

CO-EVOLUTIONARY INTERACTION BETWEEN SOCIETY AND NATURE AS A CONDITION FOR THE TRANSITION OF THE BIOSPHERE INTO THE NOOSPHERE

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ABSTRACT. *This article is the development of the previously published article “Environmental awareness as part of the noosphere” (Vol. 3, No2, Spring 2013). The authors proceed from the idea of V.I. Vernadsky that the survival of civilization is possible only in the case of the transition of biosphere into noosphere. This transition is possible only if society and nature interact co-evolutionary based on the principle of biocosmological unity of abiotic, biotic and cognitive factors. This allows us to replace the widespread notion “sustainable development” to another (more appropriate) one – “co-evolutionary development”.*

KEYWORDS: *biosphere, noosphere, society, nature, co-evolution, ecology, ecological conscienceness, culture, civilization, sustainable development, co-evolutionary development, human being*

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Introduction

Threatening negative consequences of human activities are well known. The World Wildlife Fund (WWF) published the following frightening statistics (which was prepared in cooperation with experts from the fund of Global Footprint Network and the Zoological Society of London): more than half of vertebrate species have become extinct in the world since 1970, while the number of people on the planet doubled at the same time. Researchers at Stanford University revealed that the sixth great extinction of animals began. There have been five mass extinctions of animals over geological history: Ordovician-Silurian, Permian, Devonian, Triassic, Cretaceous-Palaeogene and Eocene-Oligocene ones. While the main cause of mass

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deaths of animals in the previous periods were natural disasters, the current (the sixth in a row) extinction of animals is due to unreasonable human activities. From 16 to 33 percent of the present fauna are on the verge of extinction [WWF, 2015]. It is important to understand nowadays that the elemental development of civilization has ended – conscience must determine the development of life (not vice versa any more). This means that humanity has no alternatives to the transition to the noosphere. The problem is how to interpret the noosphere and how to realize the project.

1. The problem of interpretation of the noosphere

The uniform interpretation of the concept of the noosphere is currently missing, so it is necessary to clarify its meaning. This clarification is advisable to carry out according V.I. Vernadsky's interpretation of the concept of "noosphere"; Vernadsky tried to give the concept a strictly scientific character (unlike to E. Leroy's and P. Teilhard de Chardin's interpretations). In this regard, it is important to follow the internal logic and the general direction of Vernadsky's thinking. Here is one of his statements: "Noosphere is the last of many states of the biosphere's evolution in geological history; it is the state of our days. This process's course is just beginning nowadays to emerge from the study of past geological periods" [Vernadsky, 1987, p. 304]. This statement means that the noosphere emerges as a "common-sense" biosphere, and its functioning, dynamics and evolution must be largely determined by reasonable human activity. Humanity must focus its efforts on the creation but not on the destruction. "The geological history of the biosphere provides humanity with a great future if it does not use its mind and power for self-destruction" [Vernadsky, 1987, p. 32]. This setting is of fundamental importance, and demonstrates its objective assessment of the earth's civilization, which has entered the epoch of the highest risk and responsibility for the planet as a whole.

Vernadsky's judgment about science, scientific thought as a planetary phenomenon and about human as a geological force is particularly notable. In fact this thesis contains implicitly questions about what human is, what civilization is, how they relate to the planet, whether they are an extension of the Earth's planetary evolution, whether they are equal with the other inhabitants of the planet and of equal responsibility with them. According to the evolutionary (not creationist) concept humanity appeared in the natural evolution of the Earth (primarily of the biosphere and geographic shell). This, in turn, undermines the validity of the principle of anthropocentrism and proclaims the need to find harmony between humanity and nature. Consequently, it is necessary to merge into a single unit all the three leading members of the Earth's evolution: the living matter (biosphere), geological processes and geographic shell (hydrosphere, lithosphere, and others), and the social form of the motion of matter (sociosphere and its core – technosphere). This triune approach overcomes the dichotomy of conceptual constructs and makes possible to place the objective semantic accents in the study of interaction among the basic elements of the evolutionary process on the planet.

