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THE IDEA OF HARMONISING HYPOTHESES ABOUT THE ORIGIN OF LIFE ON EARTH: THE RATIONAL PRINCIPLE – HUMAN BEING AND HIS LANGUAGE

Egzistencijos kilmės žemėje hipotezių harmonizavimo idėja:
racionalumo pradžia – žmogus ir jo kalba

SUMMARY

The article proposes the idea of the harmonisation of hypotheses about the origins of life on Earth, the human being and his language. At the same time, possibility is considered to be probable, but not categorical, and can claim revolutionary conclusions. For this purpose, a synthesis of the main arguments of the origin of planetary life hypotheses, which have become most famous and popular even among amateurs of quests for the history of “humanity”, is given. The key and still unresolved issues about the evolutionary lines of the human are briefly discussed, taking into account new data from the standpoint of various sciences. Parallels between the main known hypotheses about the origin of life on Earth and its anthropic species as the human being in general and the human being with cognitive and communicative abilities in particular, are presented. It is concluded that although individual correspondences of the hypotheses on the origin of life on Earth and its rational principle are separated by a huge chronological distance, the idea of their harmonisation is not devoid of perspectives for its further discussion.

SANTRAUKA

Straipsnyje gvildinama idėja, kad egzistuoja galimybė harmonizuoti hipotezes apie gyvybės Žemėje kilmę, žmogų ir jo kalbą, kurios galėtų tapti nauja pasaulinio mokslo kryptimi. Kartu ši prielaida laikoma tikėtina, bet ne kategoriška, galinti pretenduoti į revoliucines išvadas. Tuo tikslu straipsnyje sintezuojami pagrindiniai hipotezių apie gyvybės kilmę planetoje argumentai, kurie tapo garsiausi ir populiariausi net tarp „žmonijos“

RAKTAŽODŽIAI: harmonizavimas, hipotezės, gyvybės kilmė, antropoidas, kognityviniai ir komunikaciniai gebėjimai.
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istorija besidominčių mėgėjų. Atsižvelgiant į naujausius įvairių mokslų duomenis, trumpai aptariami pagrindiniai ir vis dar neišspręsti klausimai dėl šiuolaikinio žmogaus evoliucinio vystymosi kelių. Nagrinėjamos paralelės tarp pagrindinių hipotezių apie gyvybės Žemėje kilmę, apie žmogų kaip antropinę rūšį ir žmogų, kuriam būdingi kognityviniai bei komunikaciniai gebėjimai. Daroma išvada, kad nors straipsnyje pateiktas hipotezes apie gyvybės Žemėje kilmę ir protoingojo racionalaus pradmens susiformavimą chronologiškai skiria milžiniškas laiko nuotolis, šių hipotezių harmonizavimas ir tolesnė diskusija yra perspektyvi.

INTRODUCTION

The issues of various hypotheses about the origin of language in one way or another affect the global problem in all spheres of scientific knowledge. It is associated with the study of the origin of life on Earth and, in particular, the origin of *Homo sapiens* as a biological species of *Homo*, endowed with human language as cognitive and communicative ability (A. Barulin, B. Bichakjan, S. Burlak, T. Givón, Y. Kapranov, A. Kozintsev et al.).

Being engaged in scientific (and sometimes popular scientific) reinterpretation of already existing assumptions about various versions of solving this issue within the scope of the fundamental scientific project “Noospheric-Nostratic Reinterpretation of Hypotheses of the Origin of Human Language”, which is being developed by the scholars (Y. Kapranov, A. Korolyova, R. Vasko et al.) of Kyiv National Linguistic University, we can make a preliminary conclusion about the fact that the resonance of the global problem of the origin of planetary life is observed in all traditional and new hypotheses about the origin of human being as a species and the origin / development of his language.

Probably, at first glance these observations, like the idea itself, seem not very convincing and generally unfounded, but science is moving forward thanks to audacious quests and non-trivial solutions.

