

## SCIENCE VS. RELIGION: CONVERGENCES/DIVERGENCES IN THE SPACE OF IDEAS AND ACTIONS

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**Rezumat.** Conform celebrului dicton al lui Galilei, „religia arată cum se ajunge în rai, nu cum funcționează el”, modernitatea a fost caracterizată de o psihologie de tip „Yalta”: știința se ocupă cu fapte, religia cu valori. În primul rând, încercăm să descriem trei modele ce caracterizează diferitele maniere de abordare a relației Știință – Religie și discrepanțele dintre ele. În al doilea rând, potențiale motive de discrepanțe sunt reorientate spre fundamentarea unei posibile convergențe, pornind de la compararea teoriei Big Bang cu mitul biblic al Creației. Conchidem arătând că ambele căi de cunoaștere, științifică și religioasă, sunt îndreptățite și complementare.

**Abstract.** According to the well-known wording of Galileo Galilei, “religion says how to reach heaven and not how it is functioning”, modernity has been characterized by a kind of type “Yalta” psychology: science deals with facts, religion with values. Firstly, searching to demonstrate that the discrepancies between the ways of approaching the issues of the relation Science-Religion, three patterns are described for characterizing this relationship. Secondly, potential reasons for the existing divergences in the frame of this relation Science-Religion are reoriented leading to a possible base for more convergence. Ways of convergence are shown by comparing the Big bang theory to the Biblical myth of Creation, as well as the justification of the existence of human beings by the fine tuning of six numbers that make that our Universe is like it is. Some considerations on the efficiency of scientific and religious activity are made. The essay winds up by some conclusions: Both the scientific way of knowledge and the religious one are fairly acceptable as complementary, there are issues that are more decidable reciprocally in their each own systems of reference of the science and of religion: the Universe is such a miracle that any other miracle becomes insignificant, as the following haiku is showing:

*I asked the magnolia  
To speak to me  
On God, and  
The magnolia bloomed.*

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### Introduction

In our view, science and religion are two important axes of the human spiritual trajectory; this trajectory has been, and at the present predictable horizon, will be crossed, probably, according to, in principle, three very simple patterns:

1. The pattern of the “parallel science-religion” axis, which never meet and never overlap; the bearers of scientific and religious knowledge are characterized

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by a reciprocal neutral attitude, shown by the lack of trends in providing interest to enhance the value of possible convergences. This pattern can be associated at the philosophical level with the “soft” agnostic vision (also called “open agnostic”, “empirical agnostics”), corresponding to the position of scientists according to which the problem of the existence on the non-existence of an almighty God, as well as the nature of the ultimate reality are usually, but not necessarily, incognoscible: subsequently, any judgment can be put forward until when, or if, supplementary evidence becomes available.

In this certain sense, Thomas Henry Huxley can be quoted: “When I reached intellectual maturity and began to ask myself whether I was an atheist, a theist, or a pantheist, a materialist or an idealist. Christian or a free thinker, I found that the more I learned and reflected, the less ready was the answer; until, at least I came to the conclusion that I had neither art nor part with any of these denominations, except the last. The one thing in which most of these good people were agreed was the one thing in which I differed from them. They were quite sure they had attained a certain “gnosis” – had more or less successfully solved the problem of existence; while I was quite sure I had not, and had a pretty strong conviction that the problem was insoluble.

So I took thought and inverted what I conceived to be the appropriate title of “agnostic”. It came to my head as suggestively antithetic to the “Gnostic” of Church history, who professed to know so much about the very things of which I was ignorant. To my great satisfaction the term took.

Also, it can be remembered the statement of a great philosopher and mathematicians of the former century (B. Russell, 1953): “An agnostic thinks it is impossible to know the truth in matters such as God and the future life with which Christianity and other religions are concerned. Or, if not impossible, at least impossible, at least impossible at the present time”.

However, later in the essay “What is an Agnostic?”, Bertrand Russell says: “I think that if I heard a voice from the sky predicting all that was going to happen to me during the next twenty-four hours, including events that would have seemed highly improbable and if all these events then produced to happen, I might perhaps be convinced at least of the existence of some super-human intelligence.

In this respect the question remains open, that does not, in principle, generate confrontations, when and if the two axes of above-mentioned patter shall become convergent.

**2.** The pattern of the “total divergent” science-religion axes, with the chance of convergence absolutely excluded: as to speak strict scientific knowledge strikes out the religious organizations, of the clergy and of the probationers indifferent of their religious convictions. Through the dogmatization of the science,

theoretically supported by Marxism or other “isms”, the above mentioned pattern obtained also the political, economic and social frame of communism or of other totalitarian regimes.

The expression “Religion is people’s opium” conflicts with reality. The expression “Religion is not people’s opium, but their vitamin”, belonging to Regis Debrey, as well as the expression “The 21<sup>st</sup> century will be religious or will not exist at all”, are more appropriate to characterize the contemporary environment.

