

TOTHECOSMOGENESISPROBLEM (REFLECTIONSONCREATORANDTHECREATION)

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The eternal cosmological problem of material Universe's beginnings is examined in the article. Some more careful attempt is undertaken for its solution, in spite of numerous similar attempts. Physical, system-technical, philosophical-religion, informational, and synergetic models of Creator and the Creation, criteria – realization ability, complication, and materialization ability of the idea – are used. The assumption on personified Creator is acknowledged as improbable, but the assumption on non-personified Creator as ideal Creative Basis with information nature is considered as productive. Author is conscious of the article discussion character.

Keywords: Creator, Universe, matter, information, physical vacuum, space, parallel world, Chaos, diversity, complication, theosophy, mystery.

Introduction

In abundance of judgments on the problem of the Universe genesis there are two uppermost mutual exclusions: a) religious — Creator (Demiurge) created the Universe; b) scientific — the Universe originated as self-supporting. Both alternatives are hypotheses; the first one does not require a direct proof (faith), the second one is attempted to prove (rational science). The question of the First Cause remains open because there are no “witnesses” and direct evidences. The confrontation of faith and science on this problem can be represented as a conditional inter-negation “if not ... then...” — if not Creator, then the Nature; if not the Nature, then Creator. We do not have courage to take any side in a dispute, thinking that truth is not a prerogative of the science only OR the theology only, but it is a property of the philosophy, AND the science, AND the theology in common (P&S&T-synthesis). In that context we make an attempt to examine the hypothesis of Creator on the assumption that the Universe is material¹.

The problem of Creator and the Creation

The mystery of Creator and the Creation. Definitions: Creator (Demiurge) – a founder (someone/ something) of the Universe; the Creation is not an act of the creation, but a result of the act.

If Creator “created the heavens and the earth and all on them” [The Bible, 2000], the concept of Creator is prior to that of matter, because everything in period “before matter” is immaterial. If Creator had “building materials” for the Creation, he is not “All-creating”. This contradiction was apparent to the late Middle Ages theologians,

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¹ The author is aware that he invades in the sensitive sphere of research without the Owner's permission and hopes that sense of delicacy, tact and objectivity as well as respect for adherents of faith will not leave him.

whoproposedtheconceptof Christiancreationism— thedoctrineofthematerialworld creation “from nothing” by Creator as a result of not physical but an ideal ontological act. In Judaism, Islam, Vedic religions of India Creator is originally immaterial and incomprehensible by the gross material senses (the Torah, Cabbala, the Koran, the Bhagavad-Gita, etc.). In many religions, practicing mono- and polytheism, gods have names and personal forms of existence. One of them, perhaps, had appeared from his nonmaterial (or other material) being in order to create our material Universe. There are some theological doctrines (occultism, esotery, exotery, theosophy, apophatism), where God is non-personal. He *does not exist but is* as “eternal, ever-sheer Reason of all, He is Incomprehensible DEITY, whose “Invisible Covers” are the mystical Root of the Matter and the Universe” [Blavatsky, 1991: p. 74]. According to theosophy such intangible Creator can be represented as a certain Principle of Creation: “A basic law in this system, a central point, from that everything arises, around that and toward that all things gravitate, and by that all its philosophy hangs, is a United, Homogeneous, Divine SUBSTANCE-PRINCIPLE, a United First Cause” [Ibid.: p. 333]. Hence, there is one step to pantheism (D. Bruno, B. Spinoza), atheism and natural science. In this perspective, religious concepts of transcendental Creator will hardly be able to defend their Creation theories as opposed to natural-scientific theories, since natural science “collaborates” with Creator-Nature as well as with God’s Word — the laws of nature (though still unexplored), and there is no matter of dispute between religion and science. As for arguments, natural history has no less evidence, to put it mildly, than theology does.

Enigmas and contradictions of various theistic and theological texts concerning Creator and the Creation testify to mystery, being unexplored by theologians themselves. It is a mystery for science too. It is closely allied to the well-known in fields of cybernetics and engineering model of “Black Box”(fig. 1a) [Wiener,1968: p. 33]. But in our model there is one principle difference: it has no “entrances” (fig. 1b). There is nowhere for them to appear; if they had ever been, they would have motivated Creator not from outside, but from inside.

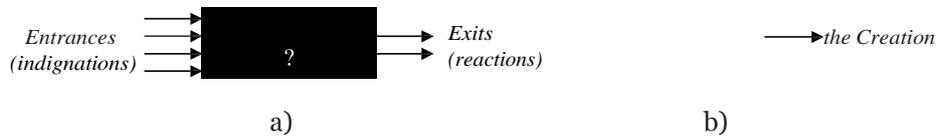


Fig.1 The model of “Black Box”

The problem is to identify the hidden structure of “black box” that is Creator by His evident “reactions” (the Creation)². From the scientific point of view the problem formulation is initially incorrect. There is a set of feasible solutions including “zero option”, i.e. Creator absence, because of lack of the required initial data. Methods of solving incorrect (ill-posed) problems are known in applied mathematics, theories of optimal control and planning. Our task is rather concerned with a world outlook, so we believe that well-known methods, especially mathematical ones, are inapplicable to it. We can afford an opportunity to touch gently to the Creator’s mystery without undue claims. After all, although the eternal mysteries motivate creativity, they remain unsolved forever. That is why they are eternal!

