



SCIREA Journal of Sociology

ISSN: 2994-9343

<http://www.scirea.org/journal/Sociology>

March 12, 2025

Volume 9, Issue 2, April 2025

<https://doi.org/10.54647/sociology841403>

Nature, Universe, Man

Givishvili G.

Institute of Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation, Russian Academy of Sciences, Moscow, Russia

Email: givi_dom@mail.ru

Abstract.

The hypothesis according to which the model of the Universe, based on the General Theory of Relativity, represents only one of the countless Small Universes, constituting the Big Universe unlimited in space-time, is considered. It is shown that the possibility of infinite existence of the latter arises due to a mind similar to the human mind, an immense set of carriers of which is contained in it (the Super-strong Anthropic Principle). Expansion of the functions of the concept “man” in the destiny of the Universe allows us to interpret Nature as a certain living organism existing everywhere and eternally. It has no external creator (God or the Absolute), no internal super-mind (Logos), no beginning and no end. Its mind is contained in all material elements that compose it without exception - from photons and quarks to star systems and culture bearers like us. But, of course, at different levels of complexity and in a variety of manifestations. In this sense, Nature is democratic: a) everything is connected to everything, b) there is nothing superfluous in it - something it can do without; c) there is nothing random in it that would not be natural. But, having rewarded us with reason, it expects from us a kind of response - the search for mechanisms of energy regeneration that would contribute to the eternal cycle of its matter.

Keywords. Nature, Universe, man, mind, General Theory of Relativity, Standard Model, Synthetic Theory of Evolution.

INTRODUCTION

The concept of Nature has many interpretations depending on who is judging its essence. It is one for the believer and another for the atheist. In the eyes of the former, it is a creation of God, hence it is unified by definition, but divided vertically into an upper and lower part: into “reasonable man” and “unreasonable nature”. Hence the meaning of human existence, in his opinion, is to serve his creator, to follow his precepts. The atheist's idea of the unity of Nature is based on intuition and is reduced mainly to its cognition. At the same time, philosophy and science diverge in formulating the goals of cognition. According to Aristotle: “Knowledge was sought for the sake of understanding, not for any benefit” [1]. At the same time, according to the philosophical tradition, cognition should contribute to the improvement of moral foundations of man and humanity as a whole, limited by the limits of our planet. The point of view of science is expressed by two famous mottos: “We cannot wait for favors from nature, it is our task to take them from her”, as well as “Knowledge is power”. It is more pragmatic and interested in the material side of things - in increasing the comfort of our existence. At the same time, it includes not only our planet, but the whole Cosmos in its interests, and quite successfully at that.

The success of science was ensured, as it is known, by the naturally arisen division of labor between different disciplines, each of which made its significant contribution to the understanding of those or other facets of the world around us. Thus, in particular, it is recognized that the structure and dynamics of stars and galaxies are adequately described by the General Theory of Relativity (GTR); the behavior of elementary particles by quantum mechanics with its

Standard Model (SM); the world of intermediate scales by classical physics (CP); the world of organics by the Synthetic Theory of Evolution (STE), consisting of Darwinism and genetics. And since Nature is one, there were good reasons to believe that all these sections would mutually complement each other, and intuition would move into the category of a working hypothesis. Alas, hopes did not come true, for on the way of unification there appeared an obstacle created by ... GR. First, for almost a whole century it cannot find points of contact with SM, the reliability of which was thousand times checked and confirmed by millions of

experiments. GR diverges with it in two fundamental questions: a) in estimation of a role of probabilistic factor in natural processes, b) in representations about space. Denying the significance of stochasticity, GR insists on strict determinism, and attributes to space a mechanical property - the ability to bend. Whence its fundamental incompatibility with SM. (The detailed critical analysis of GR is given in [2]).

At the same time, the other question of the purpose of the existence of the human race has never, as far as we know, been considered by any atheist, whether philosopher or scientist. For until very recently it seemed that the mutual isolation of different sections of the general field of rational knowledge made its formulation subjectless. However, simultaneously with the deepening of these or those sections of knowledge there was their all-round expansion horizontally. That allowed to overcome the barriers of autonomization - to see Nature as a certain internally interconnected whole, in which man is one of the key attributes that ensure its eternal existence. And again against the idea of the unity of Nature and man the GR revolts. Since, condemning the Universe to infinite expansion, it reduces the role of man in it to zero. He is a superfluous “component” in it: he has nothing to do in it but to watch helplessly the continuously swelling gigantic bubble of the cosmos, which dissolves without a trace in the vast emptiness of space.

Thus, GR turned out to be that weak link, which, on the one hand, does not allow to close the circle of understanding (in the most general features) of the phenomena due to which Nature represents itself and functions as a single living organism. On the other hand, the theory makes human existence essentially meaningless. Because of which there is a feeling that millions and billions of years of evolution have been spent either in vain or to turn our planet into a grandiose dumping ground. And in this, paradoxically, STE stands in solidarity with her. It also has two weaknesses. The first is the unnatural narrowing of the concept of “life”, the artificial division of all material things into “living” and “dead”. The second is the limitation of the concept of “evolution” to the Darwinian triad of heredity, variability, and natural selection. It also has no place for reason as a necessary element of Nature's existence [3]. And since the statement concerning GR and STE disputes the traditional opinion of the majority of specialists on cosmology and evolution, the position requires proofs of argumentation of our position.

1. INTRACTABLE CONTRADICTIONS OF THE GR

Among the many insurmountable internal contradictions of the theory, some particularly challenging ones include: A) the notion of an initial singularity; B) the hypothesis of “cosmological inflation”; C) the idea of the future of the universe; D) the violation of the law of conservation of energy. To all other things, in the light of new data obtained by “James Webb”, it became clear that GR does not have sufficient arguments to claim to describe the Universe as a whole.

A) The paradox of singularity. GR - the brainchild of A. Einstein insists that 13 ÷ 14 billion years ago *“there was nothing, there were no particles, there was no space, there was no time”* [4]. *“The results of our observations confirm the assumption that the Universe arose at a certain point in time. However, the very moment of the beginning of creation, the “exodus” from the singularity, does not obey any of the known laws of physics”* [5] - confirms S. Hawking. J. Wheeler called the singularity problem the greatest crisis of modern physics. A shocking conclusion follows from the confessions of these authoritative experts. The claim that there was a moment when there was nothing, including space-time, is formally no different from any Stone Age myth: it is absolutely unproven! The only difference between them is that GR is supported by mathematical formulas. However the last are such creations of human mind as stories of Bushmen or Australian aborigines.

B) The paradox of cosmic inflation. The inflationary phase of the Universe evolution (according to GR) was within the instant from $\sim 10^{-40}$ to $\sim 10^{-30}$ seconds after the beginning of expansion. But in this vanishingly microscopic interval of time with it there happened amazing events, by their absurdity far exceeding all that the ancient mythology presents us. One example: the theory requires that the speed of flying “protomatter” at the moment of inflation is billions of times higher than the speed of light! From a mathematical point of view, inflationary theory is flawless. But it also provides the most convincing example that math and physical reality are not at all identical. Mathematics is a creation of our mind (imagination), which abstracts and systematizes the phenomena of Nature, but does not control them.

C) The paradox of the future. In recent years we have been convinced that the rate of expansion of the Universe will only increase in the future. To imagine what exactly GR promises to the Universe in the distant future, let's carry forward mentally to the moment

when it will be 10^{100} years old. By this time, there will be only one elementary particle in the volume of space equal to 10^{185} volumes of the whole visible today Universe! The paradox, however, is that this elementary particle will have to generate new monstrous volumes of space. Therefore, the death of the Universe will not be absolute. And since the process of its swelling will continue unceasingly, it remains to agree that, once born, it will exist forever, but ... only as a ghost of itself. In its uniqueness, this idea is unrivaled. In its boldness of imagination, it surpassed even the myths of the Stone Age. In the history of human thought, it is the first example of the assertion of the possibility of the sudden birth of everything from nothing and the further infinite existence of something that does not end in nothing.

