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CONSCIOUSNESS AS A NECESSARY ELEMENT OF EVOLUTION OF THE COSMOS

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**Abstract**

The article considers the ideas of the early work of E.V. Ilyenkov «Cosmology of the Spirit» of necessity and inevitability of matter to create consciousness. Dialectics of subject responses to impacts of the outside world is represented from the materialist point of view: from mechanical response in inanimate nature to subject and activity-oriented nature of human consciousness. Differences between human and animal psyche and human thinking were highlighted using the ideas of G. Lukács on the I'-signaling system of a person. The basis for specification of the mechanism to implement the cosmic role of humanity in the course of evolution foreseen by E.V. Ilyenkov lies in the principle of human-to-environment energy exchange increase. It was shown that misunderstanding of nature of consciousness leads to wrong decisions when selecting key areas to implement scientific and technical progress, in particular in development of artificial intelligence.

**Keywords:** Ilyenkov; consciousness; ideal; aesthetic; psyche; scientific activities; Big Bang; artificial intelligence.

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СОЗНАНИЕ КАК НЕОБХОДИМЫЙ ЭЛЕМЕНТ ЭВОЛЮЦИИ КОСМОСА

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**Аннотация**

В статье развиваются идеи ранней работы Э.В. Ильенкова «Космология духа» о необходимости и неизбежности порождения материей сознания. С материалистических позиций представлена диалектика развития реакций субъекта на воздействия внешнего мира: от механического отражения в неживой природе до предметно-деятельностной природы человеческого сознания. Показано отличие человеческой психики и мышления от психики животного, в том числе с использованием идей Д. Лукача об I'-сигнальной системе человека. В основу уточнения механизма реализации космической роли человечества в ходе эволюции, предвиденной Э.В. Ильенковым, положен принцип возрастания масштабов энергетического обмена человека со средой благодаря научно-техническому прогрессу. Показано, что неверное понимание природы сознания приводит к ошибочным решениям при выборе главных направлений реализации научно-технического прогресса, в частности, в области разработки искусственного интеллекта.

**Ключевые слова:** Ильенков; сознание; идеальное; эстетическое; психика; научная деятельность; Большой взрыв; искусственный интеллект.

The necessity and inevitability of matter to create consciousness was sensitively noted in the early text of E.V. Ilyenkov «Cosmology of the Spirit» [6]. The aim is to justify the inevitability and this necessity without references to infinity of time and space and the concept of duty of a thinking spirit to mother-nature, as later acted E.V. Ilyenkov.

Evolutionary development of the Cosmos here is understood as a dialectical removal of lower forms of motion by higher forms of motion - from the simplest mechanical form of interaction between physical

bodies to the social form of motion which creates the phenomenon of consciousness. Consciousness is a purely humane phenomenon as it is the ideal side of activity of a public person in forms of the external world to meet the needs which appeared in the course of labor and go beyond the boundaries of its biological body.

However higher animals that do not have consciousness moves along shapes of the external world (contours and geometric arrangement of objects in space) as well.

The principal difference includes three points that animals are lacking:

1. Society. Consciousness is created by non-biological and social needs. Every single person is a specifically general unity of an individual biological body and the a body of culture in which it operates;

2. Language. Development of abstract representations and semantic-symbolic forms of communication and learning means that it is not necessary for every human individual to independently pass all the way to knowledge of the world around him;

3. I'-signaling system of a person. Aesthetic attitude towards reality and its highest manifestation - art are associated with imagination, foresight, intuition and imaginative grasp of the whole.

Human - is a phenomenon of cosmic scale. Of the most complex forms of the ideal - the aesthetic is the very expression of this phenomenon. It can be understood if we take the position of G. Lukács on the role of the third I'-signaling system in development of the world by men [8, S. 5-179]. Using imagination mechanisms a human includes effects and regions of surrounding world available only to his contemplation but not directly exposed in the scope of his/her experience and human culture expanding its borders to perceived universe. «Das spezifisch Ästhetische setzt einerseits, wie bereits aufgeführt, objektiv und subjektiv eine relative Höhe in der Entfaltung dieser Tendenz voraus, löst sich jedoch andererseits vom hier geschilderten allgemeinen Fonds langsam als selbständige gesellschaftlich-menschliche Ausdrucksweise ab, da es objektiv wie subjektiv in jeder einzelnen Äußerung einen-freilich relative, tendenzartigen – totalen Charakter, eine Intention auf Ganzheit besitzt» [7, S. 218]. And in his theoretical consciousness using the power of logic and imagination, a human opens areas inaccessible for direct perception: multidimensional spaces, black holes, quantum phenomena, etc. In the process of scientific knowledge the aesthetic expresses its universal nature, aesthetic plays the role of foresight and indicator of truth which is available for perception of a developed subject. «Concerning the fruitfulness of the future result, about which, strictly speaking, we most often do not know anything in advance, that sense of beauty can inform us and I cannot see anything else allowing us to foresee. At least, contesting that would seem to me to be f mere question of words. Without knowing anything further we *feel* that such a direction of investigation is worth following; we feel that the question *in itself* deserves interest, that its solution will be of some value for science, whether it permits further applications or

not. Everybody is free to call or not to call that a feeling of beauty» [4, p. 127].