² Comprehension of Creator through cognition of the Creation is a fundamental principle of kataphatical theology.

Faith and knowledge. A direct experiment as the best measure of theory gave nothing in the history of rational (Cartesian) human cognition: a proven direct contact with Creator has never been confirmed by anyone; in return, the Scripture texts and theological teachings asserting His inaccessibility to human senses have been confirmed. Even philosophy, the Kant's "science of our knowledge limits", is unable to take us to the Creator's abstruse worlds, whether they are parallel worlds, hyperspaces, Nihilism, etc. The limited scientific knowledge "is unable to cope" with Creator, but scientists hope to listen to adequate declaration from theologians who have no direct proof of the Creator existence (if they were, surely theologians would not hide them).

The only theology argument on the background of scientific ignorance is who, except Creator, was a Primary Cause of things in existence, their feasibility, harmonies of atoms, substances, genes, laws of nature. It is known that Kant had analyzed more than a dozen evidences of the Creator existence, based on similar argumentation, and proved their inconsistency. Science is not alien to the faith (in mathematical axioms, proved laws of nature, weighty opinions), but it is not a blind faith, unlike a religious implicit faith. A scientist can be mistaken in his faith and follow a false scent, but on discovering that he has made a mistake he is to confess it. A theologian is "sinless" by convention, for he is busy with interpretation of *sacred* texts, that are above heretical criticism, though they admittedly contain discrepancies even to look at them with an inapt eye. Between Creator and his Divine Word, on the one hand, and the extant religious canons, on the other hand, there were prophets, disciples, priests, theologians, scribes, interpreters, translators. They all contributed to, distorted and lost the meaning (remember the children's game of broken telephone), besides inexorable time does its bit. As a result, there appeared a lots of contradictory comments to the canons, speculations and obscure meanings.

In dramatic situations, when the obtaining of experimental data is not realistic, science carries out simulation experiments, based on several independent verified models, and checks the convergence of simulation results according to specified criteria. If the convergence of simulation results is sufficient, a working hypothesis is recognized *plausible* in the probable sense; otherwise, it is recognized implausible or requiring a new check on other models. In due time, it was the way that American and Soviet scientists took in their study of global nuclear war consequences. High convergence of simulation results, obtained from two independent computational models, became the most important argument for adoption of the UN fateful decisions on the nuclear weapons (nuclear freeze, nonproliferation, non-use, disarmament). Of course, there are irrational "non-scientific" methods, based on the trust to other words, the intuitive afflation and comprehension. But these methods force nobody to accept the results, while the rational scientific methods are coercive by the strength of evidence, intelligible for most of modern rational men³. It is difficult to transfer one's own inner conviction to another person by exclaiming: "I am sure of that!" Therefore, Karel Chapek was delighted with the ability of language to distinguish meanings of phrases "I am convinced" and "I have been convinced".

In the work we take as a basis the formal logic requirement: the impossibility to prove statement A does not mean the reasonableness of opposite statement B. Relating to a hypothesis of Creator it looks like, "although we are not able to prove that

³ It is necessary to consider these men also, if we wish to report the truth for them in any form (rational or irrational).

somewhat does not exist, provided that this inability is considered to be an existence proof, we have to come to the conclusion that gods exist all at once” [Asimov, 1990: p. 15]. Hence, there are extraterrestrials, poltergeist, Loch-Ness monster, the edge of the world, etc.

Assumption one: personified Creator

The Creator is personified, but He created our Universe being out of our world in another world. He was like a designer who being in the three-dimensional world created a two-dimensional design drawings, or like a computer user creating virtual multimedia objects, whilst these drawings and virtual objects “are not aware” of their creators.

Models. The assumption is relevant, if other worlds besides our three-dimensional world are authorized. The problem of parallel worlds is one of the most speculative and disputable in science, philosophy (from Pythagor and Aristotle to S. Hawking), and mass-media. We examine N-dimensional models of parallel worlds, when $N=1, 2, 3, 4, 5$, etc.

If personified Creator is theoretically possible in some / any world, we can make use of other models to define His assumed complexity, because undoubtedly Creator is a complex system, much more complex than all known systems. So, we make use of system engineering and information approaches.

The system engineering approach serves for designing complex systems, with the Universe, undoubtedly, being one of them. Our knowledge of the complex system is always limited, and this uncertainty eventually increases, because in addition to non-solved questions there appear new ones. Creator “had generated” an idea, on its base He “had designed” and created the Universe. Given the lack of “material and staff resources” and default of the slightest precedent, that was a super-complex task.

The Information approach makes it possible, in our opinion, to bring together the concepts of theology and nature history (right for reaching a compromise) on the problem of the Universe genesis as the concept of information is ideal not material: “Information is information; it is not matter or energy. Materialism, that does not recognize this, is incapable of being viable at present time” [Wiener, 1958: p. 166]. Out of many information concept interpretations we make use of one relating to complex systems: information is a variety of system possibilities.

