Section Three
COSMOS AND HISTORY

Anthropological Aspect of Charles Sanders Peirce's Metaphysical Cosmology

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The article demonstrates how Charles Sanders Peirce built cosmological ideas based on the analysis of the specifics of a human being. It is proved that the possibility of a certain degree of anthropocentrism in Peirce's cosmological conception was laid down in the categorical system, including the level of the Firstness, Secondness, and Thirdness. It is shown why according to his scientific metaphysics, for everyone, the concept that corresponds to human nature is more true than other ones, as well as why a person instinctively feels the truth. This situation is possible because the laws of thought are formulated in accordance with the laws of nature. Human nature reflects what is in the world. Thus, through self-knowledge, a person also discovers reality itself as a dynamic universe in which the physical and

the mental, the real and the ideal are subject to the same laws (habits-regularities). However, human beings do not know all of them, but only those that correspond to the level of their understanding and interests. Subsequently, science and technology are built on the basis of individuals' own intentions. Human beings realize that the universe is boundless and not everything they are able to understand and justify. This makes fallibilism inevitable. It is analyzed how to solve the difficulties of fallibilism; Peirce proposed to use the concept of practical certainty as a basic criterion for recognizing the system of knowledge about the world as true. It is shown that the concepts of tychism, synechism, and agapism, which reveal the meaning of Peirce's cosmological theory of evolution, are also based on the principles of anthropocentrism and anthropomorphism. Thus, it is argued that human being becomes the key to understanding Peirce's metaphysical cosmology.

Keywords: cosmology, universe, person, law, Charles Sanders Peirce

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Introduction

The ideas of cosmology are one of the determinants of Charles Sanders Peirce's construction of his own philosophical-metaphysical system. However, they have traditionally received much less attention than, for example, his ideas of logic (Van Evra et al., 1997), pragmatism (Chiasson, 2001), or semiotics (Bellucci, 2017). Actually, according to Peirce's theoretical-methodological approach, metaphysical knowledge can be divided into general metaphysics (ontology); psychical metaphysics (religious metaphysics) and physical metaphysics (CP, 1.192). The last of them in particular concerns issues of time and space, the laws of nature, matter, necessity and absolute chance, causation and force, the continuum, etc., that is, everything that reveals the nature of reality. To clarify the meaning of physical metaphysics, the editors of the sixth volume of *Collected Papers of Charles Sanders Peirce*, Charles Hartshorne, and Paul Weiss, identified it with cosmology (Hartshorne & Weiss, 1935: V). However, Peirce himself preferred to understand cosmology more broadly. His cosmological ideas go beyond physical metaphysics and address issues of both physical reality and the realm of the mental. Not coincidentally, he noted that cosmology "significantly worries both the physicist and the psychologist" (CP, 6.213).

Explaining Peirce's reasoning about how such a combination is possible and analyzing the cosmological ideas that follow from it, the researchers sometimes came to different conclusions – in particular, that Peirce had no cosmology at all (Short, 2010: 521); that Peirce intended to understand the problems of cosmology not from the standpoint of physics, but from the standpoint of logic as more primary (Brioschi, 2016: 59); that Peirce identified cosmology exclusively with scientific metaphysics – the philosophy of chance, law, and evolution (Reynolds, 2002: 1). However, in order to correctly interpret his philosophical achievements in the field of cosmology, it is important to pay attention to the anthropological ideas inherent in this doctrine. These ideas will be shown to be no less important to his cosmological conception than physical or metaphysical, as well as logical, phenomenological or semiotic ones. To achieve this aim, we will first find out the place of anthropocentric ideas in Pierce's philosophical legacy, and then analyze how he interpreted the world through the prism of being a person, as well as how he investigated human nature as an integral and specific part of the world.

