THE ORIGINS OF GEOSPHERIC THINKING AND ITS SIGNIFICANCE FOR UNDERSTANDING THE GLOBAL WORLD

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The article discusses one of the most pressing problems of man – his aggressive nature and the permanent state of war in which he lives, but for which, despite all possible attempts, no effective countermeasure has yet been found in the entire history of mankind. In this regard, the author refers to the history of understanding both the nature of war and the possibility of establishing a stable peace, as well as to globalization, which has radically changed the man's position of on the planet in the last four centuries. In particular, attention is drawn to the fact that the current scale, quality and nature of military operations in the context of multidimensional globalization threaten with a complete destruction of intelligent life on Earth. The article suggests that, although not an absolute, but an unconditional countermeasure to this is the formation of geospheric thinking among, at least, a certain part of the inhabitants of the planet, reflecting the diversity and the way of cognition of the multi-layered global world. It is shown how geospheric consciousness and thinking, which form the basis of the global worldview, have emerged and developed historically. The analysis gives grounds to conclude that people began to think in terms of global spheres only in the nineteenth century and at the verbal level, the geospheric (planetary) thinking became a reality only by the end of the twentieth century. As a result, it is concluded that, progress in the formation of geospheric thinking, however slow, can contribute to the prevention of war and the maintenance of peaceful life on Earth.

Keywords: *sphere, geospheres, global world, man, worldview, war, life, peace, globalization, world community.*

Nature reveals its secrets and its beauty only to those who are able to understand them.
Alexander von Humbold

Either humanity will end the war, or the war will end humanity
John F. Kennedy

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About War and Peace in the Era of Globalization

A holistic view of the world, a global worldview, and the corresponding planetary thinking are more relevant today than ever before. And indeed, we are already fully in the conditions of multidimensional globalization, and thus, universal interdependence, when any ill-considered action, even a seemingly insignificant one, can serve as a detonator of socio-political and economic destabilization with unpredictable and destructive consequences, including on the global scale. War, or the threat of war, has always been and still is, one of the most pressing problems facing mankind. This subject has preoccupied the best minds of mankind throughout the history of the world because, like nothing else, it exposes the most important dilemma of mankind – life and death – in a massive and extreme way. At the same time, certain features of historical development and the level of military and technical equipment have usually been decisive in military confrontations between opposing sides. Thus, the era of globalization, which began with the Age of Great Geographical Discovery, and the scientific and technological progress closely associated with it, gave a new meaning to both the phenomenon and the nature of warfare, as well as to the attempts to find fundamental solutions to this problem, when the main attention in such attempts was focused on the nature of man and social relations on a planetary scale. In this regard, it is sufficient to refer to Immanuel Kant's famous treatise 'Towards Eternal Peace', published in 1795, in which he formulated, essentially from a global point of view, six articles of a preliminary treaty on 'eternal peace,' the observance of which, in his opinion, could help to eliminate the threat of war from the life of society (Kant 1966: 257–309).

In this context, Vladimir S. Solovyov's famous philosophical essay 'Three Conversations about War, Progress and the End of World History,' written in 1899, deserves special mention, in which the author discusses the subject of war from the point of view of representatives of different social strata, on the question of whether it is a sin or a holy cause, good or evil. At the very beginning of the treatise, he states that he began to write it because he 'felt how important the question of evil is for everyone... Is evil just a natural defect, an imperfection that disappears of its own accord with the growth of good, or is it a real force that controls our world through temptations, so that in order to fight it successfully, one needs a pivot in another order of being?' (Solovyov 1988: 36) Having dealt with such a universal problem, he concludes that 'this vital question can be clearly studied and solved only in a whole metaphysical system' (*Ibid*.). In other words, according to the philosopher, it is necessary to consider the problem of evil, and consequently of war, in a philosophical way, that is, in a broader, systematic and global context, because otherwise this problem has no solution.