V.I. Vernadsky interpreted noosphere multifacetedly. According Vernadsky's idea the transition of the biosphere into the noosphere in the future will allow humanity to achieve (based on reason, science, morality, and other achievements) such a form of organization of interaction between society and nature, which will create the conditions necessary for the preservation and further development of humanity. The mind, science, morality, the system of attitudes of society must get a qualitatively new state that will enable the creation of such conditions [Vernadsky, 1980, 1991]. The modern world is torn apart by political, economic, environmental, religious, and other contradictions, and it is vitally important to develop actions that would be taken by all people, nations, religious groups, etc. and that would ensure the safety of the biosphere.

It is important to take into account another factor. It is believed that the biological nature is inherently selfish. However, does this mean that nature does not provide "mutual aid"? The principle of "living for others", nominated by Comte, found their followers. One of them was H. Selye, the author of "Stress without Distress" [Selye, 1979]. He believed that selfishness is the main engine of behavior of biological beings, the law of nature, but at the same time, he argued that it is impossible to imagine the existence of a world based solely on self-interest, neglecting the interests of its other inhabitants. I.e., he distinguished destructive (aggressive) selfishness and altruistic (creative) one. According to the "purely selfish reasons", single-celled organisms are united in multicellular entities, thus losing their former independence, but being differentiated to perform different functions in the multicellular organism. All this contributed to the survival of the whole organism due to the increased resistance to hostile environment.

Similarly, the people began to associate to perform work that cannot be done alone, in order to facilitate the protection, etc. In this way, there were a family, clan, tribe, and nation. H. Selye's conclusion is following: all living forms are brothers, and people, following the mind, can coordinate their behavior with the laws of nature; people should also be guided by the maxim "earn the love of neighbour" in order to avoid conflicts. Thus, we are again dealing with the transformation of the Biblical principle of "Love thy neighbour as thyself," into the form of "earn the love of neighbour." (However, how and why was the saying formed "if you do not want to make enemies, do not do well (for example, do not let anyone in debt)"?). V.P. Efroimson took a similar position and claimed that people in the process of severe natural selection at the cost of billion victims developed the ability to distinguish between good and evil that makes human be the judge of its own acts. "Human ought to and must answer for their actions" [Efroimson, 1971]. He really must do so to protect his "home living". However, the problem is that this obligation is performed still unsatisfactorily. We can only hope for the future implementation of this principle and for transformation of the duty into the categorical imperative.

There is no doubt that the technical implementation of the intervention in heredity is very difficult, and effective tools for the manipulation with genes and chromosomes are unlikely to be created in the near future. Now we can only speculate on the possibility of genetic correction. In addition, it is necessary to take

into account the time factor – the means of survival should be designed before there is a global ecological collapse. Therefore, there are more than enough difficulties in the way of formation of *homo ecologicus* (*biosphericus, noosphericus*).

It is important to bear in mind that the transition of the biosphere into the noosphere will require not only achievements of science, but also changes in historical value orientations of society. Currently, there are no necessary and sufficient conditions for this transition. The reality now is that the noosphere should rather be understood as a symbol of faith and hope of survival. Striving for the implementation of this symbol of hope ought to be a common business of civilization. Otherwise, humanity really shows its essence as a deadlock branch of evolution that devours itself. Therefore, the system of education in modern society should be based on the program of formation of ecological culture as an essential component of moral education. Formation of a global ecological culture requires dialogue of cultures, which in turn will require political will and certain economic sanctions and appropriate forms of social and economic organization of society. A socio-economic system, which proclaims the main purpose of making a profit, is poorly adapted to the formation of a global ecological culture, of *homo ecologicus* and to the solving of global problems in general. All this requires new approaches, which should be the basis for the preservation of life and the creation of conditions for its unaffected development in the world.