The formulated problem in the title of the article and the proposed way for its exploration do not claim a discovery and revolutionary conclusions, since they rely in arguments to substantiate the stated assumptions on already well-known and synthesised provisions that illustrate both unidirectional and polar approaches of scholars to the disclosure of all three issues separately in various scientific and popular scientific projects, including those that are available in the public domain and cited in many works, even by amateurs of the distant pre-history of mankind. However, due to the ongoing scientific discussion around each of the issues and new discoveries in world cosmology and, especially, in anthropopractice, the harmonisation idea of their study in synergetic and holistic aspects will probably find both its supporters and followers, as well as critics.

It should be noted that among fundamental unanswered issues for linguo-anthropogenesis / glottogenesis are the following key questions: 1) WHEN did human speech arise? 2) HOW did it happen? 3) WHAT was the speech at its first stage? (Nikolaeva 1996, p. 79). These questions were very clearly formulated by T. M. Nikolaeva in one of her articles published in the journal “Voprosy yazykoznanija” (lit. *Topics in the study of language*). However, it seems to us that

this triad can be supplemented by a question preceding the first one – WHY or FOR WHAT / for what needs the human language arose.

In order to consider these issues within the framework of the proposed idea, first we suggest continuing the incessant polemic around the evolutionary line(s) of a Human being in the context of the origin of planetary life hypotheses.

In general, without setting the task within the framework of this article to retell in details the existing hypotheses (and there are more than 500 of them, according to various estimates), most of which have already acquired the status of theories in specific sciences, we will try to trace logical and to some extent substantiated connection between the scholarly arguments for the benefit of certain scientific and popular scientific evidence about the origin of life on Earth and the origin of *Homo* and its species. The next step will be an attempt to analyse the main most well-known theories about the origin of language, in particular, about the development of cognitive and communicative abilities in representative(-s) of *Homo*, and compare their main versions with the origin of planetary life concepts.

Herewith, in the process of hypothetical reasoning on this topic, the main discussion points, disputes around which do not stop up to now will be

focused on (Givón 2009): 1) is the language an invariant of a certain universal stable grammar, which genetic mutation (which occurred under the influence of a certain cosmic radiation) superinduced into human chromosomes (Chomsky 2005), or languages are the sets of evolving characteristics as a result of a unique behavioural programme of hominids (biological species of the *Homo*); 2) whether figurative thinking and language are inherent only to a Human-being with cognitive and communication abilities (Burlak 2007).

Both issues represent separate problems that are considered in different scientific disciplines: in evolutionary anthropology, archeology, neurophysiology, genetics, as well as in the studies of communications of higher primates, etc., which allows, according to S. A. Burlak, to reconstruct the general picture of the emergence and further formation and development of the human language with a sufficiently high degree of validity (Burlak 2007: 2), and, according to our assumption, in close connection with anthropogenesis and with an even more global planetary problem.

The purpose of the article is to substantiate the prospects for further scientific study of the hypothetical idea of the necessity to harmonise the origin of life on Earth hypotheses, a human-being of modern species and his language.

BASIC HYPOTHESES FOR THE ORIGIN OF LIFE ON EARTH AND THEIR REFLEXES IN THEORIES ON THE ORIGIN OF *HOMO* AND HIS SPECIES

The nature of life, its origin, the variety of living things / organisms and

structural and functional closeness uniting them constitute the range of issues

that continue to be discussed taking into account new discoveries and advances in various sciences.

As for the theories of the origin of life on Earth, let us briefly represent the main points of the well-known 5 traditional versions, which, among many others, have undergone a scientific revision in terms of their prospects for further discussion and reinterpretation, despite the skepticism of scholars regarding, for example, the first hypothesis, called creationism. According to it, its representatives claim that life was created supernaturally at a certain time. The second theory, which postulates spontaneous inception, suggests that life has arisen repeatedly from non-living matter. The third concept of a stationary state argues for the view that life has always existed. The fourth direction of theorists, who are supporters of panspermia, declare that life was brought to Earth by some space objects. And the fifth hypothesis, developed in the framework of biochemical evolution, is aimed at finding evidence that life arose as a result of processes governed by chemical and physical laws.

In order to trace the connection (only a connection, but not an assessment of their scientific character) of the above-mentioned hypotheses with theories on the origin of such a biological species as a Human-being in general and a Human-being with articulate speech, in particular, we will briefly reveal the main arguments on which each theory is based.

