

An Orthodox Christian's View on Exact Sciences of the 20-th Century

Gennady A. Kalyabin

Abstract

Answering the question "Why is the history of Russia in 20th century so tragic?" the famous Russian writer, Nobel Prize winner Alexandre I. Solzhenitsin said: "The reason is very simple. The people have forgotten God". The apostasy from the Lord is baneful not only for individuals but also for the large groups of people and for the whole nations. Since the millenium of Russia's baptism (1988), the return to God has begun and spiritual rebirth is now the main factor of modern Russian life which is much more important than economical and political reforms. Among other activities, such as reconstruction of the demolished churches and monasteries, publishing the Holy Scripture and spiritual literature (it was strictly forbidden for many decades), educating new clergymen, the dialogue between science and religion is one of the most essential parts in the restoration of normal spiritual life in Russia.

The point is that during seventy years of communist regime, atheism and materialism were the only official ideological doctrines in Russia, and a huge army of propagandists existed, who tried to convince the audiences that "science has established firmly that there is no God". Many scientific results were declared false, bourgeois or "top secret", other doubtful investigations were advertised as excellent confirmation of materialism. This strange mixture of incomplete knowledge, falsifications, distortions of science results have filled the minds of Soviet people and it remains to be the case today.

In order to correct this situation the Local Society "Through faith we understand" has been created at Samara Orthodox Spiritual Seminary in 1995. Initially the Society involved only Fr Eugene Shestun, Professor Victor Kotlyar of the Image Processing Systems Institute (Russian Academy of Sciences) and the author of this notice. The main TFWU activity is lecturing to believers and non-believers: at the Catechization Courses for adult scientists, engineers, medical workers, administrators, as well as for low educated persons; for students - at Samara Academy of Humanities (which is now the host organization of the Society), Institute of Railway Transportation, Technical University (at these three higher education Institutions the home churches have been recently constructed where the Godservices are regularly conducted), for pupils and - of special importance - for *teachers of secondary schools*, and at short courses at the towns of Samara and neighboring regions (Togliatti, Otradny, Syzran, Melekess etc). Very often such lectures transformed into unconstrained disputes and discussions of different views. Usually such lectures are held two or three times a week. Annually in spring and fall two conferences "Christianity and Science" are held in Samara by the TFWU. The members of the Society participate conferences (local, All-Russian and International): "Bible and Natural Sciences", Moscow, 1991, Biennial Meeting of Association of Christians in Mathematical Sciences, Wheaton College, Wheaton, Illinois, 1997, "Faith and Knowledge", Saint-Petersburg, 2000, "Pedagogics and Theology" at the Orthodox Saint Tikhon Theological Institute, Moscow 2001, "Man and Christian world outlook", Simferopol, Crimea, 2001, "Educational Christmas Readings", Moscow 2002, "And the Truth will make you free", Bratislava, 2003.

Protopriest Eugene Shestun has published a 400 page monograph "Orthodox Pedagogics" which is very popular with teachers. The series of popular papers on the theme "Religious and philosophic aspects of mathematics and natural sciences" was printed by Samara Eparhy magazine "The Spiritual Vis-a-Vis" and by "Samara Orthodox People Newspaper". More than ten brochures were published by Samara Press House (the series named "Way to the Church"), and one brochure, titled just "**Through faith we understand**" - by Sretensky Monastery in Moscow. Many of these publications are presented at the web-site of this monastery www.pravoslavie.ru. The site of the Society itself is now in preparation.

Several programs on natural apologetics have been prepared and broadcast via Samara regional radio. The course of lectures by Fr Eugene on history of Russian religious philosophy was shown by Samara city TV. However there are serious difficulties with TV and radio because general attitude of many Russian mass media to diverse Christian groups is still rather negative (the "heritage" of atheistic education of their leaders). We hope that the support given to us by Metanexus Institute will help to spread our voice to a broader audience.

Biography

Gennady Anatolievich Kalyabin was born Aug 12, 1947 in the city of Kujbyshev (this is the surname of one Communist functionary of Stalin period). The city has become a centre of Soviet aviation industry during World War II. Its original name - Samara - was restored in 1992.

