**Concept of Noosphere and Perspectives of Its Realization**

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**Biosphere and Human Society**

What is human purpose of life? What do we seek cognizing nature and ourselves? These timeless questions of human being have become especially topical due to the fast development of technological thought. Biogeochemist and philosopher, Russian academician V.I. Vernadsky wrote at the beginning of the XXth century: “Soon man will produce the atomic energy. This source of power will allow him to handle his life as he likes… Will he be able to use this power positively or will he destroy himself by means of it? Has he gained the ability to use the power that the science should provide him inevitably?”[[1]](#footnote-1) So, *ecology* - such a popular and fast developing science concerning interaction of man and nature - appeared from this concern. Nowadays ecology is directed to the regulation of relationships between man’s scientific and technical thoughts and preserving the nature surrounding him, but also safeguarding the biosphere.

According to V.I. Vernadsky, *biosphere* is a whole system possessing the highest level of self-organization and the ability to evolve. He introduces it as a special geologic body which structure and functions can be defined by some special features of Earth and space. Considering biosphere as a self-reproducing system, V.I. Vernadsky stresses that its functioning is mainly stipulated by “a living substance existing inside it as a set of living organisms”[[2]](#footnote-2). A special feature of biosphere as a living organism is its orderliness.

People are a part of nature life on Earth. They are able to cause disorder in the biosphere dynamics because of the production impact on the environment which grows regularly. The biosphere development, connected with the appearance of a new organizational levels inside it, is a result of its functioning and evolving as a whole in the Universe. Special populations of living organisms, which transform biological forms of their existence into social life due to the development of instrumental activity, appear at the definite stage of the biosphere evolution. That’s why a special type of a material system - *human society* - emerges in biosphere. Special sub-structures, such as families, nations, social classes, etc., crop up here.

Developing production forces of the society, mediating “the second nature” created artificially, a man improves his protection against natural disasters. Perfecting clothes, creating artificial homes, constructing big buildings, etc. allow providing the comfortable living conditions and conquering new Earth and space territories.

It is necessary to point out that the civilization turned out to be dependent on ecological problems since the development of its production forces. Consuming natural resources more and more intensively by means of constantly perfected technical tools, mankind undermines the basis of its existence. Nowadays we can see cutting forests, exhausting raw materials, polluting soil and air, etc. Man’s material production and his activity are powerful factors influencing the environment both positively and negatively. That’s why his relationships with the environment are becoming an essential problem which has a special importance in the development of the historical process.

Biosphere as a natural system should have a dynamic equilibrium to support its existence. But it is a special type of equilibrium due to the process of regular development of biosphere under the influence of inner relations among its structural components and increasing impact of anthropogenic factors.

As a result of self-development and under the influence of anthropogenic factors there can emerge such conditions in biosphere that lead to qualitative changes of its subsystems. In this sense the unity of changeability and stability in biosphere is a result of interaction of its components. The balance of changeability and stability should be considered as a dialectic unity of constancy and development. Thus, we can consider stability as a process and development stability simultaneously.

It means not only the growth of man’s pressure on nature, but qualitative changes in the inner organization of this factor which has become the decisive one for the last decade. In respect of the above we should analyze the following issues:

- ecological crisis which has become an inevitable consequence of some value attitude to the nature. This attitude is a utilitarian one. It is based on anthropocentrism and perception of science and technology as the means of capturing the natural and social worlds;

- interpersonal relations which have been utilized. That has led to alienation among people and generations, loss of cultural traditions, distortion of life orientations, loss of self-identification;

- exploitation of some regions on the Earth by other regions. It means that some nations and states live at the expense of other ones.

Our huge and massive world turned out to be fragile and unstable. A man who is so much ensured in his smallness and, as a result, his impunity has proved to be an important component of the world processes. Wild nature as a system isn’t able to exist independently, without any human guidance which should have the scientific basis.

**Noosphere Concept**

V.I. Vernadsky pointed out at the beginning of the XXth century that it was possible to observe the intensive growth of influence of the civilized humanity on biosphere changes. Biosphere turns into a new state – *noosphere* – under the influence of scientific thought and human labour[[3]](#footnote-3). According to him, life should be considered as an integral evolution process which is included as a special component into space evolution.