D) The paradox of the law of conservation of energy. The most serious objection against GR should be recognized the violation by it of the law of conservation of energy. The theorem of Noether states that to each continuous symmetry of a physical system there corresponds a certain conservation law. In particular to homogeneity of time corresponds the law of conservation of energy, and to homogeneity of space - the law of conservation of momentum. In GR both homogeneity of space and time are violated: both are capable of curvature. Why theorists bypass the violation of one of the fundamental principles of Nature remains unclear.

E) Origin of paradoxes of GR. Formulating the laws of gravitation, I. Newton emphasized: *“The reason of these properties of gravitation force I still could not deduce from the phenomena, hypotheses I do not invent... It is enough that gravitation actually exists and acts according to the laws we have stated...”* [6]. This position of Newton, was constantly criticized from G.W. Leibniz to Mach for the fact that it implied the ability of bodies to influence each other at a distance, without any material intermediary. The criticism had an effect - prompting Einstein to join Mach. At the same time, Einstein emphasized that GR “rests on three basic statements, which do not depend on each other in any degree....

1) The principle of relativity: the laws of nature are only statements about spatio-temporal coincidences....

2) The principle of equivalence: inertia and gravity are identical...

3) Mach's principle: G-field (space - G. G.) is defined by masses of bodies. Mass and energy, according to the corollaries of the special theory of relativity, represent the same thing.... (Note:) *“The name “Mach's Principle” was chosen because this principle is a generalization of Mach's requirement that inertia must be reduced to the interaction of bodies.”*

The latter requirement was reduced to the principle “according to which... the reason for the existence of inertial reference systems is the presence of distant cosmic masses; the inertial properties of each physical body are determined by all other physical bodies in the universe and depend on their location..... At the same time, “the points of reference, to which the law of inertia is applicable in a good approximation, are obviously fixed stars” [7]. How justified were these initial postulates of GR?

1) The principle of relativity. The laws of nature are absolute in the sense that: a) they are universal for all material objects of the Universe without exception; b) by virtue of their immateriality they are unchangeable. They are relative only in the sense that they are manifested with different degrees of actualization in different objects and conditions.

2) The equivalence principle. GR was created in 1906 ÷ 1916, before the concept of spin was formulated (S. Goudsmit, D. Uhlenbeck, W Pauli: 1922 ÷ 1927). Therefore, while working on the theory, Einstein could not have known that it: a) is inherent in all elementary particles; b) sets their orientation and at the same time is not related to the movement of the particle as a whole; c) resists the attempts of an external force to move it. Thus, the *main* property of spin is its ability to remember and preserve its orientation in space - that is, to be *inertial*. This means that since all elementary particles are “awarded” with spin, the gravitational (Mg) and inertial (Mi) masses of bodies (defined as sums of their elementary particles) must strictly coincide with each other. It is this latter circumstance that most naturally explains the principle of equivalence. And all attempts to interpret inertia as an artificial reaction of an object that is here “to the stars there” become superfluous.

3) Mach's Principle. In Berkeley's physics course on Mach's principle, it is stated that: “the existence of inertial reference frames leads to a difficult question that remains unanswered: what effect does all other matter in the universe have on the experiences made in the laboratory on Earth? ... To date, there is no answer to this profound question about the relationship between the distant universe and the properties of individual particles.” [8]. Now there is an answer: one of the experimental checks undertaken in the middle of the last century by several groups of authors testified the non-fulfillment of Mach's principle [9, 10].

E) Reasons of belief in GR. Among the objective reasons why the recognition of the validity of GR remains unquestionable in spite of everything for the majority of modern theoretical cosmologists, two are the most obvious. The first is that its framework is mathematics; the second is that it was confirmed at birth by several experiments.

1) GR and mathematics. “All previous experience convinces us that nature is a realization of the simplest mathematically conceivable elements. I am convinced that through purely mathematical constructions we can find those concepts and the regular relations between them that will give us the key to understanding the phenomena of nature.” [11] - stated Einstein. In other words, he was sure that mathematics is able to describe all physical processes without exception. Apparently, he was influenced by D. Hilbert, who in 1900 stated that mathematics, in fact, is able to solve any problem in physics. He even formulated an ambitious program consisting of solving 23 problems which, in his opinion, physicists would be able to say that from now on there were no mysteries left for them in Nature. Inspired by his desire to create a “universal theory of matter,” in 1915 he even helped Einstein complete the derivation of the GTR equations. However, in order to mathematically describe the structure of the entire universe, Einstein had to recognize it as spatially closed. Therefore, he was forced to abandon the infinitely extended (rectilinear) geometry of Euclid in favor of the closed (curved) geometry of G. Riemann. The success of creation of a tool for describing the structure of the Universe so impressed the theorists that they unconditionally recognized the truth of GR.

The (silent) thunder rumbled in 1931 when K. Gödel established that Hilbert's program is impossible - mathematics is unable to prove even its own basic statements. In other words, in any mathematical system there are statements that can neither be proved nor disproved. Then A. Turing proved that mathematics is permeated with “unsolvable” statements - problems whose solution cannot be provided by any algorithm. These results showed that it is fundamentally impossible to describe the structure and dynamics of Nature by means of mathematics and computer technology! In the most recent years, this conclusion has been confirmed for a particularly important tenth Hilbert problem involving Diophantine equations, which are among

the of central objects in mathematics. In this regard, E. Granville emphasized: “*All knowledge has limits. This once again convinces us that there are things that are simply unattainable*” [12].

Thus, today mathematicians are forced to recognize the limited capabilities of mathematics. Thus, in particular, R. Courant admits: “*Mathematical statements ... do not refer to physical reality at all; they only establish the relationships between mathematically 'indefinable objects' and the rules for operating them. The question of what points, lines and numbers are 'really' cannot and should not be discussed by mathematical science*” [13]. This

opinion was shared by other famous mathematicians - G. Weyl, A. Kolmogorov, L. Kronecker.

2) GR and experiment. Any hypothesis acquires the status of a full-fledged theory only after it receives experimental confirmation. Einstein pointed out that for GR it would be found in the following effects:

1. an additional shift of the perihelion of Mercury's orbit compared to the predictions of Newton's mechanics;
2. deflection of the light beam in the gravitational field of the Sun;
3. gravitational redshift, or time dilation in the gravitational field.

Indeed, the observed displacement of Mercury's perihelion and the effects of the solar eclipses of 1919 and 1922 could be explained only after turning to GR. However time has shown that the same effects can be explained without reference to the notion of “elasticity” of space. Moreover, the experimental confirmation of the reality of the existence of gravitational waves makes the mediation of space in the interactions between material objects superfluous [14, 15]. Moreover, after the first two or three empirical confirmations of GR, which struck the imagination of theorists, no significant experiments in its favor were performed. At one time, it

seemed that the search for “dark energy” due to the Λ -member of the GR equations and the accelerated expansion of the Universe [16] was successful. However, first, refinement of their observations showed that they represent a random deviation due to measurement error [17]. Secondly, the attempts to explain the gravitational redshift by the expansion of the Universe are nothing more than a logical trick beyond the folklore, tacitly accepted as a “game within the rules”. Since what required independent proof has itself become an argument for proof! One more thing: it is sometimes said as if GR predicted the phenomenon of black holes. In fact, they were predicted by J. Mitchell back in 1784, based on Newton's classical mechanics. He showed that light would not be able to leave a body with the density of the Sun and a radius of 500 solar radii. And thus, this massive object would become invisible. Moreover, Mitchell suggested that there could be many such unobservable objects in space.