After graduating the secondary school in 1961 he entered the Kujbyshev Aviation Technicum and after that in 1966 Moscow Physico-Technical Institute which was created in 1946 as a special (top secret!) University to teach researchers and engineers for defence (i.e. military) branches of industry. At the Institute he began to specialize in pure mathematics (Differential Equations & Analysis) which has become his main specialty. Maintained the Doctoral Thesis in 1980 at Steklov Institute of Mathematics in Moscow.

Since 1973, he is a teacher at Samara Aerospace University (full Professor since 1985), at the Samara Academy of Humanities (created in 1992) and at Samara Orthodox Spiritual Seminary (re-opened in 1994 after 77 years of atheistic regime).

Dr. Kalyabin published more than 60 papers in math and a dozen - in natural apologetics; participated in 100 mathematical conferences (including World Congresses at Kyoto, Zuerich and Newark, Delaware) and 10 meetings in theology.

He chairs the Samara Local Society, Through Faith We Understand.

Married in 1969, to Ekaterina Andreevna Kalyabina, he has two daughters and seven grandchildren.

The title of this paper is better applicable to the multi-volume book which will be written in the future by historians of science who are simultaneously experts in Orthodox Christianity doctrines. So what follows below should be considered as brief preliminary notices on the topic.

Cheerful optimism

Alexandre S. Pushkin (1799-1837), the great (more precisely - the greatest) Russian poet, wrote prophetically in a word by word translation:

*O, how many marvellous discoveries
prepares us the spirit of enlightenment,
and experiment - the son of hard errors,
and genius - the paradoxes' friend.*

It came true in the 19th century, and it seemed even that most knowledge in natural sciences has been already obtained. In 1900 Max Plank was given an advice by his more experienced colleagues not to go into physics because this science is non-perspective, 95% of problems are solved except some small details concerning the black body radiation, negative result of Mikhalson-Morley experiment, new rather strange phenomena of Stoletov photoeffect and Bekkerel radioactivity, and choosing more suitable model of atom, everything else was known with excellent accuracy. Now we know that each of these "details" has given rise to huge branch of new physics such as the relativity theory, the quantum mechanics and the theory of elementary particles. Astronomy has also made a great breakthrough due to much better and larger telescopes and other advanced equipment. The huge and magnificent phenomenon of the Universe Expansion manifested in the "red shift" of

light from the remote galaxies was found out. Thus the cosmology became a branch of science rather than a realm of philosophic speculations and religious intuitions. The science No. 1, i.e. mathematics, has achieved great progress too: many (though not all) old problems have been solved (the most known of them is the so called Great Fermat theorem), several quite new branches of mathematical knowledge have appeared, among them the theory of algorithms which forms the basis for computers together with radio scheme technology and the solid body theory. Enormous are successes in many other sciences (chemistry, biology, space research). All this promoted progress in technologies which have essentially changed the industry, agriculture, medicine, education, and eased the everyday life.

Sober pessimism

On the other hand, it is obvious that the development of new technologies very often yields a lot of harmful effects, e.g. the discovery of the chain fission reaction in uranium has led not only to new inexhaustible source of energy ("peaceful atom") but - and this is much more essential - to creation of nuclear weapon (already used in World War II) with terrifying destructive capability predicted by the New Testament: "the elements shall melt with fervent heat; the earth also, and the works that are in it, shall be burned up" (2 Peter 3,10). The radioactive pollution has also resulted from this discovery of nuclear reactions which are in fact the elements transmutations the medieval alchemists dreamt of. It is amazing that the name "Wormwood" of the star mentioned in Rev 8, 11 exactly coincides in Ukrainian language with the name "Chernobyl" of the city where the greatest nuclear disaster occurred in 1986. The pollution of soil, water, air and even the space by "ordinary" waste of human technological activity has become a serious problem for many countries. The experiments in biology had as by-effect

the new diseases (AIDS, SARS). The computers which are extremely useful for science, technology and many other applications frequently cause heavy psychological and mental damage to young people who go mad on computer games and Internet. And of course everyone knows that among the 20-th centuries inventions there are military planes (civil aircrafts can also be used for massive murder!), helicopters, armoured vehicles, chemical and cassette bombs, laser sights, intercontinental rockets and medium range missiles and many other awful weaponry.