The subject of war and the aggressive nature of man* became again the focus of attention of globally minded intellectuals after the First World War, when the League of Nations, created under the impression of the horrors of the battle of the nations, revealed a clear inability to ensure a stable peace or at least to resist a new upsurge of militaristic sentiments. A serious impetus for reflection came from events in Germany following the popular support given to the National Socialists in the Reichstag elections of 31 July 1932. In this respect, the reaction of eminent scholars of the time to these events is of particular interest. For example, the world-famous founder of psychoanalysis Sigmund Freud took part in a discussion on the subject initiated by the famous physicist Albert Einstein: Why does the inevitability of war prevail over the human race, and why are people so easily gripped by military hysteria? In September 1932, Freud wrote

a letter to Einstein entitled 'Why War?' (Freud 1964 [1932]: 203–215) in which he discusses the innate nature of aggression, the inevitability of war, the prospects of achieving 'perpetual peace' and the reasons why this has not yet happened.

It is fundamental, according to Freud, that conflicts of interest between man and man are resolved, as a rule, by the use of violence, that is the same as in the animal kingdom, with the only difference that 'conflicts of opinion occur as well which may reach the highest pitch of abstraction and which seem to demand some other technique for their settlement' (Freud 1964: 204). At the same time, he says, we see that within the framework of a single community it is not possible to avoid the violent resolution of conflicting interests. And in his attempts to find an external force to solve this problem, he comes to the conclusion that 'all that produces ties of sentiment between man and man must serve us as war's antidote.' In this regard, he identifies a kind of connection based on feelings and created through identification. Freud writes that, 'whatever leads men to share important interests produces this community of feeling, these identifications. And the structure of human society is to a large extent based on them' (Freud 1964: 212). And then, turning to Einstein, he asks the question, 'But why do we, you and I and many another, protest so vehemently against war, instead of just accepting it as another of life's odious importunities?... It is my opinion,' he continues, 'that we rebel against war is that we cannot help doing so. We are pacifists because we are obliged to be for organic reasons... How long shall we have to wait before the rest of mankind become pacifists too? There is no telling. But it may not be Utopian to hope that these two factors, the cultural attitude and the justified dread of the consequences of a future war, may result within a measurable time in putting an end to the waging of war. But what paths or by what side-tracks this will come about we cannot guess. But one thing we can say: whatever fosters the growth of civilization works at the same time against war' (Freud 1964: 214–215). In essence, we are already reading here an implicitly formulated, but already quite definite message in the direction of a global approach to solving the problem of war and the need for the formation of planetary thinking.

However, neither of these existed at that time and, as subsequent events showed, humanity did not have the appropriate opportunities to prevent the Second World War. And its consequences, and, in particular, the invention and use of nuclear weapons, which made humanity mortal, raised the question of how to prevent war in the nuclear age and preserve life on Earth with renewed vigor and particular acuteness. Along with the politicians who were at the origins of the creation of the UN, the whole danger of nuclear self-destruction was perhaps even more clearly recognized by globally and systemically minded scientists and philosophers. They were the first to realize that humanity had entered a new era of global interdependence, and they openly and actively defended peace on the planet. Thus, in 1955, an unprecedented anti–war appeal was launched, initiated by an outstanding philosopher and a famous physicist – the Russell-Einstein Manifesto, which marked the beginning of the Pugwash movement of scientists around the world advocating scientific cooperation, peace, disarmament, international security and the prevention of nuclear war. It is noteworthy that the same anti-war position was taken by the fathers of nuclear weapons, Robert Oppenheimer in the USA and Andrei D. Sakharov in the USSR, after the unprecedented threat of the use of the new weapons they had created n a planetary scale became apparent. As a result, Oppenheimer began to defend the idea of international arms control and opposed the arms race. Sakharov was also active in the anti-war campaign and the struggle for peace.

From the late 1950s, he has advocated for the cessation of nuclear weapons testing and also contributed to the 1963 Test Ban Treaty signed in Moscow banning nuclear weapon tests in the atmosphere, in outer space and under water.

The Birth of the Global Octopus

Thus, the fundamental changes in the field of armaments and warfare in the post-war period increasingly shifted scientific thinking and, to some extent, public consciousness towards a new way of thinking based on the perception of the world community as a whole. The emergence of such a planetary worldview was also facilitated by the fact that by the middle of the twentieth century, almost all spheres and aspects of public life, both of individual countries and peoples, and of the whole world, were directly or indirectly connected with global processes. As a result, the world community has entered the era of multidimensional globalization, анв has come very closely to the milestone where the growing global processes and the global problems they generate require not only serious theoretical understanding, but also internationally agreed practical steps to overcome them.