V.I. Vernadsky’s ideas have been developed in some directions. First of all, it’s necessary to mention the concept of co-evolution (i.e. joint development) of mankind and biosphere. This concept is related to a possibility of regulation of scientific and technical development inside the civilizing processes. Any event in the world, influence of any natural or social laws may be represented as a regular selection when only some classes and types of conditions are chosen from a number of possibilities. Thus, all dynamic systems are able to choose, though definite results of their choice can’t be predicted in advance. It’s possible to distinguish two types of the mechanisms regulating this choice. On the one hand, there are adaptation mechanisms. A system doesn’t acquire any principally new properties under their influence. On the other hand, there are bifurcational mechanisms connected with the radical transformation of a system.

The noosphere epoch is a period of time in the history of mankind when the human mind will be able to define the terms which are required to provide the co-evolution of nature and human society. This period will provide the formation of collective will of humanity to develop noosphere genesis processes.

Modern Russian scientists (e.g., N.N. Moiseev[[4]](#footnote-4), A.D. Ursul[[5]](#footnote-5), V.A. Lektorsky[[6]](#footnote-6)) consider noosphere as the highest point of biosphere evolution which is connected with the appearance and development of mankind in it. Mankind studying laws of nature and improving technologies exerts some crucial influence on natural and space processes. Thus, having appeared on the Earth, noosphere has a tendency to its regular expansion becoming a special structural space element. Nowadays the scientific activity has gained such features as a fast rate, coverage of vast territories, depth of research, intensity of the performed transformations. They permit to foresee the scientific motion with the scope that hasn’t existed in biosphere yet.

**Russian Cosmism and the Idea of Co-evolution**

Let’s consider some influential ideas of such Russian cosmists as N.F. Fedorov[[7]](#footnote-7), P.A. Florensky[[8]](#footnote-8), K.E. Tsiolkovsky[[9]](#footnote-9), V.I. Vernadsky (described the above). It’s very difficult to give an exact definition to this direction in Russian philosophical thought as there are different directions in it (natural scientific, literature, artistic, religious, philosophical), which are united by the idea of integral vision of the world like an organism with interconnected and mutually influencing parts. All cosmists had a common opinion on the following items:

1. Man is internally connected with space and nature. This connection is organic.

2. Mankind is united as a planetary community.

3. It is necessary to state a new human attitude to nature based on the unity of consciousness and action (inner and outer aspects). This attitude can’t stay meditative as with time man understands not only his deep dependence on space, but he influences it more and more. Such his invasion requires an integral vision of the world.

4. The result of the above is the idea of co-evolution which is so popular nowadays. Rational nature regulation, joint and coordinated transformation of nature and mankind by people suppose a human refusal from anthropocentrism for the sake of antropocosmism. Its ideas together with cultural centrism, i.e. the priority of cultural and spiritual values over material ones, and the idea of general unity of mankind and space should become factors of a routine consciousness in the near future. Thus, according to cosmists, cooperation of man and nature should become the basis of the society in ecological and social aspects, i.e. their co-evolution will take place.

It means the appearance of a universal human being capable to evolve together with nature without doing any harm to it. For instance, Russian cosmist N.F. Fedorov called for searching a “common cause” to control “powers of blind nature”[[10]](#footnote-10). The special significance of his ideas could be found in his appeal to unite all the mankind by labor and mind to overcome the death by nature “regulation”. Thus, the philosopher calls people to live neither selfish nor unselfish, but with everyone and for everyone. He believes it is necessary to overcome “non-affinity” to nature after having studied the connection of human spirit and space through regulation and resurrection.

This approach considers man as a collaborator with nature who has a patient and responsible attitude to his surroundings. Thus, it sounds like a call to the revolution in human consciousness in vital and practical spheres of man’s life due to the appearance of new values. They are completely interpreted in the works of the Russian cosmists. For example, they say about the importance of asceticism stressing the priority of spiritual values in the social life. According to them, in spite of the significance of people’s material interests, they should be supported by such eternal values as kindness, love, historic memory. They believe all parts of our life are interconnected, but spiritual and moral guidelines are the only true way in it. They consider a man formed due to the rapid development of new technologies as a creative and free personality, responsible for the whole Universe. It is the creative work that opens the limitless human nature and his superior mission.

