conference is to clarify what is the whole and what is the part.

**Father Andrei Kuraev.** Our task is to extend our understanding of philosophy, science, and religion beyond the requirements of high-school programs. I appeal to you to speak of religion, having first acquired some knowledge reaching out beyond the university course of scientific atheism. I shall start with declaring my standpoint. I am an orthodox, not catholic, so I will be justified in defending Catholicism even more vigorously, than would be possible for Catholics themselves.

I shall now deal with the legal trial against Galileo, which has been said to exemplify the conflict between the Church and science. I don't think the Roman Catholic Church is really to blame in this case. It is paradoxical, but, apparently, such is the truth. The Inquisition literally saved Galileo. I base my statement on studies carried out by the Italian historian Ridondi, who has worked in the Vatican archives with the case of Galileo. An informer of The Inquisition denounced Galileo. He was accused of the heresy of atomism. In those times, atomism was considered heresy to be punished with the penalty of death. For what reason? Not long before Galileo was denounced, the Trent synod was held, at which the issue of Communion, of liturgy, and of the essence of the Eucharist was discussed within the context of the controversy over reformation. According to the Protestant concept, the Eucharist is nothing more, than a reminiscence of Christ's death and resurrection, a reminiscence of the last Supper. The Trent synod, instead, defended the old claim of the Church that during this mystery man takes part in communion and encounters Christ himself, actually partaking in Christ's body and flesh. The Trent dogma implies that each particle of the Eucharist actually contains Christ's body and blood, Christ's own meat, as once said by Khomyakov. This dogma pictures the physical world to be such, that any part of any object carries within itself all the properties of the whole. The smallest particle of bread, a crumb of a wafer is the whole of Christ. Atomism of the Galilean type contradicts this picture. Precisely for this reason was Galileo denounced. According to the laws of those times Galileo was to be executed. The inquisitors made a cunning move. Instead of this atomism, they found Galileo guilty of heliocentrism. Such a charge did not lead to legal punishment, so Galileo's life was saved. Such moves are known to any legal expert: an insignificant charge, instead of a serious one, is brought. Thus, for example, Tertulian describes how a Christian was once denounced. The story relates to times when Christians were persecuted. The judge was an honest person. Wishing to lighten the fate of the accused he announced at the trial that the defendant had been denounced for theft; he asked if anyone at the trial could testify that the defendant was a thief. There being no witnesses in

the court, he let defendant free. The same was done in the case of Galileo.

All the same, the Tredent dogma should not be considered totally wrong and to have delayed the development of science. The concept of physics demanded by the synod was ultimately established in science. This idea was conceived by father Grimaldi, a catholic cleric. Actually, it is the wave theory of light. The concept is anticorpuscular, antiatomistic. The Catholic conscience could not agree with atomism in the Democritus version and demanded the whole picture of the world. Its foundation was laid by Grimaldi. Boshkovich worked on the same problem. In our times one should recall the abbot Lemaitre. His primary atom is pointlike, but it is has internal structure in accordance with Tredent dogma. What I want to say is just that school texts do not always correspond to the actual flow of the historical process.

**A.I.Osipov.** I must say very loudly that to-day we have met with a unique phenomenon. The criticism against religion at previous conferences could practically not be heard. To-day we are approached quite openly and honestly with the proposal to adopt antireligious philosophy. It would be quite appropriate not to avoid the issue and to clarify the main objections to religion right now. Physicists are capable of asking us straightforward questions. Questions related to the essence. Indeed: why does God exist, what are the grounds, why should I believe, what is good in religion, and a whole number of other questions. These questions have somehow been constantly voiced at all our conferences. Is science against religion? Let us clarify this issue to-day. Let us take advantage of the unique possibility presented us by this conference.

**L.N.Mitrokhin.** A defect of modern spiritual life consists in the application of concepts not being rigorous, which leads to miscomprehension. The American Khayekawa spoke of the tyranny of words. Precisely a tyranny of words exists at present. I want to ask Alexei Il'yich what he means by religion? Our outstanding ethnograph S.A.Tokarev was once asked whether he believed in God? His answer was a question: in which god? There exist 598 gods. He knew exactly how many gods there are in the world. Do you think it possible to speak of science and religion as of two forms of conciousness? Can this be stated in a general form, or is it necessary to restrict the problem to the framework of Christianity? Our discussion must be made more concrete.

**P.D.Tischenko.** I would like to take up the issue raised by Ye.L.Feinberg, but not from such an extreme atheistic standpoint. I don't think the relations between religion and science were so cloudless, as one might judge from many remarks. I wish to draw your attention to a field quite distant from physics, to philology. It creates a menace to religious conciousness. Not the problems of cosmogony, but philology is capable of making religious conciousness problematic. Father Boris said that the words pronounced in temples in the 13-th century and now are the same. This is not quite so. A period of time known as the split occurred in between these words. The evidence of truth is submerged in the self-establishing nature of the Word. Words change. Philology reveals that the meaning of words changes significantly with time. This is a serious problem for religion. It gives rise to a new challenge. Some philologists think that a new Russian-language text of the Bible should be created. How can that be done? How can the scientific approach to words be combined with the religious approach? I would like to hear what prospects representatives of the Church, my colleagues, see for such unification of science and religion, because science leads to disintegration of the very authenticity of expressions composed of words. Any text becomes an allegory.

**A.I.Osipov.** Your question is posed in a very general form. I would like to understand what exactly you think serious in the evolution of words. What can undermine the trust in God or faith in Christ?

**A.L.Kuzemsky.** A comment on philology. In the Middle Ages a great role in theology was played by scholasticism (Thomas Aquinas). It taught how to handle concepts properly. It was no chance that scholasticism preceded science, having collected vast material for it. The merits of scholasticism have not yet been appreciated.

**L.N.Mitrokhin.** In comparing science and religion one must realize that they represent social institutions. Each one develops its own ideals, its attitude towards authorities, its criteria of truth, its motivations for activities. Therefore a comparison of science and religion based on the theory of knowledge will not yield a complete picture. In this case, also, history cannot be understood.

**V.N.Trosnikov.** I shall give an example of words changing meaning. In modern languages the word "word" stands for a unit of speech. Our ancestors had it sound like the Greek "logos", i.e. it had an ontological meaning. The biblical expression "the Word was God" must be understood in this sense.

# *Can science reveal the meaning of life*

G.Tomas Sharp

Science, as presently understood and practiced, is indeed a legitimate knowledge building procedure whereby cause/effect relationships that presently occur within the natural world can be observed, controlled and continually investigated, in an attempt to correctly understand a specific objective that is being examined. As a matter of fact, it is within the present scientific context that the exploding technological achievements have developed, and are continually developing. Moreover, the burgeoning fund of technological information grew so rapidly during the last half of the twentieth century until it was stated in the early 1980s, that by the year 2000 seventy percent of the words that will appear in the average Webster's Dictionary, haven't even been invented yet. It is therefore without question, and needs no further discussion here, that new knowledge, both pure and applied, can be ostensibly obtained as the result of modern scientific methodology (even though, as any elementary class in the history of science will reveal, many of the modern scientific accomplishments and discoveries were stumbled upon quite by accident, e.g. Alexander Fleming's discovery of Penicillin).

Nevertheless, the positive benefit of the present-day scientific revolution that began with men like Copernicus, Galileo and Newton is attested to in the existent fields of health and medicine, as well as in the plethora of technological advancements affecting daily life, without which modernity would simply be an imaginative figment within the tortured daydreams of a lonely and suspicious old novelist. It is just at this point in our thinking, however, that we must ask two, simple and candid questions regarding the ability of modern scientific processes to attain reality, i.e. cosmogony and two of its principal corollaries: epistemology and ontology. First, do modern, scientific, fact-finding procedures have any limitations? If so, what are they and how do they relate to any reliable scientific understanding concerning first origins and total reality. And second (a logical extension of the first question), can scientific procedures ever, in a final sense, reach absolute truth concerning any matter? The answers to these two questions, along with their natural ramifications, will shed measureless illumination on the solution concerning the topic of this paper: ***Can Science Reveal the Meaning of Life?***

While we prepare to answer the above mentioned questions, the author must mention a word about the meaning of life. The reader will immediately notice that injected into this discussion is the idea of first origins. Consequently, the reader might justifiably ask: "Since the meaning of life is ultimately the quest of this paper, why has the author introduced the idea of first origins?" The answer to this question is relatively elementary and it is only brought up as a means of emphasis.

In the final analysis, there are only two possible explanations or models that can be given for first origins. It is either theistic creationism or materialistic evolutionism — it simply boils down to one or the other. There are many schools of thought contained within each of these two generalizations, however, one must ultimately believe in an eternal God or eternal matter. And our view of origins, whether by special creation, as the work of a loving, purposeful, intelligent, transcendental being, or as the results of a mechanistic, naturalistic, evolutionary process, guided only by the interplay of time, environmental pressure, random selection and accident, will dictate our view of meaningfulness. In short, the question with which this paper is really asking is: can scientific methodology, in any absolute sense, help us determine which of these two cosmogonical models are true?

Let us now go on to the questions that were introduced earlier in the paper, viz.

1. Do scientific processes have limitations?

2. Can science ever produce absolute truth in any area? First, then:

***The limitations of science***

It is necessary to briefly appeal to the history of science at this point. World renown scholars, such as Stanley L. Jaki, professor of history of science at Seaton Hall University, and Alfred North Whitehead, professor of mathematics and philosophy at Harvard University (among others), plainly reveal that the modern scientific discipline "came out of" the worldview of Theism and the Judeo-Christian belief pattern<sup>1</sup>. Dr. John Moore, of Michigan State University, referring to this same phenomenon, wrote that: ... modern science, as a discipline, was "stillborn" in the Greek, Arabian, Chinese, Babylon, and Egyptian cultures. Modern science began when the basic Hebrew worldview on creation was taken seriously in varying degrees of commitment, by such men as Roger Bacon, Robert Grosseteste, Francis Bacon, Copernicus, Galileo, Versalius, Tycho Brahe, Carl Linne, John Ray, Robert Nuttall, Johannes Kepler, and Isaac Newton... [These] early scientists believed that the universe, including the earth and life on the earth, had been created by a reasonable God. They believed that God had created an orderly universe (uniformity of natural events), that they could look for explanation of any event in terms of earlier events (cause and effect), that objective reality existed — there was something "there" that could be studied successfully, and that the natural environment was worth studying for to do so was to investigate God's creation. Early scientists believed that such investigations were possible because human beings had been created in the image of God; human beings could find out about natural things because they had been given dominion, as God's creations, over all things...<sup>2</sup>

Dr. Moore further identified such illustrious men of science as Robert Boyle, Michael Faraday, James Clerk-Maxwell, Gregor Mendel, and Louis Pasteur, who also did their "scientific work within the thought forms derived from the Judeo-Christian worldview; and their special methods of inquiry resulted in discovery of many lawful relationships, which they believed were established by God, *the law giver*"<sup>3</sup> (emphasis added).

To further support the historical accuracy for this conclusion, let's take a look at the words found in a 1987 textbook on biology used throughout the United States in college and university classes entitled, ***Life: the Science of Biology***. Written by two leading science educators, both evolutionists, Professor William K. Purves of Harvey Mudd College and Professor Gordon H. Orians of the University of Washington, who frankly admit that:

Biology began a major change in paradigm a little over a century ago with the general acceptance of Darwin's theory of evolution by natural selection. The change over has taken a long time because it required abandoning many components of a ***different worldview***. The pre-Darwinian world was thought to be a young one in which living organisms had been created in essentially their current forms. The Darwinian world is viewed as an ancient one ... in which we would not recognize former living organisms of the future if we were transported forward in time, nor organisms of the past if we were transported back in time. Acceptance of this paradigm involves not only acceptance of the process of natural selection, it also involves accepting the view that the living world is constantly evolving, ***but without any future "goals"***<sup>4</sup>.

This cursory appeal to history regarding the men responsible for the beginnings of the modern scientific revolution is extremely important to the solution of this first question because these same men also recognized the obvious limits of their inves-

tigatory abilities. Accordingly, they realized that any legitimate scientific inquiry must be strictly held within the narrow parameters of empirical methodology and that the ensuing processes and findings must also be both repeatable and falsifiable, respectively. Not only did the founders of modern science recognize the empirical nature of real scientific methodology, it must also be noted that there has not been any technological advancement or discovery accomplished since then that has been achieved outside this same narrow purview and regimen.

Is modern science limited? Of course it is! All contemporary scientific inquiry totally "involves natural objects and/or events of the present (that are occurring during the life experience of some human beings), which are either directly or indirectly observable in a comprehensible fashion that can be repeated,"<sup>5</sup> and whose previous hypotheses and/or theories will be corrected, or changed completely, when warranted by more recent research. This is true in biological research, chemical research, physical research, in the earth, the sea and the sky — all real scientific endeavor is locked into this experimental construct.

This quite simply means that real scientific procedure is founded upon present observational authority within an empirical context regarding cause/effect relationships of natural entities and/or events. Therefore, real scientific procedure involves the development of scientific questions that are answerable within the bounds of these same modern scientific processes. Consequently, such questions as:

- What caused an explosion of a so-called dense particle that supposedly gave birth to the universe?
- What was the directional blueprint that guided the so-called spontaneous fusion of sub-molecular particles?
- What mechanism caused the supposed orogenic dynamics resulting in new mountains, valleys, and canyons?
- What mechanism caused the supposed break up of a supposed single land mass?
- What was the cause of sexual differentiations, feathers and flight, bipedal locomotion, life, etc.?

***are not, I repeat, are not scientific questions!***

There is a distinct difference between real scientific questions and the theories that surround those questions and broad, historical generalizations regarding first origins, which are nothing more than the religious opinions of scientists. Even though these opinions are all dressed up in scientific nomenclature, and are all comfortably sitting within the confines of accepted scientific respectability, and are supported by the rarefied atmosphere of the latest scientific research and findings. The fact remains: real science, as defined over the past 500 years by precept and example, simply cannot investigate the unobserved past! Furthermore, it is thermodynamically impossible to study present processes and understand original creation. Therefore the highly restricted corridors of modern science can tell us nothing about the how or when of origins. At best, because of our understanding of the two laws of thermodynamics, the present space-mass-time continuum could not have arisen within the context of known chemical and physical laws for these are laws of conservation not creation. Moreover, the original creative process must have taken place recently because entropy is leading us and the entire universe down the hill to death and decay. Accordingly, time is not on our sides, especially 4.5 billion years of time. Thus what we really, scientifically know demands that first origins was the work of a transcendental, intelligent creator not too long ago. And so, it seems, the real meaning of life is inseparably associated with Him and His purpose in the earth.

Paul the Apostle understood this fully, and because he did, he forcefully warned believers of the first century to beware of materialistic philosophy. He especially did

so among those who were converted from Greek society. Notice his words recorded in Colossians 2:8-10:

Beware lest anyone take you captive through philosophy even empty deceit, according to the tradition of men [Aristotelian], according to the elements of the world, and not according to Christ [the Creator]. For in Him dwells the fullness of the Godhead bodily; and you are complete in Him who is the head of all principality and power.

There are two extremely salient ideas in this Pauline paragraph that needs additional commentary. First, you will notice that Paul referred to a philosophy that was built upon the tradition of man's thinking and further, that this rationale identified reality with the elements of matter. This paradigm of reality is inseparably associated with Aristotle and company, and is indeed the fundamental postulate of classical materialism, and was the driving force of the European Renaissance. <sup>6</sup> Paul was continually in contact with this cosmogonical viewpoint throughout the Greek world during his missionary agenda in the first century A.D.

The second, and very significant fact presented in this Pauline passage is that materialism is shown to be based and supported only by secular philosophy — i.e. human experience and reason only — and not on any other basis. And further, Paul makes it plain that materialism is diametrically opposed to supernatural creation. While I know some will argue that Paul lived thirteen hundred years short of the modern scientific era, and therefore, that his writings are ignorant of present scientific findings, nevertheless, he made it clear that total reality could not be found outside the knowledge of and belief in the person and the sovereign acts of the Lord Jesus Christ — the great eternal Creator!

Before closing this section, the reader must be reminded once again that real scientific practices are limited to the time-bound, three dimensional, intellectual capabilities of man. Accordingly, all knowledge that we possess in any area is always incomplete. At any given time and on any given subject, we never know how much we have discovered about a particular subject in relationship to how much there is yet to know about that same subject. This is true for all genuine empirical processes, and because it is, it is doubly true for those speculations and hypotheses regarding first origins (which obviously lie outside the rigors of real scientific endeavor). Therefore, the conclusion and answer to this first question is obvious: real science is limited to the empirical evaluations of real people in real time.

Can truth about origins and total reality be determined in any other way? Notwithstanding, the positivistic views of August Comte that strongly influenced the thinking of Charles Darwin, the author of this paper believes there is yet another way. To consider this other way leads us to the second question we asked earlier in this paper.