In other words, from that time, a new reality began to take shape on a planetary scale, which with rightly be called the era of the 'birth of the global octopus.' In fact, this is exactly what the founder and first President of the Club of Rome, Aurelio Peccei, spoke about in 1977, who then wrote in his famous book *The Human Qualities*:

> The problems of demography, unemployment, the underutilization of social and economic opportunities of society, the scarcity and irrational management of resources, inefficiency, inflation, insecurity and the arms race, environmental pollution and the destruction of the biosphere, the already perceptible impact of human activity on the climate and many, many other problems are intertwined like the tentacles of a giant octopus, entangling the entire planet. The danger is so great and so real that it can only be averted and somehow rectified by the joint, coordinated efforts of all countries and peoples. But so far, despite all the warnings, no effective action has been taken to solve at least one of these problems. Meanwhile, the number of unresolved problems is growing, they are becoming more complex, their entanglement is becoming more complicated, and their 'tentacles' are squeezing the planet with increasing force (Peccei 1980: 7).

It has been 45 years since these words were spoken, but the proper interaction in terms of concrete actions on a planetary scale has not been achieved. At the same time, there has been some progress in terms of theoretical understanding of global issues. This has been expressed both in special studies, such as the reports of the Club of Rome, various UN Commissions or other structures and organizations, and in a huge number of scientific articles, monographs and popular scientific literature in the field of global studies, published in almost all the languages of the world. As a result, global issues are no longer the preserve of a narrow circle of specialists. It has become the subject of widespread discussion, reflected in the programs of political parties and firmly established in the lexicon of many politicians and public figures. The issue of globalization and its consequences has attracted the close attention of cultural figures, scientists, and educators, and has occupied a prominent place in the news and analytical material of various media. Since then, it has become quite obvious that 'the new world order will require new principles that contribute to reducing confrontation and stimulating cooperation' (Grinin 2019: 14).

Global Worldview: Background and Problems of Formation

From the foregoing, it can be said that since the second half of the twentieth century, a global worldview has begun to emerge, now not only among individuals, but also at the level of public consciousness. However, public consciousness, and this must be emphasized, has the peculiarity of being, for the most part, rather inert and dysfunctional, especially when it comes to an adequate response, especially concrete practical actions to challenges of a planetary scale. And in fact, in ordinary life, people mostly solve momentary tasks and usually reason over short distances. And only a small percentage of people, according to psychologists, can think in global categories. For example, a school psychologist with more than twenty years of experience, the head of the Laboratory of Social Psychology of St. Petersburg State University, Lyudmila Yasyukova, notes that as a result of monitoring the intellectual development of schoolchildren and students, according to her 'data and according to other researchers, less than 20 per cent of people have full-fledged conceptual thinking. These are those who have studied natural and technical sciences, who have learned the operations of identifying essential features, categorizing and establishing cause-and-effect relationships' (Yasyukova 2013). As for global thinking, without the 'ability to think logically,' that is without 'fully-fledged conceptual thinking,' it is in principle impossible, since such thinking goes far beyond the evidence and direct perception of the surrounding world, on which everyday consciousness is actually based, as well as the practice of everyday life of the absolute majority of people.

And yet, even taking into account what has been said, a change in the views on the modern world and the formation of thinking corresponding to it are not just good wishes, but the imperative of the times. This is also due to the fact that multidimensional globalization has added fundamentally new threats to all mankind to the global problems mentioned above, among which the most relevant are: climate change, international terrorism, mass migration, cybercrime and a global pandemic. All this requires both an adequate understanding of the new reality and constructive interaction at the international level, which is in principle impossible without a global outlook, that is, without access to the global level of thinking and the presence of planetary consciousness, at least for people who are empowered to make appropriate decisions.

