

Categorical Apparatus of the Concept of the Biointellectual Sphere

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Abstract

The actualization of environmental problems, taking place in the conditions of modern society, sets the task to develop the conceptual foundations of the strategy for rational socio-biocoevolutionary development. This paper deals with the categorical conceptual approach to the concept of the biointellectual sphere. The author of the article characterizes biointellectual sphere as the sphere of the rational organization of life – the stage of the evolutionary development of the biosphere, in which the activity of man, as a creature having intellect, will be aimed at preserving the conditions for optimal functioning of organisms, that is, the elements of the natural organization of the biosphere whose geological activity promotes co-storage of global parameters of the geographical envelope [1]. At the heart of the concept of the biointellectual sphere are the ideas of the genetic and functional unity of the living and thinking substances as the elements of the biosphere, whose interaction ensures the stability of the homeostatic parameters of the geographic envelope. The stability of the homeostatic parameters of the geographical envelope is determined by the strategy of anthropobiosymbiotic interaction between the living and thinking substances. This strategy has the following form:

- The biosphere provides man with natural resources;
- A person creates conditions for the functioning of Life at the molecular and landscape-territorial levels (returning to the biosphere the elements necessary for the growth and development of organisms, preserving and reproducing the structure and composition of natural complexes, soil and mineral resources, etc.);
- Geological activity of living material provides global parameters of the biosphere (gas composition of the atmosphere, the chemism of ocean waters, the intensity of the processes of sedimentation, etc.);
- The stability of global parameters of the biosphere forms the conditions for human life and activity.

The present article aims at characterizing the categorical conceptual apparatus of the concept of

the biointellectual sphere needed for its essential definition and subsequent constitution.

Keywords

Anthropobiosymbiosis, Anthropobiogeocenosis, Biosphere, Biointellectual sphere, Intellect.

Introduction

The development of the conceptual foundations of the strategy of rational socio-natural development dates back to the mid-20th century. It was that time, when our compatriot V.I. Vernadsky created a doctrine of the noosphere. Under the noosphere, he understood the stage of the evolutionary development of the biosphere, where man's rational activity becomes the determining factor of its development. Later on, noospheric problems were covered in the writings of followers of V.I. Vernadsky: N.N. Moiseev, V.P. Kaznaheyev, A.D. Ursula, A.K. Adamov, A.I. Subetto and others.

The works of the thinkers listed above analyzed the evolutionary patterns of the formation of the noosphere associated with the growth of manifestation of the human mind in the biosphere [2]; the problems of evolution of man, living material, the universe as elements of a self-regulating cosmoplanetary system [3]; the features of the implementation of the pattern of controlled socio-natural evolution [4]; the system of ecological and moral imperatives necessary for realization of the co-evolution of man (society) and nature [5].

The analysis of the works of the representatives of the noospheric school makes it possible to talk about the so-called "noospheric model of the development of nature and society". In this model, nature is characterized as the aggregate of material-substantial formations necessary to meet the material needs of society. Man is seen as a creature, who is able to manage nature through the achievements of science and technology.

In our opinion, this vision of the strategy of rational social and natural development is not entirely justified. This is determined by the following circumstances:

- The geological significance of living matter exceeds many times the scale of the geological activity of man;
- An element of the system (man), cannot control the very system (nature);
- The possibility of "managing the biosphere" requires knowledge of all the mechanisms of the functioning of the biosphere;
- Human intervention in the natural mechanisms of regulation of the biosphere (according to the principle of positive feedback)

can lead to their disbalance and subsequent degradation of the human environment.

The necessity of solving these problems poses the task of further theoretical comprehension of the essential foundations of the model of rational socio-natural development. An analysis of the categorical conceptual apparatus of the concept of the biointellectual sphere is one of the stages in the realization of this task.