Preconditions of cosmological and anthropological motives in Peirce's philosophy

Undoubtedly, Peirce's cosmology research was influenced by his father, Benjamin Peirce, a professor of astronomy and mathematics at Harvard University. Moreover, his early professional interests were associated with astronomical observations. In particular, while serving in the United States Coast and Geodetic Survey, Peirce was a member of a group of scholars who were sent to Europe in 1870–1871 to observe a solar eclipse (Brent, 1998: 79-81). At the time, Peirce was an assistant at Harvard's astronomical observatory (1869-1872). Until 1875, he made a series of astronomical observations there (see: Peirce, 1878). Solon Bailey praised the results of these studies, stating the following: "The first attempt at the Harvard Observatory to determine the form of the Milky Way or the galactic system, was made by Charles S. Peirce. In connection with his photometric work undertaken during the administration of Joseph Winlock, in the years 1871 to 1875, Peirce made a study called 'Form of the Galactic Cluster' … The investigation was of a pioneer nature, founded on scant data" (Bailey, 1931: 198-199). Space research has left its mark on all of Peirce's subsequent scientific explorations, particularly in the field of philosophy.

Explaining the nature of his philosophy, Peirce wrote: "… my philosophy may be described as the attempt of a physicist to make such conjecture as to the constitution of the universe as the methods of science may permit, with the aid of all that has been done by previous philosophers" (CP, 1.7). The attempt to philosophize in this way, however, led to the fact that he was critical of the metaphysical systems of the past, because they were not based on the scientific method. Without a scientific approach, metaphysics, to his mind, became meaningless gibberish or downright absurd (CP, 5.423). In the process of analyzing metaphysical knowledge, Peirce proceeded from the perspective of semiotic analysis, carefully argued his own philosophical opinion, and took into account the consistency of philosophy with the principles of science. He intended to understand in detail, first of all, the basics of ontology and cosmology. However, we should not assume that Peirce fully attained this aim. As Enn Kasak and Raul Veede rightly remark: "Even though Peirce himself regarded his cosmology as scientific, it is not a good idea to identify it with scientific or the physicists' cosmology in the modern sense of the word" (Kasak & Veede, 2016: 80). The task that Peirce originally set for cosmology was to present metaphysical knowledge in a mathematical way. Interpreting metaphysics as a clear logical doctrine, the scientist intended to bring it closer to the logic of the universe, and therefore clearly move to the study of the research subject of metaphysics – to reality.

Metaphysics was not a purely speculative discipline for him. The fact is that the basis of metaphysics is determined by logic, and logic must be founded on phenomenology (CP, 8.297) because knowledge of everything in the universe is primarily determined by our observations. Hence, the basics of cosmology are unlikely to be understood if we do not take into account the results of the doctrine of phaneroscopy (phenomenology) – an independent section of philosophy (along with metaphysics and normative science), which explores phanerons (phenomena) – "the collective total of all that is in any way or in any sense present to the mind, quite regardless of whether it corresponds to any real thing or not" (CP, 1.284). Every second, a person in a state of consciousness receives a lot of sensory data (phanerons) about the world. Not in the dimensions of metaphysics of presence, but actually, for us, the phaneron becomes a kind of "possibility of understanding" (Ioannidis, 2019: 74). Indeed, due to the ability to think abstractly, we are able to systematize the

data of the senses within a certain system of our knowledge. As Peirce concluded in On a New List of Categories (1867) (CP, 1.545-1.559), the basis of this system is determined by universal categories. Their manifestations can be found in every act of perception. These categories are the common thing that allows coordinating different systems of sensations within a single whole. Following Kant, Peirce developed his own list of categories. First, on the basis of the analysis of the propositional structure, he singled out such categories as being, quality, relation, representation, substance (CP, 1.555). However, over time (see, for example, Esposito, 1980), under the influence of the logic of relations, the categories of substance (subject of a proposition) and being (link between subject and predicate terms) were eliminated from this list of categories, because from the standpoint of phenomenology, which he began to study, they became redundant. Being or substance are ontological categories, and phenomenology deals with phenomena (which in some ways resemble Locke's ideas). We should find general categories in the process of researching any object, so we cannot hope to use the empirical methodology to identify them each time as at the level of the subject of research. The phenomenological approach to cognition allowed Peirce to operate on the ideas of objects that are perceived by the subject (see: CP, 1.284-1.353). Thus, the subject ceased to be a passive observer and became an active participant in the cognitive process. The subject of cognition has been able to discover what the phenomena have in common, analyze their properties, and establish in what respects these properties can be found in other phenomena. Investigating the phenomenon, the observer does not make hypotheses but captures what is given to him directly. The observer describes, not interprets, or explains. Since each person in the process of observation acquires knowledge about the object of knowledge, not in a deductive way, but rather directly, the confidence that different observers will have the same systems of categories as a result of the description is a matter of belief based on common sense rather than speculative analysis.