Thus, the transition to the noosphere without generating of environmental consciousness is impossible. The solution of physical problems largely depends on the physical (chemical – from chemists, etc.) but solution of environmental problems depends on all together and individually. Environmental security must be a private matter of every citizen of the Earth. Neither global models, nor powerful computers, nor anything else can replace environmental education. Meanwhile, despite a widening campaign to preserve the environment, environmental education is still poor. Technogenic degradation of the biosphere and its overall disorganization cannot be overcome without a global biosphere and environmental education, which emanates from a systemic understanding of the causes of the ecological crisis and ways to overcome it.

The challenge is also to implement widely and as quickly as possible the standards of “Environmental Code”. To recognize the danger of global ecological crisis and to avoid its evolution into a global environmental catastrophe means to grow wiser. Now the problem is not in fact whether the humanity wants to grow wiser (i.e. to change its value orientation and target setting) but whether it has enough time to do something drastic to avoid ecological collapse. Mass consciousness (especially the ecological one) is very rigid.

Therefore, attempts to change the value system in accordance with the interests of nature (hence the long-term interests of humanity) taken of the ruling elite of society through traditional means, can be confronted by resistance from the mass consciousness. This implies the necessity for urgent and vigorous action in the field of environmental education and legislation, without which humanity really do not have time to grow wiser. Environmental education and legislation plays an important

role here, and the elite of society, among other things, will have to demonstrate a reasonable austerity in lifestyle. The second (most important) thing concerns the fundamental possibility of transformation of environmental consciousness towards the “noospheric” one. The whole history of humanity can be considered from the point of view of the struggle of individuals, social groups, etc., in order to improve the comfort of the life (i.e., from the position of collision of people’s selfish aspirations). Selfishness is rooted in human's nature, i.e., human, being a social creature, has not lost its biological essence. The essence of any substrate defines a set of its properties. This also applies to the nature bio-substrate. However, who measured the possibility of changing the properties of the human mind (which is based on biological substrates) towards their transformation from selfish to altruistic ones? Here is the core of the problem [Moiseev, 1999; Kochergin A.A., Kochergin A.N., 2000, 2012].

Ordinary forms of knowledge about nature cannot contribute to the development of environmental awareness. Moreover, it is important to realize that the possibilities of modern science are too limited to generate environmental awareness – modern science for some components has been unprepared yet for the solution of environmental problems. Therefore, the overcoming of the environmental crisis requires not only the restructuring of everyday consciousness, but also greening of science and philosophy. It is necessary to overcome the excessive separation of cognitive and value aspects in research activities. It is also necessary to understand the limitations of deadline for the development and implementation of this program. The solving of global environmental problems is now becoming an internal driving force of life itself on a global scale. It is necessary to go to a new level of environmental awareness; otherwise, the significance of human life will inevitably fall on a global scale.

The transition from anthropocentrism to biocentric egalitarianism requires imposing of reasonable restrictions on human activity and making of the most vigorous actions for the restructuring of production in order to create new productive systems. These systems have not to violate the integrity of the ecosystem structure and have to be organically woven into their functioning. The technological way of thinking must be replaced by the environmental one. Implementation of these actions is possible if the environmental consciousness corresponds to the current realities. Environmental awareness should be based on the achievements of science and life-saving values and serve as an integrator of all the forms of social consciousness. Environmental awareness is intended to guide the planetary mind towards humanistic values. Only that society may be called a noospheric one, which implements the principle of biocentric egalitarianism in its relationship with nature. This principle proclaims fellowship with nature rather than its conquest.

