

Georgii Ilich Sibirtsev

University of Business and Administration in Gdynia

PHILOSOPHICAL AND LEGAL PERCEPTION OF COSMOS: HISTORY AND PERSPECTIVES

Abstract: This article is considering the origins of philosophical representation of Cosmos as The Universe State and briefly tracing its totemistic preconditions, stemming from the primitive mythopoetic thinking. The author analyses the perception of cosmos in different philosophical schools, trying to demonstrate the connection between totemistic mythological attitude, stoic school, Hugo Grotius' legal theory, Konstantin Tsiolkovski's conception of „monism of the universe” and modern legal regulation of the outer space. The author considers that the international agreements on outer space could be examined as a continuation of the classical philosophical concepts of ancient Greek schools and tries to predict further development of the legal regulation in this sphere.

Key words: outer space law, definition of „Cosmos”, the stoic ethics, totemism, K. Tsiolkovsky, Moon Treaty, Outer Space Treaty, liability for outer space malicious exploration.

INTRODUCTION: UNIVERSE AS SOCIAL REFLECTION

Mankind tries to explain the descent and organization of the universe from the very first days of the civilization. This field of cognitive uncertainty seems to be one of the strongest irritants in human history. First, magic, religion and philosophy were the instruments for understanding of the world around us, only later did science appear among those cognitive systems. Talking about each and every state throughout civilization we are considering first of all particular perceptions of the universe, methods of understanding the world, but despite that, a great amount of these attitudes has much in common. Before we start to analyze the state of the art on the related topic, it is necessary to dwell upon the history of the „Cosmic” philosophy, because many modern legal concepts find their roots in

ancient traditions of the perception of the world around us. Caused by fear of *terra incognita* (lat. unknown territory) and lack of scientific knowledge, our predecessors' consciousness struggled with the inscrutable and unpredictable world of nature with all possible methods. According to Jerzy Kierul¹, the essential reaction that is triggered in a person by a reflection on the universe is what can be called „metaphysical vertigo”².

„Cosmos” is a term which has a very long history and, as I already had the boldness to state in the title of the article, perception thereof has changed significantly, from the highest law to a fragile value which needs to be protected, using lawful measures. First definitions appeared in ancient Greece, but first attempts of the universe understanding were made many centuries before the Greek civilization. With the emergence of the first states in the Middle East, totemistic ideas about nature acquired a certain social objectification. Thus, „the Mesopotamian civilization interpreted the universe as a state. [...] This interpretation was based on the primitive democracy”³.

The Mesopotamian space state concept included the entire existing world, „everything that could be thought of as really existing: people, animals, inanimate objects, natural phenomena, as well as concepts such as justice, righteousness, etc”⁴. Roughly the same idea of kinship, if not identification of the universe with the state, headed by the Pharaoh, is seen in ancient Egyptian culture; hence the sacred figure of the king in ancient Asian monarchies, which most often was the personification of the whole world and the Sun, as well as a specific year. Unfortunately, there are not enough relevant written sources on the Minoan civilization. The available expanded texts of the linear „B” scripts are, as a rule, bureaucratic and economic in nature⁵. But it seems that similar views about the identification of the cosmos and the state could have taken place in the states of the Aegean region at that time. After all, we should not forget about the Middle Eastern genesis of the Minoan culture and the constant ideological influence on the inhabitants of Mycenaean cities by the people of the Eastern Mediterranean⁶.

¹ J. Kierul, *Ład świata. Od kosmosu Arystotelesa do Wszechświata Wielkiego Wybuchu*, pub. PIW, Warszawa 2007, p. 9–12.

² <https://www.ancient-origins.net/unexplained-phenomena/ancient-spaceflight-0010517> (dostęp: 07.08.2021).

³ O.M. Freidenberg, *Миф и литература древности* [Mif i literatura drevnosti], Moscow, pub. Science, p.30.

⁴ O.M. Freidenberg, *Миф и литература древности* [Mif i literatura drevnosti], Moscow, pub. Science, p.30.

⁵ F. Shcherbakov, *Метафора космоса – как полиса в стоическом учении и его этико-коммуникативные следствия* [Metafora kosmosa–kak–polisa v stoicheskom uchenii i ego etiko-kommunikativnye sledstviia], Philosophy, p.10.

⁶ F. Shcherbakov, *Метафора космоса – как полиса в стоическом учении и его этико-коммуникативные следствия* [Metafora kosmosa–kak–polisa v stoicheskom uchenii i ego etiko-kommunikativnye sledstviia], Philosophy, p.10.