In total, there are three such categories left after he has eliminated substance and being. Peirce called them as Firstness, Secondness, and Thirdness. These categories become a kind of levels (modes) for reality, on which the phenomena manifest themselves. The concept of Firstness reveals the quality of feeling, Secondness denotes a fact that exists only here and now, and Thirdness refers to the laws that determine the intelligible aspect of reality.

Peirce himself explained the specifics of these three categories as follows:

"Firstness is the mode of being of that which is such as it is, positively and without reference to anything else.

Secondness is the mode of being of that which is such as it is, with respect to a second but regardless of any third.

Thirdness is the mode of being of that which is such as it is, in bringing a second and third into relation to each other" (CP, 8.328).

No matter how much we try to justify these categories as entities independent of our experience, the interpretation of the effects associated with them comes from the subject's position. Pierce's phenomenology itself becomes largely anthropocentric. It is no coincidence that Peirce found manifestations of these categories in the universe, although he focused on the subject of phenomenology, analyzing human experience. This approach seems quite justified to Peirce because he deduces these categories, analyzing not the world as such, but the knowledge expressed in perceptions, images, facts of experience, habits, reasoning, and so on. The first of these categories (Firstness) manifests being as quality of feeling. On the one hand, Peirce argues that qualities exist in themselves. Regardless of whether someone perceives them, they are abstract potentiality. However, any qualities are actualized

only in the conscious experience of human beings. Mentioning a certain quality, some of its feelings can be actualized as vivid, others, on the contrary, as dim. Obviously, over time, the perception of the characteristics of a thing will change at the level of subjective perception. Such a process is inevitable – the experience itself lets us know about it. However, this process cannot be clearly identified, because the primary reality of the act of perception cannot be reduced to certain descriptions. Consequently, it is impossible to compare the peculiarities of our sensations with the peculiarities of the sensations of others. But belief and common sense indicate that sensations are common to all beings who have well-developed senses. Anthropomorphism is clearly noticeable in such considerations, as the conclusion about other carriers of conscious experience is made by the subjects on the basis of analysis of their own experience. Peirce did not think that there was anything wrong with this, because, in his opinion, "every scientific explanation of a natural phenomenon is a hypothesis that there is something in nature to which the human reason is analogous; and that it really is so all the successes of science in its applications to human convenience are witnesses" (CP, 1.316).

We find even clearer anthropomorphic interpretations of reality at the level of the second category. Peirce used Secondness (as something that depends on Firstness) to denote what exists. For us, the existence of other objects appears as a certain reaction, a response to our actions. To us, these objects appear as non-Ego (CP, 1.325). We often have to reckon with them in our reasoning or actions. The existence of other things is an objective fact, although Peirce himself preferred not to use the term "objective" in relation to the facts. The fact that existence is dyadic, despite the fact that Being is monadic, Peirce explained as follows: "Existence is presence in some experiential universe – whether the universe of material things now existing, or that of laws, or that of phenomena, or that of feelings – and this presence implies that each existing thing is in dynamical reaction with every other in that universe" (CP, 1.329). If something already exists independently of us, it is not only in time and space; it reacts to the action of other things and affects them. The existence of a thing is irrational because it does not require the presence of reason. The existence of a certain object can be inferred only when we react to it in a certain way, and it manifests itself as something real due to insistency.

Finally, explaining the nature of the Thirdness as a triad manifested in the analysis of phenomena, Peirce comes to the key concept of his ontologico-cosmological doctrine, namely the concept of law – that is, those regularities that always occur in reality. Explaining what the law is, Peirce appealed to the concept of thought to show the law not only as a formula that describes actual processes in reality, but also as an integral part of reality. According to him, "The third category of elements of phenomena consists of what we call laws when we contemplate them from the outside only, but which when we see both sides of the shield we call thoughts" (CP, 1.420). The category of thought to denote natural laws more accurately captures the essence of things, because just as thought can develop, so laws are not immutable entities like the qualities or facts that exist. Given that the law is an opinion, it is also a meaning. The law can be understood by summarizing the facts and clarifying the regularities that actually exist. From this, it becomes clear that the true level of reality, which is characterized by constancy, immutability and independence from the basic characteristics in the dimensions of space-time, is the level of laws. This level is a conceptual expression of the other two levels, the first of which is related to the objects as such and the second to the expression of their physical existence in something else.