At the heart of such a worldview lies a special view of the world in which we live, when it is perceived as a single whole, as a celestial body that is not only spherical in shape, but composed of many layers, shells that cover the surface and the bowels of our planet. The totality of all these spheres of the Earth, including the world community as a planetary phenomenon, is now called the geosphere, and the corresponding view of such a world structure should be called geospheric thinking. The origins and initial forms of such thinking can be traced back to antiquity. This is particularly evident in the fact that today almost all natural languages of various peoples of the world contain a significant number of words whose integral part is the concept of 'sphere', which has Greek roots (from the Greek σφαῖρα – ball). These include, for example, the geosphere, lithosphere, hydrosphere, atmosphere, stratosphere, biosphere, sociosphere, noosphere, etc. Another term of Latin origin – 'globe' (from the Latin globus, – ball) also means a ball. Many words are formed from it, which make up the categorical apparatus of modern global studies. Examples are: the global world, global processes, globalization, global problems, and globalistics (Mazour and Chumakov 2006), *etc*.

At the same time, although both basic concepts have similar meanings, they contain essentially different contents. Thus, the concept of 'sphere' denotes the surface of the sphere, as well as the area, the limits of the spread of something, when it is a closed surface, all points of which are equidistant from a specific point – the center of the sphere (Spirkin 1980: 492). In such words, the concept of 'sphere' carries the main semantic load, indicating the corresponding shell of the Earth, which is at the same time its component part. 'Globe' means 'a cartographic image on the surface of the sphere of the contours and the ratio of the areas of certain celestial bodies' (Mazour and Chumakov 2003: 267). In this context, there are different types of globes: geographical globes, which show the surface of the Earth; globes of the Moon and other planets or their satellites. In the same way, the model of the celestial sphere (celestial globe) has been presented since ancient times. Spherical images of the starry sky were already known in ancient Egypt, where the celestial globe first appeared, while the first ideas about the spherical shape of the Earth came later. According to Diogenes Laertius, they belong to the sixth century BC and, are associated with the ancient Greek philosopher Pythagoras, who distinguished a number as the primary basis of all things, and of the figures 'considered the most beautiful of the three-dimensional – a ball' (Diogenes 1979: 341). He was also the one who 'was the first to call the sky the universe, and the earth the sphere (although Theophrastus says that it was Parmenides, and Zeno says it was Hesiod)' (*Ibid*.: 345–346).

An even more reasonable idea of the spherical structure of the Earth was formulated in the fourth century BC. Another famous philosopher of ancient Greece, Aristotle, who, in particular, wrote: 'As for the shape of the Earth, it must necessarily be spherical' (Aristotle 1981: 338). And he gave several arguments in favor of this. So, for example, there are stars visible in the south that are not visible in the north, and the further north you go, the higher the Polar Star rises in relation to the horizon. He also observed a lunar eclipse and noticed that the shadow of the Earth falling on the Moon is always round. 'Consequently,' he concluded, 'since the Moon is eclipsed because it is obscured by the Earth, then the reason for this shape is the roundness of the Earth, and the Earth is spherical ... the body of the Earth should not only be spherical, but also small compared to the size of other stars' (*Ibid*.: 339–340).

In the third century BC, Aristarchus of Samos was already talking about the heliocentric system of the world. And the head of the Library of Alexandria, the Greek mathematician and astronomer Eratosthenes was the first to make a relatively successful attempt, for his time, to calculate the size of the Earth. As for the creation of the first globe, it was made in the second century BC by Crates of Mallus, who, on the basis of the pre-existing ideas about the spherical shape of the Earth, painted the ball in accordance with the ideas about geography that the Greeks had at that time. However, the first geographical globe that has survived to the present day was made by the German geographer Martin Boeheim in 1492. This globe, known as 'apple of the earth,' contains a world map reflecting the knowledge of Europeans about the geography of our planet at the end of the fifteenth century, including the discoveries made by the Portuguese in West Africa. However, many objects are missing, because humanity was still on the threshold of the era of Age of Discoveries.

So, what has been said above gives sufficient grounds to speak of the first signs of global thinking already in the days of ancient philosophy, without which there would have been no reasoning about the sphericity of the Earth. But it is also quite obvious

that until the end of the geographical discoveries, which made it possible to place all the continents, islands, seas and oceans of our planet on the globe, there were, of course, no ideas about the real structure of the Earth. In this context, the question naturally arises as to when people first began to perceive their planet not only in its entire geographical framework, but also in volume, that is to say, layer by layer, as if it were wrapped in different-spheres. In other words, when did they begin to understand its real structure and to think in terms of planetary spheres, that is, geospheres – concentric layers that make up the Earth, namely: from inanimate nature, biota and society?