Criteria – the Realization Ability and Complexity. Physical *premises and criteria of realization ability* are such. The stable parallel world is possible, if it (as our world) has the available connected (closed) structures (atoms, bodies) and interactions between them. Otherwise “there is nothing” but, perhaps, physical vacuum and radiation. Interactions of structures are known to modern physics in form of *near-actions* or *distant-actions*. In other words, the world is real only when there are stable interacting structures in it. Physicists look upon the planetary system with “gravitating centre” as a stable structure. *Finite movement* of its elements is peculiar to such a system, it is possible when radial coordinate R of structure changes within final limits $R_{\min} \leq R \leq R_{\max}$ ($R \rightarrow \infty$ at *infinite movement*). The structures without interactions are not capable of self-organization and development; the interactions without structures are absurd and fairy as the Cheshire Cat smile without a Cat. Similar worlds are fairy too. Physical cohesion of structure elements is provided by centripetal forces of elements and some central body (nucleus) interactions. For

atoms of our material world these are electromagnetic (mainly, electrostatic) forces of interaction between nucleuses and electrons, for planets — a force of the central star attraction. The vitality of structures is formed by correlation of centripetal and centrifugal inner-structure forces. Centrifugal forces in atom are forces of spinning electrons, in planetary system — inertia forces of moving planets.

Thus, if Creator is possible as a connected structure, interacting with the matter Universe, He (It) is realized as personified Creator in any world.

Premises and criterions of complexity. Both the system engineering and the information approaches are reduced to the Creation complexity analysis. Creator as a system-founder is still more complex than the Creation in the quality of a created system in the same way that a designer is always more complex than his intellect products and an expectant mother is more complex than the child embryo. Naturally, Creator is more complex than a man; in no less degree the Universe is more complex than human creations. Thus, we select the complexity as a criterion for the analysis of models with the following complexity measures: *multiple* — the system complexity is a potency of a set of its structural elements (*structural-static* measure) or events occurring with them (*event-dynamic* measure); *combinatorial* — the system complexity is a potential variety of its states; *information-statistical* — the system complexity is a real variety of its states; *information-algorithmic* — the system complexity is a minimum length of the program to create a system. An *event* is understood as a fact that can or cannot occur as a result of experience; a *state* is thought as a system property that does not depend on experience, but can be identified by the experimental data; a *potential variety* is a set of distinct from each other possible system states; a *real variety* is read as a set of system states factored in their events probabilities; a *program length* is understood as a number of its command codes.

Analysis. Although many scientists and philosophers were studying the problems of space dimensions in different aspects, for the first time Austria-Holland physicist Paul Ehrenfest examined the joint actions of centripetal and centrifugal inner-structure forces in N-dimensional Euclid space for electrostatic interaction of two charges (nucleus and electron) and for gravitated interaction of two bodies (star and planet) [Ehrenfest, 1917]. Fundamental Ehrefest's results are the following:

– Both stable structures with closed trajectories (circular, elliptic, etc.) and interactions between structures with finite and infinite movements are possible only in a 3-dimensional space;

– Stable structures only with closed circular trajectories of elements are possible in a 2-dimensional space, whilst the interactions are not possible (only finite movement is possible);

– In spaces of dimension $N > 3$ structures are not stable (by least fluctuation the element falls from circular trajectory on the nucleus of structure or goes away in endless), on the other hand, transfers of interactions (field agents) are in abundance; infinite movement prevails, finite movement is not possible practically.

According to Ehrenfest, for $N > 3$ the unstable structure is most probable at $N=4$, and at $N > 4$ the probability of appearance generally any (even of unstable) structures quickly decreases with the increase of N — field agents prevail. Accordingly, if $N < 3$, the field agents are absent in stable structures. Ehrenfest verified his theory by the example of the known properties of radiation discrete spectrum of a hydrogen atom (in different dimension spaces) and proved that the results of theory and experience

agree only at $N=3$. Replacing charges by masses, Ehrenfest verified his theory by the example of the known gravitation laws in the Solar System and proved that the agreement of results is reached only at $N=3$.

Thus, in one-dimensional and two-dimensional worlds, where interactions are absent, the chemical reactions, electrical current, electromagnetic phenomena, gravitational attraction, information processes are impossible; the connected structures are possible, but it is incomprehensible, whom or what such “unsociable” structures are in aid of. In macro-worlds with $N>3$, where substances and any bodies are absent, interactions are possible, but it is incomprehensible, between whom/what they occur, provided that nobody and nothing exist.