However, with the beginning of the archaic era, with the process of colonization and the growth and appearance of new Greek poleis, a tendency immediately appeared of „rhythmisation” of social life⁷, associated with cosmic-natural universal laws. In this, again, one can see a trace of primitive ideas about the whole collective of people and the entire nature, and about a certain „first body” that gave life to everything that exists, for the benefit of which it is necessary to work⁸. The result of this attitude to nature was the emergence of Athenian democracy. It assumed that every free citizen is as good and full of ἀρεταί (greek „virtue”) as any other, so everyone could become a participant in making important social decisions.

The magic and mythology as a cognitive system created on the one hand a primitive picture of the world, but on the another hand, this picture has a complete and comprehensive character. Sensations and fears of the subject were reflected in the created system, the main rule for the world order being the will of god (for mythology) and will of human being (for magical practices). For many societies, the universe was filled with unbroken laws (for instance the Romanian concept of „*Pax deorum*”⁹ or the Stoic concept of „Cosmopolis”) which should not be changed and, what is more important, can not be measured. These concepts developed from the prehistoric totemistic traditions of connection of external world with internal actions of social members, describing the world as a mechanism balancing between the order and chaos.

O.M. Freidenberg names two features of primeval thinking – the understanding of plurality through singularity and the identification of the human collective with visible nature. „The cognized world, and the person who comprehends, it are merged. Human shades are not recognized; everything human is represented by the external world. The outside world is presented in the form of people”¹⁰. This leads to such well-known phenomenon as anthropomorphization of society, animals, the Universe and nature as a whole, implying the notion (but not yet a philosophical idea) of the total kinship of living beings, of their connectedness, in which the human world, fauna and flora have not yet been divided into the hierarchically arranged niches of being recognizable to us. „All natural phenomena – organic, inorganic and abstract – had the same essence”¹¹. Black is not opposed to white, but the entire universe is a certain spectrum in which one color

⁷ F.O. Shelling, *Философия искусства* [Filosofia iskusstva], Moscow, pub. Thought, 1999, p. 37.

⁸ F.O. Shelling, *Философия искусства* [Filosofia iskusstva], Moscow, pub. Thought, 1999, p. 38.

⁹ *Pax*, though usually translated into English as peace, „was a compact, bargain or agreement. In religious usage, the harmony or accord between the divine and human was the *pax deorum* or *pax divom* (”the peace of the gods” or ”divine peace”).

¹⁰ O.M. Freidenberg, *Миф и литература древности* [Mif i literatura drevnosti], Moscow, Science, 1978, p. 14.

¹¹ F. Shcherbakov, *Метафора космоса – как полиса в стоическом учении и его этико-коммуникативные следствия* [Metafora kosmosa–kak polisa v stoichceskom uchenii i ego etiko-kommunikativnye sledstviia], Philosophy, p.13.

passes into another without a clear border between them; in which, in fact, one color can turn into another under the influence of certain conditions”.

Stoic metaphorisation of the Cosmos – as – Polis, was, in a sense, a justified and even inevitable phenomenon. Striving to reconstruct the world outlook of people of the archaic era, to comprehend its rituals, myths and those facts of material culture that have come down to our time, one can see that the world was perceived by ancient man as undivided, imaginative, anti-causal, but at the same time sensual and specific. In spite of the fact that those first steps in understanding the surrounding world were mostly ineffective, sometimes our ancestors managed to achieve a surprisingly thorough insight. For example, the theory of atomism (connected usually with the name of Democritus) is one of the classic examples of the effectiveness of the Greek philosophers’ observation method. Ancient Greeks are credited with many early advancements in the cosmic science, which later influenced the western civilization. Aristarchus of Samos proposed an essentially heliocentric cosmology millennia before Copernicus¹².

Socrates was quite accurate on his perception of the cosmos. He stated that by reason of feebleness and sluggishness, we are unable to attain to the upper surface of the air; if anyone should come to the top of the air or should get wings and fly up, he could lift his head above it and see, as fishes lift their heads out of the water and see the things in our world, so he would see things in that upper world; and, if his nature were strong enough to bear the sight, he would recognize the real heaven, the real light and the real Earth¹³.

The way cosmos was perceived, was at some point a special kind of social authentication directed from one to itself and from another point to the external world. One of the latest forms of such „mutual” perception of the universe (more elaborate and developed) can be found in works of K. Tsiolkovsky, G. Leibniz, or C. Jung. One of the latest concepts of the totemistic world perception could be named „Panpsychism”. This explanation of the concept could be found in works of K. Tsiolkovsky, who presents an idealistic view of the universal animations of nature. Historical forms of panpsychism were divergent: from animism of primitive beliefs to developed idealistic teachings about the soul and mental activity as the true essence of the world (the concept of the monad by G. Leibniz, criticised by inter alia B. Russell¹⁴).

¹² C. Strom, *Was Socrates in Space? A Question of Ancient Spaceflight*, <https://www.ancient-origins.net/unexplained-phenomena/ancient-spaceflight-0010517> (dostęp: 07.08.2021).

