



World Conscience. Model of a Social Crystal

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Abstract

In this paper we will try to verify the hypothesis about the synergy of the systems of man and humanity. This makes it possible to put forward the following hypothesis: about the possibility of the appearance of the World Conscience - the next level of human rationality. One indication of this is, we believe, the structuring of humanity in the form of an “aperiodic social crystal”, the concept of which was introduced by Erwin Schrödinger. This model defines the essence of the social element, while its being is determined by another model - the model of a nonlinear oscillator (nonlinear pendulum). The model of human development is a system with feedback – the individual builds more and more complex social systems - actors which, in turn, build up an increasingly complex topology of consciousness, influencing the anthropology of man. The higher the number of social systems and the more complicated they are, the greater changes occur to the individual and the more intelligent the behavior of the actor becomes, which determines the importance of multiple social rebuildings, reformatting the “social crystal”, which Bruno Latour focuses on in his work “Rebuilding the Social” (5). But only through just increasing the number of rebuildings it is impossible to accelerate the evolution, since in the model of a nonlinear oscillator there are several parameters defining it. This model contains both the principle of the appearance of the actor, and the time of its necessary existence - the time of its adaptation by the universe.

Keywords: humanity, actor, nonlinear oscillator, system, aperiodic crystal, correlation, synergetics.

1 The World Conscience as the Quintessence of the World Soul

The crisis of spirit, the loss by Christianity of its positions, the interweaving of world religions and the active mixing of races - all this speaks of the urgency of the emergence of a new idea that could unite all humanity to solve not only earthly but also cosmic tasks. It took four billion years to create a unique object – a human who does not only contemplate evolution from the outside, but can also accelerate it: “man, thanks to his imaginative, recursive thinking, can accelerate natural evolution” (12). And each time over this period, nature first creates the largest possible number of species of some of its creation, in order to unite this diversity into a new society “when, at the end of each shoot of the tree of life, phylum elements take their final form, they are just as certain in their movement towards approaching and socialization, as atoms of a solid body tend to crystallize” (15). Thus, nature needed to create a multitude of complex molecules, which united in cells, as a result of which eukaryotes and prokaryotes appeared. Then eukaryotes united in organisms, creating all the diversity of life on the planet. Organisms, in turn, began to unite in social groups. One of the brightest explications of the social can be observed in the life of hymenoptera, when a complex society is much more than the sum of its individual members. The behavior of a society of insects is determined not by the psyche of the individual, but by the cognitive ability of the whole group at once. The association of higher animals into

groups has also been observed throughout history, but such groups, unlike hymenoptera, most often have a one-dimensional structure and only with the advent of rational man does society gradually acquire a complex multi-dimensional fractal type hierarchy. Fractal is easy to imagine, remembering a snowflake, the coastal zone of the sea or a tree (6). Its main qualities are the repeatability of the picture when changing the scale, the singularity of the transition between the levels and, most importantly, the actual dimension of the structure under consideration is higher than the topological one (that is, such a structure actually contains much more than it could have visually). Without going deep into the morphology of a human, one can say that his fractality is its most important component. Virtually all systems - the blood-vascular, the nervous system, as well as organs (lungs, liver, etc.) - have a fractal structure, which was acquired in the process of evolution. The brain in its early stages had a smooth structure, and only later acquired folds and fractality. “The reasons for the positive relationship between the size of the group and the brain volume in primates are quite obvious” (7).

A very important concept for evolution is the boundary associated with the concept of sustainability. The formation of a boundary in a society determines the end of a quantitative evolutionary process just like the appearance of a membrane in a cell limited its growth in size and further evolution took the path of combining cells into different groups. But, at the same time, the internal evolution of the cell occurs, its

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complexity increases with time. Similarly, a society that has ceased to grow quantitatively complicates its internal organization. Similarly, a cell society called the brain, bounded by the skull, increased its internal complexity by acquiring a fractal structure. At this stage, it is not the number of members in a society that becomes important, but the number of connections between them. Each extra connection is a significant contribution to the development of cognition. This led to the emergence of human intelligence.