Methods

The research uses the following methods:

- historical-logical (consideration of the features of the evolution of the category “intellect” as the ability of human consciousness aimed at cognizing the nature, rationalizing relations with it);
- analysis-synthesis (revelation of essential characteristics of the categories “biosphere”, “intellect”, “anthropobiosymbiosis”, “anthropobiogeocenosis”, determination of the significance of these categories in determining the content of the concept of the biointellectual sphere);
- dialectical (attitude to the mind of man, his activities as the factors that destabilize the biosphere and, simultaneously, aimed at optimizing the forms of interaction with it);
- systemic (consideration of the concepts “biosphere”, “intellect”, “anthropobiogeocenosis”, “anthropobiosymbiosis” as a set of categories forming the subject content of the concept of the biointellectual sphere that determine the main directions of human-nature interaction in the conditions of the biointellectual sphere).

Results

We refer the system of interrelated categories necessary for a theoretical interpretation of the phenomena and processes that take place (and are predicted) in separate forms and at different levels of human-society interaction and nature to the conceptual apparatus of the concept of the biointellectual sphere.

The most important of them are: “biosphere”, “intellect”, “anthropobiogeocenosis”, “anthropobiosymbiosis”.

Let us characterize the above concepts consistently. Biosphere (from bios - life, sphere - ball) is the sphere of propagation of life - a special envelope of the Earth, inhabited by organisms and transformed by them.

The term “biosphere” was first introduced into scientific circulation by Austrian naturalist E. Zuss in 1875. He comprehended the biosphere as the earth shell enveloped in life. V.I. Vernadsky, the creator of the biosphere studies (1926), characterizes it as a sphere that is not just a habitat for organisms, but also *transformed* by them, *self-regulating* and *self-sustaining*, *being* in dynamic equilibrium with the physical, geographical and cosmic parameters of the Earth [2, p. 42-43, 76-80].

The formation of the biosphere began approximately 3,8 billion years ago in the seven seas. This age is the oldest of the organic remains found on the Earth.

The problem of the origin of life has not been finally solved and it is one of the most complicated issues of biology.

Thus, according to the hypothesis of abiogenesis, organisms arise from inorganic substance or from dead matter. The hypothesis of panspermia, claims that “the seeds” of life on the Earth were brought from space by meteorites and cosmic dust. The hypothesis of a stationary state of life suggests that life on the Earth has always existed.

According to the widespread hypothesis by A.I. Oparin, the emergence of life was the result of a prolonged chemical evolution of inorganic substance. In the course of this evolution, at first, the abiogenic formation of carbonaceous protein-like compounds was proceeding. Then, on the basis of combining the peptide chains of these compounds, there were formed coacervates – the prebiotic systems being capable of selective absorption of the primary oceanic matter. At the final stage, coacervates form metabolism and become the primary cell.

According to V. I. Vernadsky, the biosphere includes the following components:

- living substance (a collection of living organisms that inhabit the Earth, including humans);
- inert matter (inorganic matter, a substance not related to the activity of organisms);
- biogenic matter (the products of vital activity of organisms);
- bioinert substance (the result of the interaction of organisms with the physico-geographical conditions of their existence).

The genius of V. I. Vernadsky, as the creator of the doctrine of the biosphere, is concerned with the fact that the subject of his scientific research has not even been life itself in all its manifold manifestations, but the revelation of the great significance that Life has in the geological processes taking place on the planet. The planetary significance of life is discovered by V. I. Vernadsky in the grand geochemical work that a living matter does. With the end of life, –the scientist notes, – the process of continuous synthesis of chemical compounds would have ended, free oxygen would have disappeared, the processes of soil formation would have disappeared, and “the face of the Earth would have become<...>invariable and chemically inert, as the Moon’s face is immobile, as the shards of heavenly bodies are inert, that are captured by the attraction of the Earth, metal-rich meteorites and the penetrating celestial spaces of cosmic dust” [2, p. 56].

At present, the biosphere is experiencing a powerful anthropogenic impact. Its scale leads to a decrease in the species diversity of living organisms, to the deterioration in the quality of environment, to the disruption of natural mechanisms of the regulation

of natural processes. These phenomena begin to take on such catastrophic proportions that a threat to the very existence of mankind as a biological species is created.