¹³ F. Shcherbakov, *Метафора космоса – как полиса в стоическом учении и его этико-коммуникативные следствия* [Metafora kosmosa–kak polisa v stoichceskom uchenii i ego etiko-kommunikativnye sledstviia], Philosophy, p.13.

¹⁴ „The Monadology was a kind of fantastic fairy tale, coherent perhaps, but wholly arbitrary”. Cf. Introduction to B. Russell, *A Critical Exposition of the Philosophy of Leibniz*, Allen Unwin, 2nd ed., London 1937. Cited after: Stanford Encyclopaedia of Philosophy, <https://plato.stanford.edu/entries/leibniz/> [Access: 15 October 2021]

K.E. Tsiolkovsky is an important figure in the Russian cosmism philosophy; he is the only thinker who called his humanitarian philosophy „cosmic”. In his teaching, he considered many disciplines: ontology, epistemology, anthropology, theory of technology, theory of society¹⁵. The dominants of Russian cosmism, both in general and in Tsiolkovsky’s teachings, include the following ideas: monism (the unity of the world and man in many manifestations of this unity); eternity of life in the universe in its various forms; evolutionism (evolution of spiritual substances, man, nature, society); coherence of man with space (self-renewal, autonomy in matters of physiological existence, immortality); expansion of human consciousness by combining historically and traditionally divided spheres of social consciousness; harmony of man and technology in technogenic variants of social theories; recognition of human society as a factor and phenomenon of a cosmic scale.

K. Tsiolkovsky put forward the following theory: the physical world consists of atoms that have a potential psychic sensitivity; the atom is immortal, lives the life of its specific appearance, travels from body to body with the help of the exchange of matter in nature¹⁶ and the presence of an atom (with a constant change of bodies) in the composition of increasingly highly developed intelligent creatures to ensure a full-fledged conscious life in the human body.

HISTORY OF THE DEFINITION

The definition of „cosmos” (gr. κόσμος – the Universe) was first used in everyday life in the sense of any order, for example, in the sense of „smartness, beauty, moral dignity or education”. Shame and justice, according to Protagoras, are the „cosmos”¹⁷, that is, the decoration of the state. According to Democritus, „cosmos” is a state order, which is opposed to disorder, acosmia. The pre-Socratics used the term “cosmos” in the sense of „the world seed”. Democritus called the „cosmos” a set of order consisting of bonds of atoms. Therefore, a person is called a „small cosmos” by him. Pythagoras was the first to use the term „cosmos” to refer to the world as a whole. For Philolaus, the term „cosmos” denoted the limited extent and order of the world as a whole, organized on the principle of harmony. The term „cosmogony” is first suggested by Plutarch. As for the essential difference between the concepts of „cosmos” and „chaos”, it is characteristic of Hesiod in his „Theogony”¹⁸.

¹⁵ K. Tsiolkovsky, *Очерки о вселенной* [Ocherki o vseleynnoy], Moscow, pub. Aleteya, 1999, p. 45.

¹⁶ K. Tsiolkovsky, *Очерки о вселенной* [Ocherki o vseleynnoy], Moscow, pub. Aleteya, 1999, p. 46.

¹⁷ A. Lebedev, *Логос Гераклита: реконструкция мысли и слова* [Logos Geraklita: rekonstruktsiia mysli i slova], Saint-Petersburg, Science, 2014. p.120.

¹⁸ *Древнегреческие философы о космосе, как основе мировой жизни* [Drevnegrecheskie filosofy o kosmose, kak osnove mirovoi zhizni] https://studwood.ru/974136/filosofiya/drevnegrecheskie_filosofy_kosmose_osnove_mirovoy_zhizni (dostęp: 07.08.2021).

The primary ancient cosmos was represented by a spatially finite body. Even Aristotle denies the infinity of the cosmos on the grounds that man could not perceive any infinite body at all, since every body actually perceived by man is always finite, that is, it is the most ordinary, even if the most enormous, quantity. In the sense of time, the ancient cosmos is also finite. However, it can be destroyed and created. The creation of a new cosmos is nothing but a reproduction of the former cosmos. The ancient cosmos thus exists outside of time. It is absolutely not progressive, and no matter what changes occur in it, in the last analysis it is always the same, not only limited in space, but also in time, not allowing any progress whatsoever. The cosmos in such a representation is always given to a person visually in the form of a „picture” and sensually perceptible¹⁹.

Homer uses the most subtle and vividly honed geometric representations. The vision on the basis of which Homer builds his cosmos is clear and distinct. His cosmos is an all-in-one living space. This vitality is also characteristic of all parts of the cosmos. In the Homeric cosmos, everything creates its own will, but this will serves to achieve one or another cosmic goal. Everything exists and acts decisively in everything. Every object in Homer’s cosmos is therefore wonderful, and every hero is therefore superhuman, because they create one universal goal and reflect in themselves one universe, that is, one rational cosmic will. Homer’s rational teleology of the cosmos and his extra-rational spontaneous uncertainty are combined into one system²⁰.