As for the theory of creationism, recently some of its provisions have been reinterpreted in the context of the possibility of scientific explanations. However, due to the fact that the process of

divine creation of the world is considered to have occurred instantaneously and is therefore inaccessible for observation, it is still taken out of the scope of scientific discussion. The main critical postulate of the opponents of this theory is the thesis that science deals only with those phenomena that are observable. Therefore, until now, it has not been possible to either definitively refute it or give rigorous scientific evidence in its favour.

As an alternative to creationism, the ancient states of China, Babylon and Egypt formulated *the hypothesis on the spontaneous origin of life*. This theory, supported by Aristotle, was already of philosophical nature, and not purely religious. The philosopher reasoned and argued in favour of the fact that certain "particles" of a substance contain a certain "active principle", which, under certain conditions, can create a living organism. Later, in order to refute this theory, in most cases, experiments began to be carried out. The results of them indicated that life can arise only from a previous life. Although they were also refuted. Therefore, the idea of spontaneous generation requires further scientific development, i.e. if another living organism is needed for the emergence of a living organism, then where did the very first living organism come from? Was this a primary spontaneous generation? All these controversial issues are scientifically explained in the work by M. Nikitin (2016).

The steady state theory is looking for evidence that the Earth has existed forever and has always been able to support life. Species have always existed as well. If we talk about the resonance of each of

the five hypotheses with the theories on the origin of the *Homo*, then, evidently, the supporters of this particular direction appeal to the theories on the origin of species. For instance, they disagree with the conclusion that the presence or absence of certain fossil remains may indicate the time of appearance or extinction of a particular species. Their assumptions boil down to the fact that by studying only modern species and comparing them with fossil remains, one can make a final conclusion about the extinction of the species (see scientific arguments in the book of M. Nikitin (2016)). Few supporters of this theory associate the presence of fossil remains with the problem of migration, which is considered as key in anthropogenesis.

The representatives of the theory of panspermia, also criticized by critics, put forward the idea of an extra-terrestrial origin of life as such, transferring it to another place in the Universe and arguing that life could occur either one or several times at different times in different parts of the Universe (H. Helmholtz, S. Arrhenius, V. Vernadsky, G. Richter, etc.). To test this theory, the provisions of the paleocontacts hypothesis supporters are used (see Yeskov 2017); they work with evidence of the appearance of UFOs, rock carvings of objects resembling flying objects, etc. For instance, while studying the materials of meteorites and comets, many “precursors of life” were discovered in them, first of all, the following substances, such as: cyanogens, hydrocyanic acid and organic compounds may have played the role of “seeds” that fell on the bare Earth. At the present stage

of the development of this theory, scholars are trying to argue for the presence in meteorites of objects resembling primitive forms of life, but so far their biological evidential nature is perceived with a great deal of skepticism.

One way or another all previous theories boil down to a discussion around two issues: organic life either ever began (was born), or has existed forever. If we recognize the first, then the theory of panspermia loses its logical sense, since life could originate anywhere in the Universe, then, in principle, there is no reason to assert that it could not have originated on Earth. Therefore, the hypothesis that life only changes its form (see Nikitin 2016), but it is never created from dead matter, has not been completely refuted.

Nowadays the theory of A. I. Oparin (1936), the biochemist, is already being revised and criticised. The scholar scientifically identified three main stages of the supposed transition from the “inanimate state” to the “living state”: 1) the stage of synthesis of the initial organic compounds from inorganic substances in the conditions of the primary atmosphere and the state of the Earth’s surface; 2) the formation stage of biopolymers, hydrocarbons, lipids in the primary reservoirs of the Earth; 3) self-organisation of complex organic compounds, the emergence and evolutionary improvement on their basis of metabolic processes and reproduction of organic structures of a given composition, which ended in the formation of the simplest cell. Due to the fact that A. I. Oparin’s concept (1936) has both admirers and categorical harsh critics,

this does not exclude the possibility of its further development, both empirically and experimentally.