### ***Can science produce absolute truth?***

This is a question that specifically deals with the highly contestable field of epistemology. How to know truth has been the pursuit of man for time immemorial. The first and most natural corollary of truth is life's true meaning, for to know truth is to have meaning. Obviously, the discovery of the truth as it is related to such questions as: from where did I come, who am I, for what am I here, and where am I going, is considered the epitome of meaningfulness.

But how can these questions be solved? Can they be solved scientifically? Can they be solved philosophically? Are they solvable at all? Keep in mind that we have already established in this paper that scientific knowledge is always incomplete. If, therefore, these questions are solvable, upon what basis or by what system are the solutions forth coming.

It is a well known fact, one that has been accepted for some time now, that man's approach to cosmogonical understanding whether through scientific research, philosophical reasoning, or theological review — all three approaches are extremely interrelated. Michael Ruse, professor of history and philosophy at the University of Guelph, openly admitted in his book entitled, *The Darwinian Revolution*, that:

... the organic origins debate was not a matter of "pure science" (whatever that might mean). Quite apart from social and external factors, we find that along with science it incorporated important elements of philosophy and religion. Moreover, although for convenience of exposition one may identify various elements in someone's thought, such separation tends to be artificial, ***for science, philosophy, and religion are closely meshed*** (emphasis added) <sup>7</sup>.

Therefore when seeking satisfactory answers to these questions about the ultimate cause, the chief purpose and the primary direction of life neither philosophy, religion, or science (and especially science) are capable concrete answers. All three approaches must build their model, a priori — what Aristotelian logicians refer to as hypotheticodeductive thought. And in every case the strength or the weakness of any particular model are the founding assumptions upon which the system of thought is built. In every case whether the proponent is a debater for theistic creationism or materialistic evolutionism, the cornerstone of their argument is a step of faith.

This idea is anathema to all materialistic scientists and thinkers in general, but the fact remains, an actual accounting of the how and when of first origins is outside the scope of scientific investigation. All that scientists can really observe are the finished objects and systems of the universe. Explanations of how and when they came about are nothing more than the educated guesses (some more educated than others) of men who view this circumstantial evidence (i.e. fossils, mountains, rock strata, novae, galaxies, etc.) through their personal bias. Thus giving these bits of evidence a historical interpretation that is always in keeping with their personal belief system.

All theories, therefore, that offer explanations to first origins are religious systems requiring faith on the part of their proponents. For example, if a scientist creates life in a test tube and then reports that his findings prove that life originated on earth three billions years ago by natural processes. No doubt, because of the force of his experimental results, many will believe him and accept his conclusion. But there are two extremely obvious facts about a conclusion of this kind that we must not overlook. First and foremost, this experimental process and the stated conclusion is like comparing apples with oranges. It is quite ludicrous to conclude that after you have just applied the accumulated biochemical research and expertise of two hundred years, and have used the latest technological advancements in laboratory procedures, and the combined intelligence of a ten-man research team, and have spent hundreds of thousands of dollars in the process, that you have now conclusively proved that life arose on the earth quite by accident only guided by random, naturalistic causes! Furthermore, nothing has been said about the atoms, the elements and the highly complex molecules with which the scientist worked, whose origin is still altogether unknown. Second, and just as obvious, is the fact that what the scientist did only proves that he can now perform a particular scientific procedure. His accomplishment does not prove that life first arose on earth in this manner. The fact that he arrived at this particular conclusion is merely evidence of his faith in materialistic evolution as an explanation of origins — and nothing more.

To know the how and when of origins requires either personal observation of the phenomena, or a historical accounting of someone who was in observation of the occasion. And since man was not there, all of the scientific processes in the world,



now and forever, will never produce that particular knowledge!

***How can we know?***

The author of this paper is totally convinced after thirty-five years of scientific, philosophical and theological study, that the Genesis account of origins is the only reliable accounting of this event. This written record is empirically sound because it was observed by the creator Himself whose first hand report was in turn given to men via revelation. Now the author confesses his faith and belief at this point. But it is not a blind faith, it is an objective faith — one that is checkable and testable by sound scientific procedures.

This does not mean that the original creation can be reconstructed in a laboratory setting, not at all. But it does mean that the Genesis model allows for scientific predictions that one would expect to find if he cared to look for them in the world of natural phenomena. In all areas — biological, chemical, physical, and astronomical — a careful perusal of Genesis and other supporting Scripture will reveal total agreement with all known scientific findings. It seems the more we understand about the universe and the more we understand about the Bible, the more their agreement is apparent.

Again I appeal to Paul the Apostle, in his epistle to Rome (1:20), he said:

For since the creation of the world His [the Creator's] invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead, so that they are without excuse.

To view, with honest and forthright intentions, the wonders and complexity of the universe and not to recognize clear and undisputed evidence of intelligent design, Paul says, is inexcusable.

If indeed this is the case, then here and only here, rests the full meaning of life. Is this meaning scientifically obtained? NO! But the findings of science point in that direction with undeniable accuracy. How do we know for sure? For this answer, I go one more time to the writings of Paul. In Hebrews 11:3, he writes:

By ***faith*** we understand that the worlds were framed by the word of God, so that the things which are seen were not made of things which are visible.

Respectively submitted: G.Thomas Sharp, Ph.D., Creation Truth Foundation.

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## *Three points of view on evolution*

**P.A.Akifiev**

The first question to arise in the discussion of the problem formulated is whether biological evolution actually took place on Earth. Three answers are possible. The first: it did and it depended on natural selection as claimed by the supporters of Darwinism. In this case selection served as the sole governing factor. The second: no evolution took place, only a sole act of Creation occurred. And the third: evolution did take place, but it was governed by a Superior intelligence, the Creator, and it had a definite purpose and followed a certain scheme. I pertain to those for whom the third point of view seems most relevant. I shall defend it and discuss its consequences. Paleontological data, fossil remains of animals and plants that once lived on the Earth reveal that the number of species having died out is over 30 times greater than the number of existing higher plants and animals. The farther away in time are these species, that formerly reigned over the Earth, the more primitive is their structure. About 800 million years ago the Earth was inhabited by bacteria, blue-green algae, and one-celled protozoa. Then appeared the first multi-celled organisms. Evolution, or progressive evolution is understood by most scientists to be the path leading from a single cell to man. Yu.M. Olinov stressed that one of the most important features of progressive evolution consists in the organization of the principal biological species becoming more and more complex in the course of transition from an earlier to a later geological period. It may be that evolution really did proceed from one-celled organisms toward human cells, although such a point of view is certainly not the only one existing. The biblical version of the origin of life on Earth is full of symbolism. God did not speak with Moses in the language of molecular biology. One day of Creation narrated in the Bible cannot be equated with 24 hours. It expresses a completed period or cycle in development. Before the Creator, writes Apostle Peter, one day is like thousands of years, and thousands of years are like one day. According to the synthetic theory of evolution, i.e. modern Darwinism, natural selection is the only decisive factor in evolution. This means that species exhibiting certain advantages in a given environment are capable of leaving the largest number of offspring, of carriers of these adaptive characteristics. It is not difficult to see that selection itself is a consequence of the heterogeneity of a population with respect to various characteristics: there exist fruit flies (*Drosophilas*) with white eyes, with pink eyes, and so on. Let us explain the action of selection taking advantage of an example from a textbook. We mean so-called industrial melanism. There is nothing mysterious here. In the middle of the 18-th century, in England and in other developed industrial countries coal started to be widely used as a source of energy. This was accompanied by the release of soot, owing to which the birch trees in many woods surrounding the factories became black. The grey butterflies inhabiting these woods became easy prey for birds. Consequently, the small populations of black butterflies, melanics, started to multiply rapidly, since in this case their color happened to be protective. Such events are interpreted by Darwinists as evolutionary, although in this case, like in other similar events, the structure of the organisms does not become more complex: butterflies go on being butterflies. Darwin and his followers consider organization becoming more complex to be only one of the possible supplementary consequences of such adaptations, i.e. there exist numerous versions of adaptation, and one of them is accompanied by an enhancement of the level of organization, which is a by-consequence. Thus, according to Darwin, evolution is a chain of by-consequences. The example of bacteria is interesting. Bacteria are capable of living

in the water of hot sulphurous sources at temperatures up to 90 degrees or in the water of nuclear reactors, and of multiplying in Arctic and Antarctic ice. Such a range of adaptation is outside the reach of higher organisms. However, the level of organization of modern bacteria is practically the same as that of their far-away ancestors, that lived 500-800 million years ago, when only the primary multi-celled organisms started to appear. All Darwin's evolutionary factors, including selection, affect bacteria in just the same way as the higher forms. However, bacteria have remained beyond the scope of progressive evolution. In this case Darwin's interpretation of selection as the factor governing evolution does not just give rise to doubt or is not just incomplete, but is scientifically unfounded. Many Darwinists, also, are not satisfied with the idea of evolution being a chain of by-consequences. Therefore, with the purpose of saving the idea they arbitrarily assign natural selection a creative power. However, creativity is an attribute of a creative personality. Either of God, or of man, if we do not wish arbitrary confusion of concepts. Creativity implies the presence of a plan and of methods for its implementation. Is it possible to find any creative component in the activity of birds pecking at grey butterflies on sooty birch-trees? Assigning a creative power to selection is just mythologization of one of the doubtlessly existing, but not principal, factors of the evolutionary process, its transformation into a scientific idol. Here we enter the realm of scientific methodology. Biologists are in a dilemma determining their line of research. Either they are to search for eternal and unchanging laws governing the world, the issue of which has been dealt with for many years starting with Apostle Paul. Or, attempts are to be made at explaining all that exists in Nature by natural causes, for instance, by blind selection. In the case of industrial melanism the situation is simple. The explanation lies within the range of natural causes. Another situation arises in the case of a macroevolutionary event. For example, in the case of vertebrates starting to inhabit dry land, or the development of the human brain. One can explain exactly what took place, but it is absolutely impossible to understand why it did so without invoking purposefulness. Yu.A.Schreider has raised the interesting issue of it not being possible for higher manifestations of human morality to arise in the course of evolution. Biologists have many times dealt with examples of altruism arising in an environment of lower organisms. Sacrifices are also spread among animals. So the origins of human ethics are to be found within the framework of evolution. Evolution proceeded together with purposefulness. The Creator had a plan for this process, including the creation of man. We encounter a great number of questions. Why did human beings who lived 40-50 thousand years ago, primitive hunters, need a brain with the aid of which man set foot on the Moon and returned back to the Earth in the year of 1969 AD? The constant references to natural selection, which we heard from Darwinists already for 135 years, leads one away from revealing the true laws of live Nature and, especially, the mechanisms underlying progressive evolution. There are strikingly few laws in biology. The Great Encyclopedic Dictionary mentions 15-16 laws, of which 4 pertain to genetics. It is extremely surprising that the most important property of live matter on Earth, its discreteness and continuity in space and time, has not been ranked a law. A writer's fantasy may also create something else, I have "Solaris" in mind: a continuous global live system. But on Earth everything has proceeded differently: each one of us is an individual carrier of life. This concerns plants, animals, and micro-organisms. The discreteness in space is rigidly protected in higher organisms. It is violated only once in a lifetime: during conception. One has a very beautiful situation: the continuity of live matter in time (the birth of a new individual) is achieved via violation of space discreteness. Reproductive cells - the seed of Abraham, according to the Bible - unite us with our faraway ancestors,

retaining the informational and material heredity throughout the row of generations of organisms. At the same time every organism is mortal. Aging and death are inevitable. They pertain to the eternal and unchangeable laws of live matter. It is interesting to consider the relationship between natural selection and the mortality of an organism. Natural selection adaptively promotes valuable features of the given environment. It would seem that favorable mutations and natural selection should result via evolution in enhancement of the life-span, i.e. push live organisms toward immortality. This, however, never happens. This path is totally closed to natural selection, since it contradicts discreteness in time. The contradictions between Darwinists and their opponents are quite profound in what concerns the general course of the evolutionary process. Analysis of postulates of the synthetic theory of evolution has led the well-known biologist N.N.Vorontsov to the conclusion that evolution is unpredictable and that it does not exhibit any orientation in tending toward a final goal. In other words, the possibilities of evolution have no restrictions both from the standpoint of expansion and profundity, since selection always seems to have at its disposal appropriate material, i.e. any forms of hereditary changeability, capable of giving rise to any characteristics. This, however, is far from being true. Evolution was the manifestation of a certain scheme, and it ultimately resulted in the existence of man. At present man controls the population of many species. Many of them are in the Red book of endangered species. In 100 years such control may be extended to all existing species. In accordance with the Bible, man will become the rational master of the Planet, instead of being a destructive element of the biosphere, a role often assumed by man at present. Man is burdened with numerous vices. Man plans and realizes murder of his own kind on scales hitherto unknown. The fear of death is the main source of mankind's lack of freedom. Add, here, deception, the feeling of hunger resulting in aggressiveness, and so on. All this leads some philosophers-materialists to criticize the concept of directed evolution. If man is the crown of the Creator's labours, then why did he turn out to be so imperfect? Maybe, Nature (the Creator) missed a error in the design while creating man? Religion has long ago answered this question. The defects of man, his sufferings are the price for freedom in choosing the path. Who are you with? Either with God, or with the devil. But science, for instance, genetics, also reveals sources of contradictions in man. One and the same gene may contribute to aggressive or to quite peaceful behaviour. This depends on its informational content. The appearance of various mutant forms of one and the same gene is inevitable. Given the method for the reproduction of human beings, genes promoting sinful behaviour appear and remain within the human population. This scientific conclusion is in striking agreement with the biblical truth stating that sin is transmitted via the seed of Abraham, i.e. via DNA. Who, then, is Jesus Christ, and why did he come into this World? Specialists in the Gospels have repeatedly answered these questions. The divine nature of Christ consists in his perfection. Uncontrollable combinations of genes could not create such a person. From a biological point of view, Christ cannot be distinguished from a man, he is a God-man, the incarnation of God. I now come to the main idea of my talk. Man is both the goal and the crown of evolution. Through man the Creator of the universe can assume a visible image. For this reason man had to appear on Earth, created of mundane matter, and having gone the way of his animal ancestors. Christ has shown us the example of a real man tending toward his father, the Creator of the universe, the creator of all visible and hidden forms. Why, then, do Christ's deeds and many of his words seem to be covered with a shroud of mystery? Because Christ, unlike anyone before him and, probably, after him, possessed the gift of complete forgiveness. He knew the true mystery of sin, its genetic structure. Sin is due to Satan being coauthor

in the creation of man. If we are not capable of improving our genes which inevitably lead us to sin, are we justified in not forgiving our neighbour? And Christ says: love your enemies, bless those who curse you, worship those who hate you, pray for those who hurt you and pursue you. Nearly 2000 years have passed since the Saviour preached on Earth. His followers multiply. And, finally, the truths of the Gospels, whether the followers of other religions wish it or not, have become the basis of the Human rights Declaration adopted by the UN. This document defends the freedom created by God via the genetic stipulation of man. Now, what about Darwinism? As a scientific theory it exhibits no predictability of value and has turned out to be totally fruitless from a practical point of view. Not a single scientific fact exists which could justify Darwinism. The failure of Darwinism consists primarily in the evolution of its creator's views. When a young man, Darwin voyaged as a naturalist on the ship "Beagle". He had been given an orthodox religious education. His opinion of religion started to change as he worked on the origin of species. However, by the end of this many-year work he had not actually become an atheist. This was clear from the concluding phrase in his principal work. Therein the Creator is written with a capital letter, and the main species are said to be created by the Creator, while natural selection only leads to the appearance of varieties. This phrase is often the cause of awkward situations for the supporters of Darwin. I think it is quite sincere. Bearing this phrase in mind, one cannot claim that Darwin created the theory of the origin of live species on Earth without the participation of God. But in the zenith of fame, 6 years before his death, Darwin wrote in his autobiography that he came to hate Christianity. What happened with him? He substituted the idol of natural selection, to which he absurdly assigned creative power, for the natural Creator. To-day Darwinism can actually be considered finished as an acting paradigm. This cannot be done in our country for known reasons, but in the West, also, in spite of individual attacks Darwinism continues to occupy a leading position in biology. This is largely due to two reasons. First: western society is penetrated by the spirit of competition, which is quite consistent with Darwinism. Second: this is the so-called atheism advocated by scientists, who separate within themselves the researcher and the Christian. I was astounded, when I heard of the burial service for L.N.Gumiliov. This took place in spite of all his writings being of a clearly antireligious nature. Owing to the combinatorics of genes mentioned above, the combination of genes of good and of evil results in the appearance of people adhering to marxist-darwinist thinking. They may be active, purposeful, persistent, and claim to assume the role of new gods or, to be more precise, new idols. The signal of such individuals presenting danger to society consists in attempts at separating science and religion.

