Mutual aid in the animal kingdom

A new theory on the struggle for existence

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1915

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I

Recently, Maruzen has released a new edition of Peter Kropotkin's famous work, Mutual Aid. It was first published in 1902 and has been reprinted almost every year since then, but due to the needs of the intellectual world regarding the Great War since last year, it was released at the beginning of this year as a 50-sen edition, four times cheaper than the previous edition.

Today's war, and especially to comment on Germany's attitude, the ideas of Treitschke and Bernhardy are being loudly debated all over the world. Or rather, in fact, they are sweeping almost the entire world. The fundamental ideas of Treitschke and Bernhardy are survival of the fittest. Survival of the fittest. A struggle for survival in which victory or defeat is decided by violence and strategy. All events accompanying war are approved by this idea, and war itself is equally approved by it. Some even go so far as to claim that evolution is in competition, that war is the force that gives birth to civilization, that it is the most important biological necessity that is indispensable. The new edition of Mutual Aid appeared to counter this trend of thought and to spread a new meaning of the struggle for existence, that is, the idea of mutual aid.

This is not just war. All social phenomena, large and small, are always immediately interpreted and approved in the name of the struggle for existence.

Since Darwin published On the Origin of Species, the theory of evolution has become the foundation of all science and philosophy. And the struggle for existence or survival of the fittest, which is the basis of this theory of evolution, has become like a master key to solving all problems in the universe. However, this key is not only handled by scientists and philosophers. It is used by almost anyone, anywhere, without any hesitation. In particular, when observing and judging any social phenomenon, there is no other term in natural science that is more widely applied than the struggle for existence.

I will not discuss here whether or not biological facts or laws can be directly applied to social science. However, is the struggle for existence, as it has been generally understood, really the entire truth of the biological or human world, and is it the entire element of evolution? What answer does Kropotkin's "Mutual Aid" give to this question? I would like to recommend this masterpiece to the Japanese reading public, and introduce the gist of it below.

II

I said that Kropotkin's theory of mutual aid is a "new theory on the struggle for existence." However, strictly speaking, this is not a new theory, but rather a correct answer or supplement to Darwinism.

The term "struggle for existence" used by Darwin originally has two meanings, broad and narrow. That is, in "On the Origin of Species," it has a broad metaphorical meaning, including not only individual organisms competing for food with each other, but also many organisms relying on each other and supporting each other to fight against the external circumstances. He also clearly explains that it includes not only the competition for the survival of individual organisms, but also the competition to leave offspring. Darwin also warns us not to overemphasize the doctrine of the struggle for existence, and in "The Descent of Man," he explains the original broad meaning of the term "struggle for existence" in more detail. In how many animal species, the struggle for food has disappeared? How cooperation has taken the place of conflict between

species. Also, how it results in the development of intelligence and morality, and how it eventually becomes the first condition for the survival of a species. Darwin gives many examples of these facts. He also teaches us that the fittest are not those with the strongest physical strength or the most cunning temperament, but those species in which the strong and the weak cooperate and know how to depend on each other for the good of the whole society.

However, Darwin himself mainly collected explanatory material from the two aforementioned aspects, particularly the struggle for existence in the narrow sense, that is, the individual struggle for food, and other more important aspects were completely hidden behind it. And it seems as if he completely forgot about the struggle for existence in the broad sense. For evolutionists after Darwin, this evil became even more severe, and they even went so far as to argue that the animal world was a battlefield of bloodthirsty hungry monsters, and that constant and brutal struggle for individual gain was the unshakable principle of the living world. And it was none other than Huxley, recognized as one of the most influential exponents of Darwinism, who restricted the struggle for existence to this narrow definition and applied it to human society. In "The Struggle for Existence and its Effects on Mankind," he said the following about primitive humans: "The weakest and the most foolish perish; the most savage and the most daring, that is, those best able to resist the forces of their circumstances, survive. Life is a perpetual struggle for freedom. Outside the limited and temporary relationships of the family, the war of the individual against all that Hobbes preaches is the normal state of existence".