It is the striking scarcity of the empirical basis of GR (in contrast to CP, SM and STE) explains the insistence with which astrophysicists insisted on the construction and launching of the space telescope “James Webb”. They hoped that its data will remove all doubts in

reliability of GR. Alas, their hopes were again not realized. In short, there's still no conclusive evidence for the truth of GR. Even those results, which seemed to fit into the bosom of the theory, at best did not go beyond the error of measurements, or were explained also by other phenomena.

3) GR and 19th century ideas. GR was born in the epoch when the question about the nature of space and time was almost the most interesting for fundamental physics. However, all the experiments that were designed to answer it remained

uncertain and could be interpreted in favor of either one view or the other. Therefore, Mach's hypothesis of the materiality of space, Riemann's curvilinear geometry, and Hilbert's belief in the limitless power of mathematics seemed a welcome key to solving the centuries-old riddle of space. And it is not surprising that GR, erected on such a shaky foundation, began to be identified with the final solution of the problem. From the position of classical physics it was good because, unlike Newton's celestial mechanics, it “explained” the nature of gravitation. And in this sense there was no alternative to it: all other further attempts to improve it turned out to be unsuccessful chants of a well-known tune. And since until recently physics had no data to refute the materiality of space, even those theorists who clearly saw the flaws of the theory, were forced to put up with them, because they had no full-fledged alternative.

F. Experimental refutations of GR.

1) “Age” of the Universe. GR mixes the “age” of the Universe with the distance, which photons are able to overcome before the complete loss of their energy and is equal to ~ 13 billion years [18]. How to decide due to what the reddening of the photon spectrum occurs: the speed of the “expansion” of the Universe or the distance traveled by a photon in the static Universe? The judge in this question can be the lifetime of the Main Sequence (MS) stars of our Galaxy [19]. It is defined by the expression:

$$t / t_S = 1 / (M / M_S)^{2.5-3},$$

where t and M are the lifetime and mass of stars, t_S and M_S are the lifetime and mass of the Sun [20]. Thus, if the estimated lifetime of the Sun on the GP is 10^{10} years, then Spica, whose mass is 10 times greater than M_S , will live only 10^7 years. The dwarf Ross128 has a mass of $0.2M_S$, and the even smaller Wolf359 has a mass of $0.1M_S$. Therefore, the age of Ross128 ranges from 150

to 450 billion years, while Wolf359 ranges from 450 to 4500 billion years. And since there are many stars with masses smaller than M_S in our Galaxy, it turns out that it is tens and

hundreds times older than the GR Universe! Hence, the statement that the big red glows testify to the expansion of the Big Universe is nothing more than a fiction.

2) Proof of non-existence of space-time. Curvature of space is the evidence of its materiality. However, in [21] it was confirmed that the geometry of space is flat, and absolutely. In experiments with space with the Planck telescope, it was shown that the idea of curvature of space led to incompatibility of the results of different experiments. This rejected the assumption of closed space [22]. Data obtained with the Integral space telescope led to the conclusion that if the granularity of space exists in reality, then the sizes of its granules should be less than 10^{-48} m [23]. Meanwhile, it is recognized that the minimum possible length in nature is the Planck length ($\sim 10^{-35}$ m). The discrepancy of 10^{13} times between the theoretical prediction and the experimental result indicates that space is absolutely smooth, i.e., not discrete, or devoid of structure. And all taken together means that space is devoid of all properties of material objects without exception.

But if space does not exist physically, and if Minkowski's principle is true, then time does not exist in reality. In other words, space-time is a purely abstract concept. Newton's absolute space is as if always the same and motionless precisely because it does not exist physically, it is a phantom of our imagination. Its absolute time creates an illusion of uniform flow precisely because of its real non-existence. Consequently, there can be no question of any materially existing absolute coordinate system. At the same time, Newton is right in asserting that time and space constitute, as it were, the receptacles of themselves and of all existing things. In time everything is located in the sense of the order of sequence, in space - in the sense of the order of position. Because both of them are a joint empty arena, giving an opportunity to an infinite set of material objects to place and fill it, interacting and changing each other indefinitely and in all directions.

Intermediate Summary #1. What little that can be considered fairly certain today appears to be the following.

A) The observable Universe as a whole (on large scales) is homogeneous, isotropic and stationary.

B) The geometry of space of the observed Universe is flat, i.e. Euclidean.

C) The active phase of stellar existence is limited to 10-20 billion years. Most stars in our Galaxy have no more than 5-10 billion years to live.

D) The average matter density and relic study are highly homogeneous and stable.

Intermediate Summary #2.

1) Einstein justified the creation of GR by his desire to know the nature of gravitation. Is it possible to say that he achieved the desired? It is doubtful, since there was no understanding of the essence of gravitation a hundred years ago, and there is no understanding today.

2) Einstein devoted the rest of his life to attempts to unite quantum mechanics with GR on the principles of strict determinism. The goal, as is known, he did not achieve. Many thousands of theorists tried to solve the same problem after him. Totally by present time they have created already up to hundred modifications of GR. None of them has not received a clear experimental confirmation.

3) Nowhere in scientific works, not speaking about his religious views, Einstein, however, admitted: “I want to know how God created the world. I am not interested in this or that phenomena in the spectrum of this or that element. I want to know His thoughts, the rest is details... I believe in God as a Person and, in good conscience, I can say that neither I have not been an atheist for one minute of my life. Even as a young student, I firmly rejected the views of Darwin, Haeckel, and Huxley as views helplessly outdated” [24]. More than likely, Einstein never recognized God's design.

4) Nevertheless, his theory caused the widest resonance not only in the scientific world, but also among the general public, causing unprecedented interest in the problems of cosmology. Moreover, the very appearance of the Hubble and James Webb telescopes in orbit was a consequence of the heightened public attention to the affairs of the cosmos initiated by it.

2. THE CHARLIER-HUBBLE MODEL OF THE UNIVERSE

The question arises: which view of the Big Universe best meets the facts noted in Intermediate Outcome #1? In 1691, Newton pointed out that if we recognize the space and mass of the Universe as finite, and the only force acting between bodies as gravitational force, then sooner or later all the stars in it would have to fall on each other, gathering into one “point”. Newton himself resolved this paradox by making a logical conclusion that the space and the number of stars in the Universe are infinite. At the same time, to resolve Olbers'

paradox, C. Charlier suggested (1908,1922) that stars are distributed in space not uniformly, but in clusters (hierarchical model of the Universe). “The observations of Shapley, Zwicky, and Abell have indeed shown that galaxies form clusters, and these clusters may constitute superclusters” [25]. Finally, E. Hubble not only discovered the true - “Big Universe”, but also confirmed the fact of uneven filling of its space with material objects. However, against the background of GR born about the same years, Charlier's model did not attract attention of researchers and was almost forgotten. Nevertheless, in the light of revealed over time insoluble internal contradictions of GR and, in particular, after the stunning results presented by “James Webb”, it appeared that its “funeral” should be postponed in order to return to it already as the Charlier-Hubble model. Since its foundation does not contain in itself “time mines”, capable of creating insurmountable obstacles to understanding the structure and dynamics of the Universe.