The most prolific and highly respected “guru” of the modern social management (Drucker, 1999) produced a permanent evaluation: “For sure, the collapse of communism, as a creed, represents the end of the belief in the salvation by society. What shall be after that, we cannot know; we can only hope and pray. It can be nothing more as a stoic resignation. It could be a revival of traditional religion, admitting the needs and challenges to which the person is confronted in the knowledge based society. The explosion increase of that I am calling “pastoral” Christian Churches – Protestant, Catholic or no-named, can be a symptom. But, at the same time, it can be taken into consideration the revitalization of the Islamic fundamentalism. Because the young people from the Islamic Muslim world, who are so ardently embracing today Islamic fundamentalism, should have done the same 40 years ago with Marxism. It is probably to anticipate that in a historically short period, Islamic fundamentalism would have a similar destiny with Marxism.

**3.** The pattern of the “intermittent convergent” science-religion axis (with the prospect of a conclusive/overlapping), pattern by which these axes, according to their specific scientific progresses, permitting the coming back on the biblical myths recognized as such (Creation-Big Bang) and establishing contacts between the bearers of religious knowledge and the bearers of a scientific knowledge for the cooperation in view to accommodate to dogma, in a more liberal vision, with the scientific theories: the pattern presumes to accept the fact that the mystic practice and experience as modality of specific knowledge is valid and credible in a same measure as the mystic one, which itself is based on some kind of faith: we believe in the results of experiments realized and certified by credible persons, without being repeated by ourselves: taking into account this fact, there is no reason for not having confidence in some mystic experiences, the persons having these experiences being also very credible.

The above mentioned pattern is accepted by many scientists who are religious and who are considering that religion and science are not basically incompatible. The present paper is oriented on the vision of this pattern, which is at the antipode of the second above-described pattern, at the present definitively surpassed by theory and facts.

## Definitions and General Considerations

It is beyond doubt that science and religion are two important domains and through the afferent organizations, the determinant vectors in and by which human spirituality manifests.

They are placing the human being on the top of the species evolution (according to some) or of the creation (according to others); the sequence of the enumeration (science vs. religion or religion vs. science) does not reflect, according to our view, an order of priority with respect to the influence or the importance of science, respectively religion, being assigned only to the order of their emergence in the human history. The disputed equivoque concerning the part played by religion and by science in the sphere of the good (the preservation of the tradition and of the identity, the general progress) and of the evil (religious wars, atomic bombs) only to quote the most general and simplistic perceived examples, stimulates meditation: such complex problem as the relation religion vs. science in this respect, respectively their divergence/convergence, which worries a lot of the human beings, can be approached without defining some basic concepts and surprises of this approach?

We think it is impossible!

Religion (wikipedia, 2008) is defined in a large variety of wordings. Most definitions try to find equilibrium, somewhere between a rigorous definition and generalities more or less difficult to understand. Some (people) try to use doctrinaire canonical definitions (in the sense of extreme formalization) meanwhile others (people) lay stress upon empirical, emotional, intuitive or linked to ethnic value elements.

Most definitions include:

- concept of transcendent, often but not any time in the shape of the theism consisting of the belief in the existence of one or more divinities who is/are immanent, transcend the world, omniscient, almighty, are omnipresent and who are interacting with the Universe.
- a cultural and behavioural aspect of ritual practices.

Thus, a religion (wikipedia, 2008) is a set of beliefs and practices, often centered upon specific super-natural and moral claims about reality, the cosmos, and human nature and often codified as prayer, ritual and religious law. Religion also encompasses ancestral or cultural traditions, writings, history, and mythology, as well as personal faith and mystic experience. The term “religion” refers to both the personal practices related to communal faith and to group rituals and communication stemming from shared conviction.

The Encyclopaedia of Religion defines religion this way: “in summary, it

may be said that almost every known culture involves the religious in the above sense of a depth dimension in cultural experiences at all levels – a push, whether ill-defined or conscious, towards some sort of ultimacy and transcendence that will provide norms and power for the rest of life. When more or less distinct patterns of behaviour are built around this depth dimension in a culture, this structure constitutes religion in its historical recognizable form. Religion is the organization of life around this depth dimension of experience – varied in form, completeness, and clarity in accordance with environing culture”.

Other encyclopaedic definitions to be taken into consideration are:

- religion is a general term used to designate all concepts concerning the belief in god(s) and goddess(es), as well as other spiritual beings or transcendental ultimate concerns (Encyclopaedia of Religion, 2006);
- religion is the “human being’s relation to that which they regard as holy, sacred, spiritual, or divine” (Encyclopaedia Britannica, 2006).

According to Webster’s New Encyclopaedic Dictionary, all new 1994 edition, 6/, religion consists in:

- 1) **a.** the service and worship of God or the supernatural  
**b.** belief in the devotion to religious faith or observance  
**c.** the state of religious

or

- 2) a set or system of religious attributes, beliefs and practices

or

- 3) a cause, principle or system of beliefs held to with zeal and faith.