In animals, high mental activity can also be observed, but it has a linear and occasional form, and only in humans does the mind acquire a hierarchical structure. "In animals in one form or another, many (almost all) aspects of thinking and behavior that were traditionally considered 'purely human' have been found (7). The human mind acquires the ability to combine these "cases of high mental activity" into a single duration and the ability to rise above by categorizing them. *One of the most important cognitive manifestations of the mind, which allowed the human mind to perform this work, is the metaphorical nature of consciousness.* Due to metaphorical nature, man discovered the consistency observed in nature, the similarity between different "cases of high mental activity" and different gestalts. The man seemed to draw a line between himself and his activity, which allowed him to make transfers of meaning by connecting the current moment and the nearby ones. Then Kant's metaphor that a person's mind is able to detect structures that are already a priori contained in him acquires a physiological sense. One can speak about a certain system with feedback: the brain in the process of evolution acquires an increasingly complex (fractal) structure, which makes it possible to increase the cognitive ability and to explicate more and more complex correlations through language. And vice versa, man, through language, inductively creates more and more complex social (fractal) systems, the explication of which changes the topology of consciousness. And then the structure of the brain evolves with the language and with society. Noam Chomsky wrote about the similar structure of the proto-language in his work "On Nature and Language" (14). He saw the presence of a protolanguage in the mind of the infant and the activation of the connections of the language in the form in which it is inherent to the parents. Roughly speaking, *the "switches" (connections that form rationality) are set in the same form as they are in the case of the parents.* But of course, rationality is primarily determined by the level of activation, and therefore, no matter how topologically complex a structure is, a human who grew up in an animal family will remain an animal. In a normal situation, rationality follows the topology of the brain, which undergoes biological complications as social systems become more complex. This is how the emergence of consciousness is manifested.

But the reverse should also be true: if the complication of actors has led to such a complexity of the brain topology that a rational man has appeared, then an actor (humanity) with more complexity than a man (man being one of its elements) should obtain a new kind of mentality. Indeed, the human society from the linear organization of a prehistoric tribe has become a complex structure. And here we see the limited nature of the human society in the size of the earth, just as the size of the brain is limited by the cranium, which implicitly leads to the end of quantitative evolution and the transition only to qualitative changes. *And it is absolutely logical to*

induce and assume that human society is the next step in the mental development of a complex molecule and its socialization (molecule - cell - organism - man - society). "The cage has become an 'important person.' After a grain of matter, after a grain of life, finally, a grain of thought was formed" (15). *And as we saw earlier, for the emergence of the world mind it is necessary to draw a line between social thinking and society.*

The idea of Plato's world soul, lost in the medieval scholasticism, reappears in the Renaissance in Schelling's works and transforms into the world spirit of Hegel, which, in turn, is explicated by national spirits, which leads to social contradictions. And finally, Hegel believed that when the world spirit abandons doubts, contradictions would be resolved and the "Kingdom of Freedom" would come. In the twentieth century, Pierre Teilhard de Chardin grasped the idea of John Haldane's integrated intelligence, the disclosure of which resulted in the work entitled "The Phenomenon of Man", where Chardin revealed his idea of the intention of humanity to achieve a certain point of Omega. "A thought can be extrapolated only in the direction of super-thinking, that is, super-personalization" (15). In parallel with him, Vernadsky in his work "Noosphere" created the concept of the thinking shell of the earth.

In the present work, the author will stick only to the transitional stage in the formation of the noosphere, taking only humanity and its external quality - sociality as the subject of research. The author will turn to Bruno Latour and his work "Rebuilding the Social: An Introduction to Actor-Network Theory" (5), where all social groups are designated as active actors linked together in a social network. It seems that in order to study global society, it is more convenient to use the metaphor of an aperiodic crystal, rather than the metaphor of a network, and to understand how society is condensing, how various actors evolve, increasing the complexity of such an actor as humanity. In the first part, the author will consider the evolution of a separate actor based on the model of a nonlinear oscillator, and in the second part it will be shown how the aperiodic crystal of humanity was formed. In the summary section, a conclusion will be made about the verification of the hypothesis of the emergence of the world mind as a holistic thinking structure of a new type.