The model is based on five basic elements: space (r - from radius), time (t - from time), numerical characteristics (n - from number), laws and principles (l - from law) controlling the interactions of material objects (m - from mass or matter). The designations r and t are only abstract symbols-notions that create the possibility (potency) for matter to exist, freely manifesting itself in movements of any kind, but are in no way connected with it. They are a physically nonexistent arena or stage on which matter can play out its endless spectacle. The symbol n is virtual in the sense that numbers do not exist as independent data, in themselves outside material objects. Not interacting with matter, they together with l only denote its presence (being) in statics, dynamics and development. Thus, these five elements constitute the basis of the Charlier-Hubble Universe. Their indissoluble unity is due to the fact that the exclusion of even one element, immediately eliminates the entire universe. In addition: a) r , t , n , l , m are inconceivable without each other in any capacity; b) are in a relationship determined by Bohr's principle of additionality. The continuum of space-time-number-matter-laws is the pentarchy* that organizes the existence of the Universe. According to Bohr's principle of supplementary, each of these primal bases possesses its own, specific metrics, which are realized only in union with other primal bases. At the same time, all of them can be conditionally divided into two groups: material (m) and ideal (r , t , n , l) subdomains of reality. Hence the following sequence of syllogisms is deduced. At the same time, all of them can be conditionally divided into two groups: material (m) and ideal (r , t , n , l) subdomains of reality. Hence the following sequence of syllogisms is deduced.

* From the Greek πενταρχία: πεντα - five and αρχία - the beginning of the

1. The division of everything in the Universe into material and ideal (in the broad sense) subdomains represents the first and most profound division. There is not a single material object that exists outside of space, time, and numerical characteristics, and which would not be subject to any regularity as an idea, in the narrow sense. And vice versa: both are interdependent, and therefore equal.

2. Space-time-number as parts of the ideal sub-area of reality do not possess any real properties, but exist as an unlimited possibility for matter to manifest itself in motions (changes) of any kind.

3. The laws of being as another part of the ideal sub-area are a limited set of principles, algorithms, and regularities. They constitute that general Program (algorithm or tensor), which is guided by the material subarea under certain conditions, including in the process of its evolution.

4. The countless mass of matter cannot be a single, physically coherent system. An infinitely extended object cannot, in particular, move as a single entity, in the sense of changing its location, size, etc. Consequently, the Charlier-Hubble Large Universe must consist of an infinite number of autonomous, $r-t-m$ -limited and internally (gravitationally, informationally, etc.) connected subsystems – Sub-universes, similar to Einstein-Friedman Universes.

5. In the context of the Big Universe, the latter are freed from the paradoxes of singularity, inflationary phase, finite-infinite existence, and contradiction to the law of conservation of energy. At the same time, they retain the mathematical framework that ensures the interaction of material objects at limited distances and time intervals. Therefore, paraphrasing Hertz, we can say: “GR are Einstein's equations”. Since they are independent of his initial considerations (by the way, they were created independently by G. Ricci-Curbastro and T. Levy-Civita).

6. Space-time boundaries of these Sub-universes are determined by the boundaries of informational and gravitational interactions. And since the existence of stars and galaxies is determined by the cycle of ontogenesis, the existence of Sub-universes must also be cyclic in order to maintain the eternity of existence of the Big Universe. And there are countless of them, “*moderately burning and moderately dying out*” (according to Heraclitus).

3. SUPER-STRONG ANTHROPIC PRINCIPLE

The Charlier-Hubble model seems to solve problems related to the structure of the Universe, dividing it into one stationary Large Universe and innumerable dynamic Sub-Universes (galaxies and galaxy clusters) in accordance with Bohr's Complementarity Principle. But it also generates a contradiction between the principle of eternity of the Big Universe and mortality of the Sub-Universes. The paradox is that with hydrogen fuel burnout the star's energy quality, its ability to release energy, irreversibly decreases. The process ends with its death and, ultimately, the death of the galaxy. In the absence of the process of renewal of the "quality" of stellar energy, the lifetime of the Sub-universes is limited to only a few tens of billions of years.

At the same time, at present, no natural reaction is known to reanimate the energy resources of stars. However, the very fact of infinite existence of the Big Universe suggests that reactions of this kind exist. But for them to occur, special conditions must be created that require the intervention of... a mind like a human being. A mind capable of cognizing the deeply hidden regularities of Nature's existence and using the most difficult-to-access knowledge to maintain the "eternal fire" of the Big Universe. And so a logically connected sequence is formed:

- a) the infinity of existence of the Big Universe is ensured due to cyclic existence of Sub-universes (galaxies or their clusters);
- b) the existence of galaxies consists in the constant renewal of the quality of energy of stars, which irreversibly deteriorates in the course of each life cycle;
- c) restoration of the stellar energy quality should occur due to reactions, somehow compensating thermonuclear reactions;
- d) modern knowledge does not provide an answer to the question of how to revive and revitalize the of extinct ashes;
- e) it imposes on reason the requirement to recognize cognition as its supreme duty to itself and to Nature. (It is possible that mathematics is one of those Nature's clues, one of her keys, by which she solves the question of her own immortality, suddenly illuminating the mind of some new P. Fermat or S. Ramanujan).

The Super-strong Anthropic Principle (SSAP) is the statement of this universal connection of things. At the same time, it confirms, following mathematics, that our

knowledge is fundamentally limited. For example, we cannot know why the speed of light is limited to 300,000 km/s. Because if we knew this, we could change this speed in some way and for some reason. And then... according to the “weak” anthropic principle, the entire universe would collapse. Because it turned out that the structure and existence of the Universe as a stellar world is extremely sensitive to some key characteristics of elementary particles. Here are only some of them, even small changes of which (each separately and in aggregate) entail a catastrophe - disappearance of the Universe, filled with life of stars, planets and organics.

1. The mass of an electron “has no right” to exceed the existing value more than twice. Exceeding this threshold leads to instant death of atoms and molecules.

2. A change in the constant of intranuclear interactions by only 10% (!) would threaten that the Universe would be filled predominantly with helium. And no other, more complex forms of matter would be out of the question.

3. A larger or smaller shift in the electromagnetic interaction constant by about 50% would eliminate the possibility of any stable atoms and molecules.

4. Physical existence of material objects is possible only in 3-dimensional space.

The mentioned examples make only a part of the extensive list of prohibitions imposed on elementary particles. Whence it follows, firstly, that elementary particles “know” what numerical values of their parameters are favorable for the existence of the Universe, and what are murderous for it. Secondly, since the existence of the world of galaxies and stars is so rigidly connected with the properties of the world of elementary particles, and everything that happens to the latter is subject to the laws of cause-and-effect relations, the birth of Homo sapiens (at a certain moment of existence of this or that Sub-Universe) is a quite natural phenomenon.

At the same time, it is obvious that only an *extremely highly intellectually and technologically advanced civilization* can undertake such a grandiose mission of maintaining the existence of Nature. Alas, attempts to notice the slightest signs of activity of at least one hypothetical extraterrestrial civilization, remain unsuccessful for 60 years of their search for SETI (Search for Extraterrestrial Intelligence). There may be many reasons for their mysterious silence. The most likely one is related to the fact that most of them face some kind of insurmountable obstacles of two kinds. The first includes external ones - global catastrophes of cosmic or planetary origin. The second type of internal obstacles is related to

the fact that the development of extraterrestrial civilizations comes to a dead end when they reach a certain technological level. After or as a consequence of which they perish quickly or slowly, but inevitably.

What does the experience of our, earthly civilization, suggest in this context? That reason has a competitor - instincts imitating reason. E. Durkheim called them collective perceptions (French: *représentations collectives*) [26]. The meaning of their opposition to reason was most frankly expressed by Tertullian (“*After Christ we do not need any curiosity; after the Gospel we do not need any research*”) and Aurelius Augustine (“*God is best known through ignorance*”). It follows that civilization can realize its potential as a cosmic demiurge only if the passive-contemplative mind (*contemplative cognition*) can find the strength to act offensively as an active-cognitive mind (*cognitive cognition*), and *Homo sapiens* can become *Homo cognitus*.