If we consider the evolution of the world (see Nikitin 2016) in a broader sense, during which life appeared as a phenomenon of a new state of matter, then at the present stage it is called cosmological evolution as a whole, which means that all five hypotheses are perspective and promising.

Considering the fact that modern cosmology is at the forefront in the science of the XXI century, which is rightfully the era of great discoveries and evidence of radical changes in the scientific worldview, there is every reason to consider its ideas as a productive path from scientific exoticism to scientific knowledge. Since today the class of objects belonging to the "Universe as a whole" domain has fundamentally changed, the scientific cosmological course gives rise to many fundamental philosophical questions. The following questions are the most important for this study: where does the border of knowledge go and does it not pass through Man? This formulation of the question confirms the relevance of the discussion proposed in the article.

From a preliminary brief excursion into the scientific history of the search for the origin of life on Earth, no matter how naive and different they may be, it follows that the process of development of the organic world on the Planet was complex and that Man as a biological species (living organism) is his key component.

In order to move towards the search for new alternatives that will allow reinterpreting already known hypotheses, and most importantly, will become a

motivator for new scientific discussions, it is necessary, taking into account modern discoveries and achievements, to return to previously unnoticed or even rejected facts that have played, perhaps, an important place in evolutionary panorama of the human past. And one of such scientific solutions is the idea of harmonising the scientific views of scholars in three disputable issues: in proving the correlation of hypotheses on the origin of life on Earth, the origin of a Human being and the origin of the human language.

A preliminary study of this trichotomic cooperation gives foundation to assert that the evolutionary history of planetary life is a complex process and that the distance covered was not the only possible one. Therefore, the question of what a humanbeing of modern species and human language are as a result of cognition of the world is still open for global science.

The fact that the evolution of language is a part of human evolution and planetary life in general is claimed by D. Bickerton (2012: 4). This means that the above-mentioned hypotheses about the origin of life on Earth undoubtedly reflect human evolution. It cannot be described as a simple one-line history, because different species / populations of the *Homo* coexisted in different locations of planetary life, competed with each other and, possibly, exchanged genetic material.

As evidenced by new data of archaeology and evolutionary anthropology, the evolutionary tree has changed a lot in recent years and was supplemented with new hominid species: *Sahelanthropus tchadensis* (6–7 million years ago;

2002), *Orrorin tugenensis* (about 6 million years ago; 2001), *Ardipithecus kadabba* (5.2–5.8 million years; 2001), *Ardipithecus ramidus* (4.4 million years), *Australopithecus anamensis* (about 4.2 million years), *Kenianthropus platyops* (3.5 million years; 2001), *Homo georgicus* (1.8 million years; 2002), *Homo antecessor* (about 0.8 million years), *Homo floresiensis* (about 18–38 thousand years; 2004). In this regard, all existing classifications were revised and received a new, unexpected interpretation (Kapranov 2018).

At the same time, anthropologists continue to associate the main evolutionary line with the development of the savannah and with new methods of foraging – up to a full-fledged hunt for large herbivores. However, the dating of the transition to the species *Homo* remains controversial in these migrations. Some scholars believe that the most radical changes took place not 1.7/1.8–1.5 million years ago, but earlier, more than 2 million years ago, during the transition from the late *Australopithecus* to the first *Homo*. At that time, brain enlargement and the systematic use of stone tools for butchering carcasses began. The idea of radical morphophysiological changes in these chronological periods is promising for study, because around this time, early *Homo* (*Homo habilis*) with their Olduvai culture and large jaws and molars are replaced by tall *Homo* (*Homo erectus*) with more perfect Acheulean culture and less powerful chewing apparatus (Drobyshevsky 2002, 2007; Kapranov 2018; Korolyova 2018).

Homo habilis is considered to be a highly developed *Australopithecus*, the

remains of which, found in the Olduvai Gorge (a children's skull from Taung Cave) in Tanzania, became a sensational find (Drobyshevsky 2002). Le Gros Clarke (1964), the anthropologist, (back in the 60s of the last century) suggested that these remains either belonged to the ancestors of the *Homo* or represented a sister group to human-beings. This species is considered as the ancestor of *Homo erectus*, the predecessor of modern humans. The study of the DNA X-chromosome of the Asian species *Homo erectus* showed that this species could well exchange genetic material with *Homo sapiens* and be the ancestor of *Homo sapiens-sapiens* – modern humans along mixed lines (not direct male and not direct female).