Genesis and Expression of Geospheric Thinking

Initially, geospheric representations of inanimate, or inorganic, nature began to take shape. In 1600, the English physicist William Gilbert expressed the first ideas about the existence of the Earth's crust. Later, Gottfried Leibniz, Georges-Louis Leclerc, and Mikhail V. Lomonosov and other foreign and domestic scientists also discussed the structure of the Earth. In the first half of the last century, knowledge in this area was significantly expanded by seismology, when the structure of the subsoil was studied using special seismic equipment and appropriate technologies. In 1954, a method of deep seismic sounding was developed, which made it possible to 'illuminate' the Earth's interior to a depth of 100 km. Finally, the modern stage in the development of ideas about the structure of the Earth began quite recently – from the 1980s, and now, from the point of view of science (which, as shown above, came far from immediately), the core is located in the center of the globe. This is followed by the mantle, and above it – the crust (hard shell). 'The entire solid shell of the Earth is called the lithosphere (*i.e.*, the stone sphere). From the surface, the planet is surrounded by the hydrosphere, or seas and oceans, and the atmosphere, or air shell. In the upward direction, the atmosphere is divided into the troposphere, the stratosphere and the ionosphere, with border on space' (Kalanov N.d.). At the beginning of the twentieth century, at the suggestion of the English naturalist and oceanographer John Murray, all these spheres of the Earth received a generalized name – *geospheres*. An outstanding contribution to the concept of geospheres was also made by the Austrian geologist Eduard Suess and Vladimir I. Vernadsky, who consistently developed the doctrine of terrestrial spheres. In particular, he studied the chemical structure of the geospheres.

Since then, many other relatively autonomously developing geospheres (such as the sociosphere, technosphere, noosphere, triosphere, blogosphere, *etc*.) have been added to the basic or main geospheres (lithosphere, atmosphere, and hydrosphere). As will be shown below, ideas about the Earth's spheres began to be fixed by corresponding concepts in various languages from the nineteenth century onwards. And this became a vivid expression of the fact that since that time, and in the twentieth century, humanity has already fully mastered the format of geospheric thinking, the instrument (means of expression) of which was the language of the global (planetary) dimension. How this language was formed is shown by the history of the appearance of the corresponding terms, in which the basic element of compound words, 'sphere', is invariably present. For the sake of clarity, we will list only some of these terms and indicate the dates of their introduction in the chronological order in which they were introduced into scientific circulation.

1826. Such a review should begin with the works of the German geographer, naturalist and traveler, one of the founders of geography as an independent science,

Humboldt, since it was he who, in 1826, 'in the second edition of the Pictures of Nature, introduced the concept of *the sphere of life* (die Lebensspäre), which is identical with the concept of the biosphere,' and he was probably the 'first to consider all the living organisms of the Earth, as a single community, and not as a collection of individual species' (Shadrin 2022). As the researchers of the history of geography, Igor Krut' and Igor Zabelin, have noted in this regard, 'Humboldt was the first to blow up the old traditional boundaries of physical geography, including life in its entirety… If Humboldt had not crossed this immovable Rubicon, hardened over the centuries, the whole history of physical geography in the nineteenth and first half of the twentieth century would have been different...' (Krut and Zabelin 1988: 415).

It should also be noted that similar views were developed at that time by the outstanding French naturalist, the founder of the first evolutionary theory, Jean-Baptiste Lamarck, whose ideas were ahead of his time, but, unfortunately were not properly understood by the contemporaries. In his book 'Hydrogeology' (1802), for example, he came to the then not obvious conclusion that the Earth's crust was the result of the work of organisms, and in another philosophical work, 'Analytical System of Positive Knowledge' (1820), he predicted the imminent destruction of their habitat by people.