It is also necessary to point out the importance of conciliarism, general unity, God-manhood, developed in works of Russian philosophers. They suggest the idea that mankind is united and its future is connected with overcoming its isolation and autonomy. They considered a man as a “world personality”, appearing as a result of free dialogue of the international culture and possessing some universal moral ideas. These thoughts are becoming especially topical nowadays from the position of the latest technological achievements due to their influence on the future of our civilizations.

**Technological Progress and Global Challenges**

The interaction of the modern human society and nature is determined mainly by man’s non-biological needs. His technical power has reached the level which might be compared with biosphere processes. For instance, the mining machinery moves to the Earth surface more soil annually than all rivers worldwide move soil into seas as a result of water erosion. Human activity changes the Earth climate, influences the composition of atmosphere and the World Ocean. It is possible to make a conclusion that in the terms of the modern economic activity mankind is able to undermine nature’s reproductive power. We can observe more and more cases of irretrievable losses of some life forms, worsening the ecologic situation on our planet. That’s why it is difficult to discuss the reasonable regulation of biosphere for the good of mankind under such conditions.

But we should stress here that under appropriate public conditions the technology can serve as a basis of humanization of man’s technical activity, usage of modern science intensive technologies as a means of rehabilitation and preservation of natural environment and man’s release from routine and uncreative jobs. Fast development of information technologies has provided unprecedented opportunities to improve everyone’s intellectual potential and creative abilities.

In connection with the above, the choice of further technological development acquires a special meaning for mankind nowadays. There is a point of view that social, spiritual and cultural spheres of human life depend on the current technological level and a character of man’s technical activity. Thus, so called “technological imperative”, according to which every technically possible thing gets its practical realization, prevails in this attitude. It’s a rather dangerous approach as it is believed that the technological development is carried out without allowing for human ideals and values. However, in practice at the modern stage of scientific and technological progress the most advanced technologies are mainly being developed while taking ecological and humanitarian requirements into account.

Among numerous global challenges we can mark out three main problems having appeared owing to the latest development of the anthropogenic civilization and threatening the existence of mankind:

1) surviving in terms of continuing perfection of weapon of mass destruction. As we know, in the nuclear age the problem of mass mortality has become an especially actual one for humanity, and this sad result is a “side effect” of scientific and technical progress that discovers new and new possibilities to design and perfect defense technologies;

2) raising the ecological crisis worldwide and its deepening because of the global financial downturn. Two aspects of human existence, as a part of nature and as an active creature transforming nature, come into a conflict. The previous paradigm considering nature as a limitless storage of resources for human activity turned out to be wrong. Man was formed inside biosphere which can’t be introduced as the environment or as a field for man’s transforming activity, but as a single organism including mankind like a specific subsystem. Human activity brings regular changes into biosphere dynamics. At the current stage of the anthropogenic civilization development the scope of man’s nature expansion begins to destruct biosphere as a whole eco-system.

For instance, according to the researches, anthropogenic impact will influence Moscow more and more in the near future. The hydrologic balance in the city has been disturbed. Besides, vibrations caused by enterprises, construction works, transport means and a huge number of pedestrians grow annually. That’s why natural frequency of vibrations in the city is about 3 Hertz at present. It makes Moscow resonate. This factor might lead to growing the number of anthropogenic catastrophes in the city. The same conclusion concerns the whole Russian territory.

Threatening ecological catastrophe demonstrates the necessity of working out new strategies of scientific, technical and social development for the mankind. These strategies should provide the co-evolution of man and nature;

3) keeping a personal individuality as a biological and social structure while strengthening comprehensive processes of alienation. Man, sophisticating his world, calls such powers into being which he isn’t able to control and which become alien to his nature. The more he transforms the world, the more he generates the unforeseen social factors. They start forming new structures which drastically change the human life and apparently worsen it. Fast development of the anthropogenic civilization makes the problem of forming and socializing a personality rather complex. Human relations turn out to be sporadic. On the one hand, they tie all individuals, but, on the other hand, they isolate and atomize people.

The above concepts reflect some real contradictions between a man and the society and between modern technical and technological means. Current technologies require extremely responsible attitude to them and conscious discipline from their designers, producers and users.

**Social and Cultural Perspectives**

Development and introduction of new technologies lead to the appearance of a new socio-cultural reality that brings up new ethic issues being closely connected with the realization of possible projects such as, for instance, complete description of thinking processes and perception of the reality by human brain; slowdown of aging processes; opportunity of human organism rejuvenation; development of brain/brain or brain/computer interfaces; creation of robots and other devices possessing at least partial individuality; etc. Along with ethical problems originating from the realization of the above projects, the ethical principles that many people follow nowadays will be transformed. Development and penetration of these new technologies will provoke a cultural effect related to the intensification of some ethical values and the devaluation of others.