Human activities in accordance with external forms of the objective world, i.e. thinking, are different from those of animals in that animals live in Spinoza's *imagines corporeae* world. It is commonly characterized by searching and orientation activities where objects are a mere external view which specifies motion along body contours of the external world and forms of activity of the animal which are limited by anatomical organization and biological needs of its organism. Animal psychological researches which spread beyond Pavlovian S-R paradigm let us conclude that objects of the world which do not affect living of animals, are not apprehended by them [2].

The human, in contrast to the animal, carries out the movement not only along body contours in a physical space, but it also «moves» into the events - from visibility to the phenomenon, from the phenomenon to the essence and back, carrying a dialectical process of understanding the world and including it into the objective world of human culture or, in other words into a collective objective body of humanity.

The logical question arises: is it possible to develop consciousness of the animal? If it is possible to teach a deaf-blind child to develop his/her mind (thinking) prior to defense of PhD and doctoral thesis (selfless labor of A.I. Meshcheryakov's and E.V. Ilyenkov's team for development of consciousness in deaf-blind children in special care homes in Zagorsk has confirmed this in practice), can we similarly teach a deaf-blind monkey cub? - Definitely not! - The structure of limbs, brain, genotype – something interferes - most likely a combination of factors. You can teach a monkey (by taming) to use cutlery to imitate a man. The comic effect of copying human manners by an animal is widely used in circuses.

Work experience is an active independent reaction aimed at changing the environment to measure nature of change of the environment with set aims which is not characteristic of animals. Change of environment as a result of animal living has an implied effect on instinctive actions and a genetic program naturally inherent from the birth. However animals never have a need to change something in the world around them.

However animals living in artificial man-made conditions, especially tame ones and those left without care (free-ranging urban dogs) show wonderful flexibility of psyche and adaptation to urban conditions. In this case the habitat forms only a sequence of conditioned reflexes and stimuli that cause responses: for example, a traffic signal - you

can (if you want!) quickly run across the street along the shortest path.

Then there go dolphins. It is generally accepted that they are the most «intelligent» animals. As an example of their intelligence, they provide cases of rescued drowning people who were pushed to the water surface and transported to the shore. Unfortunately, no one can testify for the opposite case. This is a classic example of a «statistical error of survivor» by Abraham Wald.

Joint aggregative games of dolphins, as well as other higher animals and birds (e.g. *Corvidae*) can be explained by the need to use excess energy generated during metabolism.

This is how the following chain of reactions of the subject in the interaction with the outside world which inevitably leads to emergence of consciousness is built:

- mechanical response in inanimate nature (The Sun heats the stone);

- biological irritation (from unicellular *paramecium caudatum*: reaction to light and heat to regulation of biological cycles using heat of the Sun and development of complex stimuli and responses of heterotrophic predatory plants). At this stage psychic phenomena are not yet observed. Actions of organisms are determined by the primary biological regulation system based on enzymes;

- psychic reactions in animals are associated with sensations. Predators standing on the top step of the food ladder have the most advanced psyche among animals which is caused by an active attitude towards the habitat. They experience simplest emotions - fear, anger, tenderness. They have dreams, have memory, ability to learn and recognize objects;

- people also have a rich psychic world. The difference in the content of psychic activity in animals and humans is not quantitative but qualitative: people can experience complex emotions generated by collective living and collective labor, such as remorse, repentance, infatuation, etc.;

- in contrast to animals, humans have thinking (consciousness) as they live and work in the ideal world. Thinking is the ideal form of practical social activity, the product of social labor, it is their ideal form itself, the ideal form of labor forming social needs of a «social animal», i.e. person – these are specific requirements that go beyond the boundaries of the biological body. Labor as a specific historical process of functioning of labor force acts on the one hand as a process of using and spending the latter, its biological, physical and psychic components, professional knowledge and skills, communication skills and information. On the other hand, labor as a purposeful and socially motivated activity suggests action according to forms of the external world, in

accordance with preset objectives caused by social practice.

The task set out in the beginning of the article thus can be solved by answering the question: what is the necessity and inevitability of development of response forms from mechanical to ideal ones in the process of evolution of the universe?