The identification of the universal mind and the universal destiny is nothing but an ultimate, universal cosmic phenomenon. This identity of the cosmic mind and the cosmic destiny follows by itself from the basic ancient intuition. The cosmos is beautiful, but this is the result not only of its universal intelligence, but also of its fatal destiny. Today it may be beautiful, but tomorrow it may fall apart and become ugly. And all this is also fine, legit, self-evident and natural. The teleology of the cosmos and its fatalism are the same thing for Homer²¹.

The cosmos in the period of the early ancient classics does not deny gods, demons and heroes, but uses them only attributively, so that the cosmos itself is interpreted not in its absolute reality, but in its predominantly objective reality. The myth is gradually losing its humanoid basis. There is an idea of the elements, that is, of what is seen and heard, and even quite animate, quite vital, but no longer human-like. This was the moment of birth of a philosophical theory that arose as the doctrine of the elements and the information of the cosmos on the life of these elements.

¹⁹ Aristoteles, *Сочинения*, [Sochineniia], Moscow, pub. Thought, 1976, p. 84.

²⁰ F.O. Shelling, *Философия искусства* [Filosofia iskusstva], Moscow, pub. Thought, 1999, p. 120.

²¹ K. M. Vogt, *Law, Reason, and the Cosmic City. Political Philosophy in the Early Stoa*, pub. Oxford: University Press, 2008, p. 15.

Among the primary elements there are: earth, water, air, fire, and ether. According to Empedocles, all the elements are combined into a single cosmos. The primary element is water – for Thales, air – for Anaximenes, fire – for Heraclitus. The cosmos continues to be thought of as something alive and many philosophers talk about the breathing of the cosmos. According to Empedocles, the breath passes through the whole world like a soul. According to Philolaus, the cosmos is also permeated through and through by the „breath of nature”²². Life was thought of so intensely that it was definitely characterized as an immortal soul that continues to live even after the death of the body. Having lost its humanity, the cosmos has turned into an active, creative, dynamic structure of the universe. Dynamically directed Pythagorean numbers appear in the minds of philosophers of the early classical period. This was also the logos of Heraclitus. This was the thinking of Diogenes of Apollonia, represented in the form of air²³.

The principle of the actual structural design of the cosmos – numbers, logos, thinking process, geometrically correct bodies – created such a picture of the eternal struggling of the elements, in which the cosmos was no longer any different from chaos and which, at most, led only to an eternal change from chaos to cosmos and from cosmos to chaos. Parmenides said that only thanks to the cosmic order, existence can neither disperse nor unite. According to Heraclitus, without the formalising principle, the most beautiful cosmos would have turned into a pile of garbage²⁴. Therefore, the goal of human life is nothing more than the contemplation of the order of the cosmos (Anaxagoras)²⁵.

Pythagoras was the first to call the „circle of everything” as the cosmos because of its ordering²⁶. The Pythagoreans had the idea of the dependence of the globularity of the cosmos on the mind, the imitation of which the cosmos is. In fact, there was already a dialectic of the cosmos lying here, which appeared in a developed form only according to Plato. Namely, that the cosmic mind surveys the entire cosmos at once and instantly, immediately returning to the point from which it begins to consider the cosmos. This circumstance also makes the entire cosmic region return to its shape, that is, spherical²⁷.

²² E. Tseller, *Очерк истории греческой философии* [Ocherk istorii grecheskoi filosofii], Saint-Petersburg, pub. Aleteya, 1996, p. 20.

²³ E. Tseller, *Очерк истории греческой философии* [Ocherk istorii grecheskoi filosofii], Saint-Petersburg, pub. Aleteya, 1996, p. 20.

²⁴ G.E.R. Lloyd, *Polarity and Analogy. Two types of argumentation in early Greek thought*, pub. Cambridge, University Press, 1966, p. 13.

²⁵ E.D. Sylla, *Natural philosophy, medieval*, Routledge Encyclopedia of Philosophy, 1998, p. 5.

²⁶ E.D. Sylla, *Natural philosophy, medieval*, Routledge Encyclopedia of Philosophy, 1998, p. 5..

²⁷ *Древнегреческие философы о космосе, как основе мировой жизни* [Drevnegrecheskie filosofy o kosmose, kak osnove mirovoi zhizni] https://studwood.ru/974136/filosofiya/drevnegrecheskie_filosofy_kosmose_osnove_mirovoy_zhizni (dostęp: 07.08.2021).