For example, neurointerface accessibility leads to the unification of man and machine on the qualitatively new level. It can change the level of virtualization of human mind and social relations. Penetration of virtual technologies into human sensuality will create the situation of hybrid reality which obliterates distinctions between man’s virtual personality and his physical localization in a body. However, the virtual world of social networks leads to egocentrism and man’s preoccupation by himself and his thoughts, because the result of it can be the loss of relationships between man and the reality. That’s why the conversation about change of the spatial conception concerning physical margin of interpersonal communication and identification can take place. This change will involve reconsideration of human presence in the communication environment if it should be treated both real and virtual simultaneously. Such an approach means a completely new phenomenon of human existence (the margin mentioned exists rather clearly nowadays).

Thus, socio-cultural perspectives of the technological development include:

* appearing a new life style;
* stemming a phenomenon of “secularized eternity” in public consciousness stipulated by a significant increase of life expectancy;
* changing the meaning of human life in substantial way as man will be able to feel himself like a creator of natural and social worlds.

That’s why the philosophical reflection of social and cultural results of the technological development is becoming more and more topical. To prevent the global ecologic catastrophe, there is a real necessity to bring out peculiarities of these technologies and to analyze their impact on the social reality. It’s also very urgent to start searching a new approach to humanism which is still understood traditionally, to clarify transformations of social values and meaning of human life in the perspective of their development, to study new cultural stereotypes emerging nowadays.

There is a position in Russian philosophical literature stated by R.S. Karpinskaya, I.K. Liseev and A.P. Ogurtsov that “mixed” concepts “demonstrating transitions from philosophical thinking about nature to generalizing judgments about human nature, and vice versa”[[11]](#footnote-11) mainly appear in natural sciences (they mention synergy, sociobiology, biopolitics, etc.). The authors introduce the term “biocentrism”[[12]](#footnote-12) expressing the tendency of unification of natural and humanitarian “cultures” with the category of life as a crossing point.

It’s obvious that culture and religion as carriers of the moral imperative should take a proper position in the decision of ecological problems by mankind. It is not enough to achieve man’s knowledge of his activities under some circumstances. It is desirable that he couldn’t act in a different way owing to his upbringing and beliefs. If people want to save themselves, their nature, culture, i.e. all human world, it is insufficient for them to cognize all modern scientific theories. They should learn to perceive the symbols of beauty from the natural and artificial worlds. I believe this synthesis gives the mankind an opportunity to survive and develop further.

**Conclusion**

Making a conclusion, it is necessary to point out that the issue of creating noosphere is extremely vital. Its decision is connected with the unification of efforts by all the mankind without any exceptions, the introduction of new values for cooperation and establishing relationships among different nations worldwide. Democracy, culture preservation and recovery, development of science and public life, responsible attitude to nature management, deciding military conflicts and threats peacefully, spreading new principles of noosphere education can be considered as the main components of noosphere.

While developing technologies, man is becoming more and more technologically sophisticated. However, he doesn’t stop to be sensible. He himself, his body and mind turn into integral parts of complex eco-systems, socio-cultural and socio-technical systems. Thus, the process of creating noosphere is very gradual and we might never be able to call a year or even a decade when the process of transforming biosphere into noosphere is supposed to be completed. The information society which the developed world is living in nowadays should be considered as the first step on the way to the noosphere society.

V.I. Vernadsky, noting undesirable and destructive consequences of human activity on the Earth, believed them to be some side effects. He trusted in the human mind, humanism of scientific activity, triumph of good and beauty. Some of his ideas were great predictions, but some of them were real mistakes. But undoubtedly, noosphere should be understood as a symbol of faith, as an ideal of human sensible intervention into biosphere processes under the influence of scientific and technological achievements. Mankind should believe and hope for its advent while taking proper measures.

The problem of human future seems to be the challenge of preventing the biological degradation of man and nature, achieving the co-evolution of man and society, forming the civilization which is based on the principles of stable development. Thus, future orientation is the main feature of the noosphere concept that should be developed nowadays in all directions. It will define further perspectives of science, technologies, society and the civilization development in general.

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