The Ehrenfest theory is valid for Euclid spaces, starting from atom (lower limit) to the Solar System (upper limit) of a material world. Therefore, formally this theory does not apply to space of sub-micro-world, of non-Euclid space and spaces of unknown immaterial worlds. There exist numerous hypotheses for such worlds⁴ but, unlike the Ehrenfest theory, they are not shown by experiments. In particular, the known distant cosmos conformities for the present don't refute of the macro-space three-dimensions and, accordingly, there are not the serious theories of the stable many-dimensional macro-worlds ($N>3$), that “exist” only in mass-media and Internet. In respect to our problem, it stands to reason that the personified (all the more, material) Creator of the material Universe is impossible in parallel worlds with $N\neq 3$. It is possible to assume that the personified Creator is possible in the parallel worlds with $N=3$, but the personified Creator “didn't pledge himself” to emerge in a tangible form. However, the personified Creator in any of His forms is to be a stable system in the sense of Ehrenfest and has to interact with our material Universe through physical agents (“mediators”).

In such context we make use of *complexity criterions for the three-dimensional worlds*.

The Universe has several levels of organization, beginning with the latent micro-world of space and physical vacuum to the observed metagalactic macro-world. The creating function of the Creator was to cover all levels.

Let us start with a micro-world. It is assumed that the physical vacuum filling an outer space is a lowest-energy state of quantum fields, that is characterized by the absence of any real particles. Under certain conditions, still unexplored by science, a “boiling” physical vacuum generates real micro-particles, what are only indirectly discovered by the experience. There is no doubt that a physical vacuum is complex, but quantitative parameters of its complexity are unfamiliar to us. At the same time they are more or less known for a micro-world, observing indirectly by physicists. According to lots of sources, the number of atoms in the Universe has the order of $10^{73} \dots 10^{80}$. We shall accept this range of numbers for approximate structural-static complexity of the Universe at the atomic level. In its turn, the atom structure is complex. It consists of a micro-particles multitude within its nucleus and shell. Physicists know several hundreds of micro-particles, with many of them being supposed to have sub-structures like quarks and gluons. In view of above-mentioned, the structural-static complexity of a micro-world is to be significantly greater as compared with that of an atomic level⁵.

⁴ There are known worlds of Kaluza-Klein, Markov, Stanjukovich, Hawking, etc.

⁵ Maximum numerical unit decillion is equal to 10^{33} (10^{21} trillions).

A lot of events, such as nuclear transformations, annihilation, ionization, decay, etc., occurs with every microstructure element during its existence (some simple particles are considered “eternal”). Consequently, event-dynamic complexity of a micro-world exceeds its structural-static one. The potential properties, such as spin, polarization, ability for interaction with other particles (strong, weak and electromagnetic), are originally incorporated in every particle. Even quarks are attributed to seven “flavors” and three “colors”. These properties correspond to a priori states of micro- and submicro-structure elements. The combinatorial complexity measure characterizes a variety of such pre-experienced states. Events occurring in the micro-world are “realized states”. In this respect, events are a posteriori, and their variety is to be much less than a priori variety of states, especially since the *most probable* of all possible states are realized in the experience. Hence, the combinatorial complexity is to be greater than any of the multiple complexity forms.

A linguistic analogy. The vocabulary (word-stock), as a potential set of different combinations of letters, is much more complex than alphabet, in the same way the potential set of phrases is substantially more complex than the vocabulary in use, and the potential set of texts is more complex than a set of phrases used by a particular group of people, i.e. phraseology. The question that has to be answered is: how many different 6-letter words (disregarding its sense) is it possible to form from 26 letters of the English alphabet? Combinatorial mathematics can answer: it is necessary to calculate the quantity of allocations with iterations of k elements ($k=26$) at r ($r=6$): $A(k, r)=A(26,6)=k^r=26^6\approx 10^{8.5}$; given that only 0.0001 of the formed words are likely to be used as they have any sense, real variety of meaning-bearing words is $10^{4.5}$. Therefore, combinatorial measure of the English 6-letters vocabulary is equal to $\sim 10^{8.5}$, and, accordingly, its information-statistical complexity measure is equal to $\sim 10^{4.5}$. The quantity of senseless phrases of six sensible words is equal to $(10^{4.5})^6=10^{27}$, and the quantity of 0.0001 sensible phrases is $\sim 10^{23}$. Accordingly, it is possible to form $(10^{23})^6=10^{138}$ senseless and 10^{134} sensible English texts approximately of 6 sensible phrases, for example digest style of telegrams or SMS-messages.

The hierarchy of alphabets, words and phrases of the Creation “texts” is enormously greater both in micro- and macro-worlds than in any written and oral human texts.

A genetic example [Ichas, 1971]. DNA alphabet includes four “letters” (nucleotide types), protein alphabet contains 20 “letters” (amino acid types)⁶. The combinatorial translator (coder) **DNA**→**protein** under the control of genes assembles code patterns (genetic “DNA-words”, i.e. *codons*) of nucleotides. The quantity of different codons cannot be less than 20 for unique coding every amino acid-“letter”. It is possible, if a codon contains 3 nucleotides, as $A(k, r)=A(4,1)=4$; $A(4, 2)=16$; $A(4, 3)=64$ (>20). In terms of genetics, this means that 20 real codons-*triplets* are formed of potential 64 codons of nucleotide-amino acid “dictionary”. Protein molecule-“words” (*polypeptide chains*) are synthesized of amino acid-“letters”. The length (r) of an one polypeptide chain is hundreds or thousands of amino acids. Even minimizing it to $r=100\dots 1000$, a real variety (an information-statistical complexity measure) of protein structures is $A(20, 100)\dots A(20, 1000) = 20^{100}\dots 20^{1000} \approx 10^{130}\dots 10^{1300}$ (!!!). If such a variety of protein molecules is combined with a variety of vital

⁶ Ibid: according to some reports there are 22 types of amino acids.

substances, cells, tissues, bodies, organisms, we can get a mathematically formalized explanation of the endless protein life diversity on the Earth.

