

# Concept of Natural Historical Periodization in World-Historical Process

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**Abstract**—The events of the First World War and revolutionary changes in Russia revealed new features of socio-historical reality: its intensive variability and practical absence of repeatability, a large number of significant variables, the impossibility of experimenting with full control over conditions, increased difficulties in testing hypotheses and the lack of an adequate methodological platform. A.L. Chizhevsky was the first to formulate the natural historical concept of the world-historical process, which embodied a trend of synthesis of sciences and opened a new chapter in the "dispute over methods." Modern research fills the conceptual approaches of the Russian scientist with concrete content.

**Keywords**— *world-historical process, Chizhevsky, concept of natural-historical periodization*

## I. INTRODUCTION

The idea of cyclicity in life of man and first communities, settlements and state entities, was tensely moving to an understanding of causal links of mystical and religious sense and then of natural-economic (Hesiod "Works and Days", "Theogony", VIII-VII cc. BC.). Among leading causes there were two ideas about powerful forces that cannot be directly seen by a person - spiritual force (god) or metaphysical (space).

The first Christian thinkers initially struggled with the concept of cyclical time and the periodical revival of history, but the idea was adopted in the Middle Ages. As to the concept of natural historical periodization, Thomas Aquinas, Dante and other thinkers believed that cycles and periods in the world history are controlled by the influence of stars that obey divine will, including the forces inherent in cosmos.

Through efforts of the first professional scientists-giants in history of mankind, Galileo, Kepler, Descartes, Newton,

Leibniz, Huygens, the idea of cosmos as a multifunctional mechanism was formed whose patterns can and should be studied, thus moving towards an understanding of the unity of the heavenly and terrestrial worlds not only based on the principle of similarity. J. Vico (1668-1744) took advantage of these achievements as the intellectual spirit of the era. He highlighted three phases in the history of the peoples of Europe (The Age of the Gods, The Age of Heroes and The Age of Men) with institutes, morals, the type of culture and mentality corresponding to each cycle. In search of the foundations of the "New Science" he considered the "cycle" of cultural development: culture and society culminate, then fall (the era of "new barbarism" is coming), and a new phase begins with a new level of development. The stages of origin, growth, flourishing and death characterize the dynamics inherent in any culture. Francois Quesnay (1694-1774) systematized the economic dynamics of France, hoping to identify "social forces", similar to the physical forces discovered by Newton in nature. And then there is a "dispute about the method", in fact dispute about the differences of these forces in nature: should social and historical sciences be built on the basis of natural science? All the subtleties and twists of this discussion are revealed in the detailed research of N.S. Rozov [1]. V. Dilthey formulated the principles of distinguishing the sciences of the spirit and the nature sciences. V. Windelband suggested that the same subject can be studied by different sciences and that is only important what methods researchers use. His student G. Rickert, in the book [2], showed that the opposition between nomothetic and ideography can be removed, since both individual behavior (the subject of ideography) and the discovery of laws (nomothetic research) are equally subject to value-based obligation. There the dispute about the method has lost its severity. Rozov considers that the First World War is a macro reason of intellectual impotence of a new era.

Now in public consciousness finally there is an idea of a world history, about the directed integration process of the system of human society. All history is process of integration and complication of the organizations of human individuals, and in present period we see the beginning of already global integration. Therefore, from the idea of humankind history as development of a set of unorganized individuals in the integral organized structure and, respectively, the assumption it follows that the mankind history, generally, submits to the law of evolution. Thus, it is also possible to tell by analogy that "the history is, in essence, the development of public consciousness veiled by sociology". Then we have to divide not only last, but also forthcoming history into three stages: domination of the elementary structure (and contradictions of its reproduction) at the first stage (as other essential structure isn't available); domination of intermediate structures of the organization (and contradictions of their production) at the second stage; and at last, domination of global structure (and contradictions of its production) as end result. All the system of human society, constantly acting as an object of evolution, in the process itself, is divided into objects of evolution that speaks about relativity of division of these categories.