Intellect (from Latin *intellectus* - understanding, reason) - is the quality of the psyche characterizing a person's ability to cognize the surrounding world, to use the acquired knowledge and experience based on it for the purposes of its (world's) transformation.

Intellect is different from reason. Reason (from Latin *ratio* - mind) - the ability to think in general, the ability to analyze, abstract and generalize. Intellect is always connected with goal-setting, with the ability to use information (knowledge) to generate a strategy for personal and social development; with the planning of the results of activities and the realization of ways to achieve them.

The ideas about intellect, as the highest psychic ability of a person, begin to form in Antiquity. At this time, the concept of intellect is identified with the concept of Mind (*wit*). The mind, according to the ancient Greeks, is an objective reality (*Cosmos*), in its existence, not dependent on man. The human mind is perceived as a part of the Absolute Mind, and man himself, as a small semblance of the *Cosmos* (*microcosm*). The cognition of the world by means of intellect is the most important ability of man, since the essence of man as the semblance of the *Cosmos* (*microcosm*), is embodied in its Mind. In the middle Ages, intellect becomes a means of knowing God (truths), its image in the human soul, unlike the all-encompassing and all-powerful Reason, the embodiment of which is the super-existent being. The human soul, –Augustine writes, – only “testifies of the Light, but it itself is not light; The Word, God, – “the true Light enlightening every man who comes into this world”, and He was “in this world, and He created the world, and the world did not know Him” [6, p. 154].

In modern times, an anthropocentric view is formed on the essence of the universe and the role of man in it [7]. Intellect begins to be considered from epistemological positions. Now it turns into “a natural light” - the innate ability of the human soul to know the nature of things and phenomena. The very knowledge in its basis is grounded on the postulate of the identity of the known and the real existing.

In the conditions of modern ecological risks, the intellect becomes an instrument, the rational use of which will allow to help out human being from the ecological impasse. The cognitive abilities of man of this day should be directed not only to the identification of objectively existing links between objects, things and phenomena; to the use of acquired knowledge in practice, but also to the comprehension of the consequences of their interference in processes regulated by nature, the

strategic planning of its activities and its monitoring[8].

“Biosphere” and “intellect”, are the basic categories of the concept of the biointellectual sphere. These categories emphasize the existing ontological unity of the living and thinking substances, – the components of oneanthropobiotic system. Being a part of this system, man as a creature with intellect is able to cognize nature, to optimize the strategy of its interaction with it. In the context of aggravation of the ecological crisis, the creative abilities of the human intellect should be aimed at finding ways out of the ecological crisis, developing a strategy of Reason (N. N. Moiseev).

Anthropobiogeocenosis is an anthropobioecological system consisting of communities of living organisms, techno-socio-anthropogenic complexes and their spatial-territorial conditions of the physico-geographical environment.

Anthropobiogeocenosis is a natural anthropogenic system, the functioning of which is based on the unification of natural material and energy flows (being characteristic of biogeocenoses) with the transformation of matter and energy, initiated by human activity.

Anthropobiogeocenosis includes:

- anthropocenosis a set of techno-socio-anthropogenic complexes, united by artificial (anthropogenic) cycles of matter and energy (the process of production, consumption and utilization of products);
- biocenosis a set of interconnected populations, united by natural (biogenic) cycles of matter and energy;
- biotope (a set of physical and geographical conditions in which there is anthropobiogeocenosis). The most important characteristics of anthropobiogeocenosis are:

- the cycle of matter and energy;
- the dependence of the material-energy processes on solar energy and the nature of human activity;
- the presence of elements of conscious regulation of processes taking place in it.