Thus, Huxley also acknowledged the private ownership of property that is the basis of today's social system, and the resulting gap between rich and poor. In Japan, Dr. Hiroyuki Kato and Dr. Asajiro Oka are good representatives of this Huxleyian school. And finally, the term "struggle for survival" was applied to every aspect of everyday life in human society, and all aspects of human life, whether it be selling out friends to gain power, bending the rules to make wealth, killing others, or hanging oneself, came to be summed up in the term "struggle for survival". As long as oneself is good, one does not care about others, and in fact one would rather kill others in order to live oneself, this base egoism has taken on the appearance of being scientifically blessed.

III

Kropotkin was also not the creator of this theory of mutual aid, which is the correct answer or supplement to Darwinism.

Haeckel said that the poet Goethe was the creator of the theory of evolution. In fact, Goethe had a great deal of genius in natural history. The idea of mutual aid had already resided in his mind. It was nearly 90 years ago. One day, Goethe's friend Eckelmann came to visit him and told him a strange incident. It was that two wren chicks that Eckelmann kept had escaped from their cage, and the next day they were found under the wings of a robin together with their children. Goethe was so moved by this story that he exclaimed, "If such facts were to be found to be general laws throughout the natural world, many mysteries of the universe that have not been solved until now would be satisfactorily solved". He enthusiastically encouraged Eckelmann, a zoologist, to research this subject, believing that the key to unlocking the treasures of nature would surely be found there, but unfortunately, this research was never started. However, Brehm later compiled a wealth of material about the mutual aid of animals in his books, no doubt motivated by Goethe's words.

However, this vague idea that Goethe had only acquired through his imagination was finally clarified over the next 50 years by the scientific research of a Russian zoologist, Kessler. In early 1880, Kessler presented the results of his research at a meeting of Russian naturalists, entitled "On the Law of Mutual Aid". Among the scholars who inherited Darwin's theory of evolution, Kessler, the rector of a Russian university, was probably the first to recognize the mutual aid of living organisms as a law of nature and a major element of evolution.

Kessler, as an "old zoologist," could no longer keep silent about the misuse or at least overemphasis of the term "struggle for existence," which originated from zoology, by many scholars. In his lecture, he explains that zoologists and other scholars of the sciences related to mankind constantly insist on the law of the brute struggle for existence, forgetting that there is also the law of mutual assistance, and overlooking that this law is far more important, at least for animals, than the law of the struggle for existence. He goes on to explain that animals gather together in order to reproduce, and that "the more individuals combine together, the more they help each other, and the greater the chances of the survival of the species and the increase of intelligence." He also explains that "all classes of animals, especially those belonging to the higher classes, necessarily practice this mutual assistance," and proves his theory with examples from the social life of beetles, butterflies, and various other mammals. Finally, he explains that this mutual aid plays a more important role in the evolution of human beings than the so-called struggle for existence, and concludes as follows:

> I do not deny the struggle for existence by any means. However, I would like to argue that the evolutionary development of the animal kingdom, and especially of human beings, is promoted more by mutual aid than by mutual struggle. All living things have two fundamental needs: self-nutrition and the propagation of the species. The former leads animals to mutual struggle and slaughter, while the latter leads them to mutual affiliation and assistance. However, I would rather argue that in the progress of the organic world, mutual aid between individuals is far more important than mutual struggle.

Kessler's lecture greatly moved the hearts of the Russian naturalists who attended the conference. And Kropotkin was one of them. He was inspired by this lecture, which was merely a slight expansion of a portion of Darwin's The Descent of Man, and from then on he set out to collect material to further develop this idea.

IV

However, it was not Kessler's lecture that first drew Kropotkin's attention to this issue. Immersed in a true scientific spirit that bases any idea on fact and requires that it be examined in the light of fact, and therefore never neglects to observe the facts for even a moment, Kropotkin had long been skeptical of Darwinism's so-called struggle for existence, and the great idea of mutual aid had been budding in his broad-minded mind. He himself states at the beginning of the introduction to Mutual Aid: "When I traveled in eastern Siberia and northern Manchuria in my youth, two aspects of animal life made the deepest impression on me. On the one hand, I saw the numerous species of animals engaged in a fierce struggle for existence against the harsh nature of these regions; I saw the periodic destruction wrought upon animal life by the forces of nature,

and the resultant extremely sparse number of animals over the vast areas I was able to observe. And on the other hand, even in a few areas where the animal population was extremely dense, I earnestly sought to find a fierce struggle for means of survival, but was unable to find it among animals of the same species. This struggle for food among the same species is recognized by the majority of Darwinists as the main characteristic of the struggle for existence, and is considered to be the main factor in the evolution of living things."