Concerning the species of *Homo neanderthalensis*, the studies of its genetic material indicate that Neanderthals are not the direct ancestors of human-beings of modern species. Most likely, they can be considered as an independent species of *Homo neanderthalensis* or as a subspecies of *Homo sapiens neanderthalensis*. The name for this species comes from an early discovery of a fossil man in the Neandertal Valley, near Düsseldorf. The bulk of the remains of the Neanderthals and their pre-Neanderthal predecessors were found in Europe, mainly in France, which dates back to 70–35 thousand years ago. And this is where their line breaks off, while the continuous line of human development continues forward and upward (Vishnyatsky 2004).

The first species of *Homo sapiens* from the family of hominids, in addition to a number of anatomical features, was al-

ready distinguished by a significant degree of development in material and intangible culture (including the manu-

facture and use of tools), and most importantly, an articulatory ability for articulate speech and abstract thinking.

DEVELOPMENT HYPOTHESES OF COGNITIVE-COMMUNICATIVE ABILITIES IN HUMAN-BEING

Nowadays, there is no longer any doubt about the statement that it is communication that organises the species as a whole, or at least the population (S. A. Burlak (2011)). With the help of communication, a structure of groups is formed. One must integrate into it in order to stay in a convenient habitat. It was the lack of communication and the inability to integrate into the group of hominids, which had already adapted to living in the forest zone. It led to the fact that certain species were pushed back into the forest-savannah and inconvenient habitats. In the old communication system, these marginalised people were weak and therefore were forced to develop a new system (which, obviously, became a human language). However, not only communication carries out sorting of individuals in each species, which subsequently contributes to the formation of new species, but also the processes of cognition of the surrounding world, as well as cognition of oneself among the similar ones.

This point of view is shared by N. Chomsky (2005, p. 114), who is convinced that language is not only a communication system. First of all, it is a system for expressing thoughts. This position of the scholar allowed him not to consider communication as the main function of language, preferring the cognitive one.

Based on this formulation of the question, there is every reason to assert that language is a product of a person's cognitive-communicative activity, a system that differs from other communication systems. Therefore, in order to understand how this cognitive-communicative system arose and developed, it is necessary to imagine the structure of other communication systems, for example, the communication systems of other biological species, for example, animals. Besides, while studying the communicative systems of the animal world, S. Miyagawa et al. (2010, 2013) put forward a proposal called the integration hypothesis of the evolution of the human language, according to which human language consists of two components: E for expressive (plain of expression) and L for lexical (plain of content). Each component has an antecedent in nature: E, for instance, in birdsong, and L – in animal alarms. E and L are uniquely integrated into the human body, giving rise to language. However, the problem with the integration hypothesis is that these communication systems are finite in nature, and human language requires characterisation using a stateless grammar (Chomsky 1995).

The integration hypothesis develops the traditional Darwinian point of view: two pre-adapted systems found in other parts of the animal kingdom were inte-

grated into the human body, which gave rise to the unique system that underlies modern languages.

And yet, back to the idea of the article, i.e. let us try to trace some connection between the hypotheses of the origin of the cognitive-communicative system of a modern man with the hypotheses of the origin of life on Earth.

It should be noted that a preliminary review of theories on the origin of life on Earth and theories of the origin of human language testifies to the following correspondences, in particular, we observe reflexes of creationism, the idea of spontaneous origin of life, a new cosmological idea. Individual provisions of these theories find resonance in three directions of the logos theory of the origin of language: Biblical, Vedic and Confucian. First of all, in the Biblical aspect, the myth about language as a divine creation, which was extremely widespread in the Christian world, is discussed. Moreover, in the XVI–XVII centuries already in the scientific community, lists of words are being studied. Possibly, the language of Adam (*Lingva Adamica* – Hebrew language (Bickerton 2012)) dealt with it. In the Bible (in the 11th chapter of Genesis) there is an explanation of linguistic polygenesis (the myth of the Babylonian pandemonium). However, it should be noted that this myth is not devoid of a scientific basis, the essence of which can, perhaps, be seen in the pragmatic function of language: no collective creativity among people is impossible without a common language (common cognitive and communicative system).

