

Why did man become bipedal?

Abstract

Bipedalism in primates exists only in humans. A systematic approach was applied to explain the formation of the human way of life, i.e., systems of social relations. A necessary condition for this formation was the transition of the dominance system to the point of bifurcation. This became possible due to the fact that some hominids (hominins) have mastered the skill of armed struggle with each other, which is absent in other primates. This skill required freeing your hands to use the weapons of struggle.

Keywords: bipedalism, system approach, domination, armed struggle, human lifestyle

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Introduction

The problem of the origin of bipedalism occupies a special position in anthropology. According to D. Gebo, "the origin of human bipedalism is one of the most persistent mysteries of paleoanthropology".¹ Russian scientist L. Vishnyatsky writes: "Despite the fact that only very few topics related to the study of anthropogenesis have caused as much discussion as the origin of bipedalism causes them, this event remains a mystery, being a truly 'cursed question' of paleoanthropology".² L. Vishnyatsky writes: "The transition to two-leggedness and the release of the forelimbs from the locomotor function was also associated with the need to carry food and cubs, or to signal with gestures, or to scare off predators, throwing stones and stick at them, and so on. However, all such guesses are based on the obvious exaggeration of the role of one-time, sporadic actions (throwing, gesticulation, transfer of objects) with which modern monkeys easily cope without changing the way they move".³ Encyclopedia Britannica states: "There are many theories that try to explain why people are bipedal, but none is completely satisfactory." According to Encyclopedia Britannica, "because bipedalism leaves hands free, some scientists, including Darwin, associated it with the use of tools, especially tools for protection and hunting, i.e. weapons. This theory is problematic in that the earliest stone artifacts appeared only about 3.3 million years ago, much later after the hominids became bipedal, which requires the assumption that earlier tools were made of wood or other perishable materials." Speaking on the absence of an explanation for the origin of bipedalism, Mayer writes: "The dual condition was caused by a certain behavioral stimulus. What that could be will continue to be investigated by paleoanthropologists".⁴ Here we can see the fundamental error that all researchers of bipedalism make. It consists in the fact that the cause of bipedalism is perceived in the behavior of ancient primates. But bipedalism arose only in people, so the reason for its appearance must be sought in the peculiarities of the human way of life.

Material and method

The material for explaining the emergence of the human way of life is primatological data on the system of relationships between members of bands of modern anthropoids, on the basis of which models of

hominid behavior are built, and the method is a systematic approach to studying the evolution of these models. According to the data of primatology in bands of anthropoids, the system of relationships is dominated by: "Whether in looking for a hominid model, one selects the genetically close chimp or ecologically close baboon, one does find dominance as a structuring influence in social life".⁵ Outstanding anthropologist A. Keith wrote that "even among chimpanzees, the most social of the anthropoids, rank and reputation are established by physical force".⁶ In primatology, it has been shown that dominance in bands of monkeys is a very complex system influenced by many factors. But, undoubtedly, the physical strength of males is one of the most important, if not the most important factor. It is natural to regard it as the order parameter of the domination system. The effectiveness of the systems approach as a method of scientific research is due to the fact that the evolution of systems, regardless of the nature of their elements, has the same laws and goes through the same stages. The emergence of a new system is preceded by the acquisition of some new property by the elements of the system, which prevents the order parameter from creating the previous order of the system, "striving" to become a new parameter.

As a result, the system becomes unstable. Upon reaching a certain critical stage of competition of the order parameters, the system arrives at a bifurcation point - into a state from which there are only two exits: either the decay of the system, or the emergence of a qualitatively new system with a new order parameter. The biological hierarchy on the way to a system of social relations, like any system, goes through similar stages. Therefore, a systematic approach makes it possible to simplify the task of explaining the origin of the human way of life, dividing it into two subtasks. First of all, one needs to understand what kind of new ability acquired by hominids has become a disturbing factor for physical strength as an order parameter. What "innovative" actions carried out by this ability have destroyed the biological hierarchy? In other words, what actions of hominids led the system of biological hierarchy to a state of instability, to the point of bifurcation? These "innovative" actions can be figuratively called the last animal acts. The fact of humanity's existence demonstrates that our ancestors not only brought the biological hierarchy to the point of bifurcation, but also found a way out of this critical state by creating a qualitatively new system of social hierarchy. This raises the second question: what actions of hominids were the first human

¹Gebo DL. Climbing, brachiation, and terrestrial quadrupedalism: historical precursors of hominid bipedalism. *Am J Phys Anthropol*. 1996;101(1):55-92.

²Vishnyatsky L. *Weak link*.

³Vishnyatsky L. Man in the labyrinth of evolution. "Vek 2," Fryasino. 2005;118.

⁴Mayer R. The prehistory of humanity. AST Astrel. Moscow. 2006;167.

⁵Edey M. *The missing link*. Time life books. 1972;116.