At present, the anthropobiogeocenoses are at the initial stage of their formation. Despite the fact that the anthropogenic cycle is included in the structure of the biological and geological cycles (the movement of air masses, water, air, rocks, mineral fossils, etc.), it is not closed, it is in many respects spontaneous and not ordered. In the conditions of growth of technogenic pollution of the biosphere and exhaustion of natural resources, humanity faces the task of developing and implementing technologies (production cycles) that allow of utilizing industrial and domestic waste, thus ensuring the return to nature of the substance

withdrawn from it by man. As E. von Weizsacker notes,—the economy of the future is a production capable of processing waste to a state in which these wastes can be used as raw materials for new production cycles[9].

Anthropobiosymbiosis is a form of a joint, mutually beneficial relationship between man and nature, based on the unification of material and energy flows characteristic of techno-socio-anthropogenic complexes and structures of animate and inanimate nature aimed at preserving and maintaining the homeostatic parameters of the biosphere (as a combination of planetary biogeocenoses).

Anthropobiosymbiosis is the interaction between man and nature, which has a cooperative, mutually beneficial character. The basis of anthropobiosymbiosis is the unification of the cycles of transformation of matter and energy, taking place at the level of bio- and anthropocenoses. The need for this unification is determined not only by the task of transition to the complex use of natural raw materials, the creation of closed production cycles, but also the need for the formation of a single anthropobiotic mechanism for the regulation of natural processes.

In the conditions of modern society, the transition to the strategy of anthropobio-symbiotic interaction is vitally essential. Pollution of the environment with household wastes and products of production activity, transformation of natural complexes into man-made landscapes, “conservation” of mineral raw materials in the objects of housing and production infrastructure lead to a decrease in biodiversity, and, as a result, to a weakening of geological functions of living substance, to a disturbance of the homeostatic parameters of the biosphere. The preservation of biological diversity in these conditions is the most important task of man as a creature who is capable of rational knowledge and transformation of nature [10].

“Anthropobiogeocenosis” and “anthropobiosymbiosis” are the categories that form the nature and direction of human-nature interaction. If anthropobiogeocenosis makes it possible to reveal the structure of the anthropobioecological system, anthropobiosymbiosis makes it possible to characterize the specifics of the interaction of its components, to determine the directions and parameters of the rationalization of the relationship between man and nature.

Discussion

Thus, during the author’s study of the categorically conceptual apparatus of the concept of the biointellectual sphere, the following results were obtained:

—basic notions of the conception of the biointellectual sphere were considered, such as: “biosphere”, “intellect”, “anthropobiogeocenosis”, “anthropobiosymbiosis”;

—the task was actualized and the strategy of human transition to ecophilic forms of socio-natural activity was characterized;

—the importance of the considered categories in determining the essential content of the model of socio-natural development in the conditions of the biointellectual sphere has been revealed.

Summary

Summing up our research, we can formulate the following conclusions:

— the category of the biointellectual sphere is a system of interrelated concepts that enable us to characterize the essential specifics and mechanisms of the interaction of man and nature as the components of an ontologically and functionally interconnected bioanthropoecological system;

— the categories “biosphere” and “intellect” make it possible to reveal the existing sub-institutional and ontological unity of man and nature, the uniqueness of the thinking substance, as part of the living substance capable of cognition and transformation of nature;

— the concepts “anthropobiogeocenosis” and “anthropobiosymbiosis” establish the nature and essential features of the interaction of the components of bioanthropo-ecological system at the level of both natural complexes and the biosphere on the whole.

Conclusion

The materials of the conducted research can be applied for the purpose of developing and conceptual comprehending the models of rational sociopolitical interaction, including, for “filling” with the conceptual content of the so-called “sustainable development strategy of modern civilization”. The results of the research are promising for the development and improvement of training courses in ecology, social philosophy, philosophy of science and technology. The results of the presented study revealed a number of problems that need to be further developed. The most important of these are the problem of discovering the mechanisms of anthropobiosymbiotic interaction; comprehension of the strategy for the formation of anthropobiogeocenosis; the definition of the functions of the living material and thinking substance as the factors, the joint manifestation of which stabilizes the homeostatic parameters of the geographic envelope.

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