Another example: in the observable Universe part there are billions of star systems, including the complex cosmic bodies subsystems. And how many of them are in the unobserved part? The Universe is an “ocean of complexity”.

It should be noted, however, that usually the distribution of any world subsystem states probabilities in the events is unknown to us. Therefore, the real variety of the Creation and the information-statistical measures of its complexity remain unknowable. As little as two conclusions are clear: 1) the sum of probabilities for the system “realized states” is always equal to one (normalization requirement); 2) a real variety of the Creation and its complexity are, though finite, but so great that can be considered as endless without prejudice to understanding. The first conclusion is mathematically obvious but unproductive for us. It is apparent from the second conclusion that the length of the Universe creation program and, therefore, its information-algorithmic measure of complexity are essentially endless as well as the Creator’s “memory” volume to store such a program.

The Creation complexity analysis gives rise to a paradoxical, at first glance, question: if all the complexity measures are simple in their essence, do not we exaggerate the complexity of the Creation and Creator? Indeed, a brick, a wheel, a binary code, and a word “love” are simple, but what a host of possibilities they provide to humanity! The methodological simplicity of the Creator’s creativity (though upon the infinitely long program) is perceptible through the complexity of His Creation. Is it true? The notion of the Creation complexity is not limited multiple representations of its variety and the length of the creativity program. The principle of *emergence* acts in the hierarchy of subsystems of the Universe, i.e. the irreducibility of system properties to the properties of its subsystems, and vice versa, non-derivability of system properties from the properties of its subsystems. The Universe is complex not only and even not so much due to the formalized simplicity of the diversity principle involved, as to the known and not yet known interrelations (laws), that are displayed emergently at every inter-level transition in the hierarchy of subsystems — from “sub-nuclear” matter of the micro-world to the “dark” matter of macro-world, and back.

While creating our Universe, the Omnipotent and Omnipresent, Omniscient and All-wise Creator in the three-dimensional parallel world, had to provide for all the complexities and niceties of the Universe material existence — from the moment of “conception” to the distant future, including delicate equilibrium of world constants. He is to have the infinite memory and the infinite transmission-channel capacity — for transmission the infinitely complex information to our Universe and out of it (control feedback). If such Creator were possible (that is implausible), He personally and materially would not be anthropomorphic (as His images), for “a man is wretched”. As for the faith statement that a man was made in the likeness of God in spirit — an ideal substance, we try to make any sense of it.

Assumption two: non-personified Creator

Creator is a kind of the non-personified ideal Creative Principle within our world (the Universe). Such Creator materialized the His/Its ideas by the unknown method, as a man, for example, materializes his mental impressions and wishes: “...what

manner the mental impression causes...the changes in the corporal and material object, what is a nature of this correlation and this wonderful forces combination?" (M. Monten, "Experiments").

Models. The first model, worthy of our attention, is a *theosophical* model of Creator and the Creation. In terms of the name, theosophy is a synthesis of theology and philosophy. H.P. Blavatsky, the founder of the Theosophical Society (1875, New York), defined the aims of "The Secret Doctrine" (the primary model source) as "to show that Nature is not "a fortuitous concurrence of atoms", and assign to man his rightful place in the scheme of the Universe; to rescue from degradation the archaic truths that are the basis of all religions; and to uncover, to some extent, the fundamental unity, from that they all spring; finally, to show that the occult side of Nature has never been approached by the Science of modern civilization" [Blavatsky,1888: p. viii]. The theosophical model operates with the following concepts and definitions: "...there is only One Absolute Reality that antecedes to all manifested and conditional Sheer. This Endless and Eternal Cause ...is a "Rootless Root" of the everything, what was ever, is today and will be some day"; "...impersonal Reality pervading the Cosmos is the pure *noumenon*⁷ of thought"; "...the Primary Chaos...capabilities and potency of their atoms and molecules before and after their formation into worlds" [Blavatsky,1991: pp. 48-49, 198].

The second model is an *informational-field* model. Even if Creator is personified in the other world (according to **Assumption one**), He/It could interact with our world from His/Its world (when creating the Universe) only through physical field interaction agents (corpuscular, wave, combined). After all, the any action in University, being a physical act, is always associated with some field interaction whether it is an explosion, mass motion, energy transfer, signal exchange, acts of creation. Even the "Big Bang" as a Creator, advocated by the majority of the scientific community, should have had some prior field "control signal, giving the command" to a certain "detonator" to blow up the physical vacuum. Materialists believe the field to be a special form of physical matter, non-materialists — "spooky spirit" (mathematician M. Kline) or actually existing in itself without any material media (physicists J. Pierce, R. Uchiyama).