2 The two metaphors

Historical processes combine both periods of genesis, periods of growth, and periods of disintegration of social structures. Bruno Latour in his actor-network model insists on not considering stable periods in history, believing that only rebuilding actions produced by society are important for history, since they are as informative as possible. Likewise, one can think, leaving one thought and giving birth to the next. But, just like in the life of an individual, not only the moment of perception is important, but also the period of apperception, in the life of society, it is incorrect to ignore the period of understanding new experience. All history is the absorption of natural or social acts into the personal and social context. This law is explicated in the dictum of Ecclesiastes: "there is time to scatter stones, and there is time to collect them". An individual and a large social group can become actors, but the actor's moment of explication is always the manifestation of his ideas in a particular person. And, if the initial impetus to the development of the actor is given by a specific person, then

the apperception of the social act occurs through the collective actor, the social group that was formed as a result of the social act integrated into the network that Latour calls the sociology of associations. As a result, the actions of society acquire a coordinated, rational form. But for today, the "mind of society" remains at the level of individual explications, individual uncoordinated social "flashes" of intellectual activity, just as animals sometimes show signs of rationality.

The actor, as a social structure, is described by a number of parameters, has its own characteristics and therefore has systemic properties. In the work "Analytical and synthetic stages of evolution of arbitrary systems: ontological features and characteristics" (11), the author of the present article showed that the model of a nonlinear oscillator (pendulum) is as general as possible to describe any arbitrarily chosen system, and which, in addition to the synthesis stage (Latour's "rebuilding"), has a harmonic stage, consisting, in its turn, of the adaptation period, the harmonic period proper, and the stage of chaos. In the same work, it is shown that all periods of the evolution of the system are important: the adaptation stage - the apperception stage is necessary so that the entire culture of society absorbs the actor's derivative, the chaotic stage - the final stage of decay - is necessary as an unstable period, a period leading to the bifurcation point and the subsequent possibility of synthesis. It is the instability of the system that makes it possible to form a new actor and leave the stage of chaos. To produce a new actor during the harmonic stage is extremely energy-intensive.

Thus, in the present article the evolution of the actor will be considered using the model of a nonlinear oscillator. In a similar way, evolution was described by Chardin, representing two types of energy - tangential and radial. If the tangential energy carries the system into a tautological movement, then the radial movement leads to an increase in complexity. "In each element-particle, the fundamental energy is divided into two components: tangential energy, which connects this element with all other elements of the same order, and radial energy, which attracts it in the direction of an increasingly complex and internally concentrated state" (15). Obviously, tangential motion is a circular motion which means the harmonic stage, while radial motion is a change in radius and, accordingly, synthesis. In Chardin's description, the classic idea of the spiral nature of evolution takes the form of a step-spinning pendulum. Accordingly, our model has a more illustrative appearance.

To describe a complex multiparameter system, a metaphor is usually used due to its cognitive power (1). A metaphor is able to convey the structural and dynamic behavior of the system at a certain stage of its evolution. It is an explication of the space-time isomorphism of the behavior of systems from different areas of being, as Ludwig von Bertalanffy (3) pointed out in his work (it is more correct to use the term homomorphism, but Bertalanffy used the term isomorphism). A purely systematic, mathematical approach is able to reflect only dynamic characteristics; unlike it, the metaphorical one can also convey many other parameters, such as rationality.

To describe society, the metaphor of an aperiodic crystal is most appropriate. Unlike Latour's network, the crystal model allows us to explicate significantly more ontological moments related to the density of society, due to the fact that the crystal has more degrees of freedom or, in other words, it is described by a larger number of parameters. The concept of

an "aperiodic crystal" was introduced by Erwin Schrödinger to determine the DNA of a living organism. And, as it turns out, there is an ontological connection between the formation of humanity as an aperiodic crystal and the development of man. Having introduced such a concept, Schrödinger did not give an idea of how such a crystal is formed. The author of the present paper sees its essence in the following: if an atom of a homogeneous crystal is an element of only one cell, then an atom of an aperiodic crystal participates in many different structures and, accordingly, the imposition of these structures on each other gives it an aperiodicity, just like if we combine several pictures of different artists with each other, then, without preliminary preparation, we will hardly sort out what is depicted there. Similarly, social aperiodicity is organized.