There is no longer any doubt about the fact that it is the collective of people

that is the initial concept of anthropogenesis, which began to realise itself as a value, asserting itself with the help of symbols. The birth of the collective self-awareness became the border from which the new history of mankind began: interaction between people becomes more important than their interaction with nature (see Yakushin 1984, p. 103). V. I. Abayev (2006) wrote about this, referring to the results of the study of ethnologists, specialists in social psychology, insisting that language was born not from the necessity to give names to things, but from the necessity to relate things to their collective, to impose their own marker on them.

Returning to *the logical hypothesis* and tracing the resonance of the ideas of creationism in it, we note that both of them proceed from the divine creation of the world. The first one deals with the Word that existed even before a human-being and directly controlled inert matter. In other words, it is the Word that the supporters of this hypothesis regard as the energy that gave birth to the world from the primary chaos. The second hypothesis develops similar ideas; in particular, it assumes that the main forms of the organic world (life), humanity, planet Earth, and the world as a whole were deliberately created by a super-being.

Concerning the hypothesis of the spontaneous origin of life, it can be compared with the hypothesis about the origin of language, which was stated by W. von Humboldt in his work “On the difference in the structure of human languages and its influence on the spiritual development of mankind” (W. von

Humboldt (1984). The scholar was deeply convinced that language “[...] is inherent in the nature of people themselves and it is necessary for the development of their spiritual forces and world-view [...]” (LED 1990, p. 400). In his opinion, language is a self-generated and self-dynamic whole – energy. Self-movement involves such components as “the spirit of the people”, i.e. a common energetic whole in the inner side of the language, the spiritual heritage of the people; the external form of a language is its sounds that form a statement. The internal form of a language is a way of correlating specific complexes of sounds with meanings typical for a given language. The combination of these three components leads to the formation of the language, it is the source of self-development of the language, its energy (W. von Humboldt (1984: 70–72).

As one can see, W. von Humboldt’s hypothesis contains elements of a fairly

well-known onomatopoeic theory of the origin of language (Rak 2013: 30–32). Even the Stoics believed that words were formed due to the spontaneous imitation of their sound by the impressions that the surrounding things and animals made on the first *Homo* (today this idea is explained through the prism of a new hypothesis of the origin of language, i.e. the concept of mirror neurons) and which contributed to the development of cognitive language ability in hominids. Later, this theory was supplemented by a variant of symbolic, conditional imitation, whose representatives were J. Grimm and G. Steinthal. They believed that people imitated both sounds and non-sounds. This is exactly how W. von Humboldt explained the connection between the internal and external forms of language. For instance, he wrote that the sound /v/ is most often found in words denoting an oscillating, restless movement: *wind* (LED 1990, p. 165–166).

CONCLUSIONS

The separate correspondences of hypotheses on the origin of life on Earth and its rational principal, cited in the article, are, of course, incommensurable in the chronological distance that separates these processes, but we still assume that the idea of harmonisation is not devoid of perspective.

In conclusion, we will nevertheless try to answer the question posed above, WHY did the language arise in a human-being, to meet his needs? The answer is obvious: the underlying cause of the origin of human language is the cognitive and communicative necessity. A person would

have to create a language for himself as a system in order to cognise the world with its help, and most importantly, to introduce his own kind to further cognition. Johann Herder substantiated this point of view back in the 18th century (Herder 2007: 143). Another thing is how and in what way did it happen and when? Within the framework of the article, the idea of continuing the search for new directions for reinterpreting the existing hypothetical answers to the questions posed was proposed. The essence of it is to consider anthropogenesis and glottogenesis in the context of global science, which studies

the origin of the entire organic world on Earth. There is no doubt about the already proven fact of the evolutionary line of such a planetary life as a human being,

whose stages of development are synergetics of the interdependent processes of anthropogenesis – psychogenesis – culture genesis – glottogenesis.

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