The any physical field has two components — power (the *carrier*) and information (the *carried*). According to common sense, as soon as "the carrier ceases to carry", the "carried", in turn, ceases to depend on the carrier and may continue existing independently outside the carrier, i.e. the "carried" must be *invariant* to its carrier. According to the laws of physics, what will happen with the field if its energy degrades to zero? Will it also disappear (together with the matter, that the field represents in accordance with the canons of materialism) or will anything of a "weak" field remain? In fact, the power and energy are quantitative properties of a certain qualitative substantive field entity. And what will happen with the information component — will it also disappear together with the "loss" of the field? Physics does not provide a clear answer to such a thought experiment.

Perhaps, at the end of our experiment a physical field transforms into a non-power field, containing the information. Let us call such a field the *information*

⁷ *Noumenon* (Greek) — what is known by mind and not by senses (as *aphenomenon*).

*field*⁸ for convenience. The known property of *information invariance to the power carrier* speaks in favour of the hypothesis. Only the presence of the power component allows to consider a physical field as a “special form of physical matter”; with the same reason it is possible to consider a physical field to be a special (power) form of immaterial information.

What function could the information field perform in the Universe? Remember that the information is transmitted not only *inspace* but *intime* for memory retention⁹. Therefore, we believe the information field (if it exists!) to be an omnipresent non-power memory field, in that the Nature (including human nature) is impressed in its self-reflection and self-preservation. In other words, the information field stores the dynamic model of the Universe in the same way as a person’s memory stores the dynamic model of the perceived world. In that context, memory is an indispensable attribute of the world, and the omnipresent information field reminds, in its properties, *the ether* — an elusive physical substance (denied by a great many), that disturbed a scientific-philosophical community in the 19-20th centuries. If the ether is authorized, we assume its nature to be, first of all, information-field, where the field serves as a physical substrate (carrier) for storing and transmitting information. That is why, perhaps, (and because of the 19-20th centuries’ instrument imperfection as well) physicists did not find the desired mechanical properties of the ether (tension, compressibility, elasticity) and rejected the ether idea by the results of experiments: “even if the ether exists, at least within those experiments, that at the time could be done, all results should be like that, as if it didn’t exist” [Bohm, 1959: p. 75].

Will there be a success in discovering the information field and thus proving its existence? Perhaps, the impossibility to observe the information field is linked with relative “roughness” of our sense bodies and devices, with the known physical principle of uncertainty. Experimentally we have not penetrated deeper than into the nanoworld (10^{-9} m). And there are more subtle worlds: “picoworld” (10^{-12} m), “femtoworld” (10^{-15} m), “attoworld” (10^{-18} m), world of the ultramicroscopic Planck’s distances (10^{-35} m), that are the worlds of atoms, elementary and virtual particles, quarks, gluons and quantum interactions. We can only conjecture and hypothesize on them, the evidence being confirmed experimentally only indirectly at best. Perhaps, one of these worlds hides the information field, storing the information as “a model of the Nature” in quantum-virtual letters unknown to us. “The truth is in the depth” (Democritus).

It is possible to rejoin (in the spirit of materialism) that the information field is *idee fixe* or obsession, and nothing more, and information, stored on the “non-living” carriers of anthropic origin (paper, disks, flash memory and others), is the information, created by a living conscious brain. However, a man creates information not only in the conscious but ecstatic state of creative inspiration, bordering with insanity: “...poet is a light, winged and sacred thing; and is unable ever to write until he has been inspired and put out of his senses, and his mind is no longer in him” [Plato, dialog “Eon”, 2013, Socrates in Plato]. So why the unconscious (as we believe) Mother-Universe for “a term” of its existence could not create and store Her

⁸ We came to the concept of the information field theoretically, but not experimentally. The information field remains hypothetical without serious experimental verification (despite the abundance of publications about it). Nevertheless, it does not lose its scientific attractiveness as a quite verifiable hypothesis.

⁹ Although it is important, it is still idealization. Any message has spatial-temporal dimension.

internal information on carriers, available to Her and unknown to us, if a miserable human being could do it within a cosmic “instant” of his existence?! We believe that information could be as a Creative Principle quite. All the more, according to the famous cybernetic law, information is the origin of any control, and so, of the control, originating from Creative Principle. We believe too, that the Universe internal information is its indispensable attribute in the past (beginning from the moment of its creation by the Creative Principle), present, and future. The question on the origin of the itself Creative Principle (that is on *information-genesis*) remains open. We can only assume that the information, necessary for creating the Universe, had already existed by the “moment X” in “a single hidden SPACE” [Blavatsky, 1991: p. 43]. H.P. Blavatsky, a theosophist, notes that such a Space is rather a self-existing, eternal, endless “Unknown First Cause”, than Emptiness. Rich intuition of a religious philosopher is sometimes more productive, than hypotheses of the whole scientific community, trying to reproduce the Big Bang in the large hadron collider of CERN. Note that at the time of Blavatsky (second half of the 19th century) the concepts of physical vacuum and micro-particles, four-dimensional space-time, cybernetic information and synergetic were not known yet. Sometimes philosophical view outside of science is more alert than inside.