1859. But let us return again to Alexander von Humboldt, since it was he who, in 1859, introduced another compound term with the concept of 'sphere' – *'intellectosphere*,' by which he understood the space of human thought in its total coverage of all forms of animate and inanimate nature. It is quite obvious that this term is close in content to the concept of 'noosphere,' which will appear only seven decades later. However, this similarity is relative, since the intellectosphere is the sphere of human thought, while the noosphere is a new state of the biosphere, which will be discussed below. The name of Alexander Humboldt, who laid the foundations of climatology, can be also associated with the modern (geospheric) content of the concept of *'atmosphere.'* This word has Greek roots (ἀτμός – vapour, breath and σφαῖρα – ball), and already Aristotle, who believed that the Earth has the shape of a ball, be spherical. But since the multilayered gaseous shell of the Earth is now understood within its real limits, it has only become clear in the last hundred years or so, which is shown by the time of appearance of such terms as the troposphere, stratosphere, ionosphere, *etc.,* which are given below.

1875. In this year, the term *'biosphere'* appears, proposed by the Austrian geologist and paleontologist Eduard Suess to refer to the space on the Earth's surface where life exists. As already shown above, the introduction of this concept into scientific circulation was predetermined by the ideas of Lamarck and Humboldt on the planetary sphere of life, and Suess only had to correct the term linguistically, transforming it into the 'biosphere'. At the same time, he understood the biosphere primarily as the Earth's shell, which, in Vernadsky's works, is already considered as the result of a long evolution of the interaction of living organisms with the environment, which gave rise to the 'film of life,' the global ecosystem of the Earth, in which living organisms play the leading role in the transforming power of our planet.

In the same year, **1875**, Suess introduced another concept into scientific circulation that quickly became quite familiar – the *hydrosphere* (from other Greek yδωρ – water and σφαῖρα – ball). In his famous work '*The Face of the Earth*,' he singled out the hydrosphere as a discontinuous water shell of the planet, consisting mainly of the waters of the oceans and located between the lithosphere (the Earth's stone shell) and the atmosphere – the air shell. In 1910, Murray, mentioned above, will give a broader inter-

pretation of the hydrosphere, including the waters of rivers and lakes, the atmosphere, the cryosphere and the biosphere.

1902. Stratosphere – an 'isothermal' zone in the upper layers of the atmosphere (with a temperature that does not vary with altitude). This concept appeared in 1902, when the French meteorologist Teisserenc de Bort proposed new terms 'stratosphere' and *'troposphere'* at a meeting of the Paris Academy, which, however, did not immediately come into use. The situation began to change after 1913, when de Bort began to actively use the term troposphere to refer to the lower, then most studied layer of the atmosphere, located between the Earth's surface and the stratosphere within 8 to 15 kilometers, depending on latitude and season.

'Anthroposphere' is another term that was introduced into scientific circulation in the same year, 1902, by the Russian ethnographer and anthropologist, author of works on ethnic anthropology and anthropogenesis, the first professor of geography in Russia, Dmitry N. Anuchin. So he designated one of the spheres of the Earth, which is created or modified by people in the process of their transformative activity, thus creating a special human habitat.

1905. Pedosphere (from the Greek pedon – soil, and σφαίρα – ball) – a term that is now widely used in scientific research literature and textbooks on soil science and means 'soil cover, the Earth's soil shell. The term 'pedosphere' was first proposed in 1905 by Professor Arseny A. Yarilov of Moscow University in his monograph 'Pedology as an independent scientific discipline about the Earth.'

1910. As can be seen from the above, by the beginning of the twentieth century, a sufficient number of terms appeared that described various spheres of the Earth, which gave Murray a reason to propose, in 1910, the term *'geospheres'* as a generalizing term for such concepts. He used it to designate continuous and discontinuous spherical shells of our planet, which alternately diverge from the center of the Earth, intersect and penetrate each other, while maintaining the independence of their structures and operating principles. Moreover, all these spheres are interconnected and form a common dynamic system. As Murray wrote, 'You may even consider the whole planet as being covered with a mantle of living matter. If we allow our imagination a little more freedom, we may say that within the biosphere a sphere of reason and understanding has been born in man, and he seeks to interpret and explain the cosmos; we may call it the *psychosphere*' (Murray 1923: 136). This essentially laid the foundations for the idea of the noosphere, which will also be discussed below.