Also, religion is often described as a way of life (definition which from an existentialistic affective point of view is the most important) or according to personal definitions (example given): (1) “the essence of religious awareness as awe, a unique blend of fear and fascination before the divine” (Otto, 1917), (2) “religion is a feeling of absolute dependence”.

In the frame of European religious thought, religions present a common quality, the “hallmark of patriarchal religious thought: the division of the world in two comprehensive domains, one sacred, the other profane. Religion is often described as a communal system for the coherence of belief focusing on a system of thought, unseen being, person or object, that is considered to be supernatural, sacred, divine or of the highest truth. Moral codes, practices, values, institutions, tradition, rituals and scriptures are often traditionally associated with the core belief, and these may have some overlap with concepts in secular philosophy.

Some religions believe in personal revelation. “Religion” is sometimes

used interchangeably with “faith” or “belief system”, which is more socially defined than that of personal conviction. The development of religion has taken many forms in various cultures.

There are a number of models regarding the ways in which religions came into being and developed. Broadly speaking, these models fall into three categories:

- models which see religions as social constructions;
- models which see religions progressing towards higher, objective truths;
- models which see a particular religion as absolutely true.

“Organized religion refers to an organization of people supporting the exercise of some religion with a prescribed set of beliefs often taking the form of a legal entity”.

Renowned historians are supporting the thesis that the Church as religious organization has a significant positive influence in the East, as well as in West of Europe on the development of the culture and of the civilization and, by the society, not only by assisting and protecting the cultural centers and universities during the Middle Ages as educational and preserving centers of the scientific values, but also through the contribution (quoting only Western Europe) of monks as Roger Bacon, Gregor Mendel, Georges Lemaitre or seculars religiously engaged as Vesalius, Ampere, Volta, Galvani, Lacroisier, Cannahy, Marconi.

The Explanatory Dictionary of the Romanian Language defines Science as being: “a systematic set of truthful knowledge about the objective and subjective reality”.

According to Webster’s Encyclopedic Dictionary – all new 1994 edition, science consists of “knowledge covering general truths on the operation of general laws especially as obtained and tested through scientific methods”.

In the largest sense (wikipedia, 2008), the concept of Science refers to every systematic theoretical and practical knowledge.

In the more restrictive usual sense, the term of science (Popper, 2000) refers to a system of acquirement of knowledge based on scientific methods, as well as to the set of knowledge gained through such a kind of research.

It is ascertained that the different definitions of the concept of science according to various sources are concordant; that cannot be said as far as the concept of Religion concerns. This fact is important and therefore we shall come back on this aspect in the following chapter.

The end of science is to produce useful models of reality. The majority of

the scientific investigations use different categories of methods that help in organizing the thinking and the procedures so that the scientists can trust in the results of the researches they are doing by following the following steps: observation/research, definition of the assumptions, fixing of the predictions, experimentation/conclusion of the research through the establishment of laws. On this trajectory are worked out: (1) models, which are descriptions of that what can be used for making prediction which can be tested through experiments or observations, (2) conjectures (hypothesis which cannot be true demonstrated as experimentally supported, (3) theories, which are a framework or a logic self-consistent pattern that describes the behaviour of specific natural phenomena and (4) natural laws which represent a scientific generalization based on a sufficiently great number of empiric observations, thus that they (the laws) can be considered as fully tested.

### **Potential Reasons of the Divergences, Respectively Convergences Science - Religion**

As much as we move of the strictly natural structures (essentially the structure of the Universe, thus as it is essentially perceived, is fixed by six fundamental constant numbers), the relation patters science-religion, the important concepts seen in a certain light of this relationship become more difficult to be strictly and univocally defined, receiving wordings significances or different or less comprehensive; the fact is also rendered evident by the diversity of the definitions assigned to the concept of Religion.

That is what justifies to consider the conjectures (assertions probably true, but that can neither be prevented, nor invalidated) concerning the potential reasons of the frequency of the divergences and of the sporadic convergences during the debates and the positions adopted by authorized representatives in the field of Science and Religion related to these two domains of the humans spirituality as being certain in fact, that expresses the assessment of the great probability to be correct. The probability of the correctness of the advanced conjectures is supported also by the renunciation to the negative vision on the error of the usual thinking, considering that the error is not negative by itself, but that it is characteristic to a period of apprentice on the way to a lower error. By that we are in line with the K. Popper's epistemological vision, respectively with the "rejection's" theory promoted by him. Our conviction with respect to the validity of the advanced conjectures as able to be integrated in the "Corpus" of the concepts and theories valuable at the present is associated with the conviction that these conjectures can be contested and rejected; this fact shall lead to the wording of conjectures with the higher value of truth.