In other words, the theosophical model prompts that, if the information was a Creative Principle, its genesis ought to search in the *space*.

Third model is a *synergetic* model of the Universe origin and self-organization. According to that model the Primary Chaos ought to be considered the Creative Principle, Chaos’ creative potential was sufficient to give birth to self-organized macrostructures from any once arisen micro-fluctuation (singularity) of Chaos. We believe that a hypothetical “receptacle” of the Primary Chaos could be Blavatsky’s “hidden SPACE”, where the information field through virtual oscillations (the strings theory) and singularities of physical vacuum (as the synergetic Primary Chaos carrier) materialized into emerging micro-particles, worlds, explosions of “super new” stars, and “dark matter”. The formed non-balanced structures were developing and were self-organizing. It is possible to trace the distant harmony of the Creative Principle’s synergetic model with the theological conception of God as “a watch-maker of the Universe” (D. Jeans). According to D. Jeans, any clock history begins with a clock-maker, so the history of the Creation begins with Creator, who “wound up a clock”; the time was ticking, and the evolution — self-organization has picked up the baton. The Chaos singularities create its micro-variety as the internal information- genesis basis. So the Creative Principle generates information in the process of this acquired micro-variety mastering (self-knowing).

As a result there is the interconvergence of theosophical, informational-field and synergetic models.

Criterion — materialization ability of the idea. Thus, the creative information is neither the matter nor the energy, but some ideal transcendence of the Creative Basis. But the Universe is material and saturated with the energy (as the ability to work) at all levels. Therefore, there should exist some transformation mechanism of the ideal Creative Principle (idea) into the material Creation.

Any creativity begins with an ephemeral idea, flowing into the Creator’s inner symbolic information, that, in turn, is objectified through some “thought-forms” into signs, field signal messages of external information, and further in creations,

discoveries, inventions, material objects. In turn, active contemplation of the material world nourishes creative ideas. This results in: 1) a speculative hypothesis that there is no insurmountable abyss between the matter and idea, materialism and idealism, as we are assured by the orthodox followers of materialism and idealism, and there is a bridge, that is still (still!) hidden, but along that material, ideal and material-ideal objects (and subjects) have been moving to and fro since time immemorial, not suspecting about various "...isms" of human reflection; 2) a theoretical bidirectional scheme **idea**↔**information**↔**matter**. Creativity in many of its aspects and manifestations fits well within these hypothesis and scheme. The analogous "bridge" exists between the mathematics and physics, that according to Leibnitz and Kant are an a priori knowledge — "mind truths" (mathematics) and an a posteriori knowledge — "sense truths" (physics). Thus, since D. Hilbert's meta-mathematics and A. Einstein's general theory of relativity a scientific community, little by little, got used to the "crazy" thought that mathematical images, not being associated with reality, can have a physical meaning (for example, a Riemann's spherical geometry in cosmology, Schrödinger's wave Ψ -function in quantum mechanics). Some mathematicians believe the physical matter to be *stratification*, and main physical fields to be mathematical *coherences* of stratifications [Manin, 1979: p. 19]; "...moving from the concept "two rams plus three rams is equal to five rams" to the concept "the root out of minus one is equal to *i*" and further to the concept "the space of square-integrable functions", we suddenly encounter the electron" [Karoyhazi, 1980: p. 159]. Perhaps, we will come to the physical meaning of many still unknown, hidden, ideal phenomena through mathematical images of coherences, sets, fractals, solitons, spinors, complex spaces, strings, etc.

The theoretical arithmetic knows *Wallis paradox* [Wieleitner, 1960: p. 18], according to that the apparent inequality $1/(n+1) < 1/n$ (n — integer) precedes:

$$\dots 1/3 < 1/2 < 1/1 < 1/0 < 1/-1 < 1/-2 < 1/-3 \dots,$$

i.e. negative numbers, existing only in the thinking mind not in nature, are greater than the actual infinity ($1/0$), although they are arithmetically smaller than zero ("nothing"). There is a paradoxical transition from the domain of positive real numbers to negative numbers and back through infinity. Is not there a paradox in transiting from the material being of each thing (existence, life) to the ideal nothingness (non-existence, death) through the Universe's "infinitehedral information magic crystal", transforming the ideal ($1/-1$) to the material ($1/1$) and vice versa in a way, unknown to us? Mathematical paradoxes, born by the mind, and paradoxes of the being are somewhat interrelated.

Analysis. If the existence of inner matter information is denied, inner information in brain living substance, DNA molecules, a living cell should be denied too. Are we entitled to it? Recently inorganic nature has been considered to have no structures "specializing" on information processes. Modern physics allows doubting it.

Inner substance information is nonphysical in the generally accepted sense, i.e. it cannot be observed empirically, but it can be physical like, for example, unobservable physical vacuum. *Recording* information in the information field and *reading out* from it can be accomplished by physical electromagnetic, quantum (quantum teleportation) or other unknown field (for example, telepathic, torsion). Reading out of the information field can be associated with the field "flashes" (pulses), what are sometimes observed on the stellar sky or in physical instruments

for studying the micro-world. *Storing* inner information is possible in holographic form, in associative, hierarchical (tree-type), network, list, cellular (comb-type) and other structures. The world knowledge, packed in scientific and nonscientific truths in any language of external information, is, at best, capable of approximately explaining (not comprehending) the meaning of inner information stored by the information field.