According to Empedocles, the shape of the cosmos is ovoid²⁸. Anaximander also thinks of the Earth as rounded, curved, like a segment of a stone column or a cylinder. Ferekid has an image of the cosmos in the form of a cave. The authorship of this widespread image is also attributed, most often to Plato, however Porphyry attributes it to Pythagoras. In addition to geometric figurativeness, the cosmos was also understood with the help of such a powerful category as a „vortex”²⁹. The cosmic force of Enmity, according to Empedocles, exists in the form of „vortices of the ether”, which throws an evil demon into a constantly rotating circle of mutually transitive elements. Empedocles' vortex is a cosmic abyss that is in constant motion. The nature of this movement changes to the opposite depending on what is in the center of the cosmos – Friendship or Enmity, so that in the central position of Friendship, the vortex acts centripetally, contributing to the formation of integrity, and in the central position of Enmity, the vortex acts centrifugal, destroying this integrity of the cosmos³⁰. Thus, in the cosmic plane, the vortex occupies a position even more primary than Friendship and Enmity. The category of the vortex was especially important for the atomist Democritus. Everything „happens out of necessity, and the cause of all things is a vortex”. The vortex for atomists is only a picture of the movement of atoms, but not their real movement³¹.

Giving a visual picture of the cosmos, the philosophers of the early classics actively use the concept of the infinite. From the action of the limit principle, the cosmos itself and all its constituent parts, outlined against an infinite background. According to Leucippus, the cosmos is a segment of the infinite, and therefore there can be an infinite number of cosmoses.

Pythagoreanism, which developed in the field of the dialectic of numbers and figures, is the basis, the predecessor of Platonism. The discovery of ultimate generalities, or categories, was carried out by Socrates. This was the beginning of a critical conceptual analysis of the cosmos, replacing its intuitive descriptive forms, and of the logical dismemberment and dialectical reunion of the dismembered elements. The cosmos received a new characteristic, developed primarily by Plato. Platonic community also has its own materiality, corporeality, but only not of a sensual nature, but purely semantic, purely mental. The difference between the intelligible cosmos, according to Plato, from the sensual one lies only in the

²⁸ Древнегреческие философы о космосе, как основе мировой жизни [Drevnegrecheskie filosofy o kosmose, kak osnove mirovoi zhizni] https://studwood.ru/974136/filosofiya/drevnegrecheskie_filosofy_kosmose_osnove_mirovoy_zhizni (dostęp: 07.08.2021).

²⁹ Древнегреческие философы о космосе, как основе мировой жизни [Drevnegrecheskie filosofy o kosmose, kak osnove mirovoi zhizni] https://studwood.ru/974136/filosofiya/drevnegrecheskie_filosofy_kosmose_osnove_mirovoy_zhizni (dostęp: 07.08.2021).

³⁰ T.V. Vasilieva, *Поэтика античной философии* [Poetika antichnoi filosofii]. Moscow, pub. Academic Project; Triksta, 2008, p. 10.

³¹ T.V. Vasilieva, *Поэтика античной философии* [Poetika antichnoi filosofii]. Moscow, pub. Academic Project; Triksta, 2008, p. 10.

fact that its cosmos has brighter sensual colors, in their much more beautiful arrangement and in the absence of any obscuring moments and any earthly imperfections³².

Plato's Eidos (idea, form) acts as a parent, and matter as a mother, and real things are the product of Eidos and matter. This idea is most stable in antiquity; even according to Plotinus the primary generative principle is characterized as the „father”, the intelligible cosmos as the „son” and the sensory cosmos as further products of the intelligible cosmos. This is the initial intuition of the entire ancient worldview.

Very quickly, the early Greek thinkers came to the realisation of this possibility – the conceptualisation of the whole world through a metaphor. J.E.R. Lloyd³³ identifies three central metaphorical models within which the cosmos was conceptualized:

- sociomorphic (where cosmos is polis);
- technomorphic (where cosmos is craft, art);
- biomorphic (where cosmos is a living being; an entity, a person).

The idea of Cosmopolis (cosmos as a polis, which usually interpreted as a stoic concept) is explicitly expressed by the cynic Diogenes of Sinope, who was the first to call himself a citizen of the world, answering the question „where is he from?”³⁴, although he used this expression in a completely different sense than his closest disciple Zeno. Cosmopolitanism in the cynical sense is a refusal to obey precisely the norms, customs and laws of a polis society. The Russian researcher V. V. Brovkin also believes that the ethics of Stoics was inconsistent and contradictory, because it contained two completely incongruous tendencies: radical – cosmopolitan and protective – conservative³⁵.

Protective – conservative attitude of the Stoic school has great influence on the concept of Hugo Grotius *Mare Liberum*³⁶. This concept, in turn, inspired contemporary regulation of the outer space, which is guaranteed by all modern legal acts.

