
ON THE 150TH ANNIVERSARY OF V.I. VERNADSKY'S BIRTH

The year 2013 was marked by the 150th anniversary of the birth of Vladimir Ivanovich Vernadsky, the prominent scientist, theorist, public figure and scientific leader. He was one of the first to realize the intellectual creativity and the mighty power of the human impact on the environment. The biggest part of Vernadsky's statements on environmental issues was unexpected for his contemporaries and only nowadays can be fully appreciated. In the beginning of the last century he noted that "in a severe and radical way human activity interferes with the natural processes and transforms what we call the laws of nature".

V.I. Vernadsky was the first to define the principle of the human and the biosphere unity, based on a deep comprehension of the phenomena that occur in the natural environment and social sphere. According to the ideas of V.I. Vernadsky, scientific creativity has been changing the biosphere it belongs to. Alterations in the biosphere is an inevitable phenomenon that accompanies the rise of the scientific thought, it happens independently of the human will, spontaneously, similarly to the mechanism of a natural process. Research activity of the humanity is a new factor of the biosphere alteration. It is a natural process of the biosphere transition into a new phase - the noosphere.

The term "noosphere" (from the Greek word "noos" – mind) appeared in 1927 in the articles written by the French mathematician Édouard Le Roy after attending a series of lectures of V.I. Vernadsky on geochemistry and biogeochemistry in 1922-1923. However, the conceptual content of the notion of noosphere belongs to V.I. Vernadsky. He used the term "noosphere", not in the meaning of an abstract world of thought, but as a historically inevitable stage of the biosphere development. As early as in 1926 in his article "Thoughts on the modern meaning of the history of knowledge" he wrote the following: "Established throughout all geological age, being accurately balanced, biosphere starts to alter profoundly under the influence of the human scientific thought". In the 30-ies in the book "Scientific Thought as a Planetary Phenomenon" he writes: "Biosphere of the XX century turns into the noosphere, created primarily with the growth of science, scientific understanding and social work of the mankind based on it... The outbreak of scientific creativity creates a transition of the biosphere into the noosphere. It is namely the scientific knowledge that is a manifestation of the noosphere, which, in its turn, is a geologically new state of the biosphere caused by knowledge. He wrote that "scientific thought has covered the entire planet, all the states on it. Numerous schools of scientific thought and research were created everywhere. This was the first fundamental prerequisite for the biosphere transition into the noosphere".

V.I. Vernadsky distinguishes a number of features (processes) that indicate the formation of the noosphere. It is the integration of historical areas into a single unit, combined with modern means of communication; development and creation of life-supporting conditions on the Earth (possibly on other planets in the future); discovery and development of new energy sources; creation of major centers of scientific thought, uniting peoples and nations.

The development of civilization, science and society in recent years has revealed V.I. Vernadsky's incredible ability to foresee the future. Recent years have confirmed

that the noosphere being a new geological Earth Shell, as well as being created by the scientific thought, and thus by the technical progress, has been developing more rapidly: a huge number of the population is involved in the creative process, a number of research centers (centers of scientific thought and research) is increasing, the integration of countries (e.g. the European Union) goes on. As a consequence, technical and energetic equipment of the humanity is rapidly developing that transforms spheres of the Earth and leads to the evolution of the biospheric processes.

According to the ideas of V.I. Vernadsky, alongside with the unity of the mankind, with the scientific thought and the growth of the activity of the masses, the most important prerequisites of the noosphere and the conditions of its existence are the unifying moral and ethical basis as well as the lack of devastating wars. In the process of the biosphere transition into the noosphere peace throughout the world is one of the main determining factors of the noosphere construction in historical stage of life of several generations. V. I. Vernadsky noted that in the noosphere the development of free human beings is the highest social value.

To V.I. Vernadsky's opinion, the noosphere is the harmonic correlation of nature and society; the interfluence of reason and humanism, science, social development and public policy for the benefit of man, it is the world without weapons, wars and environmental problems, it is the objective, that the people of good will set, it is the belief in the great mission of science and humanity". V.I. Vernadsky's prediction of the impact of human activities on the modern condition of the biosphere and the concept of the noosphere formulated, the determination of the necessity for nature and society harmonization, the role of "the scientific thought as a planetary phenomenon" in the transformations on the planet is becoming increasingly important.

The reality is that the humanity was altering, is altering and will be altering the environment. Modern period shows that not all the ideas of V.I. Vernadsky have yet implemented: along with the integration of a number of countries there still exists (and even progresses) the disintegration, the unequal development of countries and peoples, armed conflicts occur, the negative effects of anthropogenic stress on the biosphere are aggravating, local and global catastrophes caused by humans happen. After the works of V.I. Vernadsky there has been collected a lot of data on the negative impact of industrial activity on the biosphere and its functions, on the risk of environmental contamination, on anthropogenic evolution of the organic world.

Are there any alternatives in the civilization development? His ideas are not a utopia, but the necessity to preserve our planet and civilization. Obviously, the development of civilization can not be stopped, but the necessity for the harmonious co-evolution of humanity and the biosphere should always be beyond question.

This issue is dedicated to the anniversary of the great thinker, it contains articles that combine the results of ecological studies. Each of the works contributes to new knowledge about current events in nature under the influence of human activity, reveals regularity of biological systems sensitivity to environmental changes.

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