Towards the end of winter, terrible snowstorms sweep across the northern parts of Eurasia, followed by icy frosts that cover the entire land. These blizzards and frost strike back again in mid-May, when flowers bloom and insects play, as they do every year. In July and August, the first frost and snow fall, killing millions of insects and birds' second eggs at once. Even in warmer regions, in August and September, the moisture carried by the winds of the Indian Ocean turns into torrential rains, flooding a vast plain the size of all European countries. In November, an area the size of Germany and France is buried under heavy snow, making it impossible for ruminants to live, and countless animals starve to death.

During his travels, Kropotkin observed and studied the lives of animals living in such climates in northern Asia. Darwin called this stern struggle against nature, that is, the fact that living things are limited in their reproduction by natural forces, "natural obstacles to over-reproduction," but Kropotkin could not help but acknowledge that this obstacle plays an important role in the animal kingdom. But at the same time, he also found that the fact of "struggle among the same species for ways of survival" that evolutionists preach, even if it does occur under certain special circumstances, is nothing compared to the natural obstacles mentioned above. It is a striking fact found throughout the vast North Asia, which occupies most of the earth, that there are rather too few animals than too many. Where there are such a small number of animals, there can be no terrible struggle for food and survival among the same species, as many scholars say. Therefore, there can be no way that this struggle plays an important role in evolution, which creates new species.

On the one hand, Kropotkin had such doubts, and on the other hand, he discovered new facts that further confirmed his suspicions and suggested a different law. That is, in the lake region, tens of species and millions of animals live in colonies on the lake shores to raise their offspring. There are also places where rodents form groups and colonize. There are also large migrations of countless birds. When the fields and mountains in the north are covered in heavy snow, thousands of deer gather from far and near and cross the Heilongjiang River to the south in search of the shallows. Every time Kropotkin saw these scenes, he realized that the great fact of mutual assistance rather than competition for food is taking place in the animal kingdom, and he felt that this fact is the greatest factor that sustains the lives of animals, preserves their species, and helps their future evolution.

After seeing the semi-wild cattle and horses of Trans-Baikalia and wild ruminants in various places, Kropotkin was finally able to draw the following conclusion. "When animals encounter such natural obstacles and struggle with lack of food, the whole species of animals that suffer such disasters suffer such a great blow to their health and energy that they fall into a miserable situation from which they cannot easily rise. It is therefore hard to believe that the evolution of the species could have begun during such a period of intense struggle".

Therefore, when Kropotkin later studied the relationship between Darwinism and sociology, he could not accept the theories of scholars on this issue. Scholars equally emphasized that humans can reduce the intensity of their struggle for existence with their advanced intelligence

and learning. However, at the same time, they also acknowledge as a permanent "law of nature" that an animal fights with another animal of the same species, and that a human being fights with another human being, in order to obtain a means of living. But for Kropotkin, to believe in the brutal struggle for life among fellow beings and to accept that this struggle is a condition of evolution was to believe in facts that had not yet been proven and to accept things that had not been directly observed.

At this time, Kropotkin was deeply moved by Kessler's lecture and saw a light of a path shining before his eyes. Since then, he has worked enthusiastically to collect facts. He firmly believed that the publication of a book on mutual aid as a law of nature and as a factor of evolution would surely make up for a major deficiency in the academic world.

When Huxley published his previously mentioned "The Struggle for Life and its Effects on Mankind" in 1888, Kropotkin was infuriated by the gross misrepresentation of the facts of nature and decided to present a major refutation to the leading evolutionist of the time. This work, "Mutual Aid," was published once or twice a year in the journal "The Nineteenth Century" between 1890 and 1896.

V

Mutual Aid consists of five chapters: "Mutual Aid in the Animal Kingdom," "Mutual Aid among Ignorants," "Mutual Aid among Barbarians," "Mutual Aid in Medieval Cities," and "Mutual Aid in Modern Society".