Any actor starts with its idea. The idea that formed the core of the actor, in the next moment, begins to multiply, creating smaller-scale subactors that are like the central actor. (All modern trade networks operate according to this principle, colonial relations in previous centuries were built in a similar way, empires had a hierarchy, repeated on different scales). Each subactor has individual differences, determined by the locality where it is formed. But the general form remains the same. In addition, each person participates in a multitude of actors, ensuring their interweaving, increasing the complexity exponentially. Structures having a similar appearance at different levels are called fractals. The fractal form of society is created by the singularity of historical transitions during synthesis. Further, it will be shown that the social crystal acquired a fractal structure much later than the crystal itself began to form, and here a similarity to the human brain can be seen. The growth of social crystals can be viewed from a different angle. An arbitrary crystal, depending on its growth rate, can have a homogeneous structure in the case of slow growth, and fractal structure when it grows rapidly like an ice crystal. Most often, the empires of the last millennium grew with great speed and therefore turned into fractals (Tatar-Mongolian, Tamerlane's Empire, Ottoman).

There are many similarities between society and a crystal, and one of them is indisputable: external homogeneity speaks about integrity and some density, but if we scale down, we will inevitably come to an image where homogeneity decays, and we observe emptiness in the crystal with singular points of atoms, and in society - emptiness with singular units of people. In addition, a social crystal is more like a liquid crystal, since it is continuously transforming or, as Latour puts it, "reassembles".

3 Personality and the society

Society and personality change each other in the process of mutual influence. The personality evolves by interacting with society through the tools of various actors that the person currently represents. "The results obtained represent a serious evidence in favor of the hypothesis of cultural intelligence" (7). These groups, actors, systematized in one way or another, at different levels of the hierarchy, subsequently fractal, are created through the willful efforts of certain individuals.

Actors can be described using a number of parameters (general geography, internal rules, laws). But, in addition to this, an arbitrarily taken system of a natural or artificial character has co-phase character. This is the seemingly insignificant element, which organizes chaos in order, which distinguishes one from the other. The personality that has

formed the group determines the co-phase character of the actor, its idea. In the co-phase character, the principle is laid down, which unites the elements into the system and determines its evolution (for example, "who was nothing, will become everything").

Below, the stages of the evolution of the actor are considered. In the article "Analytical and synthetic stages of evolution of arbitrary systems: ontological features and characteristics" (11) it was shown that an arbitrary quasi-closed system behaves like a nonlinear oscillator (a pendulum, an electron rotating around a nucleus, a planet, etc.). An ordinary linear oscillator is similar to a pendulum; it defines the harmonic stage of the evolution of a system when it can oscillate forever. The nonlinear pendulum, in contrast to the ordinary one, behaves in a harmonious way only for a certain period, and then at some point the forces of external or internal nature, which are not significant at first glance, begin to have an effect. In general, systems behave similarly to a nonlinear pendulum, differing from each other only in scale and characteristic time of a harmonic period (decay time). At some point, the pendulum system loses its co-phase character and begins to move chaotically, and after some time "leaps" into the new stable trajectory. The functional "jump" has a singular form. "The evolutionary process is implemented in a sequence of creative acts (timeless leaps)" (10).

In general, the evolution of an actor can be divided into four stages. The first stage is the stage of Synthesis of the system, the stage of formation of the actor. Any of the actors is formatted by someone - the family, the society of book lovers, the party, and the state have their leader and their fundamental metaphor or, to put it differently, their main slogan. At the stage of the formation of the system, the role of the personality prevails over the society, when the will and charisma of the individual are able to lead. On the basis of the proclaimed slogan (for example, the elitism of a nation), the basic parameters of the system are formed - social laws determining its existence. After this stage, the actor enters the second one, the Transitional stage, when the system internally adapts the newly created structure. At this time, the system parameters may undergo significant changes; the laws governing the actor are changing. This is the period when the individual elements of the system are "attuned" to each other, and, borrowing the term from radioactivity, this period can be called the "half-life", because by the end of this period the system informatively no longer makes sense. During this stage, the stability of the system is at its maximum as it has not yet lost the impulse formed by the synthesis of the actor. *And it is for this reason, as we believe, that the genesis of the next actor should occur no earlier than the end of the Transitional phase.* During this time, the universe absorbs the newly formed actor into the general context, by "memorizing" it. *As part of the metaphor of the "world mind", this is a period of memorization, with the memory of an actor having a key role in its rationality.*

The next (informationally poor) stage is the Harmonic stage, when the system oscillates between two points determined by the inertia of society and its activity. At this stage, the role of the individual is irrelevant, the society is governed by laws, traditions are formed, which are harmoniously corrected by criticism. All changes that could lead to significant differences are foreseen by the system and are prevented. This period of the actor's existence can be

called the "Darwinian" stage, since the changes that are not selected are cut off at this stage due to the "immunity" of tradition. It is these periods that Latour proposes to define through the "sociology of the social" and suggests that it is the social sciences that study them, when the society is homogeneous and most rational. But at a certain moment, some hidden, uncontrollable factors, or forces that lead the actor to the stage of Chaos begin to show up. The stage of Chaos has an ontological meaning: in the absence of this stage, the rebuilding of the social would be difficult, just like it is difficult for a moving vehicle to be moved from its trajectory.