Among all potential threats to civilization, Hawking singled out artificial intelligence, nuclear war and ecology. All three factors are, in fact, tests of “cosmic censorship”, or an exam, by the results of which Nature judges the intellectual maturity of this or that exoplanet civilization, including the Earth civilization. Thus, it carries out a kind of cultural selection, eliminating civilizations, which due to some or other internal reasons are unable to realize the gigantic potential of reason and stop in their moral and technological development. And perhaps it is time to take into account that in our Galaxy alone there are hypothetically millions or billions of civilizations capable of assuming the mission of its next (“cyclic”) creator. Therefore, even if we leave, “slamming the door loudly”, Nature will simply not notice it.

Thus, the concept “Big Universe” includes conditionally unconscious worlds of: a) elementary particles (SM); b) classical physics (CP); c) Sub-universes (Charlier-Hubble model); d) Earth-like organics (STE). Whereas the concept of “Nature” contains an addition to the Big Universe - conditionally conscious worlds consisting of an infinite number of exoplanet civilizations and human-like minds (SAP).

4. PROBLEMS OF DARWINISM

In the Introduction we noted that STE as well as GR does not give an answer to the question: for what purpose evolution has rewarded man with mind. The reason, in our

opinion, lies in the fact that it is characterized by two fatal weaknesses. The first is an unreasonable narrowing of the concept of “life”, unnatural division of all material things into “living” and “dead”. The second is the restriction of the concept of “evolution” to the Darwinian triad of heredity, variability, and natural selection.

A. The concept of “life”. Wikipedia states that there are over a hundred interpretations of the term “life”, and many of them contradict each other. However, there is a consensus that *life is self-reproduction with variations*. This interpretation of the concept of “life” is based on the general dogma that there is an unbridgeable gulf between: a) organics (*biota*), which participates in the Darwinian triad; and b) the physical-chemical world (*abiota*), which does not participate in it. In addition, it is recognized that life on our planet originated ~ 3.8 billion years ago. The paradox is that this definition is inapplicable to the first simplest forms of biota, the *prokaryotes* (unicellular, lacking a formalized cell nucleus). They a) did not participate in natural selection, b) they do not know *ontogenesis* (from Greek: ὄν, ὄντος - being” + γένεσις - origin), which denotes the boundaries of life, as it is accepted in biology. Consequently, half of those ~3.8 billion years during which the existence of life on Earth is recognized, it has not, in fact, existed in the traditional sense. Darwinian evolution began to play a prominent role only with the appearance ~1.9 billion years ago of *eukaryotes* (organisms whose cells contain a nucleus). However, it only really “got into the game” ~ 0.6 billion years ago (in the late Precambrian), together with: a) the explosive growth in the number of species of multicellular organisms, b) the beginning of their fierce struggle for *limited* food resources, and c) the emergence of phylogenesis (from Greek: φύλον - tribe, race + γένεσις - origin) - the process of multiplication of their species. (The reference to the scarcity of food resources is fundamentally important, since their wide availability drastically reduces the degree of struggle for them).

Meanwhile, obvious parallels are visible to the naked eye not only between eukaryote-biota on the one hand, and abiotic-prokaryotes with viruses on the other. They are present even between eukaryotes and elementary particles! Thus, according to the *Pauli principle*, the same elementary particles with half-integer spin (leptons and baryons) are forbidden to be in the same state. On the other hand, the *principle of competitive exclusion* (Grinnell-Gauz), which operates in the animal world, forbids species similar in the way of adaptation to the environment to occupy the same ecological niche for a long time. Further, absolutely everything material reacts to external stimuli: from elementary particles (as W. Heisenberg never tired of repeating) to viruses and soldiers on parade. Besides, highly ordered structure is

peculiar not only to organic objects, but to all atoms from the Mendeleev table and their associations in the form of crystals, planetary (stellar) systems, etc. Moreover, not only on Earth, but also in the distant cosmos, life is boiling. Cycles of birth and death rule over stars and galaxies just as they do over eukaryotes. After all, the very molecules of RNA and DNA, standing on the border of two worlds, prove that “life” and “death” are relative concepts.

The currently most popular theory of biochemical evolution insists that the origin of organics came about because five “dead, dumb” atoms, C, O, H, P, and N, joined together in a certain way (as one - RNA or two spirals - DNA) suddenly acquired a commanding voice. They began to manipulate the same atoms, but arranged in a different way, for example, in the molecules of proteins, carbohydrates and lipids. In a certain sense, this explanation echoes the problem of “creation of the world” in GR: it also belongs to the field of mythology. Einstein often referred to thought experiments, so let us follow him. Let us imagine that we have a number of bricks made of five different materials. How much time would it take to connect them in such a way that they start to lead an independent life: they acquire the “will to self-copying” and begin to assemble the same bricks, but already according to their own mind? The answer, I believe, is known: it will never happen!

Of course, there are several fundamental differences between cosmic (mechanical) and terrestrial (biological) forms of life. The main one is that abiotic objects exist by either *releasing* energy or *exchanging* it with other objects. In contrast, biota thrive only by *consuming* energy from the outside world. Nevertheless, “life” and “death” are relative concepts. And with the acceptance of the thesis that Nature is not born and does not die, but exists forever, the concept of “life” acquires a much deeper and closer to reality meaning. Since it covers not only biological, but also physical and chemical objects, which have their own specifics and peculiarities. In short, there are good reasons to assert: *everything that possesses certain properties and, first of all, reacts to incoming information*, i.e. everything material, is alive.

B) The concept of “evolution”. It has two meanings: a) local, connected with its Darwinian definition; b) global - including all materially existing from stellar systems to the world of atoms and molecules. Since global evolution is responsible for the birth in all corners of the Universe of beings endowed with cognitive intelligence - *Homo cognitus*. The process of their “molding” can be easily traced on the example of our planet. Before organic life arose on it, the planet itself evolved, creating the conditions most optimal for the existence of organics. The lithosphere and atmosphere were formed, and water was formed. The first two or three

billion years were entirely a preparation for the creation of conditions for the full-fledged unfolding of local evolution in the form of natural selection.

Vitalists, who explain life by the action of some supra-(extra)natural factors absent in “non-living” bodies, are mistaken. Since the foundation of the matter of the Universe is one: it is made up of elementary particles. Their properties determine the properties of “higher” atoms. Those, in turn, form the next step of the pyramid - molecules and molecular compositions. Each of them also has its own specific set of properties depending on the “bricks” forming them. At the same time, forming a universal and unchanging *strategy* of global evolution, all of them, from elementary particles to macromolecules-polymers, are hopelessly dead, from the point of view of the STE proponent. But here, joining in a strictly defined way, first into an RNA molecule and then into DNA, they make up in each individual case (on each exoplanet) their local *tactics*, adapted to variable circumstances and environmental conditions. By doing so, they acquire the ability to flexibly manipulate other simple and complex molecular compounds.

Evolution has, in fact, “imposed” on RNA and DNA molecules a program of action consisting of the invention of many subtle and intricate mechanisms, including the very meiosis that introduced the concept of *death* into organics. Life and death appear in this world together with sexual reproduction, but holding hands. Meanwhile, life, as it turns out, is *absolute*, whereas death is *relative*. Further, evolution “forced” DNA to invent another amazing mechanism: photosynthesis. This led, as one would expect, to the exponential growth of the mass of organics and to the emergence of the process of *phylogenesis*. Thus, the “trunk” of prokaryotes began to grow a “crown” of eukaryotes, developing the phylogenetic tree of organics upward and upward. Eventually it turns out that the whole incredibly complex and multistage mechanism of reproduction of organisms was invented for the sole purpose of endless self-copying of DNA and cells under its control. Forced to involve in the reproduction of its life cycle the energy of the sun and chemical compounds, DNA willingly or unwillingly involves them in the orbit of the total non-stop cycle of matter. Thus, it: a) turns out to be an *eternal engine for planetary organics*, b) makes it an integral part of the Cosmos, c) itself turns out to be a link between the Earth (of any isoplanet) and the Universe. Thus, the DNA molecule is a phenomenon that far surpasses the wonders of human imagination.