The reasoning of the noosphere must be conformed to the cosmic evolutionary process. It has been formed a lot of cosmological concepts, many of which are analyzed in terms of “noosphere trajectories in the Universe” [Ursul, 1993; Nazaretyan, 2013]. Some concepts are based on the inevitability of death of the Earth's human civilization due to natural evolutionary space processes; others believe

that the mind is the force that is able to solve the problem of cosmic evolutionary process control. Vernadsky interpreted noosphere especially from the perspective of evolution of human as the “managing director” of the cosmic evolutionary process. The “suicidal” evolutionary concept [Ilyenkov, 1988] which is based on the principle of “all appeared inevitably die,” does not contain any clear scientific arguments. The evolutionary concept of “Omega option” [Teilhard de Chardin, 1987] linked to the idea of God and seems to be an unconstructive position from the scientific (materialist) point of view. There are many concepts about the future of the universe, which are discussed in the framework of the noosphere perspective. Acceleration of evolutionary processes [Snooks, 1996; Kurzweil, 2005; Panov, 2005] leads to inevitable transition into a new qualitative state, but it is still not clear either this state is descending or ascending. It is known that growth of organism’s behavioural complexity is in proportion to its anatomical structure [Vernadsky, 1978]. Identifying of the growth of organism's behavioural complexity [Vernadsky 1978] does not lead to answering the question, whether the growth of complexity is unlimited in principle (whether there is a limit to the potential progress of civilization [Davis, 2011]). There is also a conception of civilizations’ production of new universes with programmed parameters using black holes [Smolin, 2009] and a conception of limitless expansion of the information context [Nazaretyan, 2004]. These conceptions disclaim nowadays the existence of theories of stars’ evolution which limit possible Life’s (Mind’s) influence onto the cosmic processes (in the circumstances of high degree of Mind’s self-control), but such theories just can be created in future. The list of similar conceptions (which concern possibilities of Mind’s expansion into cosmic processes) could be continued. So, what kind of cosmological concept can be associated with the possibility of establishing of the noosphere? It is important to take into account here that many cosmological concepts are not subjects to experimental verification and are constantly changing. Therefore, the concept of inflation is contested by the conformal one (Penrose), the concept of “black holes” – by the concept of the lack of them (Hawking), etc. All these concepts are nothing more than hypotheses constructed on all sorts of assumptions.

2. The noosphere and communism

Attempts to associate the idea of the noosphere with the idea of a communist society are nothing more than a hypothesis, which is based on assumptions that contain elements of utopia. The fact is that any social engineering involves them inevitably. It is known that social knowledge needed to manage the society, assumes, first, knowledge of its structure, secondly – of the laws of its functioning and development, third – of the control objectives in the form of knowledge about the future state of society, in the fourth – of means to convert the present state of the society in the desired state. However, if we accept the postulate of that practice is a criterion of true knowledge, it becomes clear that it is impossible in principle to check on the validity of knowledge about the future state of the society through the practice, because this knowledge is given in the form of a perfect sample (model). Of course, the greater the knowledge of the third kind is based on that of the first and second

kind, so it is more plausible (as Anna Akhmatova wrote: “As the future is maturing in the past, in that way the past is smouldering in the future”; however, how to extract the future from the past and present if their relationship is far from being univocal?). The future is described in terms of language, developed to describe the past and the present. Therefore, any future projects may be submitted from “pictures”, composed of elements of the past and present. It is impossible in principle to invent a language terms that have no meaning in the present. Hence, any such “picture” is a utopia.

Marx believed that it is possible to replace the utopian vision of the future with scientific concepts. He refused to build a “picture” of the future as a description of what will be in it (such as “rivers of milk and honey”). He also came to the conclusion (based on the Hegelian notion of communication between present and future) that a scientific description of a future society is possible in terms not of what will be in the new society, but what will not be (of things what were in the old society). However, in the end it did not save his project of social development from utopianism, which was transformed into a myth that had been controlling the activity of people for several decades and still has not disappeared from the public consciousness.

Studies of the communist project [Kostyuk, 1998] from the viewpoint of its implementation show that an abstract analysis of society, carried out by Marx, is based on a number of assumptions, which are actually unreal. Marx proceeded from the fact that the only possible means to implement the project of social development is the social ownership of means of production. He chose only the direct distribution mechanism as the market one leads to a distribution of capital and social inequality, which Marx wanted to avoid. In other words, Marx believed that society can develop a single plan that would reduce the proportion of working time and increase the proportion of free one. To substantiate this position Marx thought it is possible, firstly, to calculate the right price for the goods, secondly – to plan production for a long time and thirdly – to be guided, making a plan, not by personal self-interest of those who plans, but foremost by the public interest.