Basic principles of the Orthodox Christianity

The Orthodox approach to scientific achievements as well as to technological progress and improvement of life conditions in a general context of salvation doctrine was drawn up by the Holy Fathers of the individed Christian Church of the first millenium. Only a few theologists of the second millenium are treated as Church Fathers, Grigorius Palamas, the Archbishop of Thessalonica (the 14th century) being traditionally understood as the "youngest" one. According to the Church Farthers all earthly external activities must be regarded in the aspect of their use for the human soul in the light of the future everlasting life. "For what is a man profited, if he shall gain the whole world, and lose his own soul? Or what shall a man give in exchange for his soul?" (Matthew. 16, 26). Not only gaining riches or political power is meant here but also acquiring knowledge about material world rather than wisdom which is from God. Recall that the fall of the first-created people was just that they did eat the fruit from *the tree of the knowledge of good and evil* and this caused the catastrophic spoiling of their own nature as well as the status of the whole world (Genesis 3). In Revelation 10, 10 St Apostle John writes: "and I took the little book out of the angel's hand and ate it up; and it was in my mouth sweet as honey, and as soon as I have eaten it my belly was bitter". St Ignatius, Bishop of Caucasus has considered this

verse as prediction of great flux of (scientific) knowledge to appear nearer to "the last time", which will strongly influence the human beings in order the arrangement of the earthly affairs would attract them away from the care of their eternal life.

Damaged human nature manifests in scientific activity

Bishop Ignaty Bryanchaninov (already mentioned) regards "the inclination to the sciences and arts of this perishing world, the search for success in them for acquiring the temporary earthly glory" as belonging to the seventh of the eight main passions, namely, the passion of vainglory. Blaise Pascal (1623-1662), a great French scientist and deeply believing Christian, who argued much against Jesuits, based on his own experience of a mathematician, concluded that "curiosity is simply vainglory; most often people seek for new knowledge only to talk about this ... they sweat in their studies to prove that they solved some algebraic problem better than it was previously done by others." Many contemporary mathematicians and experts in other sciences acknowledge the extremely delightful states of being the only ones (in the whole world!) to whom certain new mathematical theorems or scientific facts have become known, which, moreover, are going to bring them honour among the colleagues. Rivalry and even personal enmity are as widespread among mathematicians as they are among other scientists and among people in general. But vainglory in the scientific circles has its own specific feature, as sharply noticed by the great Russian writer and religious thinker Nikolai V. Gogol (1808-1852): "God save from serving at the scientific department: everyone interferes, everyone wants to show that he is also a clever man."

Unlike all earthly sciences, theology does not divert man from the thoughts about the sense of his life in the light of the Divine Truth but, on the contrary, reveals according to the measure of one's humble-thinking)

the man's destination and the measureless love of God to His creatures, explains the meaning of the Holy History, and strengthens one in faith and godliness.

Flaws in modern science

The list of "the most interesting and important problems in physics and astrophysics for the 21-st century" was given by Russia's academician V.L.Ginzburg, the Nobel prize winner in physics for 2003 . The number 21 of this list is "the experimental checking of the general relativity theories" because "we often extrapolate them to the sizes where they were never checked out - for the distances from the atomic size up to billions of the light-years". # 23 is the cosmological problem (inflation, quint-essence,...) and thus the solutions proposed earlier are claimed to be quite unreliable. The "sharpest" question - # 27 - on the nature of the hidden mass is related to the fact that the total observable amount of all known kinds of matter is 20-50 TIMES (not percent!) less than it is necessary for the gravitational stability of the stars systems and of the whole Universe. V.L. Ginzburg having commented on the question # 28 (the origin of the hyperhigh energy cosmic rays) says that "there were some convincing explanations for this problem but later it turned out that *they all have been accepted by repetition only*". This deep remark by V.L.Ginzburg may be referred to many other concepts of modern cosmology and physics.