If mutual aid were merely discussed as a fact or law of the living world, the chapter "Mutual Aid in the Animal Kingdom" would have been sufficient. However, as mentioned above, evolutionists, with their idea of the struggle for existence, immediately accepted it as an unshakable foundation of philosophy, history, sociology, and so on. Therefore, after discussing the important role that mutual aid plays throughout the various classes of animals, Kropotkin had to further discuss the value of this factor in the evolution of mankind. Moreover, it was all the more necessary to discuss this issue, since at that time there were many evolutionists, such as Herbert Spencer, who acknowledged the importance of mutual aid in the animal kingdom, but still refused to acknowledge it among mankind. They preached that among primitive man, the war between each and everyone was the whole law of life. Kropotkin devoted one essay each to the Age of Ignorance and the Age of Barbarism in order to demonstrate to what extent this assertion, which has been repeated too easily since Hobbes without sufficient criticism, can coincide with the actual state of human evolution.

Having explained how widely and powerfully the systems of mutual aid developed in the first clan and village periods of mankind through the creative genius of the ignorant and barbarian peoples, and having considered how much these systems have helped the progress and development of subsequent periods, Kropotkin felt the need to advance his exploration further into post-historic society. In particular, he directed his most interesting observations at the so-called free cities of the Middle Ages, which are known in European history as the Dark Ages. For him, these Dark Ages were in fact the Age of Light. Indeed, this piece, "Mutual Aid in a Free City," is the one in which he made the greatest effort to describe the general situation and its influence on modern civilization, and is a major piece of writing that is full of original ideas and suggestions.

Finally, Kropotkin explains that the instinct for mutual aid that humans have inherited over the long history of evolution still plays an active role as the foundation of society, even today, under a system that is the most unfavorable to the development of this instinct.

These four pieces, from the Age of Ignorance to early modern society, are a kind of human history, a social history, that shows that there exists a separate and more important history than the history of conventional history books, which merely records anecdotes about sovereigns and the state of war. Thus, this book not only provides new materials and ideas for biology, history, and sociology, but also suggests a new direction for ethics and philosophy.

Traditionally, love, sympathy, and sacrifice were considered to be the fundamental foundations of morality or social spirit. However, attributing the social spirit of animals solely to love and sympathy diminishes its universality and value. Furthermore, if we base human morality solely on love and sympathy, we cannot interpret human emotions as a whole. Love, sympathy, and sacrifice are certainly important elements in the upward evolution of moral feelings. However, the basis on which society is established between animals and humans is by no means love or sympathy. It is an instinct that has quietly developed in animals and humans through a very long evolutionary process, deep within those emotions. And this instinct has taught animals and humans that the spirit of mutual assistance is a great force, and that they can enjoy pleasure by living in society. More specifically, the basis of social spirit or morality is the unconscious recognition of the power that mutual assistance gives to each person. It is the unconscious recognition of the close relationship between the happiness of each person and the happiness of all. It is also the unconscious recognition of the sense of justice that requires us to respect the rights of others as well as our own rights. On this broad and necessary basis, loftier moral feelings develop.

Kropotkin's On Mutual Aid, like Darwin's On the Origin of Species, is almost entirely a list of facts. However, some may criticize that the animals and humans that appear in this book have only been observed in a way that is convenient for the author's argument, and that only the social nature of animals is emphasized, while their non-social, selfish instincts are completely ignored. Kropotkin responds to this criticism by saying:

"We hear much these days of the 'savage and merciless struggle for existence." The assertion that every animal is engaged in this struggle with every other animal, every savage with every other savage, and every civilized man with every other civilized man, has become an article of faith. Above all, it was necessary to counter this theory by giving numerous examples which show that man and other animals live in a completely different aspect of their lives. It was necessary to show the importance which social temperament has played in the natural world and in the evolutionary development of man and animals. He also had to prove that this social disposition gives animals the advantage of obtaining food and the power of defense, and that it prolongs their life span, thereby promoting the increase of their strength; and that this disposition has given human society various institutions that have enabled it to prevail in the fierce struggle with the forces of nature, and that, over the course of various historical changes, it has finally achieved the evolutionary development we see today. In other words, this book discusses the law of mutual aid as one major element of evolution, but of course it does not attempt to explain all the elements of evolution or their comparative value.