A. Toynbee gives many examples of different stages: "All primitive societies that have come down to us in a static state were once in motion; and all societies that have become civilizations, sooner or later, will come to a static state in one way or another" (13). The main metaphor used by Toynbee is "Challenge and Response". It is the force that brings the system out of the Harmonic stage and moves it into a state of chaos, it is the challenge to the existing social group. As shown by Toynbee, it can be of a different nature and different with respect to the system, i.e. both external and internal. In a social system, an internal factor may be, for example, fatigue from the monotony of life within the framework of established laws, which provokes discontent. Such a situation is described in Dostoevsky's novel "Demons", where society is "tired" of the monarchy, as a form of state organization, and forces in the form of the movement of "Narodnaya volya" de-phase the state. Climate change or resource depletion can be an external factor. Similarly, under the influence of external and internal forces, the nonlinear oscillator evolves. If we imagine an oscillating load on a spring, then the reason for its transition from the Harmonic to Chaotic may be both the fatigue of the metal of the spring, and the draft in the room where the load is suspended, leading the pendulum out of the coordinated mode and further to the parametric resonance. But before that, the system enters a chaotic, disharmonic period.

At this stage, the role of the individual is also irrelevant. During this period, each individual from the social group exists separately, until the next synthesis, when the group acquires a new phase structure. During this period of instability, the system appears at the bifurcation point. There are many directions for further development, and all of them are associated with any individual who is able to take a social group out of this state. Within society, there is a multi-vector, active search for a new personality, on which all further evolution will depend for some time. The system of a nonlinear oscillator, being in a chaotic motion, also comes to a new stable position over time, in which the unbalanced forces self-organize. Entering a new level goes on singularly, non-analytically, which, in addition to repeatability, is one of the signs of fractal.

The next stage is the stage of synthesis, when a new leader creates a new metaphor - a new slogan forming new laws. At this stage, the role of the individual becomes prevalent again. In one way or another, society is involved in the formation of laws. And further the system evolves according to the order described above. The described order makes it possible to critically look on a long-standing dispute between supporters of voluntarism and fatalism (8) and show its groundlessness because each doctrine has its own meaning at a certain stage. At the point of bifurcation, before the beginning of the synthesis of a new actor, voluntarism prevails; on the contrary,

fatalism dominates the Harmonic stage. Of course, one can always expand the discourse and consider these doctrines globally, throughout history, and then it is necessary to recognize a certain fatal sense of the increasing complexity in the process of the evolution of society and the corresponding emergence of new actors. This shows a certain equifinality of evolution and an isomorphism of systems described by one number of parameters and one level of complexity (no matter how the story goes, an actor with a certain complexity should appear in it).

The metaphor of a non-linear oscillator explicates the dialectics of a person and society: the society carries out a search for a person who can lead it out of chaos, but the chosen way determines the person. Personality is the phasing component that transforms a non-linear oscillator into a new trajectory (attractor), the personality determines the type of co-phasing.

The total duration of the cycles is determined by the level of co-phasing and the Transitional stage (how well the separate parts of the actor will “attune” to each other): for a state it can be centuries, for a city - a decade, for a political party - years. “The social is not a special area of reality, but the principle of connection” (5). *In our opinion, the principle of connection determines the reality that has different scales.* These time spans, of course, are conditional. Toynbee tried to find a structure that could exist forever. But, as the author of the present paper substantiates in “Wondering, Creativity, and Order” (12), this contradicts the revised anthropic principle - the task of the evolution of nature was not just to produce man, but man capable of accelerating evolution. “Speaking in everyday language, no morality can overcome boredom, which leads to an active search for events” (9)