## II. HISTORY AND CHIZHEVSKY WORK

This opinion could be accepted given that 1914-1918 is one of the most dramatic periods in the mankind history; it is impossible to draw proper conclusions from the First World War, and the even more destructive Second World War soon followed. Describing the events of that time, H. Wells (1866-1946) wrote [3] that in those years, almost no one understood where the enormous problems that had so suddenly and so tragically fallen upon world democracy had come from.

However, we believe that the intellectual thought of mankind did not stop its hard work, and the result of its new rise became two concepts of the historical and cultural process, which became a cardinal fork in the search for mechanisms explaining its laws. As a result historical science acquired signs of scientific character for the first time.

Let us first turn to the characterization of the modern stage of the "dispute about methods" to understand the reasons of the difficulties that have arisen at this stage. In the article by K. Hempel [4] it is shown that ordinary historical explanations in the scientific sense can become full only using universal hypotheses and universal, or so-called "encompassing laws". The nomological approach of K. Hempel made it impossible to declare the "historical laws" not verified and not operationalized, often trivial judgments with which the results of research were filled. It caused a sharp rejection of their authors, and a dense veil of oblivion was thrown on the methodology of "encompassing laws".

Since the 1980s, a period of macrohistorical research began. It was connected with the names of C. Tilly, I. Wallerstein, T. Skocpol, M. Mann, A. Stinchcombe, P. Kennedy, who enriched historical science with new methods. According to N.S. Rozov [1], there are two developments: the first is the endless continuation of the ongoing process of combining new (often exotic) material with various combinations of old and new conceptual approaches. The second is the output of at least

some researchers to the theoretical level. The questions remain the same.

Among criteria of a periodization of history, one of them is the formational theory. The author, German philosopher and economist Karl Marx for a basis of a periodization of history took the forms of ownership connected with development of classes and the states. This sign is the basis for the concept of change of socioeconomic structures. The period of domination of public assignment in it is primitive - a communal form, the eras of domination of a private property which succeeded it (slaveholding, feudal, capitalist) providing the increasing economic independence on the producer of material benefits (from the slave - to the serf, and then to the hired worker); at last, return to collective property - at first socialist, and then and communistic.

Should the social and historical sciences be built on the patterns of natural science? The answer is negative. To fight against the "natural-science imperialism" of the 19<sup>th</sup> century means breaking through the open door now.

Is there some kind of methodological unity of sciences with an empirical basis, or is the research methodology developing autonomously in each separate field? The answer is rather in favor of a deep unity of science and scientific methodology. The main role on this way should be played by historical macrosociology (theoretical history).

So, during the dispute of methods, the fundamental features of socio-historical reality were revealed - intense variability and practical lack of repeatability, a large number of significant variables, the impossibility of experimenting with complete control over conditions, and great difficulty in testing hypotheses.

Are the following features so specific? The answer will certainly depend on the fact if science has met such phenomena or if it is capable to develop individual research methods equally.

Two significant events took place in the scientific and cultural life of Germany and Russia. One of the events immediately attracted the attention of the world community. In April 1918 the first volume "The Decline of Europe" was published, authored by German philosopher O. Spengler (1880-1936) [5], where he, in connection with the collapse of Germany in World War I, predicted the decline of the West Europe. Then the second volume followed [6]. The popularity of the study was evidenced by the fact that in the next three years the book would be repeatedly reprinted.

The second event was no less significant for understanding the essence of the processes underlying the periodization of world history. Young Russian scientist A.L. Chizhevsky (1897-1964), in the future a world-famous biophysicist, defended his thesis for the degree of Doctor of History on the topic "Investigating the Periodicity of the World-Historical Process" in March 1918. According to the results of the research, the scientist prepared a voluminous work and tried to publish it for six years, but all attempts were unsuccessful due to unusual novelty. The summary of the manuscript was published only in 1924 in the city of Kaluga, which limited its accessibility to specialists [2].