Therefore, with the aim to create an appropriated framework for the

approach of the above-mentioned problems of the relationship Science-Religion, we take into consideration the following premises:

- In every scientific approach can be appeal to the dialectics of Niels Bohr, Nobel Prize Laureate for physics, who used to say: There are two kinds of truths; one elementary, that is stupid to contradict, and another one profound, for which the opposite assertion is, or can be also, a profound truth. The acceptance of this dialectics leads to a thinking pattern with a large opening towards a tolerant which goes beyond the simplistic and unconsiliative “elementary truth”, supported often with obstinacy.
- The supporting of some conjecture does not mean that these conjectures cannot be false; however, the thinking patterns must not be, necessarily, entirely correct for being able to present practical advantages. Thus, one has been sailing towards “the Indies” for have been reaching the “New World”, as well the Newtonian physics (basically inaccurate because it is substantiated by the concepts of absolute space and time, concepts invalidated, both at atomic level and at cosmic level, by the quantum physics and the relativistic physics) has been stimulating a vast development in various directions.

Taking into account the above mentioned assertions, we draw attention to the following conjectures concerning, in our opinion, the potential reasons of the frequency of the divergences and of the sporadicity of the convergences as far as regards the relation Science-Religion.

First, in this respect, an important reason is the flagrant discrepancy between the concrete, unitary and practically unique definitions of the concept of Science and the multitude of definitions given to the concepts of Religion, showing even contradictory visions: themselves the component terms of the definitions given to Religion receive in spirit and in context different meanings and/or unaccepted by this strictness of the scientific way of speaking. This situation, arising still from the level of the categorical definitions, generating confusion from the start, extends at the level of the communication between theologians and scientists; at the same time, it cannot be neglected the influence of the metaphorical ritual language having a large circulation both among the believers and the other members of society.

It is not, perhaps, out-of-place the finding that Religion in its mystic theological components and in its ritual practice makes use of its own language different to that of Science: the semantic confusions are able to lead to divergences, especially in case of inflexible interpretation of some relatings of the Holy Scripture as support of the revelation in the case of the “Books” religions, like Christianity, Judaism and Islamism.

Second, it is to be taken into consideration that we could call the imperative of the “third excluded” of the bivalent logic, characteristic to the occidental philosophy; this pattern of the European thinking which we are nearly not able to get rid of is engaged in the service of absolute truth, that can be only one, “property” of only one of the parties being under divergence, when not in conflict. It should, at least, puzzle us the fact that We hold the Truth. It is Our own and never belongs to the Other, and this ill conviction justifies us to perpetrate blamable, from the human point of view, actions (even if, complementary, step in also other incentives e.g. interests).

In this context of the foundations of the occidental philosophy, we have to register also the Hegelian dialectics (and Marxist, as well) of Heraclidian origin, which proclaims “The war is all things’ father”, the inevitability of the antagonisms as source of progress etc. This attitude stands, consciously or unconsciously, at the ground of the anti-religious, inter-religious, religious and often scientific militantism (bitter disputes have been taking place also related to various scientific theories).

Therefore, the occidental openness for an existential that admits complementarity in the ying-yang sense of the Far East is low, though it could be of benefit for the relation Science-Religion.

Third, Science and Religion are based on constitutive imperatives which generate if not, necessarily, divergences at least are acting in the sense to hamper convergences for Religion, these imperatives are represented by traditionalism, the stability assured through immutable dogmas, while Science declares itself to be the guarantor of progress and of universal dynamics. Both Science and Religion respond to some major trends of the human being, one trend to his desire to participate or, at least, to benefit by the dynamic progress afforded by science, having as support the reason; the other trend, to live on a solid ground, warranted for the endless existence, beyond death, given by divinity, having as support the faith.

Apparently, irreconcilable, as are presented by atheists, by an analysis without preconceived ideas, the two views on the existence and on the dynamics of life can live together and can represent the support for a well-balanced life.

But, at the same time, both Religion and Science have a simplicity with an absolute character: they have both an axiomatic substance, being based on an axiom: (1) “The existence of an individual (or collective) deity, creative, omnipotent, external to the Universe”, versus (2) “There is nothing except the Universe”, as axiomatic principle of Science, generally, and of the cosmology, especially.

The logical argumentation in favour of this basic axiom of Science is the

following (Smolin, 2002): “It is perfectly true that the Universe is as beautifully as complexly structured. But it could not be created by nothing existing outside of it, because by definition, nothing could not exist before the Universe to create it. Because anything that could exist should be a part of the Universe”. And going on, “science, as construction starting from this axiom, leads to a relational image of space and time, which are not independent from the things that are within their contents and with the processes that take place; the world is essentially a network of evolutive relations, there is not an eternal, fixed framework of the Universe that should define what could and what could not exist, there is nothing as the world we are seeing, not one background, except its specific history”.

It is charged with Religion, otherwise incorrectly, the expression “Believe and do not inquire”, which should be an offence to reason, as support for the scientific vision about the Universe. Probably, detains the expression “Believe, but search”, which stands as ground for all scientific theories, some of them being imagined without experimental constraints; till not a long time ago, cosmology (as science the most directly related to the religious concept of Creation) was nothing more than speculative mathematics.

It can be asserted (Rees, 2000), that the cosmologic ideas are by nothing more fragile and ephemeral as the theories about the evolution of our earth.