As the historic (Soviet) experience showed, the assumption of such a possibility had appeared to be utopian. Firstly, it is possible to calculate the right price according to the socially necessary expenditure in conditions of equilibrium economy only. In real terms (not within the abstract analysis) the really equilibrium economy does not exist. To calculate correctly goods’ price, such conditions are necessary under which the socially necessary costs are constant for a long time. Moreover, one must be able to anticipate the development of the economy based on the real (full) knowledge that just is impossible too.

Second, even if the prices may be calculated, the discrepancy between the actual and calculated values is still inevitable. To preserve stability every system must be able to resolve (based on feedback) errors which occur frequently. However, error detection and transmission of a corresponding signal to the control system requires a certain amount of time. Signal processing, which entered into the control system, the transfer of corrective action through appropriate channels, and correction of errors need time too. During this period, there are new faults in the system, and their cargo

is stored. The system will not be able to function effectively in such conditions. To maintain an efficient economy it is necessary to introduce new capacity to tap new resources. In turn, the introduction of new resources requires new capacity. Therefore, there is a vicious circle: more and more resources should be used for the extraction of new resources. This leads to self-destruction of the economy, because it begins to work not for the consumer (it is known that the consumption sets the goal of production). So there is a gap between production and consumption – means become a goal.

Third, the social groups that make up society are in the same relation to the property. In the era of communism, as expected, the division of people will be reduced to sex and age differences and according to their natural endowments. However, there are other sources of inequality in reality. To identify them we must ask the question: how can be equal pay for equal work in the absence of the market? The market does it automatically, but in circumstances of its absence, a special state agency must function to determine who works better, who does worse. Those who turn out to be “closer” to this agency are becoming, in the words of George Orwell, “more equal”. So that the presence of social groups with different interests leads to social diversity (from which Marx sought to get rid of, creating a model of the future society). This means that social heterogeneity (and, as a consequence, wrongful appropriation of the products of labor, exploitation, absolute and relative poverty) are quite possible in the absence of private property and the market.

Thus, attempts to build communism in accordance with Marx's recipes did not succeed, and humanity has to give an answer to the question of the principal possibility (or impossibility) of communism. The same applies to the question of the noosphere [Khalezov, 2014]. One thing is clear: the Soviet experiment proved to be unworkable, but there is no another one. The question is how to build the noosphere. A social system, the main principle of which is profit, is characterized by modern scholars as “necrophilic” [Fromm, 1992] and cannot be considered as “noospheric”. There are also no options based on the principle of convergence. All this makes necessary to take specific action in the framework of this day and the immediate future and lay the foundation of the Commonwealth of society and nature.

3. Noosphere and co-evolution

At present, many domestic authors associate noosphere with the concept of sustainable development. This concept has no single interpretation, so it is first necessary to clarify its meaning. The term “sustainable development” was rooted in domestic publications after translation from English into Russian of the Rio Declaration, in which the term was absent. In Russian, the term “development” means a transition from one qualitative state to another, new one; the “new” in some cases, is treated as a “more perfect”, while in others (such as medicine when the progress of the disease is described) – as that is able to lead and to deterioration. The term “sustainable” means in Russian “standing firm”, “not wavering” (“permanent”). It is known that a permanently stable system does not actually exist. Any attractor is purely temporary. The authors of the Rio Declaration used the term “sustainable”

(supports) to indicate the nature of development. The authors of the Rio Declaration used the term “sustainable” (supporting) to indicate the nature of development. In this meaning, this term may also be referred to unsustainable development. If we talk about sustainability as a characteristic of the system’s state, the only constant is stable instability, because all the systems in its development pass through the bifurcation point. Permanently sustainable development is impossible in principle. There will always be breakthroughs in knowledge leading to accelerated development of society. However, there may be natural disasters (including those of cosmic scale) and fabricated ones, which can throw far back the development process. This concept (development), being included in the Rio Declaration, intended to regulate the policy in the field of environmental security at the international level and should therefore be interpreted unambiguously. Since the development of all systems is accompanied by its forms’ change, we should focus not on sustainable development, but on such kind of development that would support at each time the safety of the biosphere – Habitat for Humanity house. Thus, we should talk about co-evolution development.