C) The Aporias of STE. Within the paradigm of “living organism is composed of dead matter”, Darwinism faces other problems that are given the appearance of being solved. These include the following.

1. *The problem of the origin of life.* Darwin preferred not to delve into it, which is clear from the title of his seminal work *On the Origin of Species by Means of Natural Selection* (1859). It has not yet been solved by any of the hypotheses put forward by various authors at different times, including: the theories of self-generation, steady-state, panspermia, and biochemical evolution.

2. *The problem of the origin of organs in animals and plants.* For their formation it was necessary the emergence of division of labor between perfectly autonomous and equal cells that “decided” to unite and exist together. It remains unclear: what induced the “sovereign” cells to recognize the necessity of limiting their own freedoms and joining the “labor collective” called organism. Especially since the prospects for increasing their survival rate remained unclear from the very beginning.

3. *The problem of the origin of instincts.* Realizing the insurmountable difficulties of explaining this most important behavioral factor in animal life, Darwin did not give a strict definition of it. Moreover, he offered no intelligible explanation of the facts of the sudden emergence of instincts in species deprived of the time necessary for their formation by learning, passing from generation to generation.

4. *The problem of sexual reproduction.* Meiosis is a mystery that has no intelligible explanation within the framework of however complex physico-chemical environments, patterns and relationships. No one with even the slightest idea of the mind-boggling sophistication of its process can explain it. The question of questions - how could this invention have been born in the simplest unicellulars - relatives of amoebae, infusoria and euglenae? What made them make one of the greatest discoveries in the history of organic evolution, before which the creative achievements of man pale? And most importantly, why and who needed it?

Meiosis has incredibly complicated and multiplied the processes of not only direct reproduction, but also further development of organisms. In addition, for the first time in the history of the Earth, it drew a clear line between life and death of an organism as an individual possessing a set of specific features at least microscopically differentiating it from other individuals. Death is the most “tragic” event in the life of an organism. But, as it turns out, it

is very favorable for evolution as a whole, sharply increasing its pace and dynamics. Sexual reproduction and the “mortality” of organisms are extremely important inventions of evolution, stimulating the rapid acceleration of species rotation and the emergence of ever more complex organisms with ever more developed nervous systems... right up to the emergence of man.

5. The problem of the rate of speciation. A question that has no clear answer: why do some species with sexual reproduction practically do not change for tens and even hundreds of millions of years (sharks, turtles, crocodiles), others evolve noticeably within several tens of millions of years (horses are a classic example), while others need only a few thousand years to form a whole fan of new species (finches, lizards, trouts)? The same question can be addressed to all large-scale processes that followed mass extinctions, when the formation of not only new species, but whole new genera, families and even groups of plants and animals occurred “almost instantaneously”.

All the above-mentioned roughnesses of STE were the result of extremely *narrow* understanding of the phenomenon of “life”, peculiar to the era of C. Darwin. However, this misconception turned out to be extremely constructive. His decisive rejection of the biblical version of the creation of the world in favor of a strictly rational (as he understood it) approach to explaining the phenomenon of life was a revolution in the social consciousness of the New Age.

D). Nature and entelechy. One way or another, evolution is just a *process*! And any known natural process must be initiated by something. Heraclitus was the first to hypothesize about the initiator of all changes in the Universe, giving it the name of *logos*, i.e. “word” as an expression of the cosmic mind. And he was also the first to point out the deeply immanent connection between the total *fluidity* of matter (*m*) and the unchanging *constancy* of *logos* (*n*, *l*) as a matrix-code of laws and principles of existence of this matter. Aristotle called *entelechy* the driving force or aspiration motivating matter to change according to the instructions of the matrix, limiting the area of its manifestation only to the world of animals and partly plants. Taking into account that we extend the concept of “life” to all material objects of the cosmos without exception, it is natural to expand the concept of “entelechy” as follows: *entelechy expresses the aspiration of the Universe as a single whole to remain eternally and unlimitedly.*

Hence it follows that besides physical, chemical and biological laws ruling in Nature, there is another force, too complex to be described with the help of physical and mathematical

tools, but simple to comprehend... in terms of *psychology*. It is thus suggested that the concept of “psychology” can be applied not only to man, but to Nature as a whole, of which man is an elementary thinking atom. (The idea that all the inconceivably cunning and sophisticated activity of evolution on our planet over hundreds of millions of years was a preparatory stage for the emergence of Homo sapiens cannot but be disconcerting. But, on the other hand, what other meaning could there be to evolution in general and our existence in particular?)

5. HUMAN TIME

Man, as we know, is a social creature. But classical sociality in the animal world implies an indispensable vertical ranking of the members of the society, their division into “tops” and “bottoms”. Our direct closest ancestor, Cro-Magnon, was able to defeat his inferior opponent, Neanderthal, only by deviating from this general rule. His communities were built on the basis of universal equality - ordered anarchy. Bushmen and Nilotes of Africa, Australian aborigines, hunter-gatherers, scattered in the jungles of South Asia and America, carried through the millennia up to the twentieth and even twenty-first century traditions of this primitive democracy.

∅. Evans-Pritchard, describing the way of life of the Nuer, emphasized that, they have, first: *a heightened sense of personal dignity and individual rights*. In their society there are no masters and servants, there are only equal people. Secondly, social relations among the Nuer are characterized by *ordered anarchy*. *They have no secular authority*. [27]. Even in the world of spirits they had democracy: they were all equal among themselves and ... it was possible to negotiate with them, if you know how to communicate with them. A similar picture of social relations was observed a century ago among the aborigines of Australia [28]. Summarizing the review of the peculiarities of existence of peoples engaged in hunting-gathering, W. Grant concluded that “*their society is equal; there is no ruling class and there is no sexual discrimination*” [29]. It looks like a pastoral idyll even today relations in the Bushmen communities of universal tolerance, gender equality and total poverty. And perhaps Hesiod was right in calling that epoch “the golden age”.

But if the hunter-gatherer was so satisfied with everything in his life that his distant descendants still do not want to part with the past, then what made mankind change from the Golden Age to the Bronze Age, Iron Age and so on? Evolution! It turned out to be unacceptable for her that man stopped in his development, hovering in the world of spirits,

myths and magical ideas. Whereas the highest duty of the mind is the self-knowledge of Nature, thanks to which man will be able to create cosmic technologies to control the processes of transformation of old Sub-Universes into new, “daughter” Sub-Universes. And it is obvious that only civilizations that meet two categorical requirements are capable of realizing such a catharsis scenario. First: they must be based on a powerful, dynamic and high-tech economy, ready to solve a huge variety of tasks related to Space. The second is that they must stimulate the free development of the intelligence necessary to perform “surgical operations” on a cosmic scale. Thus, what was in the interests of man in the pre-civilized era was decidedly not in the interests of Nature.