The geologists presume that the continents on the globe shift with the speed of the increase of our nails and that Europe and North America were united 200 million years ago. We believe them, though such long periods of time are difficult to be comprised with the mind.

We accept, also, at least in general, the explanation how the evolution of the biosphere took place and how the human beings appeared. But specific key-features of the cosmic environment are now shown by similar solid experimental data. The empiric argument for a Big-Bang 10-11 billion years ago is alike irresistible as the proofs offered by the geologists about the history of Earth.

We find, therefore, that the faith has a place in the acceptance of scientific rational argumentation based on conjectures, of the results of the experiments certifying the theories’ validity (that we are not repeat ourselves, their truth being accredited through the collective certification of the scientific environment).

Consequently, is there any motive that faith, as basic spiritual, gnoseological process, should be ostracized by the scientific reason, which makes use itself of it in many faith’s circumstances, mainly on the knowledge dissemination.

Besides, also the faith, as well as the reason are an intrinsic part of the relational Universe defined as uniquely existent, according to the basic axiom of

the science and as such – faith and reason – have to be placed on the same instrumental level of the human spirituality.

The recognition of their complementarity in the instrumentation of the knowledge is an important step of the acceptance of Einstein's astonishment, faced with the fact that the laws of physics, which our mind is somehow adjusted to understand, are applied not only on Earth, but everywhere, somewhere in the Universe, expressed by the aphorism:

*"The most incomprehensible thing related to the Universe is the fact that it can be understood".*

We cannot go beyond the temptation of a finding: considered as general theories, Science and Religion satisfy the basic requirements of their validation from the scientific point of view: both of them can be reciprocally rejected and at the same time can be rejected for specific elements of content in certain stages, even inside them (the corpuscular theory versus the wave theory, different branches of Buddhism, excepting to mention Christianity).

### **Big-Bang versus Creation**

Among all scientific disciplines which form the "corpus" of the knowledge gained through reason and experimental practice, the cosmology, science of the Universe – that means of all what exists – which appeals to the quantum physics and to the theory of the universal gravity – is beyond a doubt, adequate to be taken into consideration for a debate related to the relation SCIENCE-RELIGION.

The Big-Bang theory seems to stay, today, on solid grounds due to the fact that it passed successfully, at least the following five tests based on measurement procedures able to invalidate it (Rees, 2000):

- 1) "The astronomer could discover (fact that did not happen yet) a heavenly body in which the ratio of helium was zero or at any rate much under 23% of that of hydrogen. This discovery should be a fated one, because the hydrogen's fusion in the stars can easily rise the quantity of helium over its pre-galactic abundance, but there does not exist any modality to convert all the helium back again into hydrogen".
- 2) The background radiation measured by COBE (the cosmic background exploration satellite launched by NASA) could have a different spectrum than expected, respectively the spectrum of the "black body".
- 3) The physicists could discover something on the neutrinos that should be incompatible with the Big-Bang. In the "fire sphere" (imagining that all exists in the Universe started as a globe of fire, as a compressed lightning,

much more hot than the center of the Sun) neutrinos rose above by number the atoms by an enormous factor – around  $10^9$  – exactly like the photons. If every neutrino should weigh even only 10% of an atom, they would contribute, in total, with too much mass, even much more than can be hidden in the “dark matter”. The real mass of the neutrinos appears to be too tiny to be able to lead into difficulty the theory of Big-Bang.

- 4) The abundance of deuterium could discord with its quantity supposed to have outlined after the Big Bang.
- 5) The temperature’s fluctuations on the celestial vault should indicate a value of  $Q$  (the fraction of the total energy “of rest” of the Universe’s structures necessary to disperse these structures) that should discord with what is deduced from the present structure of the Universe.

Though these arguments are in great extent indirect, they are sufficient to confirm, at least for the time being and in the absence of any contrary arguments, the validity of the Big Bang’s theory, by applying the “rejection” method in the epistemological sense of Karl Popper.

The Big Bang theory, completed with the theory of the “expansionist Universe, describes, really, what happened *after* the Big Bang. It does not answer to a series of questions:

- What and who released the expansion?
- Why the Universe has a global uniformity, is isotropic in its integrality, what enables us to approach relatively easy the cosmology and to understand the forming of galaxies, of the clouds and super-clouds of galaxies, therefore the immensity of the Universe.
- What or who imparted the physical laws in an embryonic Universe, containing hidden forces and particles and having a much richer structure than the “philosophical nothing”; that is why theoretical physics, generally, and the cosmology, especially, have not the right to elude the basic question “Why does it exist something instead of nothing” by throwing it in the arms of philosophy.

It could be wiser to say, as Ludwig Wittgenstein suggests: “When we cannot speak on something, we must keep silent”.

Or it could be still wiser that in such circumstances we listen to people who are appealing, beside reason or beyond reason, to the other dimension of knowledge, faith.