It is necessary to highlight here another aspect of the problem of the noosphere. Thus, according to Vernadsky’s noosphere concept, human strives to become a designer of the biosphere and a manager of cosmic evolutionary process. Here the following question arises: is the existence of other intelligent civilizations in the universe possible in principle? Civilization may be different essentially; they can have their own ideas about the noosphere, possibilities for its distribution in the space and desire to become managers of cosmic evolutionary process based on their submissions.

Ideological foundations of the co-evolutionary development were laid in the ancient Greeks’ cosmocentrism, in the concept of triadologism and in the integrity of abiogenic, biogenic and social spheres of reality that is peculiar to the idea of biocosmology. This principle is a characteristic of Eastern philosophy: the principle of Wei says about harmony of nature, therefore human activities must be consistent with it and do not make entropy.

In a sense, the precursor of the idea of co-evolutionary development of society and nature can be regarded Aristotle with his idea biocosmology [Aristotle, 2006] and T. Malthus [Malthus, 1868]. It is important to highlight two points in Malthus’s doctrine of the population. First, he drew attention to the constant pursuit of living things to reproduce in greater numbers than that for which it would be sufficient food supplies. Limited supply of food in the world led him to the formulation of the law of population growth in geometric progression, and food supplies – in arithmetic one (later he was made sure that the law is not kept in practice, and he declined it). Basic concept of T. Malthus are: 1. Population is strictly limited to the means of subsistence; 2. Population always increases in direct proportion to the increase in the means of subsistence, until it is stopped by a powerful counter-reason; 3. All the obstacles limiting the power of reproduction, keep the population at a level of hood and eventually reduced to moral abstinence, vice and misery. The essence of the revolution carried out by Malthus in the study of population is the replacement the formula “let more people be, and more means of subsistence will be” to another one –

“more means of subsistence, and people will be”. This made possible to transfer the issue of population policy in the field of scientific study. Secondly, Malthus pointed to the selfishness of the labor theory of value, in which nature is seen as a bottomless and free pantry. Such an attitude to nature made possible for the capitalist system to achieve impressive gains in material production for a short period. In the context of the problem, the first point is just actual for us.

It must be admitted that critics exaggerate significance of the concepts of arithmetical and geometrical progressions in Malthus’s theory – he did not say there a word about the corresponding law. He operated with the term “progression” (arithmetical and geometrical) meaning the tendency only. The reality demonstrated influence to the population growth not only of such factors as the demand for labor and the quantity of salary, but also of political conditions. According Malthus it is necessary first of all not to deal with overpopulation, but to prevent it, which requires large-scale economic reforms, development of education and recognition of the primacy of public interests over private and personal. One can hardly dispute the humanistic orientation maxims of Malthus derogation that “people should be protected, and only extreme necessity could justify a digression from the general rule.” The main provision of T. Malthus, that the population multiplies faster than food products are manufactured, is still relevant today. The modern interpretation of his theory can be metaphorically represented as the “Bermuda environmental Triangle”, which expresses the relationship of its following “tops”: the number of people with their needs, available resources, and existing technologies that can improve the resources. The essence of this law is as follows: if the number of people with their needs does not correspond to the number of available resources and technologies for their processing, the natural stabilization mechanisms are triggered and reset the excess load on the nature (war, epidemics, etc.). Malthus not called for war and epidemics at all. He warned of what might happen if people ignore the need for timely “balancing” apices of the “triangle”.