**P.D.Tischenko.** Which scientific method, experiment is capable of confirming or of disproving your idea? May one substitute Krishna, Buddha, Muhammad or anyone else for the Christian God.

**A.P.Akifiev.** Neither Krishna, nor Buddha or Confucius were the incarnation of God. They were just ordinary people. Only Christ was perfect. He was the son of God.

**P.D.Tischenko.** There is present in our hall a buddhist. For him everything is the opposite. In science differences between two points of view are resolved by experiments, by scientific methods. If you have no method for resolving the discrepancy between your opinion and any another opinion, you are then dealing with natural philosophy, instead of science. This, also, is a respectable activity, but it has nothing to do with science.

**A.P.Akifiev.** I have been active in science for 35 years. I do have an idea of the essence of science. But now we are not discussing scientific problems and methods. What we are discussing is beyond the scope of experimental science. Does science have anything to do with it? Yes, it does. The example of Darwin illustrates the delusion of a scientist without religious faith. He created an erroneous theory. The hypnosis of this theory that lasted 135 years has resulted in the necessity of constructing the science of biology from the very beginning.

**P.D.Tischenko.** Are you proposing another biology?

**A.P.Akifiev.** If I could live through a second life, I would study this other biology. An example: for the stomach of a cow to appear, the mutation of a sole gene is insufficient. A whole ensemble is required of mutations of genes independent of each other. This signifies the existence of a law that has hitherto not been discovered.

**P.D.Tischenko.** Do you have a universal plaster for covering up any hole or problem?

**A.P.Akifiev.** No, on the contrary. I am saying that one must search for other ways of research and thinking.

**Ye.L.Feinberg.** How does the gene of goodwill differ from the gene of evil?

**A.P.Akifiev.** Not long ago a book by Dolkins has been published. Its title is "The egoistic gene". The author considers the following example. Someone is drowning, and another person is passing by. The allele of the gene of goodwill makes him reach out his hand, the allele of the gene of evil will just make him pass by. Thus, the genes influence the behaviour of man.

**Feinberg.** How do you know this? Has histological analysis revealed the difference between the genes of good and of evil? Or is it your fantasy?

**Akifiev.** No, this is no fantasy, these are scientific symbols. The genes of good and of evil have not been discovered. But this does not mean there are no such genes. Before Mendel we knew nothing about any genes. I shall refer you to the three volumes of "The genetics of man" translated into Russian at the beginning of the 90-ties. They were written by two most prominent geneticists. About 70 pages therein are devoted to the genetics of behaviour. Behaviour is influenced by very many genes. In a number of cases the behaviour of a person can be judged by his electroencephalogram. Well-known is the alpha-rythm which characterizes the profound essence of a personality. Monozygotic twins (identical genetic copies) have alpha rythms differing not more than photographs taken of one and the same person. The rythms of different people differ significantly. The genetics of behaviour is a large part of biology. Genes of property are spoken of. Academician Amosov is convinced that such genes actually exist. They have not been obtained yet in their explicit form, like the genes determining the colour of the eyes or of the group of blood. But many researchers are active in this field. Not long ago I saw an article entitled "Genome dactyloscopy of DNA and agresive behaviour".

**Feinberg.** That agresive behaviour depends on the genom is a hypothesis which seems to you probable and plausible. But you exclude the influence of society on the eduction of a person. This seems to me doubtful. The importance of genetic factors is well known. For instance, I know the result of a study performed with monzygotic twins. Two brothers married women both called Linda at about the same time. But to distinguish between what is genetically inherent and what is due to social education is, nevertheless, a difficult task.

**Akifiev.** I didn't do that. I totally agree with what you said.

**Fienberg.** But didn't you speak of genes of good and of evil, i.e. of genes of behaviour?

**Akifiev.** Those words can be put in quotation marks. Incomplete dominance, of which you speak, i.e. pliancy, dependence on the environment, may be related not only to the genes of good, but, also, to genes determining colour. At one temperature primulas may have red flowers, while at other temperatures the flowers will be white. Everything is much more complex. No-one negates the role of society and spirituality. I just wish to stress that development proceeds from bubbles with genes merging together, and nothing more is involved.

**Feinberg.** Yulyi Anatol'ievich said that conscience is a gift of God. I have an objection. Conscience and behaviour depend quite essentially on the social conditions in which education takes place. I am very glad we have here specialists in this field. They may confirm or disprove my arguments. My friend K.A.Skvortsov, a psychiatrist, read my article on the historical changeability of social ethics. He recalled the following example. King David, the author of wonderful psalms, was a very educated person. But he used a wooden saw to cut someone's hand off! Did this happen, or didn't it? Has this fact been recorded somewhere or not? If yes, then it is the best example of how ethical norms change historically. Can anyone give me an answer?

**Dmitrii Smirnov.** King David did not cut anyone's hand off with a wooden saw. But such a fact is described in the Bible. The Prophet was cut by a wooden saw. The king had nothing to do with it.

**Akifiev.** The personality of man being multi-faceted is determined genetically. Any third-year student knows that. When the sexual cells become mature, processes take place, which reduce to the combinatorics of various genes, therefore one can be like Hamlet, a son in grief or a cold-blooded murderer. Why do actors love Hamlet? Because everyone recognizes something of his own, something he is capable of embodying. There is Matriona of Solzhenitzyn: she is a sacred face, an icon. And there is Karenin, a negative personage. But, when he comes up to the bed, where the son of Anna and Vronsky lies, he all of a sudden feels a tenderness, which he never even felt for his own son. Now, Vronsky had already decided Karenin was to die. The contradiction inherent in man has been noticed repeatedly. It is due to the combinatorics of genes, discovered by Mendel and Morgan. Schrodinger was admired this fact in his well-known book.

**Yu.A.Schreider.** Can it be understood that you share the nomogenetic concepts in evolution theory? If yes, then which of them seems to you more attractive?

**Akifiev.** I am familiar with the nomogenetic concept to which the Russian scientists Danilevsky, Berg, and Lyubischev adhered. They were all atheists. They knew the regularities characteristic of evolution and of the organization of live matter. Vavilov's law concerning the mechanisms of hereditary changeability impose rigorous limits on evolution. This, also, is nomogenesis. At that time Vavilov renounced Berg for political reasons. Subsequently, Berg renounced his own laws and started to work on something else. Lyubischev never renounced his own cause. He was a high-principled person. He was a materialist. They all did not need God. Like Laplace, they claimed they could do without Him. I understand my colleague who can also be without God. As I said, when concluding my talk, owing to the combinatorics of genes there will always be believers and atheists among the people. Now,

look at what happened in our country. We have lived through 70 years of terrible pogroms and defamation of religion. Go to any Moscow cemetery of 20 years ago. You will see 10 graves having crosses. Among the burials of recent years you will find 90 atheism. But it is the path leading to God, which is sought spontaneously by uneducated people. Practically all geneticists agree that religious feelings are components represented in genes abundantly. Well, precisely God created this possibility of communicating with man.

**Schreider.** Lyubischev was a Platonic, not a materialist. I know this for sure.

**Akifiev.** To-day Aristotle has been enlisted as a materialist. When I was a student, Aristotle was said to be an idealist. Plato was his teacher.

**Schreider.** Quite right. That isn't really materialism, but S.V.Mein, a student of Lyubischev, who studied nomogenesis, was an orthodox Christian.

**Akifiev.** Sergei Viktorovich was an ultrastochastic. He acknowledged artefacts in science. He said artefacts contain part of the truth. He was against the absolute. Concepts that are reconciled with difficulty sometimes go together in one person. L.Andreev created a fantastic non-existing world in his book "The rose of peace". But he attended the Orthodox Church. His wife confirmed his adherence to the orthodox faith and was against creating a new religion of the "rose of peace".

**G.T.Sharp.** Ten times in the Book of Genesis is creation of man by the Creator in a form similar to Him mentioned. We may speak of adherence to religion as a genetic phenomenon. It is just as reasonable to consider biological species to be created in accordance with a certain scheme.

**Akifiev.** It is interesting that the primary regularities may be stored in the stereo-chemical properties of molecules, even non-organic. This point of view is being developed recently by Limo Dephari from Sweden. His book has been translated into Russian. Therein, the plan of future development is said to be already found in an elementary particle. L.Dephari likes analogies between crystals and animal forms. But, being a materialist he forgets that animals are the result of development based on a genetic program. A mutation may destroy a given biological form. At the same time crystallization proceeds according to other laws. L.Dephari confuses this. It is characteristic for supporters of nomogenesis to search for laws outside God and outside evolution.

**T.Sharp.** Organic systems only operate with left-handed amino acids and right-handed nucleotides. Without intelligent creation such a thing could not have happened.

**Akifiev.** In the institute where I work (the Institute of Chemical Physics of the Russian Academy of Sciences) academician Gol'dansky dealt with this problem for 20 years and came to the conclusion that some phenomenon such as phase transition took place in the biological environment. An extremely long time is required for the DNA carrying the genetic code to appear in a natural way. For a monkey to spontaneously type the phrase: God created Man like and similar to Himself,  $10^{60}$  years are needed. But the solar system is only  $4.5 \times 10^9$  years old.

**Father Boris Nechiporov.** Everything you say is very attractive. I would just like to clarify some details for the audience. At the molecular level we find genes of evil, worry, fear etc. In doing so we do not try to avoid the systematic approach developed in neurology, neuropsychology during recent decades. We once again come



back to Halen, who found, inside the brain, regions of surprise, fear etc. Probably, you do not reason like that to-day. Your explanations must be clear. If a person inherited from birth a set of genes of good and evil, then it would seem he cannot be reponsible for his behaviour. He just has this gene of evil, and there nothing to do about it. Where does reponsibility come in? If there is no reponsibility, there can't be any trial. I think there is some flaw in your reasoning here. And what is the way out? How does the genetic map combine with God's will concerning the concrete individual? Do you remember, how Christ was asked why a person was ill, whether he sinned or it was his parents who sinned? Probably, it is possible to relate the material scheme fixed for a person and God's will concerning him? Or, maybe you can only reason strictly like materialists? Is so, then I cannot agree with you. Then the measure of reponsibility of a person is lost.

**Akifiev.** Biology and genetics, especially the biology of man, are elements of the human culture. A person should be just as ashamed not to know the laws of genetics as when he has not read "Eugene Onegin", "Hamlet", or "War and peace". Without such knowledge much in the nature of man seems mysterious. The gene of delinquency does not act straightforwardly. It is masked. For its realization a whole set of factors is required. The delinquency of identical twins manifests itself in identical ways in 72created the whole genetic pool. But a genotype, i.e. a concrete person, is to a certain extent capable of pliable, conformable behaviour. Therefore, man is reponsible for his deeds. Most people are conformists. Thus, there exists responsibility. Freedom of will is a unique property of the genetic programme of man. If a bee sees a field with buckwheat, it will certainly perform a ritual dance to convey the information to the whole bee-hive. But a person will think about telling anybody or not: a person has freedom of will. In most cases people do what is most beneficial to them. This is the result of very many genes interacting. Moreover, it is genetically impossible to exhaust man. Even when the international programme "The genome of man" is implemented and hereditary matter is completely decoded, we shall not reveal man in his full totality. This is quite evident to me. There exist many interesting problems, here. I wish only to concentrate on one of them: to show that science and religion are capable of interacting, and interacting quite fruitfully.

**Father Boris.** What you are saying is very important. At the faculty of psychology we were taught differently in the 70-ties. We were told that the behaviour and character of a person depends very little on the material basis. Behaviour is just a manifestation of activity, and nothing more. You are saying the opposite. This is very important. I think it is right. The Bible says man will undergo resurrection in flesh. Christ demonstrated this by his resurrection. Both spirit and flesh will undergo revival. The relationship between the spirit and the flesh takes place in our terrestrial life. When we repent or do not repent of something, something happens with our body. It undergoes either cleansing or defilement. It is no chance that we see nimbuses over the heads of saints in icons: they are signs of the body undergoing purification. The body is transformed in our spiritual deeds. Such are the specifics and difference of Christianity from other religions. The spiritual or antispiritual life of a person is connected to the body. It is not indifferent to the body. And the body is a form of the spirit, as the saints said.

**Kuzemsky.** The most serious statement in your talk is that the concept of sin can be introduced at a genetic level determined via DNA. It is no chance that it gave rise to a discussion. From the point of view of Orthodox faith such an assertion gives no rise to doubt. It may be said that this statement pertains both to Christianity and to science. A certain problem is due to the dogma of the Church concerning

the Fall. In the Fall man, probably, loses freedom of will. In the community of religious geneticists the opinion was voiced that a repenting sinner may even alter his genotype. God's grace has such force. The Bible says: "Everything is possible for God". Therefore I appeal, in our pious conversation, for the reunion of science and religion. Let us now turn to the higher activity of the nervous system. It is well known that if only the left part of a child's brain, responsible for logical capabilities, is made to develop, then the child will not develop the ideas of conscientiousness, of goodwill. The child turns out to be incapable of distinguishing between good and bad. Therefore, it is important to combine development of the right and left hemispheres. I shall give one remarkable example, which may point to a defect in the work of the right hemisphere. The prominent psychologist James wrote a remarkable book entitled "The diversity of religious experience". He collected and systematized vast material from practical religious life and theology. It turned out that he was not a believer! This meant something was missing for him to perform an adequate internal estimation of his own work. And here is an opposite example. Academician Bekhtereva was once given the question: "What is the result of your life? You know more than others about the structure of man". She said: "I shall answer in a paradoxical manner: read the New Testament. Therein will you find the answers to all your questions".

**A.I.Osipov.** Here, confusion is taking place of spiritual and somatic concepts. I shall repeat the words of Isaac Sirin, one of the great ascetics of antiquity. He says: the human nature is such that virtues and passions are inherent in man. Passions are not natural, i.e. are given by God. Passions are the result of the distortion of virtuous properties given him in creation. For instance, take wrath. What is wrath? What is anger leading to murder? It turns out that anger is a great property of man. A good property. Sirin depicts the following image: wrath is like a dog guarding a house and not letting a villain in. What has wrath become? An angry flow beating down on our neighbour. The genetic pool only reflects the advance inherent in our nature. Both good and evil are primarily good properties. But they may turn out to be embodied in life in different ways. According to such embodiments we judge a person. Recall Christ's well-known deed. He once said: learn from me - I am gentle and humble in my heart. But He took up the whip. He chased the merchants out of the temple with his whip and overturned the tables. Just imagine: this humble being overturns tables, scatters the money of the culprits, says: take all this out of here! What sort of paradox is this? Now, the paradox is explained by the fact that the genes of wrath may have various orientations. Wrath may not be anger at all. And the humility, with which man is born, gentle like a lamb, may not turn out to be good at all. The genes of good and evil become good or evil, when they acquire the appropriate orientation. An important role, here, is played by the ethical and spiritual orientations of the person. Genetics deals with the primary advances with which each individual is born. What does Christianity do? It doesn't alter the genetic pool. The point is not the genetic pool. The genetic pool doesn't even have to be altered. It is the spiritual orientation of this genetic force that changes, while the genetic pool remains intact. Therefore we encounter a staggering fact in the history of religion. No other religion knows anything of the sort, but Christianity claims it to be so. Who was the first to enter paradise? A criminal! Maybe here we shall find compromise and concord.

**Akifiev.** All this is really great. But, regretfully, there are stubborn facts. Sometimes it is impossible to free a person of what is inherent in him. There are families, which are the salt of the earth, and others which are the litter of the earth. There are families into which up to 70 generations have turned out weak-minded,

alcoholics, or exhibiting delinquent behaviour, and so on. In the past century people from families badly off were adopted by families of well-being for education. The great majority of such attempts were unsuccessful. The individuals adopted either ran away, or grew up to resemble their biological parents. This problem is very complicated. There exist many genes influencing behaviour. Each one is not only in a sole form, but in several. A personality is made up of a large number of genetic combinations. Our hope only relies on the fact that in most cases our personality is conformal. But we should be ready to accept part of the people never to be won over to good.

**Osipov.** What do you call families of well-being, which adopted badly off individuals? Instead of a family of well-being, it is a person spiritually experienced who is needed. Those are different categories. Imagine me to a person of moral well-being, I have killed nobody, have not robbed anyone, but internally I am full of vanity, jealousy, arrogance, and enmity with my neighbour. And nobody sees this. God rid us of such an educator!

**Voice from hole** Remember the Shroud of the Holy Virgin. Blessed Andrei was a scientist, but became blessed. How can you explain such transition?

**Father Vitaly.** We are discussing purely ethical, purely religious issues. They can be discussed for a long time, and no single opinion will emerge. I would like to draw attention to another aspect, since we are discussing religion and science. Genetic engineering and biotechnology have reached such a level of development, that it becomes possible to manipulate genetic information. Such facilities may be used not only in the interests of progress, but also by evil hands. I would like to ask: to what extent can we protect ourselves from immoral games involving biological laws?