4 The beginning of the social. The first actors

In the work “Analytical and synthetic stages of evolution of arbitrary systems: ontological features and characteristics” (11), the definition of the “eigenvalue” of a system was proposed meaning a stable, harmonious, and most economical state, with given parameters describing the system (evolution in physics is determined by the principle of least action). Sparta is one of the clearest examples of a steady stage. Although it was the most militarized state, but at the same time it was the most peaceful one. At its Harmonic stage, the system oscillates trying to find the most “comfortable” position (from the point of view of population, aggressiveness, militarization, etc.), but, due to the presence of inertia, it misses this state. For clarity, you can imagine an atom and the eigenvalues of the system “electron - nucleus.” The electron oscillates around the nucleus, trying to “fall” on it. In the process of evolution, a system may become more complex. In a similar way, a molecule is formed: for some time an atom exists as a stable system, but under the influence of a neighboring atom its own value becomes unstable, resulting in the synthesis of a molecule with a socialized electron and a new eigenvalue of the system. Simple molecules can connect to more complex ones - the newly formed system, like symbiosis, has a more favorable socialized state, and, finally, the next level of such growth is the formation of a crystal.

In a certain period, the primitive family as a system occupied a relatively stable state, determined by external and internal parameters (habitat, level of culture). At some point, when interacting with neighboring families, a stage of chaos

began, the civil strife started, and then a synthesis took place, and systems with a higher level of complexity appeared - tribes were the first actors, with a low level of complexity (ontologically, symbiosis means the emergence of a structure with more favorable energy condition - for example, it is easier to hunt together in a tribe). And for several hundred thousand years, the tribes interacted weakly with each other, since the populations were still small, and any interaction ended in war. But the beginning of sociality was laid, the movement of primitive people from the forest to the savannahs and the increase in their number led to the division of labor and the need for the emergence of language. “The more hominids advanced in savannahs, the greater the demand for the development of a communication system was” (4). This period, returning to the crystal metaphor, has the form of a “rarefied, weakly interacting social gas,” and therefore the formation of a crystal is not yet possible. Humankind was in such a potential state for a very long time, until pressure, due to an increase in population, caused it to start “condensing” and led to the emergence of “social crystals” - actors of a different level of complexity - the cities.

5 The fractal nature of humanity

With the advent of society, culture began to actively evolve. Through culture, man protected himself from the fear of the incomprehensibility of the surrounding nature, while influencing it, forming a biocenosis. However, a reverse reaction took place: while changing, the biocenosis changed the anthropology of man. ‘Man - society’ is a system with feedback. “Being a cumulative anti-entropic mechanism, culture should change in accordance with the needs of a non-equilibrium system” (9). For this reason, serious anthropological changes took place at the nodal moments of the “rebuilding” of social crystals, and since man is the “atom” of such a crystal, the growth of a social crystal and human ontogenesis inevitably correlated with each other. And this correlation is connected with the complication of the topology of consciousness. “The catastrophic collapses were followed not by the restoration of the system, but by qualitative leaps in complexity, intellectuality and the level of disequilibrium of the biosphere with the physical environment” (9).

By increasing the population, mankind slowly but steadily transforms from a state of “gas” into a “liquid” state (density and pressure increase), and due to trade and military contacts, its co-phase character is formed, the “social fluid” acquires a structure, “despite the increasing power of tools, first of all, combat weapons, and periodically exacerbated anthropogenic crises, in the long term, the population of the earth multiplied” (9). As the population of the earth grows, its “condensation” begins and the growth of the first social crystals - the ancient empires - occurs. At the time of the fourth - third millennium BC the land is still sparsely populated by people, the tribes exist separately, and therefore the formation of social crystals occurs locally, just as when the temperature in the salt solution decreases, crystals begin to form in several places. At the same time, the first signs of fractality began to appear - very often empires grew, cloning their central structure in the occupied territories. They are scattered and still weakly interact with each other. One can retrospectively observe the birth, existence and decay of each of them, which is isomorphic to the synthesis, the harmonic and chaotic period of the evolution of a nonlinear oscillator. The subsequent synthesis was more

often caused not so much by internal and natural causes, as by interaction with other actors. If in the first case, a series of transformations still led to extinction (Egyptian civilization), in the second case, many civilizations were reborn at a higher level. Increased complexity is often associated with the interaction of the system with other systems. The emergence of a more complex system (a larger civilization) is associated with lower energy costs (symbiosis). There are many such cases in history: the Sumerian civilization, the Franco-Roman Empire, the Ottoman Empire, etc. The rapid formation of a larger empire resulted in fractality.