³² T.V. Vasilieva, *Поэтика античной философии* [Poetika antichnoi filosofii]. Moscow, pub. Academic Project; Triksa, 2008, p. 10.

³³ G.E.R. Lloyd, *Polarity and Analogy. Two types of argumentation in early Greek thought*, pub. Cambridge, University Press, 1966, p. 16.

³⁴ O.M. Freidenberg, *Миф и литература древности* [Mif i literatura drevnosti], Moscow, Science, 1978, p. 23.

³⁵ V.V. Brovkin, Ранние стоики: космополитическая доктрина и политическая практика [Rannie stoiki: kosmopoliticheskaia doktrina i politicheskaia praktika], „Vestn. Novosib. gos. un-ta. Serii: Filosofii”, 2014/3, p.155.

³⁶ For instance, M. Polentz, speaking about the nature and ethical consequences of this teaching, also notes: "This picture of the world was anthropocentric and retained its religious significance both for the Stoic and for the Middle Ages" – M. Polentz, *Стоя. История философского движения*. [Stoia. Istoriia dukhovnogo dvizheniia], Saint-Petersburg, pub. Quadrivium, p. 32.

MODERN REGULATION OF THE COSMIC SPACE

Existent international legal system brings together many legal acts dedicated to the regulation of the outer space exploration and usage. We can name such documents as:

1. The Moon treaty (Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 1979);
2. The Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967);
3. Convention on International Liability for Damage Caused by Space Objects (Space Liability Convention 1972) etc.

The exploration and use of outer space inevitably inclines the international community to the need to define common principles, rules and mechanisms for this activity. Cosmos and objects of outer space were declared as a value, as an object of preserve. Hence, we can see a lot of similarities in the cosmic space regulation and regulations on natural resources and objects of nature (most of all – the law of the sea).

As we know, the concept of free seas, which originates in the XVII century, eventually took a dominant position and now forms the basis for the study and use of the oceans. It should be noted that one can find quite a lot of similar mechanisms in the legal regulation of maritime and outer space, for example, their fixed extraterritorial status. The regulation of the outer space experienced some influences of the philosophical concepts which were mentioned above. In the context of the increasing presence of humanity in space, it is possible to hear a statement about the need to expand the jurisdiction of the state over outer space objects (lat. *Astra Clausum*, understood as the concept of „closed” space). On the other hand, despite such discussions, the concept of „free” space remains dominant. It is safe to say that *Astra Clausum* vs. *Astra Liberum*, represent two key approaches, which are at the same time a kind of social contract regarding the presence of man in space. This discussion can also be considered in the context of competition of concepts: that of the consolidated sea by Hugo Grotius, better known as *Mare Liberum*, with the concept of the closed sea by John Seldon (lat. *Mare Clausum*)³⁷.

Regardless of the fact that many international documents are dedicated to exploration and use of the outer space, none of them provided criminal responsibility of natural persons for outer space exploration regulation infringement. The Moon Treaty (Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 1979) provides some very important guarantees:

³⁷ A more detailed review of the concepts of *Astra Clausum* and *Astra Liberum* can be found in relevant articles of Dr. P. Chyc.

- it provides a framework of laws to establish an international cooperation regime, including appropriate procedures, to govern the responsible exploitation of natural resources of the Moon. (Article 11.5);
- it forbids any military use of celestial bodies, including weapon testing, nuclear weapons in orbit, or military bases. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. (Article 3.4).
- it forbids altering the environmental balance of celestial bodies and requires that states take measures to prevent accidental contamination of the environments of celestial bodies, including Earth. (Article 7.1);

The Outer Space Treaty, formally the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967), also provides system of outer space usage and exploration guarantees. The treaty explicitly forbids any government from claiming a celestial body such as the Moon or a planet. Article II of the treaty states that „outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”. However, the state that launches a space object retains jurisdiction and control over that object.

The state is also liable for damages caused by its space object. As for national legislations – none of the countries expands criminal liability for their citizens in these cases. Superficial analysis already shows that at the moment only the general rules for the use of outer space, which form the basis of its international legal regime, have been settled. However, the principles of freedom and prohibition of the appropriation of outer space in modern realities raise more and more questions, requiring particularly detailed regulation.

For many years, natural persons and private entities had been excluded from outer space exploration, however times has changed strongly. The Outer Space Treaty does not consider natural persons' participation in space exploration. This fact is used by the United States, unequivocally claiming that, in its current form, the prohibition on the appropriation of celestial bodies and their resources applies only to states³⁸, and not to private entities involved in space exploration.

Secondly, the problem of regulating the use of space minerals for commercial purposes should also be noted. Since international legal acts contain norms exclusively on the possibility of using natural space resources for scientific research, while limiting themselves to the general standards contained in the Outer Space Treaty, as well as in the Agreement on the Activities of States on the Moon and Other Celestial Bodies, the possibility of using minerals in any commercial activity remains unresolved.