VI

The idea that runs through Darwin's On the Origin of Species is that there is a real competition, a real struggle, between groups of animals for food, security, and the reproduction of offspring. He often talks about areas that are filled with animals to the maximum extent, and he infers that competition naturally arises from such excessive reproduction. However, when we look closely at his book in search of real evidence of such competition, we find that there are no facts in it that are sufficient to convince us. For example, when we look at the section entitled "The struggle for existence is most severe between animals of the same species and their varieties," we find that, unlike Darwin's usual style, there are no abundant citations in this section. Not a single example of combat between animals of the same species is cited under this heading. It is merely discussed as a fact of course. As for competition between closely related species, he gives only five examples, one of which is at least questionable today. He also cites another South American cow as an example of real competition between animals of the same species, but this is taken from domestic animals and is of no great value.

Thus, the so-called struggle for existence, of which there are very few examples even in Darwin's own writings, has been accepted as axiomatic by scholars who are fascinated by empty theories and neglect actual observation, or who limit their observations to laboratories and zoos. But if we once close the books of these scholars and leave the cramped laboratories and zoos, go into the forests and fields, and climb mountains to study the lives of animals, we cannot help but see the following facts: that while countless conflicts and slaughters take place between different classes of animals, at the same time, and to an equal or even greater extent, phenomena such as mutual aid, mutual support, and mutual defense take place between animals of the same species, or at least between animals of the same group. The social spirit, along with mutual conflict, is a law of nature. Of course, it would be a very difficult task to mathematically evaluate, even roughly, the comparative value of this law. But if we were to ask the question of nature by direct experiment, "Which is the fittest, those who constantly fight with each other, or those who help each other?", we would immediately obtain the answer that the animals that have the habit of mutual aid are indeed the fittest. These animals certainly have a greater chance of survival and are best able to develop their intelligence.

Now, from among the countless facts, I would like to conclude this introduction to "Mutual Aid" by illustrating a part of the social life of ants.

VII

If we take an ant-nest and observe its living conditions, we find that the facts described in many books, that is, the transportation of food, the construction of dwellings, the rearing of offspring, the rearing of moths, and all other tasks are all carried out on the principle of voluntary mutual assistance, without waiting for the direction or orders of others. And not only that, in many species of ants, the most important duty of the society is that each ant must share food with others. And not only with food stored in the storehouse, or with food picked up on the road. If any one of them begs for food from his fellow ants, he must spit out and share with them even food that he has swallowed and that is already half digested.

When two ants of different species, or from nests that are usually enemies, happen to meet on the road, they avoid each other's path and do not approach each other. On the other hand, when ants from the same nest or colony meet on the road, they approach each other and greet each other by shaking their temples for a while. If one of them is hungry and the other is full, the hungry one will immediately ask for food. The one that is asked for food will never refuse this request. It will immediately open its mouth and prepare itself. Then it will spit out a drop of clear liquid, and let its fellow ants lick it up. This fact was first discovered by Forel, but this spitting out of digested food and giving it to its fellow ants is one of the most important phenomena in ant society, and is not a rare and unusual occurrence, but is always done to relieve starving fellow ants and to raise larvae. And if there is a selfish ant that refuses to help its fellow ants even though it is fully full, its fellow ants will treat it as an enemy or even an enemy more than an enemy. Especially if it is in the midst of a war with another species, the fellow ants that were facing the enemy will immediately turn on their heels and attack the greedy one even more ferociously than they would the enemy. Moreover, an ant that is brave enough to share food with an enemy species is treated as a friend by that enemy. These facts are no longer in doubt as a result of the most accurate observations and thorough experiments of Forel and Ubel.

There are more than 1,000 species of ants, and they breed so vigorously that in Brazil, it is said that the country belongs to ants, not humans. However, within the same nest or within the same colony, there is no sign of what is called a struggle for survival. Between the most different species, fierce wars are fought, and in these wars there are many cruel acts. However, within a society, morals such as mutual aid, sacrifice, and dedication are the unshakable rules of that society. White and black ants try to exclude what is called the struggle for survival, but this is in fact why they have become superior in the natural world.