The Bible, in its first book, the “Genesis”, describes by “Let there be light and there was light” in the most concise and, at the same time, the most

comprehensive way, still from immemorial time, by the creation's effect, what in the modern time became the Big Bang.

The religion of "the Book", the monotheist religions, such as Judaism, based on the Bible – the Old Testament, as Christianity, based on the Bible – the Old Testament and the New Testament, and as Islamism, based on the Koran, have had as ground the faith in God, having between this omnipotence the attribute of Creator of the seen and unseen (these last, in their larger sense, issuing out of the incidence of the declared concerns of science).

The Creation by the action of a demiurge, as prime external instance of the existence of the Universe constitutes the object of the faith of the great majority of the humans, living at present on Earth.

If it should be taken into consideration the totality of human beings who lived on Earth from the beginning of the history of the conscious human being on himself the weight of the people who believed in Creation would be overwhelming; this category includes many brilliant minds, even if some were or are against some religious organizations.

The legitimate question rises if indeed the promulgation of the scientific reason as the unique modality of knowledge of the infinite aspects of the Universe and of the existence, including the transcendental ones, and the denial of the cognitive function of the faith (the mystic knowledge, too) is a proof of elitism, of an individualist intellectual self-importance, as much as the quantum physics and the cosmology are advancing theories which have a reduced degree of concrete support, as far as the understanding and the associated experimental proof is accessible to a very restrained number of people.

Science appears to be a sort of a new "religion", appealing to the faith of many, much few showing as "unbelieving Thomas".

The above listed arguments have rather an axiological value than an epistemological one, but they can stimulate, at least, the "reason" therefore the science to behave with understanding towards faith, which means religion; a statute of complementarity would be, from the existential point of view, preferable.

### **Arithmetic of the Cosmos and of the Micro-Cosmos. The Existence of the Human Beings**

The micro-cosmos, the existence of the atoms depends on the forces and on the particles acting inside of them, again. The existence of planets, stars and galaxies, the Cosmos as aggregate of the set of the imaginable and possible cosmoses, is controlled by the gravitational force.

This unitary ensemble, the Cosmos and the Micro-cosmos, this one included in the first one and the severance of which as concepts should be conceived as artificial is characterized by six significant numbers: (1) two referring to the basic nuclear forces, (2) two establishing the dimension and the general “structure” of our Universe, and (3) two characterizing the properties of space.

These numbers are (Rees, 2000):

1. The number  $N$ , amounting to  $10^{-32}$  is measuring the ratio between the intensity of the electrical forces which maintain together the atoms and the gravity force acting between them; it could not exist only an universe in miniature (any being could not rise higher than an insect having a very short life because the time for a biological evolution would be insufficient).
2. The number  $\epsilon$ , amounting to 0.007 shows how strong are the nuclei of the atoms tied together and how all the atoms on earth have been formed; its value adjusts the manner in which the transmutation of the primitive in the stars take place, producing all the atoms contained in the periodical system, as well as the abundance of the carbon and oxygen and the fact that gold and uranium are rare; if  $\epsilon$  would be 0.006 or 0.008 it could be that we do not exist as mankind.
3. The cosmic number  $\Omega$ , amounting to at least 0.3 is measuring the matter’s quantity in our universe – galaxies, rarefied gas and “dark matter”, and indicated the relative importance of the gravity and the expansion energy in the Universe. If this ratio would be much greater as a specific “critical” value,  $\Omega$  would be too small. The galaxies and the stars could not be formed. It seems that the expansion speed of the Universe has been tuned very smoothly.
4. The number  $\lambda$  is amounting to a very small value, which in 1998 represented the most important scientific novelty of that year, expresses a force so far unknown, the cosmic anti-gravity, which though has any visible effects at a scale smaller as several billion light years rules the expansion of the Universe. Fortunately, it is a very small number; otherwise, its effect could stop the forming of the galaxies and of the stars, again the cosmic evolution could be stopped even before it could start.
5. The number  $Q$ , amounting roughly to  $10^{-5}$ , represents the ratio of two basic energies and determines the structure of our universe. If  $Q$  would be smaller, the Universe would be inert and without any structure; if  $Q$  would be much greater, the Universe would be a violent space, dominated by big “black holes” in which no one star, as well as any solar system, could survive.

6. The number  $D$ , equal to 3, represents the number of the spatial dimensions of our world. Life, as we perceive it, could not exist if  $D$  would be two or four.

Though at present one cannot deduce any of these numbers from other values, it is possible to be a relation between the above-listed numbers, but their correlation through a formula or their determination, in a unique manner, could be the nucleus of a general theory. The above-mentioned six numbers constituted a receipt for the construction of a Universe, but if any one of them would not be adjusted as it is neither stars nor life would not exist in our Universe.

It is astonishing (Rees, 2000) that an universe in expansion, the start point of which is such a “simple” one, that it can be specified only through some numbers, is able to evolve (if these numbers are conveniently “adjusted”) to cosmic complex structure. Is this adjustment a simple coincidence? But the probability, that by choosing at random the above mentioned constant values, which correspond to the standard theory of elementary particles physics and cosmology, consequently from the Micro-cosmos and the Cosmos, the probability to obtain a carbon’s world, that means a world favourable to the emergence and to the development of life is amounting to  $10^{-220}$ , that is practically as much as zero.