⁶Keith A. *Full text of Keith-a new theory of human evolution*. Watts & Co., London. 1948;86.

acts or the initial historical acts, from which human history began? To understand the content of the “innovative” actions of hominids, it is necessary to use the approach to the study of evolution developed by Hegel.⁷ He spoke of development as a process governed by his “germ”: being-in-itself. Here, the most important point is that the highest stage of development — being-for-itself — has the same content as the original stage but in a different form. This brings us to the second most important point: when studying evolution, it is necessary to consider it from the highest stage to the lowest. Having established the content of the highest stage, one can draw logical conclusions (rather than hypotheses!) about the content of the initial stage of the process.

New abilities acquired by living beings are not lost by them. Therefore, the ability of hominids, which has become a disturbing factor as their physical strength became an order parameter and thus destroyed the biological hierarchy, exists in modern humans. However, in order to isolate this ancient ability from many later human abilities, it is necessary to conduct a kind of “excavation” of its need-ability structure. The situation is clarified by the fact that, firstly, this ability concerns the physical struggle (fight) between individuals. Secondly, it appeared only in human ancestors, whereas in other primates this ability did not emerge because, in bands of modern apes, there is still a biological hierarchy. Therefore, comparing the characteristic features of the struggle between modern apes with similar features of struggles between modern people, we will see what kind of new ability the most ancient of human ancestors had found. A key observation, showing how the struggle among apes differs from the struggle among people, is the observation made by W. Kohler. This ingenious observer noticed that apes in a game can threaten each other with sticks but, if it comes to a real fight, they discard their sticks and fight with their fists and fangs.⁸ Apes are not capable of armed struggle against each other, while people practice it constantly. Here is the key to the behavior of hominids that have embarked on the path of humanization! Using the position of Hegel concerning the identity of the content of evolution’s initial and higher stages, we can conclude in a strictly logical (rather than hypothetical) way, that the hominids who became the ancestors of man were distinguished from all primates by mastering the skill of armed struggle against each other.

Result

In search of a factor that prevented physical strength from being a parameter of order in the system of relationships between members of a hominid band, we came to the conclusion that such a factor was the skill of armed struggle between members of the band. Armed struggle creates the effect of David and Goliath, known from the Bible as result of which, a less powerful hominid, in the struggle for an item of need, can defeat the powerful leader of the band due to a better choice of weapons. It is clear that the armed struggle demanded the release of hands from locomotor functions in order to hold the weapons of struggle. Thus, the origin of bipedalism is explained within the framework of solving the problem of the reason for the elimination

of relations of biological dominance on the way to the formation of social relations.

But the authenticity of the “invention” by human ancestors of internecine armed struggle is beyond doubt! People still widely use this ability, inherited from their ancient ancestors, while the rest of the primates remain unable to engage in armed conflicts with each other. Mastering the skill of armed struggle can be called, without exaggeration, the Great Hominid Revolution, since through this “invention,” our ancestors challenged natural selection. Using it, they first overthrew the despotism of physical force and, secondly, made bipedalism necessary. Russian scientist A. Markov writes about the choice of the most convincing hypothesis concerning the origins of bipedalism: “Entire articles and even books are devoted to arguments in favor of each of these hypotheses, but none of them has direct evidence. In such cases, in my opinion, it is necessary to give preference to hypotheses that have additional explanatory power, that is, they explain not only bipedalism, but at the same time some other unique hominid features. In this case, we will have to make less controversial assumptions”.⁹ The concept proposed here of bipedalism origins is, firstly, not a hypothesis, but a logical conclusion. Secondly, this concept explains two features of the evolution of hominids: the emergence of bipedalism and the destruction of the biological hierarchy.

Conclusion

The application of a systematic approach to explaining the origin of the human way of life once again showed the effectiveness of his methodology.¹⁰ The identity of the laws of evolution of any system allows us to divide the specified task, posed in a general form, into two subtasks: 1) what was the last animal act that put an end to the system of domination based on the physical strength of individuals; 2) what was the first human act or the initial historical act that marked the beginning of human history. Using the approach to the study of evolution, proposed by Hegel in combination with the discovery of W. Keller, the fact that anthropoids are not capable of armed struggle with each other, we come to a purely logical conclusion that the ancestors of man stood out from all primates in that they mastered the skill of armed fighting each other. This skill required the release of the forelimbs from locomotor functions in order to hold the weapons of struggle. Thus, the content of the last animal act already required a transition to bipedalism. Mastering the skill of armed struggle with each other did not at all mean the beginning of the formation of a human way of life. One cannot say that armed struggle with each other created man. The hominids who mastered this skill remained animals. This struggle created a bipedal animal and nothing more. But the discussion of the content of the first human action is beyond the scope of the issue indicated in the title of the article. The author of an adventure novel would write here: “to be continued.” If there will be desired of the editorial board this discussion can be continued in the next article.

⁷Peruanskiy S. *Basic theory of human origin based on Hegel's philosophy*. Hegel-Jahrbuch. 2019;1:559–565.

⁸Kohler W. *Intelligenzprüfungen an Menschenaffen*, Verlag von Julius Springer in Berlin. 1921;60.

⁹Markov A. *Human evolution: monkeys, bones and genes*, corpus. Moscow. 2013;56.

¹⁰Peruansky S. *A theory of human origin and evolution based on Hegel's philosophy*. Cambridge scholars publishing, Cambridge. 2020.