The world as a reflection of the person

Knowing the nature of other things, a person discovers only the individual elements of a single whole. In fact, the universe is such a whole; everything else is only its separate parts.

However, Peirce is not inclined to explore the universe solely through the prism of this kind of logical correlation, neglecting physical entities, because "the universe is … not a mere concept, but is the most real of experiences" (CP, 3.621). The universe, which is the momentary experience of each of us, acts as a whole for us. It is a state of affairs, each of which is hypothetically possible (CP, 3.621). We can also express them in propositions.

The researcher focuses on the study of things and the relationship between them, which is constantly changing. Such a change is not chaotic; it occurs in determinate directions and characterizes the very nature of the physical universe (CP, 8.187). In fact, the system of language categories imposes various restrictions on our research; each of the concepts captures only certain moments of this whole. Therefore, it is no coincidence that Peirce, thinking about the universe, used the concept of world and reality at the same time. He understood the term "world" quite broadly – as something that can be material (real) and ideal, internal and external, actual and potential, as well as biological, mathematical, psychological, phenomenal, work-a-day, modern, etc. and claimed that in general "we live in two worlds, a world of fact and a world of fancy" (CP, 1.321). But the term "reality" Peirce used mostly to denote what is objective.

To explore reality, we need a correspondingly developed formal system, the syntactic means of which would make it possible to capture all aspects of a dynamically changing world. According to Peirce, to distinguish reality from fiction, you need a dynamic sign (CP, 2.337). The fact is that only the current world can change every second. Therefore, to describe the world, it is advisable to use signs that would record these changes. With their help, it would be possible to catch the logic of change. Peirce expressed the dynamics through the continuity of laws. He paid attention to what connected the objects, not to the objects themselves. It was important for Peirce to substantiate the reality of the laws of science. In other words, proving that they are an integral part of things themselves, and therefore, in most cases, a reliable means of predicting the future. That is why Peirce wrote: "Five minutes of our waking life will hardly pass without our making some kind of prediction; and in the majority of cases, these predictions are fulfilled in the event" (CP, 1.26). For Peirce, the basis for predictions was the presence of regularity, in reality, that is, certain laws that are limited in time, and therefore we can predict their consequences well.

Laws make it possible not only to predict the future but to study the past of the universe. In fact, the study of what happened in the past is an opportunity to understand the current state of affairs better. Reflections on the origin of the universe fascinated Peirce so much that, according to a letter to Christine Ladd-Franklin (August 1891) (CP, 8.316-8.318), Peirce, after ceasing research at the Harvard Astronomical Observatory, developed cosmology as cosmogony, although, of course, the former, according to his explanation in *The Century Dictionary* (Whitney (ed.), 1889: 1288-1889) is a somewhat broader concept used to denote the theory of the structure of the universe, and not just how this structure arises (as is the case with the latter). It was important for Peirce to understand how the world evolved, what forces were decisive for it. No empirical experiment could answer these questions at that time, but to understand the logic of the evolutionary process, it was enough to correctly interpret the existing results of scientific research. As Peirce remarked: "… the evolution of the world is hyperbolic, that is, proceeds from one state of things in the infinite past, to a different state of things in the infinite future" (CP, 8.317). That initial state in the past is chaos, i.e., pure chance, irregularity,

and indeterminacy. Chaos is characterized by the absence of any regularities. Consequently, they arise at some point just as everything else arises. Cosmology should explain how this happens and thus bring us closer to understanding the nature of the universe.

Although the law describes the action of one thing on another (CP, 1.212), it is incorrect for Peirce to equate the law with the concept of force. The nature of the law is best explained by such ideas as "generality, infinity, continuity, diffusion, growth, and intelligence" (CP, 1.340). No less important is the fact that, since laws arise, they are not given once and for all (that is, immutable entities). The laws are imperfect and non-absolute. However, in the case of the laws, "the general has an admixture of potentiality in it" (CP, 1.212), and therefore they also evolve. In fact, this is why the world is also changing. Peirce did not support his cosmological hypotheses with certain mathematical or empirical calculations because he thought too general and abstract. His ideas about the initial chaos are figurative rather than supported by statistics and experimental results. After all, his ideas about the final state of existence of the universe are no less figurative. The triumph of the law that does not allow any spontaneity determines the end of the existence of life, i.e., the end of the state of affairs, which characterizes the universe that exists now – that is, this mixture of absolute spontaneity and certain conformity to law.