Of course, science tries to find a favourable explanation for its views by the fact that the near to zero probability of a random existence of our Universe is (Smolin, 2002) “by itself the proof of the action of a kind of mechanism of self-organization, because by organizing we understand the evolution of a system from more probable configurations to a less probable one. Thus, the best demonstration in favour of the existence of such a mechanism which was functioning in the past has to have two parts: first to show that the system is structured in an extremely improbable way; second, that nothing from outside has to impose to the system this organizing. In the case of our Universe, we are considering the second part as a principle (in fact, an axiom). Then, both parts of the demonstration are satisfied and it is justified to search for a mechanism of self-organization for having an explanation why the constant values which intercede in the laws of nature have been selected so that their values should be so improbable.

To the same effect can be quoted St. Augustinus (354-430), who as a Christian philosopher was thinking in a modern way by saying that the Universe has been created in a state not completely fashioned, but it has been endowed with the capacity to transform by itself from an unformed matter into a really wonderful network of structures and life patterns.

These argumentations based on a sophisticated axiomatic not enough convincing, can lead to a conclusion: Creation is reciprocally non-decidable in the reference system of science (based exclusively on reason) and that of religion (based on faith).

But under these considerations, even reason cannot suggest to admit the existence of an almighty and beneficent Creator; the Biblical relatings, addressed to the common understanding and having man mythical significances, even if incorrect, according to the actual scientific exact wording, do not lead to essential contradictions and to irreconcilable divergences. Faith in God, unique Creator of the Universe, has at least the “advantage“ to apply the principle of the minimal effort of Manpertuis (taken over from the classical mechanics) on thinking and knowledge, on epistemology, by eluding sophistical argumentation.

Variant of this vision is embraced by the prominent savant-theologian John Polkinghorne; he writes (Polkinghorne, 1994) that “the Universe is not some extent of a world dating from a long time, but is especially fine adjusted for life because it is the creation of God, who likes it to be like it is.”

There are also free thinkers, as the following Nobel Prize Laureates to be quoted (Staune, 2005): (1) The more we understand the Universe, the more it seems without significance” (Steven Weinberg), (2) “Man cannot be wrong with the hope that he participates to what seems to be beyond him; he finally knows he is not alone in the indifferent immensity of the Universe, where he appeared by accident.” (Jacques Monod) and (3) “The astonishing hypothesis is that you, your joys and your sorrows, your memories and your ambitions, the sense you have about your identity and free will, re present nothing more than the behaviour of a vast joining of nervous cells and their associated molecules. Paraphrasing the formulation made by Alice by Lewis Carroll: you are nothing but a pack of neurons (Francis Crick).

On the other hand, by applying the principle “*auditus altera pars*”, we must take into consideration the work “Science and the search for the sense”, whose authors, among which Nobel Prize Laureates for physics Charles Townes and William Philipps, have in common the contesting of Monod’s, Weinburg’s and Crick’s opinions. “No, top scientific knowledge does not incite us to think and we are merely the result of accidental and significant-less mechanisms. For all, science is not a space closed in itself, but it is open to the question related to significance (Staune, 2005).

“This vision “reopens the paths of the spirit”, as Bernard d’Espagnat says, going to allow “a convergence between science and religion” as Charles Townes states and as Sir Arthur Eddington said: “After 1927, an intelligent man may again believe in the existence of God” (Staune, 2005).

Some scientists (Rees, 2000) interpret: “the fine adjustment of the six numbers as a proof of the existence of a beneficent Creator, who formed the Universe with the precise intention to permit the coming out of a complex diversity (in a more anthropocentric view, the coming out of the human beings;

this vision corresponds to the tradition of William Palry and of other adherents of God's existence, demonstration based on "the evidence of an aim".

Also has to be quoted the saying of Albert Einstein: It would be incomprehensible that the world should be incomprehensible". Indeed, this incomprehensibility shows that our spirit is such a manner that is able to penetrate the hidden core of the Universe.

Faced with this sublime Universe where we are living, a miracle in which the miracles that we are appealing to are often simple events the most beautiful and, perhaps, the most convincing expression of the truth of this world can be found in the haiku:

*I asked the magnolia  
To speak to me  
On God, and  
The magnolia bloomed.*

No one is entitled to not give consideration and availability for dialogue to those who find a deep significance in this haiku.

### **Science – Religion – Economy**

Both religion, generic considered through the organizations support of different form of worship, with an impact more or less important in the economic field (the Buddhism in Tibet has a maximum influence at the level of society's ensemble, therefore of the economy as a matter of fact weakly developed), and science through the research-development-innovation activity have an important role to play in the economy both through the influence exerted on economy and through the financial means used, but also through the impact that science and religion have had and have on the development of society.