1. **The birth of religion.** To what instrument has evolution resorted this time to force mankind to begin to think rationally and to move along the path of technological progress? To the psychology and instinct of ultra-sociality (*eusociality* - from Greek: εὖ - fully, well + sociality). It began by undermining the bastions of primitive democracy by attacking it with alpha males, individuals with a heightened ego and an inordinate thirst for power. Of course, the Neolithic revolution - the birth of a productive economy (agriculture and cattle breeding), contributed greatly to their victory over their tribesmen. But the driving force of this revolution was individuals with the psychotype of the *spiritualist* (magician, sorcerer, shaman). Religiously inclined people try to convince themselves and atheists that religion as a belief in the Creator was inherent in man from the beginning, that he was, in fact, born with it. Alas, this belief is false: in the lexicon of the most archaic peoples of Africa and Asia, the word “god” appeared only under the influence of contacts with modern civilization. Religious ideas “grew” out of much older magic. Not only Stone Age myths, but even the medieval folklore of Europe [30] unambiguously testify to this. Moreover, the ritual practice of the Stone Age also had nothing to do with religion, but consisted of shamanism and totemism, funeral and craft cults, age initiation, black and white magic, etc. [31]. This magical type of collective consciousness is now called *hylozoism* (from Greek: ὕλη - matter + ζωή - life) - a system of ideas that the entire human environment from the sun and stars in the sky, to the mountains and grass on earth is animated.

In an effort to rise above their surroundings, sorcerers and shamans, firstly, recognized the principle of inequality among spirits as natural and legitimate. Secondly, they drew a clear boundary between the material and ideal worlds: they turned hylozoism into *animism* (from Latin: anima - spirit, life). Thirdly, the most powerful spirits were given the status of all-powerful gods by the magicians, and they themselves were elevated to the rank of priests -

intermediaries between the heavenly lords and their earthly subjects. Thus, they invented for themselves a sinecure that allowed them to receive any benefits from life, available to their tribesmen. At the same time, provoked by the eusocial instinct, pretentious religions use the tactics of aggressive expansion, which is absolutely not peculiar to magic, devoid of great ambitions (religious wars have not ended even today).

2. Assertion of secular power. At the same time or a little later, another clan of alpha males with the authoritarian psychotype of the pack leader asserted their “rights” to a larger part of the social pie. It emerged in the process of acute intraspecific competition for the possession of land, which became the property of farmers and herders. War as a tool of natural selection announced the birth of civilization, a new era that abolished equality and *recognized inequality as a natural and necessary condition for the existence of human society*. Beginning with the formation of Sumer and Egypt, warfare in the civilized world has been “in flux”, and up to the present day has

been carried out with very rare interruptions and a ferocity unthinkable for the pre-civilized era. Civilization and war have become synonymous. “In the last 4,500 years, mankind has lived in peace for only 292 years” [32]. So the latter was forced to come to terms with the loss of former freedoms, to learn to look at the world through the eyes of subjects, entirely dependent on the mercy of authoritarian kings - former tribal leaders. The socialism of the industrialization era changed the economic facade from agrarian to industrial, but the hierarchical foundation remained unchanged. Another thing changed: from now on, the functions of monarch and priest were concentrated in the hands of one person - the “leader of the working people”.

3. The birth of civilization. However, the solitary priest and king would not have succeeded in breaking the masses had evolution not given them crucial help in the form of the eusocial instinct that only ants, termites and bees possess. Evolution has chosen this tool to accustom mankind to living in large and very large collectives. But while in insects the instinct of eusociality was created by purely “mechanical” means, in humans it was supplemented by cultural tools: collective consciousness (according to E. Durkheim) and mass psychology (according to C.G. Jung, G. Lebon, W. Wundt). They became the cement binding numerous human communities through religion much stronger than simple-minded magic. Thus, with the help of force and cunning, kings and priests, supported by the ultra-social instinct, built the pyramid of that authoritarian civilization, which became dominant 5 or 6 thousand years ago. And since its foundation was formed by the eusocial instinct, there is every reason to

define it as *agrarian socialism*. The era of agrarian socialism took more than 90% of the time of mankind's stay within civilization. Therefore, T. Carlyle is right in many respects: civilized history of mankind was mainly made by “heroes” - ambitious people who were ready to commit any crimes against humanity for the sake of power.

The leap from the pre-civilized state to the civilized state is defined as the *Neolithic Revolution*. However, in terms of intraspecies competition and interpersonal relations, it turned out to be an *Involution*. It contributed to: a) total degradation of notions of honor, dignity and human pride; b) rapid “coming out in the light” of all the worst that lurked in man in latent form - a pandemic of violence and cruelty, hypocrisy and greed. And imagination has made of man a monster, more aggressive and terrible than any predator that has ever lived on Earth. Because no beast knows the horrors, suffering and humiliation that man is capable of inflicting on his own kind.

What impressive achievements could the world civilization of agrarian socialism be proud of? Alas, only a few tens or hundreds of “wonders of the world” - pompous palaces of rulers, luxurious temples and astounding monuments of ambitious rulers to themselves. Moreover, all this rare splendor was surrounded by countless masses of squalid huts - havens of total poverty, widespread unsanitation and rampant ignorance. And besides, murderous hunger sometimes crippled entire civilizations of the Old and New Worlds.

Could this (simplest) type of civilization promote the intellectual, moral and technological progress that would meet the requirements of cosmic creativity? The obvious answer is: no! The reason is on the surface: the desire of authoritarian rulers to keep unlimited power in their hands by any measures, up to the most brutal, suppressing the slightest individual initiative necessary for the development of society. Thus authoritarian civilizations, having accustomed man to existence in large and very large communities, closed the way to the development of intellect and morality, to the transformation of *Homo sapiens* into *Homo cognitius*.

Evolution suggested a way out in the form of the phenomenon of ancient (Athenian) democracy. It showed an example of revival of the principle of equal rights in the conditions of civilization: replacement of the Darwinian triad by the triad of heredity, variability and *cultural selection* (***agonistics*** - bloodless competition according to certain rules). Equality of rights gave rise to two key ideas. The first was the need to develop rational thinking free of dogma. (The pioneers of this movement were the ancient natural philosophers, who laid the foundations of

rigorous logic and modern natural science). The second was the necessity for economic development to rely on the freedom of private property functioning within rules. However, since the technology of that era did not allow the principles of civilized democracy to be extended to large state entities, the example of Athens was doomed to failure.

Nevertheless, it played a decisive role in the further development of world civilization thanks to the “transmission link” - Rome. Alas, adopting the experience of Athenian democracy, Rome did not dare to recognize its key idea - the restoration of the principles of equality. And almost 500 years of existence of the Roman Republic it was ruled by oligarchy. But who is an oligarch? It is the same pretender to unlimited power, a potential monarch. Therefore, there is nothing surprising in the fact that ancient liberalism naturally degenerated into a traditional despotism.

With a delay of several “dark ages”, Western Europe, in turn, adopted the liberal heritage of Rome, making several so-called bourgeois revolutions. But the Modern Age went further, transforming natural philosophy into science, as well as making the Industrial and other technological revolutions. Nevertheless, the power taken from the monarchy from the monarchy remained in the hands of the oligarchy. Today it rules half of the world, however, not by the sword, but by means of the golden calf. At the same time, the power of religion remains unshakable, covering itself with a fig leaf of preaching morality and justice, supposedly given by God. But any morality, any justice that does not recognize the *equality of rights of all people is hypocritical*. In addition, oligarchy tightens global intraspecies competition for monopoly possession of resources, production technologies, markets, etc. Now the struggle is conducted openly and cynically, without pharisaic references to national or religious values. Ultimately, all this is locked into the same policy of authoritarianism (or, if you prefer, monopolism). So modern liberalism has, in fact, adopted most of the vices inherent in its ancient predecessor. Whence it follows that if such a trend continues, it is in danger of repeating the plot from two thousand years ago.