**Akifiev.** This issue has interested me since the very birth of genetic engineering, i.e. since 1970. I have dealt with it in my booklet, taking into account the article of the late patriarch Pimen published in the journal "The Moscow Patriarchate". This was a long posthumous interview given by Pimen after the symposium on genetic engineering. The following issues are considered in my booklet. - A chlorophyll gene is introduced into the skin. Then, the influence of the sun will lead to photosynthesis proceeding inside the layer of human skin, and the person will have an independent source of power. But humanity will not adopt such an approach in the visible future. - Genetic therapy consists in curing people by introducing genetic information. Here, influence is exerted on somatic cells, not on sexual cells. This method is developing rapidly. A journal, "Genetic therapy" is already being published. - Correction of the genetic pool, i.e. of the sexual cells, will allow making man not sensitive to tetanus, rabies, certain allergies etc. Such methods will become available within the nearest 25-30 years, or sooner. - The correction of human behaviour is also possible, in principle. Studies are under way along two lines: the methods of introducing DNA into sexual cells are being improved, and the search for genes related to behaviour is taking place. What will happen further? By means of genetic engineering one can hope to obtain a new good human being. I compare this situation with the one in Chekhov's play "Three sisters". The personages of the play say that we live to make the people after us better, cleaner, more beautiful. Everything will be well! And how did it end up? The happenings in the "Three sisters" occurred in 1901. The year of 1917 was not so far away. Now, after the nuclear explosions in Japanese cities, people have become much more serious and responsible in estimating the consequences of their deeds. I conclude my book with a question mark, I do not know whether such a situation will arise, when the society will apply genetic engineering methods for correcting man himself. I have no answer to this question. Technically, it can be achieved in the near future.

## *Religious side of knowledge*

V.N.Katasonov

I would like to speak about the religious horizons of science. The subject we are dealing with is not so exceptional. We say: science and religion. In a similar manner one could raise the issues: art and religion, politics and religion. But for some reason those topics are considered less critical. This is in spite of the fact that in these regions of human activity the issues of Providence, of the synergies of human and Divine wills are also raised drastically. I do not think science is so exceptionally important, it just happened historically that we pay special attention to science. In the antique world the greatest wisdom was attributed to the leaders of the state, not to those who calculated the paths of stars. It is important to decide clearly, what we define to be religion, which type of faith is implied. In cosmology we speak of the personality of the Creator or of the Trinity. And, at present, the most important thing for us is God as a personality and personal relations with Him. At first sight science seems to have nothing in common with this God. Science establishes itself as an enterprise without personality, while values are oriented toward the individual. An individual learns and wishes self-assertion. The individual speaks about what exists and what there should be. On the contrary, science asserts itself as an enterprise which seeks absolute and objective truth independently of personal passions. Imagine, however, a hypothetical situation, which is actually not too far from our reality, in which humanity happens to face a global catastrophe, such as, for instance, the result of total destruction of the ozone shield of the planet. Understandably, reason will start to look for a way out of this situation. Science will assign first priority to resolving this urgent problem. This is a usual situation in science. Science seeks objective truth, and it is certainly not indifferent to the demands of mankind at the given moment. It does not represent the entire universe of knowledge, but works in the direction useful to man. What is good for man, what are the goals of mankind, for example, in scientific activity? The history of science and literature provides examples of scientists of demonic purposefulness, who cynically declare the self-valuedness of knowledge, independently of human interest, whether this knowledge serves the conservation of mankind or not. Such individuals want knowledge at any cost, even death, experiments with people. In the name of the triumph of truth one can even agree to crime. Among natural scientists it is possible to encounter supporters of this approach. Isn't such an understanding of truth and of the goals of scientific studies an illness of the mind? Certain scientific programmes (Darwinism, for example) have demonstrated their ideological orientation during the centuries of their existence. They serve the self-assertion of man in the fight against God. Isn't such an inclination of the mind an illness? Or take Freudism in its pure form. It tends to reduce all the totality of cultural activities of man to sexual manifestations. If Freud really proved this, then one can prove anything. In the 20-ies of our century, the philosopher Emil Meieron put forward the thesis that reason tends to reduce everything to identity. The mind, said Meieron, only understands a sole thing: the law of identity  $A = A$ . Where there is come inequality, there exists something that cannot be understood. Reason tends to fully equate all logical potentials, so as to leave no difference. Meieron showed in a very striking manner how this tendency works in science. The physical law of entropy is consistent with the identity thesis. Leibnitz also considered it necessary to reduce everything to the identity law. But the theorems asserting incompleteness of mathematical logics dealt a serious blow to this tendency. A philosopher is interested in the history and methodology of science, its traditions, the very idea

of reason, which is an extra-national, extra-scientific factor regulating science itself. Depending on how we imagine reason, how we imagine science, precisely such will be our science. History shows that there do exist orientations of values in science. Science develops mostly along lines which are beneficial to man, which have profit. Orientations of values are traditionally related to the heart, instead of reason. These are arbitrary, but stable, cultural concepts. Thus, integral reason is not only reason that meditates, which seeks truth and expresses it in the form of equations. It is also reason oriented toward the scale of values adopted in society. In Russian philosophy, our elder Slavophiles I.V.Kireevsky and A.S.Khomyakov have written about integral reason. Integral reason is not only reason of the mind, but also reason of the heart. Orthodox Christians pose the spiritual problem of overthrowing reason in the heart, of reunification of integral reason torn apart by sin. History shows that preferences of reason, incomprehensible from the point of view of a purely objectivistic approach, are present in the process of scientific search. Take the Laplace law of inertia. This law is of a semiempirical nature. Pure inertial motion does not exist, nobody has ever seen it. What is it? From the works of the creators of this law, primarily, of Descartes and Galileo, the theological nature of the foundation of this law becomes clear. According to Descartes, the law of inertia holds valid, because God always acts in the same way. If no reasons exist for the motion to change, then the motion will not change, on the basis of the axiom stating the constancy of God's action. As you see, here the grounds for the law imply the theological horizon. There are many such examples in fundamental physics, which deals with the very foundations of science. Science does not only make use of experimental data. The category of obligation turns out to be a tool of conception. The Russian philosopher Kudryavtsev considered conception of the existing inseparable from conception of the norm of this existing. The completeness of conception implies conception of what exists and simultaneously of what should be. To be more precise, of what exists in the background of what should be. There are other brilliant examples in the history of science. Let us consider the notions of probability and of equally probable. It is said that, when coins are tossed, heads or tails will occur with equal probability. But this is an approximate statement. A finite series of tests cannot give the exact proof. In probability theory the limit, equal to  $1/2$ , of the probability for heads or tails to occur is assumed to be achieved as a result of an infinite series of tests. But this is irrelevant to the real world. In reality one cannot perform an infinite number of tests. Then, the question arises, what world is that? It turns out to be similar to the world in which Galileo and Descartes constructed classical mechanics. It has ideal planes, absolutely hard spheres, and random equally probable tests. What this hypothetical world has in common with reality remains an open question. Historically, the notion of equal probability arose in the 16-17 century from reasoning about freedom. In Catholic theology this was one of the principal topics. What is freedom? The ideas of indifference and of equal probability were considered reflection of one and the same essence. Equal probability is freedom seen from the inside. Freedom is defined in terms of the concept of indifference. These notions are based on the concept of obligation, and they are included in the physical picture of the world. Obligation is related to the notions of values, supervalues and their hierarchy. The theoretical reason of science turns out to be intrinsically bound, it is oriented toward practical reason, which gravitates toward values adopted by the researcher. In this sense, knowledge and laws turn out to be arbitrary. They depend on the values adopted by the researcher. Reason professing the law of constancy gives rise to science operating with equations and reducing everything to equality. Reason professing the law of energy conservation will always seek this law. It will not be stopped by any inequality,

since the individual is free. He will say that we haven't hitherto found this conservation, which can actually be found here, and he will continue searching for it. And, on the contrary, reason professing the feasibility of miracles will look for all sorts of singularities, inequalities in the physical reality. The creators of physics construct it depending on their own pictures of reason and truth. For instance, we spoke of the Big Bang and considered this physical concept to be a confirmation of the Biblical picture of Creation. This line of reasoning corresponds to Christian theology. But atheists try to depart, in space and time, from the limits of the Big Bang and say that the Universe existed before the Big Bang in the form of fluctuations of vacuum fields, while the act of Divine Creation turns out to be no longer essential. One looks for what corresponds to the picture of truth. Who is right, here? All depends on what you believe in. If you believe in a merciful God, you will adopt as a starting point integral reason and scientific philosophy, logically including humanistic values. If, on the contrary, you consider the world to be governed by impersonal law, then humanistic culture, values, and ethics will turn into an epiphenomenon, a set of conventions and agreements. This will be an illness of the mind. In the 17-th century, Descartes reasoning in this manner, declared animals to be only machines without any feelings, cruelties to be quite permissible in treating animals, and mercy and kind emotions not to be opportune. Such a science cannot lead man to God. Recall our experience of building communism. Everything turned out to be a failure. But now, also, people say it was not real communism, that something was done wrong, that everything must be done correctly, and that then everything will be excellent. A similar situation exists in science, politics, art. One can also try to reduce art to a combination of purely formal elements, this is formalistic art. And to try to prove that even the most complex art, which we know and love, can be reduced to callous symbols - a computer is capable of drawing. Politics denying charismatic principles, reducing everything to elementary democratic elections, today demonstrates its total incapability in tragic situations, when blood is shed. Christians should show their righteousness, demonstrate it with deeds. We must not forget that science originated within Christianity. A non-believing scientist, who supports Darwinism and tries to prove the possibility of life to originate automatically from dead nature, must be told that he is in a blind alley, and that it will be difficult for him. If such a standpoint (atheistic) is expounded seriously, like it was done, for example, by the philosopher Jean Paul Sartre in his work on the biography of Flaubert, then it becomes a demonic work. To those who try to banish God one can address the words said to Apostle Paul: "it is hard for you to be against God".

## *Unity of moral, esthetic and rational in the human nature*

V.N.Sherdakov

Much in the behavior of man is due to heredity, this cannot be disputed. Good and evil did not arise in the course of creation of man by God, but only after the Fall. Good and evil are spiritual notions, and they exist independently of the body. I am somewhat surprised that believers seek a material substrate of the spiritual basis, while the soul and spirit are capable of existing outside matter. I am also surprised by the wish to find biological prerequisites for a moral feeling, compassion, mercy for animals. Even Darwin, who clearly adhered to materialism, considered it impossible to take advantage of natural selection for explanation of the main thing in man, of his moral feeling. He tried to find such an explanation, but admitted that this was outside the reach of natural selection. Then, why do we continue to turn to materialism? In my opinion this is inertia due to the success of the scientific materialistic explanation of the world. Atheism and materialism are not products of science, but rather its prerequisites. To a large extent they served as the basis for creating European science. To base explanation of the world on the world itself, without turning to a miracle, to God, to supernatural forces - such is the principle of science. This is very attractive. Is it possible or not? I totally agree with my colleague from the USA, who gave a clear and precise explanation of the relationship between science and religion. I would like to note a difficulty arising, when science and religion are compared. Investigation of today's state of the world reveals its past down to the Big Bang. We also study our capability of acquiring knowledge and our place in the Universe. This is demonstrated, for instance, by the antitropic principle of the origin of the Universe. But science provides a natural explanation of things, and there is no place in it for the supernatural, transcendental. Science cannot deal with a transcendental miracle, it totally denies such things. This is for faith. Often it is said: let scientists come together and prove the existence of God, that truth is on the side of Christianity. Although this is impossible, and it is beyond the scope of science, let us imagine such a proof to have been obtained. Then faith would disappear. The point is that proven faith is no longer faith, it is knowledge. If science were to provide a solution to the question concerning the meaning of life, that would be the end of history, and the meaning of life would vanish. Man would then be deprived of spirituality. Spiritual freedom dooms man to searching, to doubts, to overcoming doubts. What helps overcoming doubts? Science and philosophy do. But that is not all. Here three spiritual elements merge: ethical, aesthetical, and cognitive. The harmony of man is achieved within this combination. According to the European tradition we praise the role of science, and this is a mistake. The fault is also of the European educational system, in which science is equated to learning the truth, which is generally wrong. Science provides partial truths, but general truths are beyond its reach. Science is idealized, as a potential means for revealing all truths. European science has existed for 5 centuries and it certainly cannot be called a blessing, it has yielded much harm. Scientists themselves (physicists) often stress the necessity for science to exhibit socio-ethical and aesthetical orientation. But is European science oriented correctly, or not? This is a very serious question. A properly oriented science will lead to the triumph of ethical, aesthetical, and rational principles, to the unification of the three potentialities of man. At present man tosses and turns in between these three deities. One is an artist serving beauty and knowing nothing of the truth, another is a pious man serving good and not thinking of beauty, the third is a wise man neglecting beauty and good. Man is torn apart in this.

**Ye.L.Feinberg.** I would like to comment on your talk concerning evolution. You say that the time required for evolution according to Darwin is outside the range of the age of the world, and at the same time you give the example of a monkey typing a phrase. Here, you appeal to random processes - the monkey presses the keys absolutely randomly. I regret there is no specialist here in synergetics or the theory of catastrophes. From the point of view of gnoseology this is a most important theory constructed in our times. In a non-linear system in the presence of an instability a phenomenon proceeds quite differently as compared to the case of random collisions of atoms in a gas. The time required to achieve a certain more organized state turns out to be significantly shorter. Take the book by Arnold on the theory of catastrophes. Regretfully, it is not sufficiently known outside the community of specialists, but the argument based on the insufficiently long time is no longer valid according to the theory of catastrophes.

**A.P.Akifiev.** I didn't understand that from your words.

**Voice from the audience.** No calculations are presented in Arnold's book. Therein, bifurcation processes are discussed, but no calculation contradicting the report presented by Akifiev is given.

**Ye.L.Feinberg.** It is important that the process does not proceed along a random trajectory. Self-organization is observed in the system. I would like to dwell upon the talk by V.N.Katasonov. You asked me a question: why do we speak of science and religion? Actually, we are not speaking of science and religion, but of materialism and idealism. Let us call things by their real names. Religion is a form of objective idealism. Here, many people do not realize clearly enough that man has a free choice. On the basis of experience, taking into account the known influence of genetic peculiarities, man is capable of yielding an intuitive synthetic judgement of the surrounding world and society. Generalization of my knowledge leads me to the conclusion that the world is material and that nothing outside matter exists. This judgement cannot be logically proved or disproved. Exactly in the same way, another person arrives at the conclusion that besides the material and observable world, there exists a world inaccessible to direct observation and containing a great mystery. It is impossible to disprove or prove logically any of these freely chosen intuitive judgements. Here science has been erroneously identified with pure logic. A scientific study is based on logic and, to a great extent, also on intuitive judgements that cannot be proved. Axioms adopted in physics, in geometry, in religion (the axiom asserting the existence of God) are products of free intuitive judgement. It is useless to demand that they be proved logically. Even more. I would like to underline the inaccuracy of the opinion that only an axiomatic basis is illogical and intuitive. Physicists encounter intuitive judgements every day in their laboratories. Here is an example. For instance, let it be necessary to determine the dependence of the conductivity of a metal upon temperature. The experimenter takes a piece of wire, measures the conductivity by standard methods at various temperatures, then varies the shape of the conductor, the gaseous environment etc. Finally, he declares himself satisfied that the law determining the variation of conductivity versus temperature has been established. This judgement is intuitive, because the experiment is finite, while there exist infinitely many factors. The base intuitive judgement used in science is a judgement of the sufficiency of a proof. Therefore, no finite experiment is capable of yielding the ultimate truth. Dr. Sharp spoke of the same thing, here: a scientist cannot be sure of revealing the ultimate truth. Science operates with methods and means of today, and it cannot be known whether the knowledge acquired today will be confirmed or disproved by the methods of tomorrow. Therefore the ultimate



truth remains hidden. This was said very well, from my point of view. But you may be surprised, Dr. Sharp, to know that your statement is actually the theory of relative and absolute truth in dialectical materialism. Each subsequent step toward the truth does not consist in adding one more exact digit after the decimal point of a known number. Certainly not. A new success, a new turn in science may comprise a cardinal change in our perception of the world. For example, relativity theory showed the approximate character of Newtonian mechanics and established its range of application. Then, further generalization takes place, and a totally new turn originates. From Einstein's general relativity theory a conclusion is drawn on the development of the Universe, which originated with the Big Bang. We know, on the basis of the historical experience of science, that this, also, is not the ultimate truth. Further, we may turn out to be witnesses of subsequent essential changes in the picture of the world. In much the same way, as above, one may look into the history of the origin of quantum mechanics etc. These examples illustrate the boundlessness of the cognitive process. Once again I wish draw your attention to the important role of intuitive judgement beyond logic in science, ethics, in faith and religion. It is no chance that a billion people have chosen non-Christian religion. Transition to faith results from intuitive reasoning and freedom of choice. Yu.A.Schreider spoke of reasoning in science proceeding from the simple toward the complex. That is not the only method of reasoning. Science combines it with the opposite process of reasoning from the complex toward the elementary. For example, Einstein's relativity theory represents a brilliant generalization of experimental information. But the author was not familiar with Michelson's experiment, which is now presented as the empirical basis of relativity theory. That was a view from the top, from the more general to the partial. Precisely in the same manner, in the 70-ties, did the so-called electroweak theory appear, which led to unification of electricity, magnetism, and neutrino weak forces into one theory. In this theory all the fields mentioned are understood to be a sole field. This was accomplished from the top, on the basis of quite abstract arguments. And experiments revealed the validity of this generalization. Many such abstract generalizations performed from the top turned out to be wrong. But the electroweak theory turned out to be correct in its most subtle details. The standard model in particle physics is confirmed with a striking accuracy. I started with a comment on the uselessness of the argument "God exists, God does not exist" following I'lf and Petrov. I would like to generalize my statement. We should not argue whether to choose materialistic or religious philosophy. Arguments in favour of one's choice can be presented, only not for settling the dispute, but for exchanging experience and knowledge. It has no sense to argue and to try to convince one's opponent of his errors.