Thus, cannot be neglected the decisive contribution of the religions of "the Book" – Christianity, Islamism and Judaism – had on the conservation and on the development of science in the Middle Ages until the Renaissance.

Max Weber, in his work, "The Protestant Ethic and the Spirit of Capitalism" substantiated the idea that the Protestant Church through its principles oriented to a simple life, to the practice of saving, through its severe and intransigent ethics and morals concerning the sin, devoting the life to hard labour, to the rigorous exerting of the profession supported the capitalism accumulation and, implicitly, to the development of the capitalist system opposite to the Catholic Church, engaged more in luxury and less in the promotion of productive competition and in the valuation of monetary circulation (with the exception of the Florentine bankers).

The Catholic Church is the greatest Christian religious organization in the

world. According to the Statistical Yearbook of the Catholic Church, it has at the end of year 2004, over 1.1 billion members, that means 1 in every 6 inhabitants of the Earth. It is highly represented in the USA, mainly among the Hispanic-Americans. Joseph Harris, the financial executive of the Saint Vincent de Paul in Seattle estimates that the revenues of the 20,000 parishes from the USA achieved in the year 2000 raise to over 7.5 billion dollars, 6.5 billion from which covered direct expenses, and 1.0 billion dollars helped to subsidize the Catholic schools. The Catholic Church operates private schools with 3.6 million scholars, 230 universities and colleges with 670,000 students, 17% of hospitalization all over the USA and assign yearly 2.3 billion dollars for charitable initiatives.

But, at the same time (Symonds, 2002), the Catholic Church is confronted with difficult issues: the decrease of the number of priests, the reduction of the number of persons with monastically vocation, the decrease of the number of scholars and students in its own schools and universities, the diminishing of the contributions of believers (about 30% of the parishioners have the intention to cancel their contributions – according to a Gallup poll); that means, generally speaking, the reduction of revenues. During the last period of time, the Catholic Church in the USA would be insolvent, as far as tangible assets are concerned – mainly real estate – amounting to roughly 1 billion dollars. The recent pastoral visit of Pope Benedict XVI had, probably, also the aim to approach these difficult issues. It is to be mentioned that the financial activities organizing the Catholic Church in the USA presumes the financial independence of the 194 dioceses, so that the Vatican's amounts cannot be affected; in exchange, the Vatican can step in to pass beyond the difficulties of the dioceses.

The independence of the dioceses from the entire world leads to a certain lack of transparency, so that the involvement of the Catholic Church in the economy at global level cannot be assessed. The information from above illustrates the fact that this involvement is not at all negligible; the same can be asserted concerning all other organizations belonging to different religions, and, generalizing, concerning the relation Religion-Economy. However, as against to religion, the participation of science to the economy is incomparably more important, at least by two aspects:

- the determinant contribution of science, through its organizations to the progress of the economy;
- the huge, can be said, demand of investments and of the expenses assigned on the global level to the research-development-innovation activities, that means to science.

This second aspect is illustrated in the table below, which presents the expenses for the scientific research-development-innovation activities in the USA and Japan.

Economic power (country or union)	Business		Government		Other		Total	
	%	Absolute value	%	Absolute value	%	Absolute value	%	Absolute value
USA	1.51	149	0.85	84	0.10	10	2.5	243
Japan	2.15	87	0.55	22	0.30	12	3.0	123
EU	0.80	66	0.75	62	0.15	13	1.60	44

Scientific research-development-innovation spendings of the important economic powers.

*Sources:* **1.** Matei, H. a.o. Encyclopaedia of the world's states, Manonia Publisher, Bucharest, 2003. **2.** Innovation & technology transfer, no. 2/2003, European Commission Publisher, Bruxelles, 2003 (aggregated data).

It is ascertained, in a very general way comparing with the amounts afferent to the Catholic Church of the USA, that the expenses due to the scientific activity in the same country are at least with an order of magnitude higher for the scientific activity compared to the religious one; this fact shows the importance attributed to Science in the 21<sup>th</sup> century (as against the Middle Ages, when Religion was preponderant as vector of the human spirituality).

We consider worth keeping in mind a new economic aspect! Religion, through its organizations, is at the origin of the creation and of the conservation of the most valuable intangible assets (the only one that can be considered as such, in letter and spirit, as well as in the economic sense), like the masterpieces: the Voroneţ Monastery, St. Peter's Cathedral or the Blue Mosque and the immovable masterpieces they contain. These assets in the real sense of the word intangible cannot be objects of market transactions and have an inestimable value, which is rising as time goes by; what cannot be said on the products and results of science considered as intangible assets, which became absolute with time.

For concluding this essay, a short story could be illustrative: Ivan Pavlov, Nobel Prize Laureate, being in front of the Cathedral Isaiski Sobor in St. Petersburg crossed himself. A young apparatchik apostrophized him: "Old chap, there is neither religion, nor God!" He was right. On Religion and/or Science can decide only someone who has any relation either with Religion or with Science.

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