The superior intelligence of ants can be seen even at a glance at their nest. The intricacy of their nests is truly amazing. Their architecture, in proportion to their bodies, is far more magnificent than our stone or brick towers. Their paved roads, vaulted cellars, great halls, and granaries — all of them are worthy of our amazement. Ants also engage in agriculture. They have fields of grain, which they harvest from time to time and produce malt. They use a certain rational method for raising eggs and larvae, and also have special rooms for raising moths. These moths are fine livestock, which Linnaeus called "the cows of the ant society." Furthermore, the courage and stamina of ants are equal to their superior intelligence, and no one can spare a word of praise for them. And all of these strengths are the natural result of the mutual assistance they practice in their hard-working and industrious lives.

As a result of living a life of mutual assistance, there is another remarkable feature in the society of ants. That is, the free initiative is surprisingly developed among each individual. Mutual aid leads to mutual trust, which is the first condition for the promotion of courage. And this free initiative is also the first condition for the development of power. These two spirits are far more important evolutionary elements than mutual conflict in both the animal kingdom and human society. Old scholars taught that in ant societies there are emperors and queens, and that there is someone who directs and commands the work of the whole. However, after detailed observations over a long period of time by Über and Forel were made public, this theory was overturned, and it became clear that ants are not driven by the orders of other authorities, but that each individual acts freely and voluntarily, taking action on their own accord for the good of the whole society. In particular, even war, which is said to be absolutely necessary in human society due to the orders of authorities, is carried out among ants according to the principle of free initiative. It was

this way of life, in which everything was handled solely by each individual's free agreement and initiative, without any interference from the willpower of others, that eventually endowed this tiny animal with intelligence and abilities that even amazed humans, who pride themselves on being the lords of all living things.

VIII

As a result of this mutual aid, ants have almost no defensive organs on their bodies. Their dark brown color makes them very visible to their enemies. Their towering hill-like nests are scattered throughout the forests and fields, making them very visible to their enemies. However, they do not have the protection of a hard shell like a beetle, and their only weapon, their stinger, is not very formidable. Moreover, ant eggs and larvae are a delicacy that most animals living in the forest enjoy. Nevertheless, thousands of species of ants have flourished to the point that they occupy a large part of the animal kingdom, and very few become prey to predators that specialize in ant extermination.

Furthermore, these small insects are feared as fearsome enemies by the large, strong animals that live in the same forests and fields. One day, Forel let a bag of ants loose in a field. The crickets were the first to flee, leaving their dwelling holes to the ants to plunder. The mantises and grasshoppers fled in all directions. The spiders and beetles abandoned their prey and fled with only their bodies. Finally, even the beehives were taken over by the ants. Where did the ants' strength come from? It goes without saying that it comes from their mutual help and trust. With the exception of the most advanced species of termites, other ants still rank first in the insect kingdom in terms of power. And only the most courageous vertebrates can match the courage of the ants. And according to Darwin, "the brain of the ant is composed of the most exquisite cells, superior to the brain of man".

However, the white and black ants have not yet reached the advanced idea of organizing a great unity that includes all their species. Their social instincts hardly extend beyond the limits of a single nest. Nevertheless, Forel states that colonies of more than 200 nests of two different species were found on Mount Tendre and Mount Sareib. According to Forel, the members of these colonies were friendly with each other and formed a defensive alliance. Mack also discovered the surprising fact that 1,600 to 1,700 nests of ants had formed a united group in Pennsylvania and were friendly with each other. Bates also saw two or three species of termites building common dwellings and connecting the anthills with vaulted corridors.

I would like to use this suggestive social life of ants to represent the mutual aid in the animal kingdom described in Kropotkin's book, and at the same time, I would like to reflect on the life of our own human society together with my readers. I said earlier that "the conditions today are most unfavorable for the development of this instinct." However, even in today's society, if we look at our own lives, we can see right away that we gain far more from mutual aid than from mutual struggle. And yet we have no idea how much we are troubled and tormented by what is called "today's society, where the struggle for existence is the most intense."

And so, in order to help us fully reflect on this fact, I would like to reiterate once again that I sincerely recommend this masterpiece, "On Mutual Aid," to my reading public.

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