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What Can Ants Teach Us

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Abstract

The transition of a species in the course of evolution to a social way of life intensifies the use of environmental resources by the population. This destroys the ecosystem. The population faces the problem of adapting to life in a new environment. The ants that entered public life 110-130 million years ago have already solved this problem. They solved it because they evolved by natural selection, the units of which were communities. Mankind, which has passed to social life much later than ants, has yet to solve the problem of adapting to existence in the biosphere it destroys. For it to be solved, it is necessary that humanity evolve through natural selection, the units of which would be societies. Globalization, uniting humanity into one society, will make the natural selection of societies impossible. Therefore, it will be an obstacle to the adaptation of humanity to life in the new biosphere it creates.

Keywords: Globalization; Human evolution; Ants

Editorial

But the role of science is to understand how the world works, not to tell us what we want to hear [1].

A social lifestyle is led by humanity, that is, Homo sapiens, and social insects, for example, ants. The ancestors of ants were solitary. They were a necessary component of ecosystems and did not destroy them, but strengthened them by their presence. The transition of the ancestors of ants from a solitary lifestyle to a social one intensified their use of environmental resources. The intensification of their use, as can be seen from the example of mankind, causes the destruction of the habitat of the species. Ants, having begun to live in communities, began to destroy their habitat. By doing this, they began to undermine the reliability of their existence. But the transition in ants to life in communities occurred a very long time ago - 110-130 million years ago [2]. For such a long time, they managed to adapt to life in the environment they changed, and ecosystems, evolving, managed to adapt to coexistence with ants. Now ants are a necessary component of ecosystems. They are a thriving group of species. Human societies arose much later than ant communities. We have yet to become a necessary component of the biosphere. We have not yet had time to adapt to our changed environment. To successfully integrate into it, we need to take into account the historical experience of ants. The purpose of this article is to discuss why ants have achieved evolutionary success and what we should not do to keep our environmental problems from getting worse.

After the transition to a social lifestyle, ants began to evolve through natural selection, the units of which were not individuals, but communities of individuals. In the selection at the community level, more individuals were eliminated simultaneously than in the selection at the level of individuals. Therefore, the evolution of ants during their transition to a social lifestyle accelerated. Those populations survived whose evolution kept pace with the changes in the ecosystems they destroyed, and those that destroyed them less than others. The populations that destroyed ecosystems more than others and did not keep up with the changes taking place in them were eliminated. This led to a gradual weakening of the harmful effect of ant communities on ecosystems and to their incorporation into ecosystems. Now ants do not destroy the ecosystem anymore. They have solved the ecological problem. They thrive on Earth. In terms of numbers, they dominate among arthropods. Ants are distributed all over the world, with the exception of Antarctica and some remote islands, forming 15% - 25% of the biomass of land animals, and in the tropics more than 25% [2]. Ants owe their evolutionary success in many respects to the acceleration of evolution, which occurred due to the fact that not individuals, but communities of individuals became their units of natural selection.

The transition of human ancestors from a solitary lifestyle to a social one took place much later than the transition of ant ancestors to life in communities. Human societies are just beginning to integrate into their habitat, and the biosphere is just beginning to adapt to coexistence with humanity. By the term “human societies”, I mean the prehistoric tribes of hunter-gatherers and the states of the Ancient World, Antiquity, the Middle Ages, Modern and Modern times. After the transition to a social way of life, did the ancestors of man begin to evolve by natural selection, the units of which are societies? Could and can human societies be units of natural selection?

In order for systems to be units of natural selection, the following is necessary and sufficient: 1) they must exhibit phenotypic variability; 2) phenotypic modifications in systems must be associated with their different usefulness for them; 3) useful properties of phenotypic modifications of systems must be inherited [3]. In human societies, phenotypic variability is observed. Phenotypic modifications of societies are associated with their different usefulness to them. The properties of societies are inheritable. They are inherited because they have an analogue of the organism’s genotype. It is the totality of the genotypes of their constituent people and the totality of hereditarily fixed connections between people. The bonds between people are not only genetically fixed. They are also determined by upbringing, education, customs and legal laws, which are passed down from generation to generation, that is, they are also inherited. Thus, human evolution followed the path of natural selection, the units of which

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were not only individuals, but also societies.

The demise of naturally selected societies was the greatest disaster for the members of these societies. But it increased the reliability of human existence. It also increases the reliability of the existence of the population by the elimination of natural selection of individuals insufficiently adapted to the habitat. The principle of natural selection is universal [3]. The history of mankind is the history of the natural selection of societies. Societies are not only social systems, but also biological ones. Like any biological system, humanity adapts to the changes taking place in its environment. The screening out of societies less adapted to the environment is the adaptation of humanity to changing the environment. With the help of natural selection of societies, humanity is looking for a way of society that would weaken their destructive effect on ecosystems and that would increase the resistance of societies to external damaging forces. The societies that destroy their habitat less than others and those that are most resistant to damaging external influences have had and still have an evolutionary advantage. As a result of the natural selection of societies, the incorporation of humanity into the biosphere, albeit very slowly, is proceeding. As a result of the natural selection of societies, their resistance to external damaging influences also grows.

The evolution of mankind during its transition to a social way of life, like the evolution of ants during their transition to life in communities, has accelerated. It accelerated because societies became the units of natural selection, and due to this, more individuals began to be eliminated at the same time than during selection, which went only at the level of individuals. Humanity has achieved evolutionary success largely due to the fact that it evolved by natural selection, the units of which are not only individuals, but also societies. But this success is fragile. By destroying the biosphere, a person creates a new biosphere, to life in which he still needs to adapt. For the prosperity of mankind to continue, it is necessary that the rate of its evolution be no less than the rate of change of the biosphere it destroys. Therefore, it is necessary that humanity continue to evolve through natural selection, the units of which would be societies.

The evolution of mankind through natural selection of societies will become impossible if globalization occurs, that is, the world economic, political, cultural and religious unification of societies. Globalization is aimed at smoothing out all the differences between societies and uniting them into one society. The adaptation of globalized humanity to life in the changing biosphere destroyed by it will follow the path of natural selection, the units of which will be only individuals. Natural selection, the units of which are societies, will cease. But man cannot evolve quickly. It cannot because the duration of his life is long, and maturity comes late. Nor can it because society will take effective measures (medical and others) to prevent natural selection from screening out people who are insufficiently adapted to their environment. Therefore, the evolution of mankind, if globalization occurs, will slow down and begin to lag behind the evolution of the biosphere it is destroying. In the distant future, this will inevitably lead to new and unexpected environmental consequences.

If in a very distant future humanity will integrate into the biosphere and stop destroying it, then the biosphere will continue to change. She will evolve. Therefore, in the very distant future, the need for the ability to evolve quickly will remain for humanity, since in order to survive in the evolving biosphere, humanity will also need to evolve and evolve fast enough to keep up with the evolution of the biosphere. Therefore, even then globalization will be unacceptable, since it will slow down the adaptation of mankind to life in the evolving biosphere and give rise to new unpredictable environmental problems for mankind.

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