Even in the most neutral and rational science to which mathematics was always referred to, Goedel has proved in 1931 his famous theorem, which demonstrates that without intuitions of actual infinity inherent to mind (such ideas can have only God's origin) it is impossible to built any complicated theories, which could allow to describe at least the "elementary" arithmetics. Physics of the 20th century (relativity theory, quantum electrodynamics and theory of elementary particles) changed so

much our views on the structuring of matter, that it appeared impossible to talk about motion of material objects along definite trajectories, about waves and particles, and that a system of one level is constituted of smaller parts of lower level. It turned out that the act of junction is more significant than joining objects taken separately are, and at each level its unique specific laws and principles, that are not drawn out of the laws of lower levels, play their substantial role. Besides, physical laws are of a probabilistic character, so that even the tiniest electron has a certain portion of freedom and is thus principally unpredictable. The string theory having been worked out by modern physicists assumes that the basic notions of space, time, particles, fields, causality and many others need to be totally revised.

As for the completeness of the contemporary "scientific picture of the world" the situation is similar to that one hundred years ago (and perhaps worse): in cosmology it was found out that 95-99% of the total mass of galaxies makes up so called "dark matter" whose properties are unknown because it has no interaction (except gravity) with any type of the observable objects; in geology it is now accepted that 95% of the ground layers were formed during short periods of catastrophic changes rather than in slow processes of sedimentation; in biology only 3% of the decoded genome information was ascribed certain functions in organism.

It is logical to assume that our contemporary ignorance (i.e. the absence of knowledge that there is some absence of knowledge) remains still enormous. It seems therefore too optimistic and not serious to rely upon the conclusions of the sciences which may change drastically in one or two decades.

Struggle between atheism and faith among Russian scientists

It is clear that during Soviet period all researchers were obliged to demonstrate loyalty to atheistic ideology. Perhaps it is less known that

the opposition of science and faith remains to be the case now. So the known Russian astronomer Yu. N. Efremov claims (of course without any proof) that "there exist o many still absolutely unknown types of elementary particles which contribute 10 times more mass than all stars, space gas, dust, black holes, neutrino fluxes etc, and two thirds of the Universe mass is contained in the inobservable energy of the physical vacuum". The same author is an adherer of the multitude of the worlds (at least 10 billions or 10 to the power 10 billions or even infinitely many. This seeming new but in fact very old idea of the multitude of "universes" was stated in the 3-rd century by the heretic Orygenius and was rejected by the Church). He is absolutely sure that life was imported to "our universe" by the "supercivilizations from other worlds" and predicts that rather soon (just after the petty problems - such as wars, terrorism, criminality, diseases, malnutrition, social injustice - would be solved) the earthly scientists will be able to produce new universes in the installations for high energy elementary particles study. Thus men will become like gods... It is obvious that he has never read Genesis 3,5, otherwise he would know whose suggestions he repeats.

Despite many discrepancies, the "Big Bang" model is regarded as invulnerable and the physisists themselves often liken it to the notorious giant Goliath and "the theory of all" worked out at the time being is likened to the known Babylon tower. The thought that the world has come into being according to the will and to the plans of the Almighty God is simply thrown off by the atheistic majority of contemporary scientists, though logically such a "version" is equal in rights with the idea of "self-development" and is even more preferable, because the nature itself gives clear witness that "the Lord's hand has created all this".

Prof. Efremov is angry with President Yu.S. Osipov of Russian Academy of Sciences and his deputy V.E. Fortov who support the idea of

harmony between Christianity and natural sciences. Efremov claims such a position "Medieval obscurantism" and calls these outstanding Russian reseachers the "pseudo-scientists".

A famous "anthropos principle" astounds us with its significance, according to which with a small deviations of the Universal constants life in the Universe would be impossible, and no man would be able to appear in it, who would start to observe and to cognize it. This scientific conclusion was checked and proved many times and is now completely affirmed. In Fortov's opinion this mysterial principle has a clear explanation: "the world is united and cognizable for human intellect because and only because there exists the United God Who has created through United Providence both the world and men, and therefore the united object of research exists".

Scientific discoveries of 20th century prove over and over again that was exclaimed by David the prophet in his Psalms:

The heavens declare the glory of God; the skies proclaim the work of His hands; I praise Thee because I am fearfully and wonderfully made; your works are wonderful, and my soul comprehends this quite well".

It is a great pity that only few of those living now will learn what the science will be like at the end of the current century!