Each of response forms is removed with the development of the subsequent form being its basis; it is included as a particular historical moment of development causing the logic of further development. This is the inevitable certainty, determinism of sequential historical development of response forms.

The need for the development of these forms is revealed when considering energy exchange with the environment of media of these response forms. Each stage is characterized by higher level of consumed and produced energy, as it converts more and more Cosmos space. Human thinking is labor activity on transformation of the environment into an objective environment, an objective body of human collective life. «Thinking as such is labor (so it is hard to think!), and the highest form of thought - science - according to Marx is a “universal labor”. It is a hard work even for a human to think» [9, p.180]. Scientific activity is connected with the transformation of neurophysiological brain structure. The result is the formation of new, non-biological needs which are objectified later in practical work of the human. Finally this is how space telescope "Hubble" and the Large Hadron Collider at CERN appeared. Energy levels and objects operated by the human today are cosmic in scope: if experiments with thermonuclear charges in the early 60-ies of the XX century could destroy our planet, experiments in quantum fields of the microcosm, such as creation of artificial black holes generate eschatological fears of universal scale in the ordinary consciousness of the Internet community.

Mankind will never make a conscious aim for itself to practice the destruction of the universe, as follows from the text by E.V. Ilyenkov on his early Romantic period [6, p.417]. We are driven by the desire to reconstruct the world, reform it in ever-increasing space and energy scale to meet our ever-increasing needs. Science is the engine of this process. In subjective reality we perceive it as a desire for knowledge being one of the basic properties of the human nature, justifying the need for the expense of resources for theoretical science by the development of technologies and search for new ways to develop the changing world for the benefit of future generations. Only developed scientific theoretical thinking can give the way for mankind to reorganize the world using greater and greater quantities of energy which are

limited by total possible cosmic energy, single-time use of which is the Big Bang.

Objectively, outside of our consciousness, but only through using it, humanity can be an essential element to launch a new cycle of the Universe. Science and accompanying high technology will play the role of a fuse for a new Big Bang because the essence of objective reality can be disclosed, understood and mediated by the practice of humanity only through science. The ancient epiphany shall happen: «Κόσμον τόνδε τόν αὐτόν ἀπάντων οὔτε τις Θεῶν οὔτ(ε) ἀνθρώπων ἐποίησεν, ἀλλ' ἦν αἰεὶ καὶ ἔστιν καὶ ἔσται πῦρ ἀείζωνον ἀπτόμενον μέτρα καὶ ἀποσβεννύμενον μέτρα» [F 30; 5, c. 162] – «This world, which is the same for all, no one of gods or men has made. But it always was and will be: an ever-living fire, with measures of it kindling, and measures going out» [DK B30, 3, p. 217].

Philosophical understanding of thinking, seemingly distant from daily urgent problems in the transition to IV technological order, which was announced in January 2016 at the World Economic Forum in Davos [10], is very important. «We will see more technological changes in the next decade than in the last 50 years» [11]. In particular this applies to digital information technology, smart technology, the Internet of things and «artificial intelligence». Incorrect understanding of the nature of consciousness by decision-makers leads to inefficient allocation of billions of rubles of state funds which can not affect the economic condition of the country in the conditions of tough international competition for innovative technological solutions.

One prime example: Russian Venture Company (RVC), a leading state-owned corporation responsible for the innovative development of the country released a compilation of texts «Challenge-2035» published by «Business-Olympus» publishing house in February 2016 [1]. Those texts reflect the vision of RVC on the main strategic directions of development of the country till 2035. It is this vision that defines state policy in the field of innovative development as well as main flows of investments and expenditure of considerable budgetary funds. One of the main long-term funding directions which determine future development of the country in RVC vision is the development and creation of artificial intelligent systems (AI). For the development of AI, we must clearly understand and functionally determine what is intelligence, thinking, and consciousness.

The analyzed texts considered some serious, in our opinion, social development issues, issues of futurological nature. However, formulation of issues to be solved which as we know supposes available

conditions of their decision should be carried out more thoroughly than the current edition.

To support the above, here are short excerpts from this screed (all references to the first edition) – «Currently, robots do not have *consciousness*, and no robot has been created *yet* that would foresee even the simplest consequences of its actions. On the other hand, machines are getting faster, *smarter*, more powerful, so *the need to provide them with moral* is more and more urgent». «Can we consider an AI robot as a personality? *Now* this question fortunately is not relevant but with the development of AI systems it will require more and more attention» [1, p. 132, 137] (*italics in quotations by K.L.*).

How many dozens and hundreds of billions of rubles should be spent for «empowerment robots with a moral» remains unclear but the result can be predicted exactly with one hundred percent certainty.

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