**Father Boris Nichiporov.** Father Dmitrii and I are neophytes, i.e. individuals who have newly been converted to religion from atheism. When a truth is revealed to a person, he feels a natural wish to share his discovery with others, to go out to crossroads and say: fellows, look how simple it all is, here am I, here is God! As a student of the faculty of psychology of the Moscow university I turned to my friends with such thoughts and waited for an immediate and live response. But I happened to be in a difficult situation after this. I was not adequate, to make it sound gently. I didn't take into account that the soul of another person might not be ready for responding to God's appeal. That is the point. Isaac Sirin writes about that. Deep in his soul must a person be ready to speak personally with God. If this does not happen, then scientific discussions on genes, on good etc. are useless. Nothing can be resolved at the level of rational analysis. Then, the conference is also

useless. It does not reveal God and does not lead to Him. ... Well, no, it would be good to believe this to be wrong, because our personal contacts here are very interesting (laughter).

**V.N.Pervushin.** I would like to provide an explanation for our foreign guests. For 70 years we were taught that the main issue of philosophy reduces to the opposition of materialism and idealism to each other, to the question whether matter or the spirit is primary. In the 19-th century and at the beginning of the 20-th, the concept of matter became significantly more complex together with the discovery of electromagnetism, of atoms and atomic nuclei, and of quantum mechanics. It was even said that matter disappeared. V.I.Lenin showed that it was not matter that disappeared, but that the old mechanistic perception of matter had been exhausted. A new concept had to be formulated and a new definition for matter given. The main attribute of matter consists in it being observable and in its independence of the means of observation. Subsequent development of physics showed that observation of a quantum object inevitably alters its state, i.e. observability and independence are not absolute concepts. We see that even within the framework of modern science it is difficult to determine matter and the spirit (in this case the latter means the capability of man to observe and make generalizations). How can we argue about their being primary or secondary, if we cannot even give them definitions?

**T.Sharp** I have come here from the USA to discuss the potentialities of science in revealing the meaning of life. We may sit at this round table and discuss philosophical problems, but just not arrive at a definite solution. I think the search of a solution is sufficiently simple. If the Bible is right: "in the beginning God created the sky and the earth", then on the basis of the Scriptures we can study the world and predict its development. In the Testament one must look for methodological prerequisites for scientific investigations. But the social movements and development of science during recent decades seem to alienate us from the biblical perception of the world. 29 years ago, when I was still at school, we usually prayed in class. Today it is forbidden to start lessons with prayers in American schools. This is the result of the public opinion having adopted evolutionary theory, to which science has brought us. One must remember that it was God who created the earth. It is His property, and He establishes rules and laws. Then, the meaning of life on earth is to follow these rules. If we adopt the evolutionary theory, which claims the world originated owing to natural material processes, then our behavior does not depend on higher moral rules. The behavior of any person is justified to the same extent as the behavior of any other people. From this I draw the conclusion that the model of Divine Creation of the world is more adequate to the nature of man, than the model of evolution.

## *Bible and science*

**A.L.Kuzemsky**

Dear participants! Dear Chairman! I shall not speak for myself, but I shall try to present the point of view of our Apostolic Church, which is our mother and mentor. Christianity accepts the Bible as a revelation and considers it one in two, Divine and human. The voice of eternity is heard in the Bible breaking through the conscience and word of concrete individuals who lived in various eras and who differed in temperaments, destinies, and talents. They wrote surrounded by live spiritual traditions and scooped up their paints from the enormous reservoir of these traditions. Reading the Bible requires internal effort, getting used to the special biblical world. Far from everything in the Bible lies on the surface. Like an icon, it has its own conventional language, its own specific set of images. To understand this book, the one must give up many literary patterns and standards customary for readers. Like when contemplating icons, it is necessary to overcome the habit of realistic perception. This is important starting from the very first pages of the Bible. They tell about the origin of the world and of man. The most intricate literary ornament woven of refrains, cross-talk between words and images, shows this story to be symbolic throughout. It is not scientific cosmogony and not a work in history. The Scripture teaches that the Universe is indebted to a sole Creator for its existence. He didn't create it in an instant, but step by step proceeding from the lower to the higher, from the simple to the complex. The forces of nature, the water, the land took part in creating the world. Man was created as one being in two, as son of the earth and the image of God. The harmony between man and nature was violated by the people themselves, which resulted in bitter and grave consequences. All this is not told in the language of abstraction, but in the language of everyday life. This language is sufficiently illustrative to be comprehensible to everybody. But such is only the first semantic layer, which is followed by several dimensions. Owing to his faith a Christian is capable of stating that the Bible and science must not quarrel with each other. They speak about the same things, but often in different languages, which are not commensurable. The Bible and science are a doubled poem about the truth of the origin of the world. For illustration I shall present two texts. Steven Weinberg has written the following: "The more we understand the Universe, the more evident becomes the uselessness of its existence". Weinberg is one of the leading theoretical physicists, who has done very much for the unification of various parts of physics. Compare this with the text of psalm 104: "Bless the Lord, O my soul! O Lord my God, You are very great. You are clothed with honor and majesty. You cover Yourself with light as with a garment, you stretch out the heavens like a curtain. You lay the beams of Your upper chambers in the waters, You make the clouds Your chariot, you walk on the wings of the wind. Bless the Lord in all places of His dominion!" These are two texts. Two different views. But they speak of the same truth of the Universe. The view of the atheist and the view of the believer do not contradict each other. Applying the language of mathematics one may say they lie in different planes of the same surface. The most important difference between the views of science and of the Bible consists in that science views the world from the stand-point of its origin and structure, while the Bible does so from the point of view of its salvation, i.e. actually from the point of view of restoring the primary unity, of sophianism. The Bible also teaches the origin of the world, naturally, but in a totally different sense. What is important for the Bible is that the live foundation of the world - the personal God - is the intelligent Creator,

Providence and Saviour. Man is the center of attention in the Bible. Sinful man, in need of being saved. Our prominent theologian Sergei Stragorodsky says: "The purpose of God's word is not philosophy, but exhortation, and of sinners". Naturally, the Earth, on which man resides, is also of primary interest in the Bible. The Bible, like the entire Christian religion, is anthropocentric and heliocentric. On the contrary, the nature of science is such, that it is essentially cosmocentric. To underline this anthropocentrism I shall once again quote metropolitan Sergei Stragorodsky: "The issue of life, of the purpose of existence, of how a person must live a true life, is the alpha and omega of every philosophy, of every religious doctrine. No matter how abstract, how confused, sometimes strange, or even absurd the logical constructions of one or another thinker may be, but if he is really a thinker, and not a manufacturer in thinking (I underline this surprisingly figurative and precise metaphor), if he seeks the thought, the word coming from the lips of God, and neither bread nor money, then he himself will be the ultimate end together with the first point of his philosophical work, he and his own position in the world and his understanding of the task of his life". Philosophy without a conclusion on life is not philosophy, but just an empty game utilizing philosophical words. Three elements always underlie the philosophy of man: empirical knowledge of things and phenomena in the world, philosophical definitions of the ultimate goal of the world, and religious contemplation of the integral picture of the world. It is possible to develop quite a consistent image of the world based only on empirical knowledge, but a scientific image of the world will never cover and engulf a live philosophy of it. The scientific image will not exhaust the entire completeness of human judgements on the world, will not express the whole profundity of spiritual relations connecting man and the world. Our prominent philosopher Mamardashvili wrote that, in their classical completion, philosophy and science laid down quite a definite ontology of the mind based on the observation of physical phenomena, the creation of theories, and the formation of relevant knowledge. This is the ideal of rationality. The non-classical situation arose in the 20-century in connection with the problem of introducing man's conscience and spirituality into the scientific picture of the world. And this turned out to be quite problematic. A scientific perception of the world will inevitably be incomplete and unclear. One question is sure to remain: what is the meaning of the game of world forces that we are observing and studying?. Therefore, within the framework of science and scientific philosophy man is always doomed to be without a completed view of the world and without a consistent understanding of it. He will acquire no harmonic understanding, if his relation to the world is limited to forms of rational empirical conception. But no such restriction actually exists for him. This is confirmed by the Bible. In reality, neither purely scientific, nor scientific-philosophical ideology exists or can exist, but there is only eternal religious contemplation and a religious-philosophical understanding of the world in the light of reliable scientific-philosophical knowledge of the true essence of the world. A great father of the Church Thomas of Camp said: "The nature of any person is such that he wishes to know, but knowledge without fear of God is sinful. What importance, if I know everything existing in the Universe, but stay away from love, what use am I for God? The more know and the more perfect is your knowledge, the more severe will you be judged for this knowledge, if you do not acquire from Him piety in life. Do not exult in any art or any knowledge, but rather fear the knowledge given you. Humble self-consciousness is more certain to lead to God, than a profound study in science. Science or knowledge of things must not be condemned. Knowledge itself is good and established by God. But a clear conscience and a virtuous life are always to be preferred to knowledge. How much perishes in our century from conceited science. A true scientist works the will of God."

## *East and West traditions in religion and science*

**Father Kirill Kopeikin**

It has been said, here, that science originated in the Middle Ages in the Catholic language. I would like to clarify why it arose precisely there, but not in the Orthodox East. I would like to start with two axioms. The definition of axioms is a necessary step. Already the scholastics understood the uselessness of initiating a dispute before establishing the common grounds for discussions. Axioms are difficult to identify, because they seem so natural that they become a customary part of our reasoning. The first axiom will probably give rise to no objections. Man is a personality. We all know that. What does a personality mean? A personality is something that does not consist of parts, it signifies completeness and integrity, which can be perceived only as integrity. It can be apprehended only via interrelations with another such integrity. What can we say about the faces, the hypostases of the Trinity? We can only speak about their relationships with the other hypostases, and that is all. A human personality acquires its absolute meaning as the result of relations with the absolute personality, i.e. with God. And the focus of a personality reduces, therefore, to a cult, because it establishes the relation of man with God. It is from this nucleus of personality, from the cult, that all human culture originates. Father Pavel Florensky said that the word culture is actually the future participle of the word cult. A cult constantly gives rise to culture, like peel, which peels off from a bulbous plant. It is impossible to understand cultural regularities out of touch with the cult. The second axiom concerns the method of our cognition and description of the world. We only say yes or no, we only know black-and-white binary logic, and we have no other logic. But a description of the world in the language of such logic is extremely limited, constricted, approximate. We try to squeeze the world into our rational categories based on reason, we try to stuff the world in between these yes and no. Etymologically, the concept of world actually means its comprehension. Getting to know the world, we try to catch it in the net of rational categories and, naturally, much passes through the net, because it is very sparse. The Bible also makes use of a binary language. The biblical story starts with the tale about the creation of the world. In its very first words the Bible says that God first created the sky and the land. What does this statement mean? It asserts that God created everything, because the sky and land serve as boundaries enclosing the lives of all creatures. When the prophet Malahia says that from the East to the West his name will be great in the name of the Lord, he means that the name of the Lord will be blessed in all places. East and West are just the boundaries of the world, arbitrary terms for the extreme limits of life. When I speak about the eastern and western intellectual traditions, I use the notions of East and West as conventional terms for opposite types of mentality, in no way contrasting them from the point of view of values. There exist differences between eastern and western Christianity. They are so drastic that Catholics cease to understand Orthodox Christians. What has caused such a difference? The Orthodox eastern tradition took root and grew up on the basis of antique Greek culture, which was eastern with respect to the Latin West, but western relative to the Middle East, which was the birth-place of Christianity. The Middle-East tradition is strikingly and totally non-philosophical. The thinking of the Egyptians, Baylonians, Jews is not a philosophy, but just life as it is. The subject of their meditation is not objective reality, but life, not essence, but existence. They operate with unseparated symbols of human self-awareness in the world. This was just the experience of being immersed in the world. Look how the biblical text is arranged.

Many of the biblical books have no beginning. How would a Greek have written a book? He would first have written an introduction indicating who and why wrote the book. But how do the biblical books begin? We seem to be immediately present inside the text. The Greeks, who were western relative to the East, tried to extract a motionless essence from the flow of Existence. The Greeks thought it only possible to get to know something unchangeable, while everything, that flows and changes, passes by and cannot, therefore, be a subject of true knowledge. And so from the combination, from the merging, from the realization of these two traditions did the tradition of the Orthodox eastern Christianity arise. How did the Greeks understand theory? For them, cognition of the truth indicated deviation of man from the world and non-situational observation of it from the outside. In the Greek language the words "idea" and "theory" mean both image and examination. To make a theory, for a Greek, means to see from outside and to be present while seeing. Precisely such kind of theory-making created the specific Orthodox eastern theology. The farther Christianity spread out toward the West, the stronger this tendency of extracting the essence became, and it is very interesting to see how the Greek terms changed meaning as they were translated into Latin. The Greek word "hypocimenon" transforms into "subject", subject (individual) is what is external, nearby, subordinate. A subject (individual) is outside the world and contemplates it with the aid of his intellect. The etymology of the Greek word "intellect" shows knowledge not to perform separation, by its character. The word "theory" in the Latin West started to be translated as "contemplatio". This word originates in the word "contemplare", meaning to separate, to contemplate, to draw a line, to impose a restriction, i.e. while the Greek theory first of all implies presence, contemplation, the Latin contemplatio primarily implies examination, separation. The subject (individual) started to leave the world which became the world of objects opposed to him. And the subject (individual) started to separate the world which had become dead, the world without him. The departure of the subject (individual) from the world, separation of the remaining world into elements is precisely what underlies the roots of the specific west-European relation with the world. The specifics of the eastern and western mentalities are clearly expressed in the difference between the Catholic and Orthodox cults. It has also led to the specifics of religious painting - that part of culture which has not yet severed its close ties with the cult - and for this reason expresses the specifics of mentality especially well. We know that when experimental science arose in the 13-th century, perspective painting also arose in the West. It arose as an experience in removing the individual from the world. Such a new vision of the world, like paintings, became possible precisely owing to man starting to leave it. The possibility of leaving Nature for viewing it on its own was the fundamental prerequisite for the cognitive, instrumental attitude of man toward the world. The situation in the East was different. In the East, to know the truth means attempting to unite with it. In biblical language cognition is primarily unification. It was said: Adam got to know Eve, his wife. In what sense did he get to know her? He united with her, he did not cut her up to see what she had inside. Well, such a knowledge of the truth, unification with the truth also meant quietening down in it. To know the truth means to rest in it, to be present in it. Precisely for this reason did icon-painting, for which inverse perspective is characteristic, appear in the East. It affects a person. Such a construction is exactly opposite to the composition of a classical painting. Thus were the peculiarities of mentality expressed in painting. Naturally, they were also reflected in philosophy and in the scientific approach to the world originating around the 13-th century in the Latin West. Many researchers say that Descartes' words: "I think, hence I exist" are the quintessence of the entire West-European mentality. These