It is necessary to pay attention to the fact that anthropological changes concern only the co-phased part of humanity, only there the formation of new actors and larger social crystals takes place. It is well-known that a crystal grows along a certain axis; this axis is determined by external conditions, the readiness of the medium for crystallization. Such an axis was the time axis of K. Jaspers, described in the work "The Meaning and Purpose of History" (16). This period is characterized by the formation of a crystal with the first level of anthropological symmetry. During this period, a large number of philosophers and prophets were born, which, on the one hand, is surprising, and quite natural, on the other hand. "Confucius and Lao Tzu then lived in China, all areas of Chinese philosophy arose, Mo Tzu, Chuang Tzu, Le Tzu, and countless other philosophers worked at that time. In India, the Upanishads arose, the Buddha lived; in philosophy, both in India and in China, all the possibilities of philosophical comprehension of reality were considered, even skepticism, materialism, sophistry and nihilism; in Iran, Zarathustra taught about a world where good and evil are fighting; in Palestine, the prophets spoke — Elijah, Isaiah, Jeremiah, and the Second Isaiah; in Greece it was the time of Homer and such philosophers as Parmenides, Heraclitus, Plato, the tragedians, Thucydides and Archimedes" (16).

After a series of metamorphoses, when the Indo-European crystal was reassembled several times (as already mentioned, the social crystal has a rather liquid structure, but the term "reassembly" is, in our opinion, the most successful), the next characteristic crystal axis has appeared, which has changed its direction ninety degrees. It was formed from south to north, and, like the first one, it started from the Mediterranean, but now through France and Germany, to Russia and Sweden. It is necessary to clarify that only the co-phased part of humanity participates in the axial transformation, and, accordingly, the countries participating in the previous time axis; the civilizations of India and China remained unaffected at this stage. The actors of these civilizations did not stop to exist but they existed autonomously, and should be considered separately. This is a very important moment that verifies our assumption - only co-phased parts exist as a whole and evolve. The phasing force in this case was Catholicism and Orthodoxy, spreading from south to north parallel to each other.

And this is the main reason why countries in different parts of the Earth found themselves at different hierarchical levels in the process of evolution. The speed of evolution is determined by the number of syntheses of new actors, which, in turn, are determined by the number and quality of interactions of actors, i.e. by population density and the idea of co-phasing. And in this regard, Latour is absolutely right, calling for an interest only in the sociology of associations, i.e. to the number of reassemblies. But it is necessary to take into

account that the period that takes time from the moment of synthesis to the moment of entering the stage of chaos is determined by the level of co-phasing and the "half-life". For example, Confucius brought the idea of a family to the state level, giving rise to a fractal (the state at all levels of the hierarchy was like an ordinary family) with such harmonious principles of existence that they could keep the Chinese civilization intact for two and a half thousand years. But the same factor restrained its evolution. For example, in Europe, where active interactions of various social systems took place, leading to disintegration and the formation of new actors, many metamorphoses took place during the same two and a half thousand years, which brought Europe forward.

At the same time, there is a significant change - the scale is growing. Now, starting with the great navigators, the co-phased system geographically grows to the scale of the entire globe. The complexity of individual actors and systems of humanity is growing. Crystallization occurs everywhere, at the same time increasing density, pressure and changes in anthropological symmetry, which is associated with such a concept as wisdom. And, first of all, this change concerns the understanding of the possibility that the next war will be the last. Wisdom, as an idea of the consequences of the application of knowledge, began to take shape a long time ago: "forms of intertribal symbiosis and collective exploitation supplanted Paleolithic genocide and cannibalism" (9). But the truly humanistic ideas have appeared only recently. And, apparently, this is connected with the unification of humanity into a single system, and, accordingly, the principle: "to unite, one must separate" no longer works. There is no one to separate from: "The Nazis, the most odious of the monsters of the century, even under the threat of unconditional defeat and personal death, still did not dare to massively use military chemical shells" (9). If previous actors, interacting through military force, tried to forcibly create new actors with a more favorable energy state (the phenomenon which is called symbiosis in nature), now this idea has almost exhausted itself. If earlier actors were social systems of open type, and according to the laws of synergy it allowed them to evolve, then, after the unification of all mankind, the global system was closed, and now a new strategy is needed, perhaps a transformed religion. "As a result of simple multiplication of population, we came to the current situation in order to collectively form an almost solid mass of hominized substance" (15). As mentioned above, for the last two thousand years, religion has been one of the most significant phasing forces forming global actors. Attitude towards religion along with the unification of all mankind has changed, religion has fulfilled the mission of unification. New theologians (Johann Baptist Metz, Jacques Luc Morion) call for the destruction of the church as a global religious actor and for the individual imitation of Christ.