It should also be emphasized that the Agreement on the Activities of States on the Moon and Other Celestial Bodies concluded within the framework of the UN on

³⁸ This analysis of this concept was precisely considered in relevant articles of dr. P. Chyc.

December 18, 1979 (the Moon Treaty) considers the Moon and its natural resources to be the common heritage of mankind, which restricts the freedom of its use by establishing state sovereignty on part of its territory, and also provides for the principle of international control over the use of natural resources of the Moon³⁹.

The concept of the world unity finds its apogee in these international documents. If everyone has the same amount of rights to the outer space then no-one could become its owner. As stoic concepts of the world and universe were based on the assumption that elements of the world could not be considered as someone's property (natural person could only possess them for short period of time), the Outer Space Treaty (and the Moon Treaty) creates the system where none of the celestial bodies could become a property of any state.

Due to the level of technical progress, these documents could not predict the possibility of private persons to become participants of the outer space exploration activity. Hence, worthy of greater attention is the problem of the „lack of the responsibility” in the legal regulation of the outer space exploration. For the time being, natural persons are „excluded” from legal liability for the cosmic pollution or usage of space for military goals (or maybe it is more appropriate to say that their actions are indifferent for the existing legal system). But given the growing participation of private subjects in outer space – related activity, there is urgent need to tackle this problem. Currently, no country provides criminal liability for malicious activity during the outer space exploration or usage.

Taking necessary action seems inevitable. Right now only states are subjects responsible for all space objects that are launched within their territory. This means that regardless of who launches the space object, if it was launched from a state territory, or from state facility, then that state is fully liable for damages that result from that space object. Claims could be provided only between a state and against a state.

The Convention on International Liability for Damage Caused by Space Objects, also known as the Space Liability Convention does not provide any possibility for natural persons to become liable for economical, organizational or scientific activity. In order to complete the above brief analysis of contemporary legal international regulation of the exploration and usage of the outer space, mention should be made that provisions of these legal acts create a system of declaratory rules which are paradoxically very similar to the ancient Greek school of Stoic principles of the human being in constant interaction with the entire world. Hence the problem of lack of precise rules – a philosophical concept requires much less specification, but the absence of particular legal norms creates major gaps in the legal system.

Changes made exclusively in international legal documents will not be sufficient. State liability is obviously not adequate given contemporary technical de-

³⁹ https://www.un.org/ru/documents/decl_conv/conventions/moon_agreement.shtml (dostęp: 07.08.2021).

velopment and suitable changes on the national levels would be also necessary. The current situation when a state is the only subject of regulation as regards liability for actions of its citizens in outer space can not be considered as a logic or sufficient from two points of view.

Firstly, the real perpetrators should be brought to justice in case of violations. For example, a natural person capable of outer space exploration activities (for example mining and mineral extraction on the celestial bodies) in case such activity causes irreversible damage of the unique nature of space objects (which constitute the common heritage of mankind) will not bear any other responsibility except civil sanctions, which, it is submitted, cannot be considered as adequate guarantee, while legislations do provide for criminal liability for individuals for environmental crimes. Secondly, there is a possibility that individuals if freed from liability will become avid accomplices of unscrupulous states in malicious space exploration.

CONCLUSIONS

Existent regulation of outer space exploration seen as continuation of Tsiolkovski's theory of „monism” and the stoic's concept of „Cosmopolis” could not be considered as sufficient. High level of social value of the celestial bodies and outer space has not been reflected in adequate legislative guaranties. This situation will inevitably pave way for the changes not only of content in some international agreements, but, as has already been mentioned, it determines appropriate changes in civilized legal systems and – primarily – in adequate criminal law regulations. But, as stated at the outset – the perception of cosmos is a typical reflection of a society by its members. Current legislation creates the possibility for outer space rivalry among states and that is what we should be aware of.

As mentioned above, the perception of cosmos has changed throughout centuries. We are facing a new era of outer space regulation – the time when private persons are starting to become participants of outer space exploration. From the theoretical perspective, this has already been predicted by Greek philosophers (and even analyzed by them in a certain way) in the concepts of Fate according to Homer, the Stoic idea of Cosmopolis, and animistic traditions' concepts, which – I contend – could inspire new generation of legislative acts in the field of outer space exploration.

In this article I tried to demonstrate the kinship of modern legislative principles with some philosophical traditions, as far as existing law was formed with the influence of many concepts and ideas. Hence, I suggest that sometimes to understand the direction of our development we need to refer to our past; otherwise we will never reach the desired goals. The effectiveness of the cosmic regulation depends on what type of our social reflection will we see in the outer space.