words are the beginning of modern European philosophy. But what does it mean to think for Descartes? For him it means to understand, to catch, i.e. to partition and to assemble. In the same way as the mechanism of a clock is dismantled and then can be assembled again so as to acquire an understanding - "cognito" - of the mechanism. The partition of the world is what is called existence. For Descartes, the individual has transformed into some kind of demonstrator of the world. Reason is just an organ for partitioning the world, i.e. the words of Descartes "cognito igitur" may also be translated as the following: partitioning I exist. An individual exists partitioning. And what about the world? Well, the world becomes partitioned, becomes objective, because in Latin "objectus" means contrasting, opposing etc. and this opposition of the individual and the object becomes the core of European civilization. The world left by man dies and turns into soul-less matter, into "it", from which one has difficulty to extract information on how it is structured. Now, the world becomes the object of experimental investigation, and to experiment etymologically means "to elicit", the experience in eliciting from the world what it has there, eliciting the truth. But by which method - by the method of inquisition. In Latin "investigator of nature" is "inquisitor rerum natura". He literally uses the iron tongs of experiment to tear the world into pieces (physicists know well enough how they investigate protons, for instance) and, then, try to make up the whole again from these pieces. But is it possible by this method to get to know what is life? Of course, not. Finding out something about life in this way, we result in having a corpse. After the experiments we will just have the little mutilated carcasses of the truths we sought. Classical physics arose as the result of two essentially important proposals concerning the absolute notions of process and state, i.e. the world became independent of the individual and subject to experimental investigation. Such a situation continued up to the 20-th century, up to the discovery of quantum mechanics. All of a sudden, it led us to conclude that no world exists independently of the individual, that the world does not exist on its own. Instead of phenomena independent of us, there exist co-existences. Events which are due to interaction of the individual with what we are used to call the object. An event is essentially a co-existence of the individual with the world which we term the world of objects. Father P.Florensky considers classical physics similar to a black-and-white Protestant engraving. Here is what he writes of this in his iconostasis: "If an oil painting is the manifestation of sensuality, then an engraving is based on reason and constructs the image of an object of elements having nothing in common with the elements of the object itself, of a combination of rational "yes"s and "no"s. An engraving is a scheme of images constructed on the basis of the sole laws of logic, an identity of contradictions of the excluded third. And in this sense it has a deep connection with German philosophy. In both cases the task is the construction or deduction of a scheme of reality with the aid of only statements and negations devoid of both spirituality and sensuality. There exists an internal parallelism between reason, which is dominant in Protestantism, and the linearity of graphical means of the engraving. If our reasoning is sharpened by a certain cartoon, then it is not quite incorrect to adopt as a limit of an engraving a printed geometric drawing or even a differential equation". Continuing his reasoning, one can say that quantum mechanics can be likened to an icon representing visible images of the invisible. While an engraving, like classical physics, shows the rational scheme of the world, at the same time quantum mechanics, like an icon, reveals the metaphysical essence of what it depicts. It shows that there actually exists no objective reality independent of us. There still remain many open questions in modern physics, but two things are essential. The first is that owing to quantum mechanics having appeared in the 20-th century we have understood that the world is an indivisible integrity, of

which pieces cannot be picked up arbitrarily. And, second, the individual (subject) is indeed ontologically tied to this world, the world depends on how we look at it, not simply because I look at it subjectively in a certain way, while another person looks at it differently. No. This world is objectively dependent ontologically on how we look at it. The remarkable Russian philosopher S.L.Frank said that cognition of the world by man means raising existence to the level of self-conscious existence. It is very important, how we are to get to know this world, to what level we are going to raise it through our cognition. This already depends on us. Therefore, it is very important for science to return, finally, to its origin, to understand from where it has come. If science forgets about this, then scientists become similar to Ivans who have forgotten their kin. This is bad not only from the point of view of morality. Recall Rasoul Gamzatov who said that if you shoot the past with a pistol, the future will shoot you with a cannon. And, indeed, that is what happens. The situation in which mankind, trying to restructure life on the basis of science, finds itself today is a consequence of such forgetfulness, such alienation of science from its roots. I remind you that, in the language of the Bible, getting to know Nature is identified with unification, with marriage. The result is the birth of knowledge - "gnosis", which has the same roots in Greek, as the word birth, origin. But there also exists cognition which is not marriage, in the biblical language such cognition is called "lechery" or violence. And cognition of such type is related to the joy of crossing the boundaries of the permitted, with the joy of getting to know what one knew not before, with the joy of victory and possession. Such joy is often the joy of modern science, such does the pathos of science happen to be. "Knowledge is strength" says science. And this knowledge can be acquired by any method, even involving violence. But what remains as a result of such science? Such cognition results in raped corpses left behind us. It results in the vileness of desolation and petrified insensitivity. For this not to happen we must go back to true cognition, to cognition which is unification. For man, cognition of the world must, finally, become their marriage. Why did God appeal to man? To unite the world with him in marriage and through this unification-knowledge lead his way to God. Science must become the means of helping man in performing this task entrusted him by God. Thank you.



## *Relation of spiritual and material*

**Father Tadeush Benesh**

I would like to start my talk with an anecdote. An Arabian prince wanted to find something interesting to do. He thought and thought and decided upon the following: he found a kindergarten with blind children. He wanted to do something interesting for them, to make them happy. He told them to come up to him and put an elephant in front of them. Then he started asking them: "What is an elephant?" One child touched the elephant's leg and said: "An elephant is a high, high pillar". Another child took the elephant by its trunk and said: "An elephant is a long tube". The third child touched the elephant's ear and said: "An elephant is an enormous leaf". The prince looked at them and smiled. That was the introduction. Now, I want to tell about the picture of the world proposed to us by metaphysics. The principal concepts in metaphysics are: immanence and transcendence. The history of the development of relations between these concepts determines the history of the development of human thinking. Greek philosophers investigated the immanent world in search of the origin of the whole environment. The immanent world is the world that is close to physicists, and not only to them. The immanent world is the world of natural sciences. But it is not the only world. There exists a transcendent world. How do we know about it? Man feels restrictions in the immanent world, he seeks possibilities of going beyond its boundaries. The immanent and transcendent worlds are the creation and the creator, respectively. The Lord God created the world by his word in saying "Let there be". The immanent world was created from Non-existence. When creating man, God breathed into him the spirit of life, and man became the image of live God. Having received from Him the seed of transcendence man became the live antinomy of the immanent and transcendent, therefore he feels bad in the immanent world. He tries to find all sorts of ways to leave it. This is what pushed man toward the Fall. He wanted the key to the mystery of Creation and to become equal to God. What happened? The Fall resulted in man becoming mortal. Non-existence renewed its control over him. But God did not want His creation, which was an act of love, to turn into Non-existence. So he sent Jesus Christ into the world, who revived man and the Universe through sufferings and death. Yesterday prof. Feinberg asked what has to be done for religion to be pleasant to science. The question can be formulated differently: can something be done to make science pleasant to religion. Nothing has to be done: science is pleasant to religion and religion is pleasant to science, also. There exists no antinomy, here, the antinomy exists only in our ideas, in how we apprehend the picture of the world. No contradictions exist in the real world. The boundaries of science are present and are absent at the same time. They exist, because man will never be able to know the principles underlying the creation of the world. On the other hand, man is capable of approaching the mystery of Creation. The boundaries of knowledge are open to both sides: motion can and should proceed both from the side of science and from the the side of religion. Why do we pose these questions? We pose them to make more comprehensible to us theology, the Creation, why the Lord God created man, and what is his vocation? Science and religion do not contradict each other. Science studies the immanent world to reveal God's laws, to reveal the presence of the Divine in the immanent, to stress that the world has its roots in the transcendent mind, which keeps everything in harmony. I shall conclude with the words of Christ: blessed be those who are humble in spirit, for they shall possess the Kingdom of God. Thank you.

**V.A.Nikitin** I have understood that the distance between physicists and humanists, for instance, theologians is very great. We still don't understand each other well. A question for Kopeikin, I have written down a few words from your talk: cognition is lechery. Does this mean that the technical progress and civilization achieved by mankind are contrary to God and contradict religious thinking?

**Kopeikin** What is sin, from the standpoint of the Bible? Apostle Paul speaks about sin thus: "I do not do the good that I wish, I do the evil that I do not wish, and if I do thus conduct myself, it is not I, but the sin alive inside me". The sin living in each person makes him make mistakes. The Greek word "sin" literally means mistake, misdeed, wrong etc. I wish good, I wish to transform the world into a better world, but I miss the mark, because I am outside God, because I have fallen away from Him. And technocratic civilization is an example of such a mistake. Scientists wish to make good for mankind, for the happiness of all people. But aspiration on its own is not sufficient. We also wanted to build communism for everyone's good. What did that lead to? Sin is the ontological defeat of the nature of man.

**Father Andrei Kurayev** I would like to add something to the answer of father Kirill to your question. Not only of technology, not only of science, but of all human culture, in general, must it be said, that it is the result of the Fall, the result of our sins. Why? It would be better, if it were not so. It is the second world created by man. It violates the initial integrity. And communication between man and man must go from heart to heart. Man should not invent a second world, he should live normally in the world created for him by God. We have violated this integrity, have fallen out of this harmony. We have wounded the world, ourselves, and the Cosmos. We are trying to cure this wound by creating religion, the church, culture, science, technology etc. There should be no Church, also, no church like an institute, separate from the entire other world. There is no need of temples, because the entire world is the temple of God. And the fact that we have temples today is bad, our divine service is awful. All our life should be divine service, not one hour a week on Sundays, but all the time. Zlatoust says that the fact that we have the Gospels is the result and evidence of our sin, because God's word and His commandments should be written in our hearts. We have erased them from our hearts, so we need them to be documented on parchment, at least. That is a consequence of sin. Culture, including religious culture, together with scientific and technical culture, may be likened to a pearl. You know how a pearl appears. It arises from dirt, from a wound, when something alien invades the live flesh of a shellfish. The live organism reacts to this invasion and manufactures something which we subsequently admire. Today we live in a world of culture, we are not capable of living outside it. To learn how to live in it, we must remember its origin. One should not be satisfied with the world of culture, including the world of religious philosophy and theology. On the other hand, we must learn to live in that world, in which we exist. We can dream of another world, but we must learn to move around in the world, in which we happen to find ourselves, not without our own efforts, to be sure.

**Father Kirill** I wish to add one more comparison. What is our technological civilization? It represents crutches which we ourselves are using. Who needs crutches? Naturally, disabled people. Our civilization of crutches proves we are lame.

**A.M.Chechel'nitsky** I have a question for the first speaker. He pronounced heartfelt words of the God-inspired aspects of the Bible. Do the experts present here not consider the Bible a greatest source of information concerning cataclysms,

that took place in the history, the flood, the Exodus? The Bible may be one of the most important sources, since its authors recorded information carefully supposedly starting from the 7 century B.C. The Bible stands in one row with such sources as Enuma Elish or Mula Pin of the Ashur bali Pal library. I think a subject like the astronomy of the Old Testament deserves much attention. Please, make some comment on these possibilities, if possible.

**Father Dmitrii.** Such possibilities do exist, and they have been made use of for quite a time, already. But it has long ago become clear that the Bible cannot serve as a source of information in particular disciplines: botanics, geography, geology, history, cosmology etc. owing to the language of the Bible not being scientific. When the Bible is considered as a source of scientific knowledge in the literal sense, misunderstandings arise, and we will not find the truth. But such work has long been under way and has not been disputed by anyone. The Bible has many aspects, its principal aspect is spiritual, religious, faith-teaching.

**Ye.L.Feinberg** I have listened with great interest to the amazingly subtle and qualified talks, although I do not agree with many of the assertions. I would like to correct some of the points relevant to physics. A well-known problem is the problem concerning the relationship between causality and determinism in a dynamic system, for instance, in a gas. In the second half of our century the efforts of Kolmogorov, Sinai, Chirikov, and others have finally led to the following most difficult problem being resolved: when and how does a fully determined dynamic system become chaotic?. This was just a minor comment. The words of father Kuraev, that it is better to do without science seem, terrible to me. Such a position certainly doesn't allow us to count on any rapprochement between religion and science. Does it reflect the conventional point of view of religion? I cannot consider science to be negative. Its achievements, for instance, make it possible to get rid of many illnesses. I see that the standpoints of scientific workers and of the clergy diverge. Theologians tell us that God created a perfect world, and that only the Fall of Adam and Eve led to it having faults. Scientists think that even small, but concrete, achievements of science serve as bricks for improving the world created imperfectly.

**Father Dimitrii** I am very sorry Ye.L. did not hear what I said. A simple example: I have eye-glasses on my nose, which are a clear sign of my illness. I would like to live without eye-glasses and see normally, at present I see badly. Therefore, I don't appeal to anyone to break my eye-glasses, and all the eye-glasses in the world. We are discussing two theses. The first is the origin of culture from the cult. I don't see why science cannot agree to this. And the second is the imperfection of the world. In this imperfect world we make imperfect means of existence. However useful eye-glasses are, they cannot be considered perfect, and it would be better to do without them. I think you will not dispute the imperfection of our world. Our Universe is ill, and the Fall took place in it. Can one consider healthy a world, Cosmos, the first law of which states: nothing new can arise, no grain of matter, no momentum, no energy, nothing. The second law states that what exists is destined to die: the heat death, the increase of entropy (chaotization) etc. Is evolution possible in this world? No, it is clearly a world which has undergone a breakdown, a catastrophe, it has had its backbone broken. Theology and the Bible say: yes, we all, together with the first people, Adam and Eve, are to blame. In this big world with crutches, with medicines we have to learn how to live. Praise be to the doctors who cure us of illnesses, but it would be better not be in need of doctors.

**Voice from the audience.** I am sorry, but your interpretation of the second

law of thermodynamics is quite peculiar. And, I'm sorry, that of the first law, too. It has little to do with the correct formulation. And, generally, I totally adhere to what Ye.L. said. Given such an extremist position no union can be achieved. Pardon.

**Father Andrei.** I didn't notice any extremism. If you point it out to me, I shall improve.

**Voice from the audience.** Well, how can one declare all culture a total sin?

## *Communication language in religion and science*

**Father Dimitrii.**

A certain desire towards a rapprochement could be felt. Let's develop it. The discussion also concerns the possibility of converting opponents to one's faith. Starting from tomorrow, I shall study solid-state physics or become an electronics engineer, and Ye.L. will enter the religious academy. For me this is impossible. Some time ago I rejected natural sciences, stopped studying mathematics, and took another way. I think that for Ye.L., also, entering the academy would be impossible. Although a physicist may become a priest: look at father Kirill. But for a priest to become a physicist would be quite difficult. Although things like that have happened: Van Gogh was a preacher, and he became a an artist. Well, but he was a preacher, not a priest. Are our discussions here of any benefit to society, to our neighbours? Our conversations have small resonance in society. There is no real benefit. The benefit may consist in accumulation of experience in spiritual communication and of mutual spiritual enrichment. It is desirable, in achieving such enrichment, to benefit everybody. From this point of view, the personal experience of each participant of the discussion is interesting. Ye.L. spoke of his experience. I feel great piety toward him, his is a very important experience, and I shall try to make use of it. Only communication of experience is of any value. We, here, have encountered the problem of self-expression. A person communicating experience must reveal it inside himself, apprehend it, and find the language in which to transmit it. It is difficult to find an adequate language. We use Russian words, but the reaction of the audience often reveals that it is like throwing beans against a wall, our words do not penetrate. I see this very clearly. One must try to find the language. Our literature, our speech are the strength of our soul. When we appeal to a person, we may appeal to various aspects of his personality: his esthetic feeling, his experience in life, suffering, language etc. Thus, for example, there exists a scientific language. People, who are seriously and honestly active in science (there exist only a few such people, 5 percent or so, or maybe even less), understand each other well, because they are honest and they rapidly find a common language. And this does not depend on their ethnic origin, on the culture within which they were brought up etc. Why? Because they have command of the language and are glad to associate with others who speak the language, also. Other people may encounter an impenetrable wall. It is possible to communicate via images. By recognizing an image a person opens up a communication channel. This makes possible fortune-telling. A gipsy guesses what you already had, then says what you will have, and you automatically believe what she says, although no predictable future exists. It is gibberish, there's no future. But, since the person's sensitive cords have been touched, and confidence has been instilled, he automatically swallows what comes next. So, first of all, we must look for a language of communication, grope for it. Otherwise the discussion turns into a scuffle with mutual accusations. Even people knowing how to listen professionally do not hear. Father Andrei does not hear, and Ye.L. does not hear. This does not mean they have no ear. Mother says: "Fedy, did you hear what I said?" He heard her very well, but did not perceive what she said, because her words contradict his life, experience, and interests. Rapprochement can only be based on acceptance. Acceptance comes from the word pleasant (in Russian). To me it is pleasant and good, and I accept. Recall the (Russian) proverbs: "not my darling for being good, but good for being my darling", or "love is wicked: you may fall in love with a goat". I love him, and only after that do I start saying: he is good, he is generous, he is curly-haired, he sings

good songs. But first I fell in love, and only then did I apprehend it. First man fell in love with physics, and then started to study it, etc. So, it is important to choose the language of communication. But no less important is the subject of communication, the reason for which we initiate contacts, what we wish to transmit. What personal experience of my own would I dare to communicate to you? Naturally, the experience comprising my whole life, its meaning. The principal point is God. How is it possible to speak about that? We make awkward attempts to apply scientific language, but don't quite succeed. Ye.L. does not perceive this, which means it is necessary to find other ways. And I speak only of my own actual experience. You don't really think I am trying to make fools of you. I am testifying before you, that God exists. I am ready to answer for my words. The future life does exist. I testify before you, that it is possible for every one of you to communicate with God today. This communication is the beginning of life in faith. I propose the path, that has been taken by many believers. Some of the audience may say: no such path exists. Then I am either a fool, or a charlatan. There is no profit in my behaviour. I acquire nothing material in communicating with you. Thus, I am providing testimony about my experience without any comments. It is regretfully impossible to translate what overfills me into the language of science. Although to a certain extent I do have something in common with the language of science. In my youth I studied mathematics, natural sciences. I understand that. A person presuming the language of science to be omnipotent is mistaken. In this language it is impossible to communicate the spiritual essence of the individual and the soul. Science is a tool, while our experience is the reality. It is impossible to leave the faith for unbelief. But leaving unbelief for faith is possible. I have no such experience, because I have always been a believer. The first religious experience I remember was in kindergarten. Once I got very frightened and someone unknown came at that moment to help me. I clearly apprehended that. Therefore, I have no experience of unbelief. But I do know a great number of people who did come to believe from unbelief. Two thirds of my parish used to be total unbelievers. Among them, there are physicists, also, and corresponding members of the Academy of sciences. There must not be a wall of estrangement and mistrust between believers and unbelievers. It would be like claiming that we are clearly good, and they, evidently, are bad, wretched. On the contrary, I see very clearly, that this is not so: there are extremely virtuous people both among believers and atheists. As a starting point one must adopt the presumption of love. I now appeal to father Andrei. I am somewhat your elder, so I take the risk of recommending you to exert more gentleness and attention in presenting material, in formulating questions, and in your expressions. Although, in essence, you are totally right. And I absolutely agree with father Kirill. Here is another example of an oratorical error. Kuzemsky said: "Thomas of Camp, the greatest father of the Church ...". After such a phrase I immediately switch off emotionally. My channels are closed. This trick counts on suppression of the audience by an authority. Indeed, there was such a religious writer in the West, but why was he "the greatest"? I do not think so.