1912. The ozonosphere is the part of the Earth's atmosphere with the highest concentration of ozone, which absorbs a significant part of the Sun's ultraviolet radiation and protects life on the Earth's surface from it. The ozone layer was discovered in 1912 by the French physicists Charles Fabry and Henri Buisson through spectroscopic measurements. The term became particularly popular after 1985, when the results of Joseph Farman's research were published and scientists began to talk about a sharp drop in the concentration of ozone over the south pole of the planet and the appearance of 'ozone holes.'

1916. Lithosphere (from the Greek λίθος – stone and σφαίρα – ball, sphere) – the solid shell of the Earth. The term was proposed by the American geologist Joseph Burrell in 1916 and was originally identified with the Earth's crust; then it was established that the lithosphere almost everywhere includes the upper layer of the Earth's mantle with a thickness of several tens of kilometers.

1923. Cryosphere – a term proposed in 1923 by the Polish scientist Antoni Boleslaw Dobrowolski, means the area of distribution of the aggregate state of water at low temperatures (ice, snow, hoarfrost, and others).

1926. Ionosphere – the upper part of the Earth's atmosphere, consisting of the *mesosphere* and *thermosphere*, which is strongly ionized by exposure to cosmic radiation. The term was proposed in 1926 by the Scottish physicist Robert Watson-Watt in a letter published only in 1969.

1927. Noosphere (Greek νόος – mind and σφαῖρα – ball) – the sphere of the mind; the historical stage of the interaction between society and nature, when the rational activity of man becomes the determining factor in the development of the biosphere (in the interpretation of Vladimir I. Vernadsky). The term was introduced into scientific circulation in 1927 by the French philosopher Edouard Le Roy, who interpreted it as a 'thinking' shell formed by human consciousness. The idea of the noosphere, understood in this way, was developed in the writings of another French religious philosopher, the theologian and anthropologist Pierre Teilhard de Chardin. Then, thanks to the outstanding Russian scientist and philosopher, the founder of biogeochemistry Vladimir Vernadsky, who in the 1920s and 30s gave a natural-scientific justification for the transition of the biosphere into the noosphere, the concept of the noosphere gained particular popularity in the second half of the twentieth century. That was the time when the world community, faced with the urgent need to solve the global problems of our time, began to look for ways of harmonious interaction between nature and society.

1929. Pneumatosphere (pneumosphere) – a concept proposed in 1929 by the religious philosopher Pavel Florensky, who wrote about it in his letter to Vernadsky: 'I would like to express an idea ... about the existence in the biosphere, or perhaps on the biosphere, of what could be called the pneumatosphere, that is, the existence of a special part of the substance involved in the cycle of culture or, more precisely, the cycle of the spirit.'

The 1940s. The technosphere is the area of human technical activity, as well as the totality of man-made machines, mechanisms and all kinds of technical structures. The term has been actively circulating in scientific circles since the 1940s and 1950s as a response to the rapid development of the scientific and technological revolution, which opened up wide scope for the penetration of complex machine technology into all spheres of public life.

1951. Mesosphere – a term adopted by the Geographical and Geophysical Union in 1951 – is the layer of the atmosphere at altitudes between 40–50 and 80–90 km.

1959. Magnetosphere – the term was introduced into scientific circulation in 1959 by the American astronomer Thomas Gold, who proposed to designate the near-Earth space above the ionosphere, where the geomagnetic field exerts dominant control over the movement of gas and fast charged particles.

1961. Sociosphere – the planetary sphere of human life and activity. The concept was introduced in 1961 by the geographer, poet and director of the Earth Museum in the Moscow State University building, Yury Efremov. The term received additional recognition after 1967, when the German geographer Ernst Neef began to use it to describe the world community as a whole, as well as the natural environment mastered by man. Another term close in meaning is *ethnosphere*, used by the Russian historian and ethnologist Lev Gumilyov to denote the totality of all ethnic groups and their ethnocenoses.

1964. Biogeosphere – the term was proposed in 1964 by the Soviet geobotanist Nikolai Dylis to describe the Earth's shell, where the living matter of the planet is located and where, thanks to living organisms, solar energy is converted.