Marxism was a revolutionary doctrine aimed at transforming of society and nature, and in person’s interests, but not actively investigated the environmental problem (though noticed negative consequences of “conquest of nature”). This problem was (and is) considered by philosophy of life, existentialism, and other areas of Western philosophy. Despite the fact that the official Soviet ideology criticized “bourgeois use of nature”, the practice of exploitation of nature in the Soviet Union was in fact in a little difference from the western one (the attitude toward nature in that epoch is clearly expressed in the famous Gorky’s saying: “Culture is organized violence against nature”). Practical successes were achieved largely due to the robbery of nature (and in fact of descendants, because, as it became clear, environmental disasters cheaper to prevent than deal with their consequences). Only ecological disaster can be a final of such kind of “sustainable development”. In this regard, N.N. Moiseev, one of the greatest scientists of the twentieth century, urged to rethink the situation with the interpretation of the term “sustainable development” [Moiseev, 1999]. The concept of co-evolutionary development of society and nature, developed by him, is practically the only possible justification for the transition to the

noosphere. It was LaRouche, who spoke in support of Vernadsky's idea on the possibility and necessity of the transition of the biosphere into the noosphere from the perspective of the unity of abiogenic, biogenic and cognitive components. L. LaRouche is based on the existence of two opposing views on self-interest. They are philistine (associated with neurotic and even psychotic) and sublime (associated with a variety of cognitive experience, experimental confirmation of hypotheses, discoveries of universal principles, orientation to participation in the unfolding of the historical process, cognitive actions for the retention of academic knowledge, constant responds to events based on cognitive data, rather than on an ordinary sense experience). Only the unity of all people and countries based on this principle can bring civilization out of the neurotic state. Here is revealed again a “positive picture” of the future, which contains the same flaws as the previous concept. The whole argument is again based on the imperative of what it *should* be.

4. Concluding remarks

The future of humanity is not a religious paradise and not a communist society in the form presented by K. Marx, I. Efremov, L. LaRouche, etc. History is an open system. Human still has to prove to be called *Homo sapiens*, and the fact that he is not a dead-end branch of evolution, devouring itself, but the subject that is aware of its responsibility for the space experiment of nature. It is possible only through the development of programs of interaction between society and nature. Mind is designed to keep constant hard work on the organization of strict monitoring of the biosphere, on definition of the degree of interventions into natural processes and on the development of appropriate languages of communication between society and nature at each time point. Co-evolutionary development of society and nature is just not fighting against environmental pollution, but the transformation of lifestyles, values and meaning of life. The authors restricted themselves in this article to an analysis of the environmental aspects of the interaction between society and nature. However, the noosphere is not limited to this aspect. The economic aspect of evolutionary development cooperation involves the development of the best ways to use natural resources based on environmentally saving technologies for waste minimization and recycling; the social aspect is focused on the development of society, human culture, and effective management.

All the three aspects must be harmonized because of co-evolutionary imperative. This raises a number of issues that require separate discussion. Noosphere society is associated with the implementation of the principle of justice. A society that is focused on profit as the main value cannot provide the implementation of this principle. As shown above, other possible forms of social organization (models that have been developed in theory) cannot provide it too. So the question arises: what form of economy should correspond to noosphere society? Another issue relates to the spiritual side of noosphere society: what is the nature of worldview that defines social cohesion? It is clear that the controversy should be resolved based on equal dialogue. However, atheism and religion has its “sacred” values: in the first case is the denial of supernatural forces, in the latter case it is their recognition. This makes

dialogue impossible, because it implies mutual concessions. There is therefore a communication problem. Perhaps this is the most difficult problem of all, to be addressed in the name of humanity to survive. (Aristotle's critics of sophistries (that are actively used in the ideological battles) retain its value here [Aristotle, 2006]). To solve it, we need a new philosophy – the philosophy of survival. The problem of its creation is a topic for another discussion.

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