**V.N.Pervushin** Yesterday, Ye.L. uttered the word provocation. This was decided upon by the organizing committee for rendering keener the perception of the audience and intensifying the discussion.

**Father Andrei** This is my fifth conference and I feel that only anti-Church people are allowed to organize provocations: krishnaites, extrasensors, Martynov and others.

**Voice from the audience.** Feinberg's speech was the speech of a graduate from a Stalinist university.

**V.N.Pervushin** The provocation consists in demonstrating a profoundly unbelieving materialist, who loves his science and loves his materialism. Materialism helps him to obtain the truth and satisfies his aspiration of truth. And what is most essential and positive is that the audience perceived and appreciated this aspiration of truth and the love for it. What is impressive in the talk of Ye.L. is not the materialism itself, but the aspiration of truth, of knowledge. Naturally, you may say that knowledge is transient, while love is eternal, as Apostle Paul said. But, from the point of view of materialism, love on its own is nothing, it is only aspiration, and aspiration is nothing. But, if love is removed, no results will be obtained, too. Interestingly, our audience does not comprise materialists and idealists, but is made up of people who search for and move toward the truth, and of people who have a fixed position and defend it. The moving people try to collaborate with each other. They move along different roads, but try to unite. This was just demonstrated in our discussion.

**Akifiev.** In no way can I agree with father Andrei. His talk was a gift for materialists. He didn't continue the speech of father Kirill, or rather he continued it, but leaving very little of father Kirill himself. It would seem that any human activity is sinful. Before our session we heard girls singing wonderfully. Were they sinning? It is not so! It is said in the Gospel that each person is to do his work. This has been blessed. Yesterday, we recalled the story of the famous clown of God's Mother. This means we have the right to devote ourselves to anything, but remain Christians, adhere to Christian morality, be useful to other people, leave memory of ourselves. One must not think science does not notice anything taking place around us. Certainly not. When a little mouse is killed in a laboratory with the aim of extracting the truth, the authors are obliged to write in a log-book that painless death was administered, otherwise they are prosecuted. When genetic engineering originated in the 70-ties, misgivings were voiced that monsters, such as nuclear weapons, would be created. Scientists, however, had already been sufficiently taught by the negative experience of destroying Japanese cities. In 1974, a constituent assembly was held in the USA for elaborating working rules for genetic engineering operations. These rules have been hitherto rigorously followed. This is progress in scientific ethics. Genetic engineering has not given birth to a single monster. Science has great achievements and one should not speak of it in the spirit of father Andrei's talk.

**Voice from the audience.** Culture originated from the fallen world. But one should not declare devotion to culture a sin. Do the cleaners of Chernobyl sin, or not?

**Akifiev.** A negative attitude towards culture and science can be seen in Various religious doctrines. I recall a krishnaite book I read. Therein, scientists were also judged with disapproval. I think I shall express the common opinion of the scientists present here: the road toward truth must be overcome from both sides. We are going ahead to meet theologians and await for them to come and meet us.

**Mitrokhin** I beg your pardon for interfering. The heated discussions taking place here without visible end are the result of a misunderstanding. I propose not to go on discussing this subject. I think Kuraev was not disputing the values of science. He spoke of something else, of the theological interpretation of the concept of original sin. He did not say that science must be destroyed.

**Father Tadeush.** Why does man study science? He does so because he has aptitude for doing so, he is homo sapiens, after all. During his life he encounters a mystery which he wants to reveal. He wishes to transform things on their own into

things for himself. He wants to know the principles of the world's structure: why it is so and not otherwise. When a mother leaves a child alone at home, he sees a nice alarm-clock and looks at it. Then he starts taking it apart to see what it has inside. When the alarm-clock is taken apart, the child starts to cry, because the alarm-clock is no longer there. The child does not know how to put it together. Once more I want to stress that natural and humanist sciences and theology are consistent with each other. Their interaction contributes to the achievements of physics. Prof. Feinberg spoke of intuition. It serves as one of the sources of knowledge in physics. But we know nothing of the nature of intuition. That is just one example of where the efforts of specialists in different fields can be united. There are many interesting questions for the solution of which we have gathered here. We should not attack each other and defend ourselves, but open up, so the knowledge of each of us becomes part of our common knowledge. The mystery of creation provokes us. Like children, we want to know the structure of the world, in which we live. But our knowledge of it is quite approximate, and we may make serious mistakes, if we give in to confused desires and emotions. Neither science, nor theology has the monopoly of truth. Thank you.



## *Central question of science and faith*

A.I.Osipov.

I think the most significant event at this conference was the talk of Ye.L. I do hope that in the future other scientists will present their points of view in such a clear and sincere manner. This will permit unbiased and objective revelation of the augmentations and positions of both sides. We must try to reveal the truth showing respect for each other and Christian love. Each one of us has his own beliefs, but that is not the only point. It is interesting to compare arguments. The discussion on the possibilities of science and of philosophical knowledge has shown sufficiently well that absolute proofs are not to be mentioned. The concept of "proof" originated in the exact sciences, and maybe it only has sense there. Outside mathematics proofs turn pale, and in physics they are no longer rigorous. In humanist sciences it is better not to mention proofs. Father Pavel Florensky voiced a correct and evident idea: truth cannot be proven, it can be displayed. How it should be displayed is not a simple question. At the modern stage of development of human thinking the task consists in displaying the truth by comparison of the estimated probabilities for various judgments and concepts to hold valid. Here is an example. Hoberg gives an estimate of the probability for a live cell to appear spontaneously equal to  $10^{-(60)}$ , which is an inconceivably small value! It is equivalent to the probability for a monkey to print the Bible without a single error 400 times in succession. This example is very impressive and makes one ponder over the validity of certain scientific constructions in biology. Now, we discuss the issue of God, religion, atheism sincerely and clearly, without hiding and concealing anything. We must compare the probabilities for various points of view to be correct. We should examine the methodology and argumentation of each side. I shall not give a talk now. I propose to continue the discussion, to estimate and analyze together, with goodwill and mutual interest, the ideas voiced and the questions raised. It would be interesting to continue the discussion in a somewhat different plane, with another temperament. The main thesis of religion consists in the statement: God exists. Modifications of various religions are based on ideas of God. We can speak about this, too. The main thesis of atheism and materialism consists in the statement: no higher origin exists in nature, there is no higher being of personality, it does not exist and, probably, cannot even exist. It would be interesting for everyone to think these theses over and discuss them. What is the difference between religion and atheism? Religion appeals to people to believe in the existence of God. Atheism calls on people to believe in the non-existence of God. At first sight this seems to reflect two beliefs, or two theories. A theory must at least have two components. It must be based on facts. Without facts it remains a hypothesis. I am speaking of theories in the field of natural sciences, not of mathematics. And second: the principle of verifiability. A theory must in principle, at least, admit a certain method of verification. If I were to say that crabs live in the Constellation of the Crab, everyone would ask me how to verify it, how I myself got to know this great truth. Let us adopt this most elementary point of view, comprehensible even to a school-child, and examine the atheistic faith and the religious faith. Let us start with atheism. It is interesting, which facts can atheism present to testify in favour of the non-existence of God? What can and must be done to verify that God does not exist? These are the two questions I personally am very interested in. The same questions can be put to religion: do there exist facts testifying in favour of God; what must I do to verify that God exists. I think atheism is not able of finding an answer to the question: what must be done to verify that God does not exist. Religion

answers: those of pure heart are blessed, for they see God. I shall not go into the question of what the purity of heart is, now. What counts is that religion shows the way to God. For testing the existence of God there is only one way, the religious one. No other way of performing such test exists. We happen to be confronting an amazing, I should say extremely rare, situation. Atheism and religion, irreconcilable enemies, all of a sudden show full respect, meet all possible requirements of etiquette established in royal palaces, take any person under the right and left arms, and both lead him along the religious path of life. Do you want to satisfy yourself that God exists? Please, come along with us! Or, do you want to verify that no God exists? Please, come along with us! There is only one road, not two.

**Ye.L. Feinberg** In my book, I examine the concepts of synthetic intuition and of intuitive conjectures. A conjecture can be proved or disproved by subsequent experiments. Suppose intuition tells me that the best way to the station is a certain one, and then I find out whether it really was the best way or not. In a more rigorous form: I make a guess that there exists a certain theorem in geometry, and then I check whether it can be derived from axioms or not. But there exists intuition which admits neither proof, nor disproof: that is synthetic judgement. It is based on all available knowledge, semi-knowledge, the knowledge of other people etc. The statement that God exists, or that God does not exist, presents an example of synthetic judgement. Neither one, nor the other can be proved. It is an issue of free choice, or faith. The beliefs of an atheist and of a religious person differ essentially. Religious faith permits miracles and mystery. Religion is inseparable from the belief in miracles. What is a miracle? It is a phenomenon, which contradicts logic or positive, previously established knowledge. The belief of a materialist contradicts neither logic, nor positively established knowledge. Thus, atheism and religion operate with intuitive judgements, but they differ. Here, Descartes was mentioned with his expression: I reason, which means I exist. The philosopher V.F. Asmus interprets this aphorism thus: I comprehend via direct cognition of truth by intuition, which means I exist. I shall answer your questions. How will a materialist prove that God does not exist, what must be done to verify the non-existence of God? The answer: for a materialist, a physicist the question has been formulated incorrectly. A materialist only admits the existence of what he has verified and admits no invention of concepts which cannot be reliably tested. In science, it is not customary to make use of ideas which are not necessary for achieving the truth, for acquiring knowledge. Judgements concerning the existence or non-existence of God may be made in parallel, but science does not need them. A materialist will just say: why should I invent this? God is an unnecessary hypothesis. I do understand that this sounds terrible for a religious person. The issue of the origin of ethics was also raised here. A person must decide upon his morals himself, otherwise he does not merit being called a human being.

**A.I. Osipov** The problem of God is not the same as the problem of how to arrive at the railway station or of how to go and see a neighbouring pear or cherry garden. At issue are decisions which may influence catastrophically the destiny of man in eternity. And what if God really exists together with eternal life? What will man lose, then, by rejecting God now? For a person having lost his way it is important to find the way home, and not to end up in swamp. Therefore, the issue of religion and atheism is not just an issue of philosophical inferences: one may go here, or there, it doesn't really matter. No. It is an issue of eternity. If God exists, then what reality will we have to confront, if we reject him? Hence the question: what must I do to verify, whether God exists or whether He does not exist, that is the central issue of life of every thinking person.

**A.M.Chechel'nitskii.** I propose to close speculative discussions. We are moving around in the circle of the same ideas. I would like to raise the issue of the Big bang, of the origin of the Universe. Cosmologists inventing scenarios of the origin and development of the Universe within the framework of scientific thinking experience difficulties. My question is the following: what was there before the Big bang took place? Where was the clock that counted the time and pointed to the moment when the Big bang was to take place? These problems were examined with amazing perspicacity by Saint Augustine. He dealt with this issue in a much more interesting manner, than modern cosmologists. I am a natural scientist, and these issues interest me. Their philosophical aspect is not dealt with by the authors of physical models. The prominent scientist Ya.B. Zel'dovich spoke about the world originating out of nothing, more precisely, out of the fluctuations of physical fields in the physical vacuum. He didn't even suspect the existence in theology of traditions and vast literature on this issue.

**Father Andrei** The author has read Augustine. I am certainly not more intelligent than Augustine. Augustine's answer is well-known: the categories of time are irrelevant to long-term existence. To ask what there was before the appearance of time is a purely linguistic trap, which we fall into by inertia. Physicists know such traps.

**V.A. Nikitin** I would like to go back to the question put by A.I. Osipov: does God exist or does God not exist. I already asked this question, it is very naive, but since we have decided to be sincere, I want to ask it once more. Recall that God is our Father and all of us are His children. A Father usually speaks with his children and educates them. I am surprised, why Father does not appeal to me directly? He could teach me to be smart or, at least, appear to me and say: have no doubt about Me, I am your Father. It would be appropriate for Him to appear at this conference or, even better, to talk at the UN.

**V.N.Scherdakov** The claim that science and religion have the same goals reflects our wishes, but is not a fact. Schopenhauer writes about the following episode. A French prince fought against the Pope for the possession of the city of Milan and declared: the Pope and I want to have the same thing, Milan. Both science and religion aspire to possess the complete truth. Because of this they conflicted with each other for a long time. I agree with father Andrei that science is the fruit of the Fall. But he did not say that science itself is a sin or a sinful occupation. According to an expression of Berdyaev, history and time are children of sin. I would even strengthen the position of father Andrei. Science, art, and morals are needed, because man is a sinner. Good, truth, beauty are considered of utmost value, only because we do not know the truth, we are imperfect esthetically and morally. A perfect person has no need of morality. Jesus Christ did not fight against passions. He had no sinful incentives. I would intensify this position: science is not only the fruit of sin, but it is one of the greatest dangers to mankind. It started with the commandment "do not kill", and now we have come to mass and collective killings. Science manufactures weapons for the collective suicide of mankind. And the root of evil lies in the aspiration of science toward the neutrality of values.

**A.A. Litvin** I have a question for Ye.L. Imagine a simple situation, which you have many times encountered. A colleague comes to you and brings a physical fact or theory, that are new to you, for discussion. Naturally, you respond to his evidence and study and check the data presented. Now we have a similar situation: the same colleague (you said you have many religious friends who are scientists) comes to you

with evidence of a fact of upmost significance: God exists! And for some reason you do not believe him. Why?

**Ye.L. Feinberg** First, a correction: I have many religious friends, but they are not physicists, not natural scientists. I think that is not by chance. Second. You yourself gave the answer to your question. You said that facts must be verified. And here comes one of my friends and says that God exists. Can I check that? I have no fact to prove the existence of God.

**Litvin** But all mankind is shouting that God exists.

**Feinberg** Mankind isn't shouting out at all. But father Dimitrii, whom I respect, did say in his brilliant speeches: I testify to you that God exists. I do take into consideration the testimony of father Dimitrii, but it doesn't convince me, to me it is not a confirmation.

**Father Dimitrii** I would like to answer the comment: why doesn't Lord God speak at the UN, and why does He not open up to us? It is very simple: because if He would do so, He would cease being God. One of the ancient people who knew God, Isaac Sirin said: "humility is the dress of god". God has never imposed Himself on anyone, but any person can become a believer and appeal to God himself. And then God will come toward him. This is described in the parable about the prodigal son.