In addition to the change of the physical world (material nature) and its laws, Peirce, under the influence of the theory of evolution, did not deny that human thought itself is changing. He wrote: "In short, if we are going to regard the universe as a result of evolution at all, we must think that not merely the existing universe, that locus in the cosmos to which our reactions are limited, but the whole Platonic world, which in itself is equally real, is evolutionary in its origin, too. And among the things so resulting are time and logic" (CP, 6.200). It was only in the beginning that the world was chaos or pure nothing (CP, 5.431). However, having a certain creative potential and opportunities for growth, the world began to change. The development was manifested in the emergence of regularities, which are the essence of all reality, not just substance. It is no coincidence that Peirce remarked: "Not only substances but events, too, are constituted by regularities. The flow of time, for example, in itself is a regularity. Therefore, the original chaos, where there was no regularity, was in effect a state of mere indeterminacy, in which nothing existed or really happened" (CP, 1.141). It follows somewhat unexpectedly that in order to assert the existence of something, it must first be a certain structure that could be detected at the micro or macro levels. In this case, it will appear to us as something that can be perceived and understood, as something about which we could form a certain opinion. On the other hand, human thinking (not least due to the development of language) itself receives grounds for improving its own potential.

Emphasizing the evolution of reality, Peirce criticized determinism, according to which everything is clearly defined and subject to the law. In return, he offered tychism, "the doctrine that absolute chance is a factor of the universe" (CP, 6.201). He argued that the universe is dominated by Freedom (Spontaneity), including the choice of laws. All the diversity that is in nature always confirms the existence of freedom and, consequently, the objectivity of chance, the primacy of chance, not law. As an argument in favor of the objectivity of chance, Peirce, in particular, cited the existence of exceptions to each law (CP, 6.46), although the cases seem to indicate that certain additional factors influencing the final results are not taken into account. To clarify his cosmological concept, Peirce introduced the concepts of synechism (continuity of development, its focus on the development of regularities) and agapism (the force that guides objects to combine and improve) (Peirce, CP, 6, Book 1 A). Such metaphysical principles, even though they make his cosmological reasoning anthropomorphic, open the possibility for the

analysis of the world in the unity of its physical and mental manifestations.

Explaining what reality is, Peirce again emphasized: "Reality consists in regularity. Real regularity is active law. Active law is efficient reasonableness, or in other words, is truly reasonable reasonableness. Reasonable reasonableness is Thirdness as Thirdness" (CP, 5.121). Thus he demonstrated the transition from cosmologico-metaphysical issues to issues of semiotics, one of the fundamental categories of which was Thirdness.

Despite the expression of reality through categories related to human thinking, it is worth emphasizing that reality, according to his theory, did not become something dependent on thought. Consequently, our very perception of the world depends on the form of thought. The very reality of these thoughts should not be questioned at all. In this way, Peirce, in the cosmologico-metaphysical questions, took the position of logical realism, close to the methodology of neo-realist cosmology (Synytsia, 2020), being firmly convinced that through the prism of thought, a person can achieve an understanding of reality, which "is only the object of the final opinion to which sufficient investigation would lead" (CP, 2.693). In other words, a person discovers the world in the process of cognition. To capture the concept of the world, everyone needs to think a lot about all the phenomena of the world and then summarize them in only one concept.