1971. Infosphere – a global infrastructure of electronic means of storing, processing and transmitting information, as well as software, relevant structures, organizations and their personnel. The term 'InfoSphere' was introduced into circulation by R. Z. Sheppard in 1971. Howevr, it became widely used after 1980, when Alvin Toffler wrote about the infosphere in his famous book *The Third Wave*.

1975. Logosphere is a philosophical category used by the Russian philosopher and cultural theorist Mikhail M. Bakhtin to describe the mental and linguistic realm of culture. And after the publication of the French structuralist Roland Barthes's '*The War of Languages*' in 1975, in which the logosphere was given special attention, the term became widely used.

1984. Semiosphere – a term introduced by the Soviet culturologist and semiotician Yury M. Lotman to designate the space, which is a condition, a necessary prerequisite for the implementation of communication and the existence of languages and their work.

1999. Blogosphere – a term proposed by Brad L. Graham in 1999 to refer to the totality of blogs, the environment that active, intelligent and writing Internet users create (and are in it).

As can be seen from the above list of 'geospheric' terms, the vast majority of them emerge in the twentieth century. And these are only most famous, while this list can be considerably expanded by many other similarly formed concepts, such as, for example, bibliosphere, exosphere, vitasphere, geobiosphere, hydrobiosphere, megabiosphere, panbiosphere, aerobiosphere, tropobiosphere, altobiosphere, parabiosphere, apobiosphere, photosphere, disphotosphere, biotechnosphere, itosphere, aquabiosphere, hypobiosphere, lithobiosphere, parabiosphere, terrabiosphere, metabiosphere and many others.

Finally, another concept – *the triosphere* – deserves special mention in the context of this conversation, since in modern global studies this term, introduced into scientific circulation in *2005,* denotes the unity and interdependence of the three main inextricably linked spheres of the Earth (inanimate, living and social) (Chumakov 2005: 159). The emergence of this concept was due to the need to expand and deepen ideas about the close interdependence, essence and dynamics of the development of global processes, as well as the urgent need for a holistic vision of the world in which we live, and the tasks of forming a planetary consciousness and worldview (Chumakov 2016: 8). The urgency of this problem was first pointed out with all certainty back in 1972 by the authors of the first report to the Club of Rome 'The Limits to Growth'. In particular, they noted that, having entered the era of planetary interdependence, most people continue to consider the individual components of a single world, without realizing that the whole is not simply the sum of its parts and that a change in one element means a change in others. Thus, the difficult situation of the world community lies precisely in the fact that a person attempting to solve the problem of survival in the global world, 'despite his considerable amount of knowledge and experience, does not understand the original causes, significance and mechanism of interaction of many of its constituent parts, and is therefore unable to develop effective countermeasures' (Meadows *et al*. 1974). This is a fairly strong argument or what has already been said about the answer to the question of why war is still an everyday occurrence in people's lives today.

Conclusion

Thus, as the above data show, the process of enlightenment of the absolute majority of people regarding the integrity of the world and the new situation in which they live today, progresses, unfortunately, much more slowly than objective circumstances require. At the same time, certain progress is being made in this respect, as shown by the dynamics of the growth of geospheric thinking. And although this still does not solve the problem as a whole, nevertheless, it retains a certain amount of optimism when it comes to the influence of reason and common sense on the appropriate behavior of people. Therefore, the main conclusion and pathos of this article can be formulated as follows: the emergence and development of geospheric thinking is the result of a long process of learning and understanding not only the real structure of our common home – planet Earth, but also ourselves, as rationally thinking beings on whom rests the responsibility for the state of affairs and the preservation of life in this home. And since, as the whole history of mankind shows, people in one way or another manifest their aggressive essence, which is permanently accompanied by war, the only hope for them is to realize the uniqueness of intelligent life on Earth and its fundamental destruction by mankind itself. From this point of view, geospheric thinking in itself cannot guarantee the complete elimination of this problem, but, which is absolutely obvious, its presence is a necessary condition for preventing war and maintaining peaceful life on the planet.

NOTE

[*] On the nature of human aggression, see Kant 1965: 2; Lorenz 2001.

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