**V.N. Katasonov.** Our combined efforts have resulted in our recognizing the important role of intuition in science and life. But the nature of intuition remains hidden. It contains mystery. Intuitive judgement does not reduce to rational operations. Alexei Il'ich expressed a precise argument: the existence of God can be tested only on the paths of religion itself. After that Ye.L. assumed the position of agnosticism, from which it is impossible to move him. He says the question itself is not correct. You and I, believers, will say that is a position of spiritual inertness. Alexei Il'ich says: this is an issue of life and death, of eternity. One cannot be indifferent to this issue. We testify thus, having positive experience of communication with God. But the opposite side does not accept this argument. The situation is that of a cul-de-sac. Apprehension of the world depends not only on experimental observations and theoretical analysis, but also on practical reasoning, on our desires, on the goals. Father George Florovsky writes that existence opens up to us better under the sign of obligation, than under the sign of the existent. The question can be put thus: do we really need God? We are intelligent, educated, with scientific degrees, highly moral. Is God needed and possible in a world where there is so much evil, so much blood flows, and everywhere there are unsolvable, tragical contradictions? Do we need God, if earlier or later all problems will be resolved by scientists?

**R.Nikolaeva** We confuse science, ethics, and morals. Science is beyond ethics. It deals with the laws of nature. The laws according to which God created and governs the world can be neither good nor evil. Science becomes good or evil, when its results are made use of by people with their ethics and morals. If scientists will recognize God in every creation of Nature, then their attitude toward the methods of science and toward applications of its results will be more responsible. Therefore a scientist must answer the following question for his own sake: does God exist or not. Someone has complained, here, that God is absent at our conference. I want to tell you a little story told by Orsho to his pupils. During a big flood an Indian sat on a roof and prayed. A raft came up to him and he was to be taken on board. But he said: no, God will save me. Then a boat came up to him, and again he refused help. Finally he drowned and went to heaven. There he met God and asked Him: why didn't you

save me? God answered: twice did I send you help. The only thing I can say to my colleague is: knock and it will open to you, search and you will find, ask and you will be given.

**Father Vitaly** I regret that we started this discussion. It will lead to nowhere. The conference is devoted to clear issues: science, religion, problems of theology, philosophy. We should have discussed those issues. But we started to guess whether God exists or whether He does not exist. This question has been discussed for millennia and no end of the discussions can be seen. Among the numerous bizarre theological trends in the West there is one with a name that makes a terrible impression on all believers: the theology of God's Death. Theologians of God's Death are not atheists, they are profoundly religious people. They say the classical image of God created throughout centuries does not correspond to modern culture. It is alien to the thinking and psychology of mankind in the 20-th century. Mankind is losing faith and converting to atheism. The old God is dead in the soul of the new man. It is now necessary to speak of God using other words and terms comprehensible to modern people, including scientists. Science has developed rapidly in the 18-20-th centuries. It is no longer controlled by the Church and religion, and sweeps away all obstacles and restrictions in its way. It considers there to be no limits to rational cognition. It has taken up arms against faith. Indisputable arguments are given against the Bible and faith. The position of religion and the Church was bad in the 19-th century. Now we have the 20-th century. Science has achieved a more ripe state and starts changing tone. How is this explained? I shall put you a question. How is it that more and more scientists start believing in God? And not because the Church convinced them. They convert to the belief in God on their own. Scientists, with a few exceptions, speak of the benefit and necessity of religion for society and invite the Church to collaborate with them, so as to avoid the infinite number of disasters threatening mankind. Problems must be resolved by combined efforts of science and faith. We should also proceed in that direction.

**A.I. Osipov** You see a brilliant illustration of the freedom of mind in our Church. Father Vitaly and I have different points of view. I consider that science has never been against religion and, most likely, will never be against religion. Certain scientists under the influence of fashion and the political situation did permit themselves to make antireligious declarations. But this did not reflect the attitude of science as a whole. Long live freedom.

**Father Tadeush** I want to answer the question concerning the creation of the world of nothing. In my speech I tried to underline that God summoned Existence from Non-existence. "Let there be!" The opposite of Existence is Non-existence. It is not nothing, it is Non-existence.

**V.A. Nikitin** I have received an answer. It is incomplete and I am not satisfied by it. Thus, God cannot appear before his children, because after that he will cease to be God. I think this contradicts the Bible. Many times has God appeared before people, moreover, Christ did come before the people. Why, then, does this not satisfy me and I request another encounter? I am not satisfied as a scientist, because no videorecords were left, no material evidence was left, which could be analyzed by scientific methods and which would allow one to say: yes it did happen. A good example is the Turin cloak with the imprint of the body of a crucified person. This object is of great interest both to religion (which is evident) and to science. The cloak can be analyzed by quantitative scientific methods. Several times I heard here of the essential impossibility of proving the existence of God. If we had sufficient

material (documented) evidence of the biblical events, then science and theology could jointly arrive at a conclusion supported by facts concerning the existence of God. At present there are many extrasensors, flying plates are being photographed, encounters with humanoids take place, other worlds and spaces are being visited, etc. But the available material does not stand up to critical examination by professional scientists. Everything turns out to be either mistakes or falsification. For this reason I would like Christ to come once again before the people, so we could photograph Him on a film.

**Father Kirill** The question was put in the form of an anecdote, so I shall answer with an anecdote, also. At the end of the 19-th century seminaries already educated atheists. Recall that Stalin and Chernyshevsky received their education in a seminary. A bishop once came to such a seminary for inspection and decided to speak with the students. He told them of a miracle which happened with Reverend Seraphim in childhood: he fell from the scaffolding of a bell-tower under construction, and only a miracle saved him. The bishop asked the seminarists: what was that? The seminarists thought it over and answered that it was chance. He said: very well, now imagine he fell two times from the scaffolding and both times he remained alive, what is that. They said: that is a very small probability. But then suppose he fell three times from the bell-tower and didn't kill himself. They answered: that is an unknown regularity. We see the bishop didn't get the expected answer, because he and the students had different points of view concerning the world. A priori prerequisites in thinking mean a lot. Here nothing has to be proved. Everything is resolved by the personal choice of the individual. What is life given us for? Saint Vasily the Great says that life on the earth is the educator of the soul. In the course of our life we must grow up spiritually. A criterion of maturity is, for example, the capability of seeing the invisible world behind the cover of the visible. In our life we learn to apprehend the world as the woven cover of the language. Each one of us covers this path subjectively. Spiritual maturity is independent of the age of a person. It often happens, regrettably, that white-haired men stay at the spiritual age of infants. Actually, it is practically impossible to discuss this. That is the fate of every person.

**A.I. Osipov** I shall add two words. Naturally, the most simple way of convincing mankind of the existence of God is to ask Him to appear in all His power and glory. All people would prostrate themselves and say: O Lord we all believe in You. What would that mean? It would be doing moral violence to the individual. The point is not at all in believing in God or not. There are wonderful words: devils also believe and are afraid. We shall add: and remain devils. The task is not to check whether God exists or not, but to accept God. Which God? We have no time now to speak about that. To accept Christ, to come believe in Christ is a thousand times more difficult than to come to believe in God. To come to believe in God is not so difficult. To come to believe in Christ is incredibly difficult. To come to believe in Christ, in God who resigned and humbly accepted death on the cross seemed to the Jews to be madness. Our arrogance prevents us from coming to believe in Christ. Christ is our savior. But we are so good as it is, that we need no savior. The true God has appeared before us in Christ. We meet God only if we accept Him voluntarily, but not by violence, which would take place, if God would appear before us. This is why God does not come. Christianity declares a truth unknown to other religions. Christianity declares God to be the greatest humility and love. True love is impossible without humility. Precisely for this reason He cannot do violence to man's freedom and will. If He decides to do so, it was correctly said that He will

cease to be the God professed by Christianity. According to Christianity, the history of mankind in this world has an end. AntiChrist will come. According to the context of the Divine tradition of the Church the situation will be the following: He will appear Himself in all power, brilliance, and glory. He will, naturally, unite the whole world. Armies will be abolished, enormous financial means will be freed, which will be directed toward social necessities: public health, education etc. AntiChrist will come as the savior of mankind. Further it will turn out to be that here is the terrible root of death hidden. Everything will perish. Why? That is a question of another level. It is too bad we have no time to speak about it. One thing is clear: the issue of God is the root of a whole group of important problems.

**A.P.Akifiev** The time has come for summing up the results. Your talk prompts me to propose looking into the following at our next meeting: Christianity and the future. Will the laws of Nature, implemented in real life on Earth according to God's scheme, remain intact? Many dreamers imagine future man to be a type with a different psychology, of different race. We encounter this, for example, in the "The time of the bull" by Yefremov. The people therein differ completely from us. The author terms this psychological self-restructuring. Therefore, it would seem appropriate and interesting to discuss problems of genetic engineering at the next meeting. To hear relevant talks of a biologist, a theologian, a scientist-materialist, an idealist. Pluralism of opinions should be hailed. I liked how Ye.L. Feinberg spoke in the discussions. Such a participant is necessary in the discussion to make it lively and interesting, although, to be frank, I learned little from his report. What was new was the interpretation of the role of scientific intuition. I positively estimate this conference. Everybody agrees that we must act jointly and with energy, speak concretely. Recall N.Bohr's school in Copenhagen. Physicists walked around the splendid outskirts of the Danish Capital and talked. From their conversations discoveries were born that are described in text-books and have changed the world. Therefore, the conversations we had yesterday and today were highly useful and promising.

**Katasonov.** I would like to answer R.Nikolaeva. She said science is not good and or evil on its own. This is often repeated in our post-war literature. Here, the science is freed of the responsibility for crimes committed utilizing the powerful forces brought into being owing to science. I think this is wrong. The point is that science not only consists in satisfying the curiosity of individuals, it is also a certain social institution. It is financed by the Government. Scientists and organizers of science demonstrate priorities of research programmes, their philosophical importance. In this sphere human passions overflow. A significant role can be assumed by morally unworthy individuals. In the 20-th century science brought many real and potential dangers: nuclear power, genetic engineering, new electronic and computer facilities for influencing the mind. We shouldn't let science develop on its own, because it is irresponsible. Many talks at this conference demonstrated how science's irresponsibility is hidden behind its neutrality. Science, like an institute, together with its works, require to be estimated by society. Here, it is not the voice of science that should count, but the voice of wisdom. A council of elders is needed, a council of wise people, who are to decide which scientific trends should receive financial support and which should be closed down owing to their unpredictability and possible tragic consequences. In performing their estimations the council of elders must apply criteria of an ultra-scientific character, taking into account moral norms, adopted in civilized society. The truth we pursue must retain the image of man. I think both scientists and any reasonable person will agree with this point of view.

**Dr. Thomas Sharp.** Once again I wish to thank all those who assisted in

making possible my participation at his conference. And I am very sorry that today I do not speak Russian, so as to receive more information without translation. I would have been extremely glad to have taken part in the discussion here. I promise you to perfect my knowledge of the Russian language to be able to communicate with you directly next time. I shall exert my influence in the USA to continue the tradition of this conference in Russia and to promote its success. We Americans do not plan to hold a separate parallel conference on this topic. We want to support your tradition. The 6-th conference will be held in Dubna next year. It would be desirable to invite more American scientists and representatives of the Church to Dubna for participation at the conference. We also propose to take advantage of our facilities in the States for financial support of the conference and to undertake the responsibility of one of its general sponsors. Dubna is situated in a beautiful place on the banks of the river Volga. The town of science will promote fruitful work. American scientists will deliver talks here at the next conference. I rely on God and sincerely express support of the organizing committee, the chairmen, and the co-chairmen. I propose my help in organizing the next conference. I assume my proposal will be taken appropriately.

**V.N. Pervushin** Given the necessary financial means, it is quite possible to organize simultaneous translation in this hall. The required technical means are available. I expect certain difficulties of a psychological nature in the communication between the two Christian societies. It was clearly demonstrated here that in Russia the dominant tradition is dialogue communication. But in the West Catholics and Protestants prefer monologues. We shall keep to the dialogue form of communication at our meetings. Short 10-15 minute reports are planned, and what is most important, discussions, questions, and answers. I ask the co-chairmen to comment this proposal.

**L.N.Mitrokhin** I think the 5-th meeting was useful for everybody. But there are things that could be improved. The number of talks could evidently be reduced. Sometimes we just revolved around the same subject. We shall not set the subject of the next conference now. It must be formulated sufficiently concretely. It is not possible to discuss morals and Godel's theorem at the same time. Dr. Sharp's proposal is only to be welcomed and we express our thanks for his support and collaboration. The organizing committee will try to make concrete the forms of our connections and their contents. I thank all present. Let me note the enormous work carried out by V.N.Pervushin, our principal organizer.

**Osipov** I totally adhere to the excellent words of Lev Nikolaevich, and I, naturally, express great thanks to Dr. Sharp for his attention and for the hope he has given us. Till now our conferences have been club meetings. Probably, they are pleasant and interesting to many of you, but it would be desirable to pass to a new level of work, which would correspond to the rank of a scientific conference. I do not want to say our conversations are not scientific, that is not the point. We do not publish our proceedings yet. A broad community of our colleagues has no knowledge of the results of these meetings. We stew in our own juice. The response to the conference both in our country and abroad is nearly zero. Something must be done for our discussions to acquire a greater efficiency. We must think what to do. A possibility would be to adopt and publish a resulting document. It should briefly and rigorously show the specific points of view of scientists, philosophers, and theologians concerning concretely formulated issues. It must be noted, when they coincide, when no common opinion was achieved and why. Such a document would be a great contribution to the life of our society. Work at that level would indeed yield results.



**Pervushin** On behalf of A.Kharin, A.Litvin, V.Nikitin, A.Osipov, L.Mitrokhin, and myself I thank the participants of the conference for having come to Dubna and for having participated lively in discussions. Our highly respected women T.Ivashkevich, L.Lomova, V.Nikitina, I.Pervushina, M.Studenova, I.Yarkovaya merit acknowledgement and gratitude. Thanks are due to the group of the House of International Conferences, where we met, for collaboration in holding the conference. I beg your pardon for our faults. If, by chance, I have offended any of my colleagues I do hope they will excuse me. Thank you very much.

### List of speakers and discussion participants.

|                     |                                    |
|---------------------|------------------------------------|
| Akifiev A.P         | Prof., MIEPH.                      |
| Benesh T.           | Priest, CAT.                       |
| B.Borovoi.          | Priest, MAT.                       |
| Chechel'nitski A.M. | Ph.D., JINR.                       |
| Feinberg E.L.       | Prof., member of RAS, PHIRAS.      |
| Katasonov V.N.      | Prof., IPHRAS.                     |
| Kopeikin K.         | Priest, Ph.D., SPAT.               |
| Kuraev A.           | Deacon, MOU.                       |
| Kuzemski A.L.       | Ph.D., JINR.                       |
| Litvin A.A.         | Ph.D., JINR.                       |
| Mitrokhin L.N.      | Prof. IPHRAS.                      |
| Nichiporov B.V.     | Priest, Dr. of psychology, TE.     |
| Nikolaeva R.        | JINR.                              |
| Nikitin V.A.        | Prof., JINR.                       |
| Osipov A.I.         | Prof., MAT.                        |
| Pervushin V.N.      | Prof., JINR.                       |
| Sisakian A.N.       | Prof., vice-director of JINR.      |
| Smirnov D.          | Priest, prof., MIT.                |
| Sharp G.T.          | Ph.D., president of CTF.           |
| Sherdakov V.N.      | Prof., IPHRAS.                     |
| Shreider Yu.A.      | Prof., RANS.                       |
| Tishenko P.D.       | Prof., IPHRAS.                     |
| Trostnikov V.N.     | Editor of magazin "Veche", Moscow. |

### The titles of organizations.

|        |  |
|--------|--|
| JINR   | Joint Institute for Nuclear Research,<br>Moscow reg., Dubna. |
| MAT    | Moscow academy of theology,<br>Moscow reg., Sergiev Posad.   |
| RAS    | Russian Academy of science, Moscow.                          |
| IPHRAS | Institute of philosophy of RAS, Moscow.                      |
| PHIRAS | Lebedev physical institute of RAS, Moscow.                   |
| MIEPH  | Moscow institute of engineering and physics.                 |
| RANS   | Russian academy of natural sciences, Moscow.                 |
| MOU    | Moscow orthodox university.                                  |
| CTA    | Phoma Acvinski Catholic academy of theology.                 |
| MIT    | Patriarch Tikhon Moscow institute of theology.               |
| SPAT   | Sankt-Petersburg academy of theology.                        |
| MST    | Minsk seminary of theology.                                  |
| TE     | Tver eparchy.  |
| CTF    | Creation Truth Foundation, Inc., OK, USA, Nobl.              |

## **Discussion topics**

### **Science.**

- What can say the science about God.
- Does science lead to religious world view?
- Limits of knowledge in science.
- Anthrop principle in cosmology.
- Problem of life origin. Concepts of evolution and creation.

### **Philosophy**

- Evaluation of christianity as the world view.
- The role of science, philosophy and religion in human life.
- Substantiation of supreme values.

### **Theology**

- The role of religion in modern society.
- Science as divine revelation.
- Problems and anxieties of christian theology.
- Spiritual and intellectual origins of knowledge.

The conference held as round table discussion.

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