Evolution is ruthless to humanity as a whole. Since our civilization, as, indeed, all exoplanet civilizations of the Universe without exception, are just instruments for maintaining the eternal life of Nature. But, paradoxically, it also calls us to be humane towards each other. Civilized man is a debtor. His duty towards himself is fulfilled quite responsibly by the instinct of self-preservation. His relations with society are controlled by the instinct of sociality, and too often in an ambiguous and selfish way. But modern man owes the greatest debt to his own planet. Much is said about the degree of its pollution by mass production

wastes, but very little is done to prevent this trend. Moreover, while the degree of pollution of the water surface, land and surface atmosphere has been ringing all the bells for a long time, the pollution of near space has only recently become known. Since it began with the start of mass ground-atmospheric nuclear tests and launches of satellites and ballistic missiles in 1957-58 [33].

Today, E. Musk dreams of colonizing Mars. Does he realize what force or reason gives birth to his dream? If his goal is limited to transferring to Space the squabbles born on Earth, the “Space Censor” will certainly tripped him (all of us) up. For it performs the functions of a strict examiner, designed to exclude any conscious or unconscious attempts of applicants for the role of “missionary” (including us) to sweep into the Cosmos the garbage of internal strife. The star world is no place for feuds and settling scores with the help of nuclear missile arsenal. And the censorship rigorously weeds out civilizations capable of producing these deadly weapons, but unable to end the principle of natural selection to replace it with bloodless cultural selection. It automatically denies a future to those who have reason but are unable to defeat their blind instincts. (I believe this is a logical answer to Fermi's paradox: “Why is the Cosmos silent?”).

CONCLUSION

So, in the context of all the above, it can be assumed that:

1. Nature is a unity of a stationary, $r-t$ unlimited Big Universe, an infinite number of dynamic, $r-t$ bounded Small Universes, and the mind endowed by its possessors in the Small Universe.
2. Small Universes evolve in the rhythm of ontogenesis (cycles of birth, development, withering, death) according to a global and unchanging scenario common to all, but taking into account their autonomous features in accordance with local (flexible) scenarios.
3. The global concept of “life” applies to all material things in Nature, the local one - on organic objects.
4. The driving force of all processes in Nature without exception is entelechy.
5. With the replacement of the Einstein-Friedman model by the Charlier-Hubble model and taking into account the factor of the human-like mind, the circle is closed: the existence of the human-like mind and evolution transforming *Homo sapiens* into *Homo cognitus* becomes meaningful and logical. However, human cognition is limited only to those boundaries that

contribute to the renewal of the life of the Small Universe. The circle of the unknowable includes, among other things, the concepts of the origin of Nature and the laws of evolution, as well as the concepts of entelechy and energy.

6. Paraphrasing B. Pascal, we can say: a creatively thinking person is a wisp, without which Nature cannot exist.

P. S. As you can see, the text is complex, the translation can be improved. If you are interested in it, I can send you the original Russian text.

References

- [1] Aristotle. *Metaphysics*. Γ.2. 982 b.
- [2] G. Givishvili. *Cosmology between physics and philosophy*//*Voprosy filosofii*. №10. 2023.
- [3] G. Givishvili. *The General theory of evolution. The Super-strong anthropic principle as the basis of the existence of the Universe. For what purpose is man given a mind?* 2024.
- [4] Zeldovich Ya. B. *Selected Works. Particles, Nuclei, Universe*. Moscow, 1985, p. 181.
- [5] Hawking S. W., *The occurrence of singularities in cosmology, III. Causality and singularities*, *Proc. Roy. Soc. London*, A300, 1967. P.187-201.
- [6] M. Liozzi. *History of physics*. M. 1970.
- [7] Einstein A. *Collected Scientific Works*. T. 1, 1965, c. 536. This article “On the special and general theory of relativity” was written by him in 1917, when he did not yet suspect that the stars are mobile.
- [8] Kittel C., Knight W., Ruderman M. *Berkeley course of physics*. M.: Nauka, 1983. T. 1, *Mechanics*.
- [9] V. W. Hughes, H. G. Robinson, and V. Beltran-Lopez, *Upper Limit for the Anisotropy of Inertial Mass from Nuclear Resonance Experiments* // *Phys. Rev. Lett.* 4, 342 (1960) Published1.
- [10] Drever R. W. P. *A search for anisotropy of inertial mass using a free precession technique*, *Phil. Mag.* vol. 6, issue 683 (1961) doi:10.1080/14786436108244418.
- [11] Einstein, A. *On the method of theoretical physics*. CSW. T. 4. c. 184.
- [12] https://dzen.ru/a/Z6YFOViO3VWLyxfb?from_site=mail

- [13] Courant R. Robbins G. What is Mathematics? M. 2000.
- [14] P. Laurent, D. Götz, P. Binétruy, S. Covino, and A. Fernandez-Soto. Constraints of Lorentz Invariance Violation using integral/IBIS observations of GRB041219A//Phys. Rev. D 83, 121301(R), 2011.
- [15] B. P. Abbott (LIGO Scientific Collaboration and Virgo Collaboration) et al. Observation of Gravitational Waves from a Binary Black Hole Merger//Physical Review Letters: 2016. Vol.116, no. 6. doi:10.1103/Phys Rev Lett.116.061102.
- [16] S. Perlmutter et al. Measurements of Ω and Λ from 42 high-redshift supernovae, The Astrophysical Journal, 517: 565-568, 1999 June 1.
- [17] J. T. Nielsen, A. Guffanti & S. Sarkar. Scientific Reports 6, Article number: 35596 (2016), doi:10.1038/srep35596.
- [18] Givishvili G. To the justification of the Super-strong Anthropic Principle, SCIREA Journal of Philosophy. V.1, I.1, 2022. <https://doi.org/10.54647/philosophy72069>
- [19] Gregory Laughlin, Peter Bodenheimer, Fred C. Adams. The End of the Main Sequence, The Astrophysical Journal. - Bristol: IOP Publishing, 1997. - 1 June (vol. 482).
- [20] Mironova I. Main sequence. http://www.astronet.ru/db/msg/1170638/evolution/hr_diagram/ms.htm
- [21] <http://eikenclub.ru/9396-astronomy-izmerili-geometriyu-vselennoy.html>, <https://www.liveinternet.ru/users/3473355/post142170848/>
- [22] Eleonora Di Valentino, Alessandro Melchiorri & Joseph Silk. Planck evidence for a closed Universe and a possible crisis for cosmology // Nature Astronomy. 2020. V 4. P. 196-203
- [23] P. Laurent, D. Götz, P. Binétruy, S. Covino, and A. Fernandez-Soto. Constraints of Lorentz Invariance, Violation using integral/IBIS observations of GRB041219A//Phys. Rev. D 83, 121301(R), 2011.
- [24] Scienceandapologetics.org
- [25] Leng K. Astrophysical formulas. Ch. 2, M., 1978, p. 304.
- [26] E. Durkheim. Sociology. Its Subject, Method, Purpose. M.1995
- [27] E. Evans-Pritchard. Nuers. M. 1985

[28]F. Rose. Aborigines of Australia. Traditional Society. M.1989

[29]W. Grant. Evolution of organisms. M. 1980.

[30]G.V. Givishvili. Ideological systems of the world. Dreams of the mind. M. 2012.

[31]S. A. Tokarev. Early forms of religion. M.1990.

[32]<https://dzen.ru/a/ZAMizXnRki-TKAxS>

[33]G. V. Givishvili and L. N. Leshchenko. On the Causes of Cooling and Settlement of the Middle and Upper Atmosphere ISSN 0001-4338, Izvestiya, Atmospheric and Oceanic Physics, 2022, Vol. 58, No. 5, pp. 516–527