But to what extent will our concepts accurately reflect the world in general? Peirce himself was skeptical about the possibility of reliable knowledge of the world. This skepticism was fully consistent with the principles of his cosmology. Peirce combined fallibilism with the doctrine of synechism: "The principle of continuity is the idea of fallibilism objectified. For fallibilism is the doctrine that our knowledge is never absolute but always swims, as it were, in a continuum of uncertainty and of indeterminacy" (Peirce, CP, 1.171). Since continuity is also indistinguishability, it was necessary to recognize the existence of a certain mixture of ideal and real, logical and psychological, analytic and synthetic, and so on. Hence a certain inaccuracy of the knowledge itself. It's not just that. In the case of the question of how accurately our knowledge reflects reality, Peirce argued that: "It is perfectly true that we can never attain a knowledge of things as they are. We can only know their human aspect. But that is all the universe is for us" (Peirce, 1953: 43). In the doctrine of fallibilism, Peirce argued that any knowledge of the world is fundamentally wrong: at the empirical level, it is inaccurate because our senses are imperfect, and at the theoretical level, it is incomplete because our understanding of the nature of things does not correspond to their essence. In fact, each time we receive some confirmed information about the world, we put forward another hypothesis, with which we intend to explain what this world is. This hypothesis will eventually be subjected to a falsification procedure as soon as it is possible to improve the available means of measurement or increase the number of cases of the phenomenon under study. On the scale of our universe, this number may be much more diverse than the cases we know. Of course, the potential falsity of knowledge about the world follows from the fact that "all knowledge comes from observation" (CP, 1.238), although this in no way prevents us from knowing the world within certain practical limits. Peirce described these limits using the concept of *practical certainty* (CP, 2.664). Our knowledge of mathematical laws or individual facts about current reality or past events is practically useful. This is enough to act and draw correct conclusions, some of which can not be verified – they will have to be accepted in faith.

This state of affairs is also inevitable in cosmology, in which we often have to operate with too abstract knowledge about the limits of known reality. It is almost impossible to confirm this knowledge empirically. The categorical scientific apparatus is not suitable for

such verification, as it appeals to empirical experience that has little to do with the content of cosmological categories, by which we describe not only empirical facts but also the laws of nature and principles (fundamental knowledge that like all other knowledge becomes in some way personalized).

A person as a reflection of the world

The construction of any system of cosmology inevitably raises the question of what place a person occupies in the world. It is necessary to clearly understand what is the inner world of a person – a form of reflection of the outer world or perhaps something completely new that radically changes this world? In the case of studying the human world, we must first consider the realm of reason and its laws. In fact, on the basis of logical analysis applied to mental phenomena, he clearly distinguished one such law, according to which "ideas tend to spread continuously and to affect certain others which stand to them in a peculiar relation of affectability" (CP, 6.104). The peculiarity of the interaction of different ideas is that this interaction occurs only in one temporal dimension – from the past to the future. The analogy with the interaction of material objects in space does not work because they can move back and forth. They form a continuous whole – as a result of a combination of ideas, general ideas are formed. The mental law is fully consistent with the principles of logic. Peirce explained: "… three main classes of logical inference … Deduction, Induction and Hypothesis … correspond to three chief modes of action of the human soul. In deduction, the mind is under the dominion of a habit or association … By induction, a habit becomes established… in order that the general idea should attain all its functionality, it is necessary, also, that it should become suggestible by sensations. That is accomplished by a psychical process having the form of hypothetic inference" (CP, 6.144). In the case of mental law, it cannot be said that everything is clearly defined, as in the case of matter. Arbitrary spontaneity can always be traced in actions based on mental law. However, this does not mean that Peirce intended to oppose matter and reason. On the contrary, he intended to show that the physical and the mental are perfectly coherent parts of the universe and can be easily explained by the same laws, or in other words, by the principles of evolutionary cosmology. That is, such cosmology, as Peirce remarked, "in which all the regularities of nature and of mind are regarded as products of growth" (CP, 6.102). He constantly emphasized that cosmology should not focus exclusively on the things of the physical world, because in that case, it would not be possible to understand what the world is like. It is extremely important for cosmology to "examine the general law of mental action" (CP, 6.103), because, knowing the mental phenomena that are an integral characteristic of human existence, we also approach the understanding of the nature of the universe, the basic principles of which agree well with logical realism, objective idealism and evolutionism.

Moreover, by focusing on the mental law in the process of studying reality, Peirce made his own cosmology even more anthropocentric. It is important for him to emphasize that people in the process of long-term evolution have adapted to environmental conditions and learned to instinctively respond to the challenges of nature. One of the unique abilities that became the property of human nature was the "singular guessing instinct" (CP, 7.46). This ability is manifested in the skill to quickly find the right solution to a problem, putting forward a relatively small number of hypotheses, one of which is true. The presence of an instinctive sense of truth is the result of the reflection of the laws of nature in the human mind. As Peirce explained: "Certain uniformities, that is to say certain general ideas of action, prevail throughout the universe, and the reasoning mind is [it]self a product of this universe.