A man's desire to reach God is reminiscent of an attempt to build a tower on earth to get closer to the sun. On the one hand, being on the tower, one intuitively feels being closer to the sun, on the other hand, the mind prompts the thought of the futility of the plan. But this construction was not meaningless, because with the construction of each new storey, humanity can look further and further into space and in time, and discover many correlative processes. For example, the complexity of a social crystal, consisting of a multitude of actors, is proportional to the size of the population and the

number of connections between the people; according to “the findings of American anthropologists who studied the information complexity of cultures, the culture strongly correlates with the logarithm of the number of inhabitants of the largest of the settlements and, therefore, grows in proportion to the number of society members” (9). And, accordingly, this thought automatically leads to the idea of humanism: every life is valuable, it is one of the elements of the overall evolutionary process, and the loss of any life can lead to a significant slowdown.

One of the most important parameters of complexity, manifested in the unification of humanity into a single system, was its multiple fractality. It has already been mentioned that the fractal structure appears when the crystal growth rate is high. Now there is a fast global reassembly leading to global centralization. An essential quality of fractality is the possession of a dimension exceeding the topological one. (If a couple of centuries ago the factory worker was a linear representative of the social structure - the factory, now he has many connections). An extremely complex hierarchy has appeared only in recent decades, when each person participates simultaneously in a large number of actors: the state, a political party, an enterprise, an insurance company, a sports club, a family, etc. This multiplicity of fractal layers indicates the aperiodicity of the social crystal - the locally observed structure decays with increasing scale, when the possibility of explication of all connections emerges. And each social system leaves its mark in the development of the elementary actor - the man. Just as ontogenesis repeats phylogenesis on a smaller scale, so the topology of consciousness preserves the social structures that occurred in history.

6 Conclusion

The fractal nature of man and humanity, shown in this paper, suggests that, perhaps, after overcoming a certain level of complexity (associated with population growth, its density and actor connections), humanity will become a single thinking organism. Just like the evolution of the brain, once overcame the complexity threshold, due to its growth, the complication of topology and the emergence of long-distance connections, so the evolution of society, due to the increase of population and the fractality of actors providing long-distance connections will evolve to the world mind. It is obvious that long-distance communications in society at the moment are largely carried out due to the Internet, as people use it on a permanent basis. Some symptoms of the world mind are observed in the collaborations of scientists, such as the joint discovery of the Higgs boson using the Large Hadron Collider or the breakthrough discoveries of geneticists. *But just as a person became rational, due to his rise above his activity and due to his metaphorical nature, which allowed him to transfer meanings and combine them, so the center of the mind of humanity must be outside of society. And then it will be able to combine various actors with each other.* All these facts give confidence in the imminent emergence of the world mind and, as a result, the noosphere of a higher order.

7 The future

Martin Heidegger, defining the current state of affairs, wrote about the decline of European philosophy. He believed that the decline began with Plato and his “ideas”, when a man became opposed to nature, separated from her and became a

spectator, transitioning into the state of being “presented” before nature. Thus, humanity has separated from matter, being presented before it. Perhaps, Heidegger was right, but, in our opinion, there is nothing bad in it, this is a natural way of evolution - man fulfilled his function as seen previously, in the view of disunity, just as the cell once did. At the next stage, the creative impulse should become a social act, which is the development of the ideas of Henri Bergson and his work “Creative Evolution” (2) in order to free humanity from materiality and temporality. Then the “Brownian movement” of individual people’s thinking will unite into one common thought of the world mind: “putting it roughly, the thinking Singularity is formed, the psyche is freed from the matter, and a big blissout takes place - the very state that God would create” (9). And this thought of Nazaretyan is no longer groundless; the issue that modern physicists study (the bound quantum states) suggests a speedy instantaneous transmission of information and a possible collaboration of all mankind. And then materiality will really fade into the background.

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