Since the Plato's epoch the discussion where ideal is hidden — in the consciousness or in the matter — has been continuing¹⁰. It is important for us to answer the question of not *where* but *how* the ideal (spiritual) transforms in the matter (corporal). This question goes back a long way to the antiquity. The use of a computer as a “vivid example” of “**ideal**→**material**” transformation, in our opinion, does not answer the question, because before materializing in processor actions the program commands have to materialize themselves from a programmer's consciousness thinking algorithmically. At the same time it remains unclear, how ideal thoughts of a programmer materialize to the algorithms and programs texts. We have come full circle, the problem remains open.

The physical theory of information A-field (generalized caliber field) is known [Uchiyama, 1986: p. 185]. The information A-field is supposed to be a physical foundation of real manifestation (in the form of external information) of latent inner information of elementary particle in the aggregate (vector A) of particle properties (a_1 — charge, a_2 — mass, a_3 — spin, etc.). Physical arguments of information A-field competence are as follows: 1) each independent property (parameter) a_i of elementary particles from A-vector of properties corresponds to its own component of the information field — a physical field A_i , that carries the information about this property and through that the interaction, corresponding to this property, is carried out between particles; 2) the equations of potential for component A_i of the information field and the particle with the property a_i contact method with this component are determined by the conservation law of property a_i (charge, mass, impulse, etc.); 3) information transfer between particles is accomplished by means of corpuscular agents (quanta) with zero rest mass. Information A-fields of Uchiyama are known in modern quantum physics as caliber (generalized caliber) Yang-Mills fields, and in theology they may be associated with Cosmic Logos, “thinking energy of Logos” [Blavatsky, 1991: p.183]. In that respect, the concept of an information field, perhaps, will serve as the uniting basis of the science and theology: “unity, that we feel in the Creation on the basis of our faith... and corresponding unity, to that we aspire in our human communities, are reflected and even are strengthened by the things, what modern science discovers” (Pontiff Johannes Paul II).

The arguments, mentioned above, give the answer to the most urgent question: how does the ideal transform into the material not only in the micro-world but in the macro-world too? According to Uchiyama's theory the information field controls the power components of physical fields through the information components of the latter. The similar problem is the transformation mechanism of acceleration (of bodies, particles, and charges) into physical fields. Some scientists perceive certain “signals” of the unknown nature between the acceleration and the field. It is possible to suppose that an information field is the basis, the initiator of such signals.

¹⁰ There are suppositions and even experimental evidences that in terrestrial conditions processes of information transformation can occur in water and/or physical substrates similar to mesomorphic liquid crystals.

The analysis showed that post-non-classical physical theories of vacuum and information field (A. Veinik, G. Shipov, R. Taylor, etc.) are isomorphic in its *wave orientation*: 1) field waves carry the information about the field source and the obstacles to field spreading; 2) the degree of coherence (co-phasing) of different waves of the same field significantly affects on its information capability; 3) the virtual information, contained in some field wave, is able to become an explicit information in a matter-energy signal form under certain conditions. If a corpuscle most probably associates with the physical matter as a material substrate, the wave associates with the field as a more subtle, almost virtual form of the physical matter existence (at the junction of the material and the ideal). Experimental evidences: holography, optimal filters and “signal compressors” in communications technology and radiolocation. Nevertheless, we refer the mentioned physical models to the deviant science because they have not taken place within the dominant physical paradigm of the Universe yet.

Conclusion

The examined models of the Creator and His “trade”, the informational Creative Principle have, certainly, a hypothetical and, therefore, disputable character: “the part of the scientist – of the intelligent and honest man of letters and of the intelligent and honest clergyman as well – to entertain heretical and forbidden opinions experimentally, even if he is finally to reject them” [Wiener, 1966: p. 19]. The eternal mystery of the Creator and the Creation remains a mystery, to reveal that is not destined “for us sinful”. We believe that there must be secrets in order to inspire by its enigmas not only muses’ servants, but also “heretics” from philosophy and science.

There are three final citations: 1) E. Gilson, French catholic theologian and philosopher: “It is doubtful to advance far forward, trying again and again to solve one and the same problem, just as its conditions keep the unknown significance, value of that will always slip away from us” [Gilson, 1995: p. 9]; 2) V. Solovyov, Russian philosopher: “The highest synthesis of the philosophical cognition and religion faith... forms the necessary, genuine task of the philosophical thought” [Solovyov, 1998: p. 8]; 3) I. Asimov, American scientist and writer: “If all the difficulties suddenly disappeared, and the answers on all the questions were found, the game of science would be lost (scientists hope that this will never happen)” [Asimov, 1990: p. 15]. Author is solidary with Gilson, Solovyov, Asimov and is conscious of the article discussion character.



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