These same laws are thus, by logical necessity, incorporated in his own being" (CP, 5.603). It follows that any of our theoretical generalizations are in fact a continuation of the innate ability to adapt to the world. Moreover, science itself as a *mode of life* "is a pursuit of living men, and that its most marked characteristic is that when it is genuine, it is in an incessant state of metabolism and growth" (CP, 1.232). Thus, science, as well as technology in the process of conceptualisation of their methodological foundations, are filled with the truths that scientists discover as subjects of knowledge that implement personal strategies and interests (Melnyk, 2020).

As for Pierce's naturalistic interpretation of the processes of creation of theoretical knowledge, it should be noted that it does not fully explain the qualitative differences between the mental and physical spheres and says little about the impact of life in society on human thinking, although Peirce stated that "logic is rooted in the social principle" (CP, 2.654). Therefore, it is natural to assume that social reality inevitably changes the way a person lives. However, Peirce himself did not further develop the social component of his teaching – he considered it as part of empirical science. Rather, it was important for him to find common ground between the logic of the human mind and the logic of nature and to justify, as he put it, "anthropomorphic conceptions of the universe" (CP, 1.316). According to this approach, closer to the truth is the more anthropomorphic concept. Thus, the world's view through the prism of human nature is the most correct for understanding the nature of being. The system of concepts by which a person describes the world once again confirms this. A person seeks to understand the world through the prism of clear concepts. In this way, human beings can not just find themselves in the world but find the world in themselves, that is, in their own thoughts and behavior.

Reflecting on human behavior, Peirce appealed to the concept of habit. He even defined a person as a *bundle of habits* (CP, 6.228). However, instead of developing the idea of habits as regularities, he somewhat unexpectedly concluded that "all things have a tendency to take habits" (CP, 1.409). Peirce is convinced that this tendency is regularity (typical behavior of things), which is manifesting itself more and more. Over time, most inveterate habits become laws, including physical ones. It is important for Peirce to demonstrate that these laws, like our habits, can change, and our perception of truth will change accordingly. This begs the question, what to do with the world of values? How variable is the spiritual nature of a person? According to his approach, it is important both that the person in the process of education joins the norms of behavior, and that, showing moral and volitional efforts and believing in the correctness of their own actions and social ideals, everyone socializes and rises above the natural world (CP, 1.11). A person's ethical ideas about the world are consistent with the logic of the world itself and the nature of human beings because they all together form a single whole.

Conclusions

Thus, Peirce's cosmological ideas are inextricably correlated with both his ontology and his analysis of the realm of the mental, including the moral and value aspects of human life. Peirce criticized the metaphysical systems of the past for being unscientific and made considerable efforts to explain not only the nature of reality but also the peculiarities of the human world. In any case, he emphasized the dynamics of physical and mental processes in the world, singled out different levels of reality, and substantiated his own cosmology, appealing to the somewhat anthropomorphic concept of law since its nature is the same as that of thought. Peirce argued that following the laws is the basis of the evolution of things

themselves, and knowing the nature of laws, physical and mental, we can understand the nature of reality. A well-developed system of categories (signs or expressions of language) will be useful for a relevant representation of reality, although it is unlikely to dispel our doubts about the possibility of knowing the world with certainty. The fact is that the world hides an infinite number of things virtually from us, and we have only a limited system of means of knowledge, and they will not be enough to explore everything in the world. In addition, it is important to pay attention to the identity of the researcher because the process of cognition and understanding of reality is personalized and relatively anthropocentric. Moreover, in Peirce's cosmology, the person becomes the basis for knowledge of the whole world. For human beings, a concept that is more in line with human nature will be more true. That is to say, a concept that is more anthropomorphic. In fact, long before the formulation of the anthropic principle in science (Carter, 1974), Peirce demonstrated that cosmological research is permeated with anthropologism. There was only one step left to conclude that cosmology is such because it cannot be other, non-anthropocentric. Although Peirce did not ask the question in this way, his concepts of tychism, synechism, agapism, the evolution of spiritual and material entities, their subordination to habits-regularities, etc. formed a very good basis for building cosmology, in which human being is fundamentally important.

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