BIBLIOGRAPHY

- A.V. Lebedev, *Греческая философия как реформа* [Grecheskaia filosofiia kak reforma iazyka], *Materialy mezhdunarodnoi konferentsii* [Indo-European Linguistics and Classical Philology – XIV (Readings in Memory of Prof. I.M. Tronsky): Materials of an international conference]. Saint-Petersburg, 2009
- A. Lebedev, *Логос Гераклита: реконструкция мысли и слова* [Logos Geraklita: rekonstruktsiia mysli i slova], Saint-Petersburg, Science, 2014.
- A.A. Stoliarov, *Стоя и стоицизм* [Stoia i stoitsizm]. Moscow, pub. KAMI GRUP, 1995.
- A.A. Stolyarova, *Фрагменты ранних стоиков. Том 1: Зенон и его ученики* [Fragmenty rannikh stoikov. Tom I: Zenon i ego ucheniki], Moscow, pub. GLK, 1998.
- Aristoteles, *Сочинения*, [Sochineniia], Moscow, Thought, T. 1 – 1976.
- G.A. Taronyan, *Беседы Эпиктета* [Besedy Epikteta] / Moscow, pub. Ladomir, 1997.
- V.V. Brovkin, *Ранние стоики: космополитическая доктрина и политическая практика* [Rannie stoiki: kosmopoliticheskaia doktrina i politicheskaia praktika], „Vestn. Novosib. gos. un-ta. Serii: Filosofiia”, 2014/3.
- C. Strom, *Was Socrates in Space? A Question of Ancient Spaceflight*, <https://www.ancient-origins.net/unexplained-phenomena/ancient-spaceflight-0010517> (dostęp: 07.08.2021);
- Древнегреческие философы о космосе, как основе мировой жизни* [Drevnegrecheskie filosofi o kosmose, kak osnove mirovoi zhizni] https://studwood.ru/974136/filosofiya/drevnegrecheskie_filosofi_kosmose_osnove_mirovoy_zhizni (dostęp: 07.08.2021);
- E.M. Meletinskii, *Поэтика мифа* [Poetika mifa]. Moscow, pub. Academic Project, 2012.
- E. Tseller, *Очерк истории греческой философии* [Ocherk istorii grecheskoi filosofii], Saint-Petersburg, pub. Aleteya, 1996.
- F. Shcherbakov, *Метафора космоса – как полиса в стоическом учении и его этико-коммуникативные следствия* [Metafora kosmosa–kak polisa v stoichceskom uchenii i ego etiko-kommunikativnye sledstviia], Philosophy
- F.O. Shelling, *Философия искусства* [Filosofiia iskusstva], Moscow, pub. Thought, 1999.
- I. Ramelli, *The Philosophical Stance of Allegory in Stoicism and its Reception in Platonism, Pagan and Christian: Origen in Dialogue with the Stoics and Plato*, *International Journal of the Classical Tradition*, 2011, Vol. 18
- B. Russell, *A Critical Exposition of the Philosophy of Leibniz*, Allen & Unwin, 2nd ed., London 1937
- G. Frankfort, G.A. Frankfort, Dzh.A. Uilson, T. Iakobsen, *Духовные искания древнего человека в преддверии философии* [Dukhovnye iskaniiia drevnego cheloveka: v preddverii filosofii], Saint-Petersburg, pub. Amphora, 2016.
- E.R. Lloyd, *Polarity and Analogy. Two types of argumentation in early Greek thought*, pub. Cambridge, University Press, 1966.
- J. Kierul, *Ład świata. Od kosmosu Arystotelesa do Wszechświata Wielkiego Wybuchu*, PIW, Warszawa 2007.
- K. Tsyolkovski, *Очерки о вселенной* [Ocherki o vselennyi], Moscow, pub. Aleteya, 1999.
- K.M. Vogt, *Law, Reason, and the Cosmic City. Political Philosophy in the Early Stoa*, Oxford, University Press, 2008.
- L.A. Freiberg, *Древнегреческая литературная критика* [Drevnegrecheskaia literaturnaia kritika], Moscow, pub. Science, 1975.

- M. Polents, *Стоя. История философского движения*. [Stoia. Istoriia dukhovnogo dvizheniia], Saint-Petersburg, pub. Quadrivium, 1040 p.;
- O.M. Freidenberg, *Миф и литература древности* [Mif i literatura drevnosti], Moscow, pub. Science, 605 p.;
- T.V. Vasilieva, *Поэтика античной философии* [Poetika antichnoi filosofii]. Moscow, pub. Academic Project; Triksta, 2008.

LEGAL ACTS

- The Moon treaty (Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 1979);
- The Outer Space Treaty, formally the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967);
- Convention on International Liability for Damage Caused by Space Objects, also known as the Space Liability Convention (1972).