The works of O. Spengler and A.L. Chizhevsky in 1918 were carried out independently of each other, the source of research was a huge array of European historical, cultural and scientific thought, which, as it turned out, contained the grounds for differently directed conclusions. Their common interest was that the nightmare of the war would never happen again. According to the views of German thinker O. Spengler, set out in the fundamental work [5], we must comprehend the essence of history means to distinguish the opposite that makes up the mystery of world history. He finds it in the irreconcilable antithesis of history and nature itself: the background and the figure are distinctive and independent. The works of O. Spengler were picked up by numerous followers, whose efforts laid the foundations of cultural studies, political science, and geopolitics. In the assessment of L.B. Alaev [7], the classic civilizational approach (the theory of local civilization is a set of concepts that reveal the essence of a local civilization based on the principles of the civilizational approach) is based on the idea that there is no history without humanity. We must part with the global stadiality and the search for patterns. The difficulty in adopting such a view is that it must be proved that the Mesopotamian and ancient Egyptian civilizations did not affect the Ancient civilization, that the latter did not affect Western Europe and Arab-Muslim civilization, and that, in turn, the West European civilization [8].

According to the concept of the Russian thinker, A.L. Chizhevsky, there is a unity of nature and culture (history), and, consequently, the conditioning of historical processes by physical factors. Chizhevsky wrote that historical and social phenomena did not occur arbitrarily, not at any time, not indifferently with respect to time, but obeyed the physical laws in connection with the physical phenomena of the world around us and could arise only when it was favored by the whole complex aggregate of interaction political, economic and other factors in the human world and physical factors in the world of inorganic nature. He believed that due to the regularity that subordinate the course of events, every phenomenon in the life of individual communities or the international life of all mankind got a certain explanation that elevated history to the degree of exact disciplines endowed with laws.

However, the work of the Russian scientist was not lucky. The political predilection of the authorities was caused by suspicion that the author willingly or unwittingly leveled the role of the party and its leaders in the management of social processes.

The scientific content of the work, incomprehensible even today to many specialists in science, caused complete rejection and suspicion of the scientific competence of the author. Moreover, the scientist, who began his journey in science as a humanist, worked in parallel on the book "Electronic Theory. Genesis of forms" [6], which was never meant to be published. The works of the Russian scientist on the periodization of the world historical process, the ionization of gases and liquids, electrohemodynamics seems to be multidirectional and unrelated. Meanwhile, this is far from the case.

A.L. Chizhevsky was steadily expressing the idea that the "space-Sun-Earth-biosphere-man" system has a common energy substrate for all objects under investigation, it is

electrostatics and electrodynamics of macro and micro objects, living and non-living. Thus, it is not logic at all, but logic for a particular object, in which judgments from positions and other logics are optimized: the logic of Aristotle, the logic of Vasilyev-Lukasevich, and mathematical logic. It follows that one cannot comprehend an object of one and another kind in one type of logic, since an illusion of truth arises, whereas the image of an object will be one-sided.

Translating his initial ideas into the experimental and theoretical field, the scientist laid the foundations of several scientific directions, created a model of science in which dynamic principles dominate. This model allows us to describe such complex phenomena of the universe, as the transformation of physicochemical processes into physico-chemical-biological and physico-chemical-bio-psycho-social.

The first wave of attention to the work of the scientist is the 1970s; it was caused by the achievements of practical astronautics, one of which was the empirical fact of discovering the "solar wind", about which the scientist wrote, calling him a mediator of solar-terrestrial connections. At the same time in science, interest in self-oscillations increased, in explaining the nature of which they returned to the ideas of the scientist about the influence of cosmic fluctuations and rhythms on deep processes in inanimate nature; there is also a request for the explanation of many phenomena by the causes of the cosmophysical plan in biophysics, medicine, epidemiology, climatology. In 1980-2010, the works of S.E. Shnol, V.P. Kaznacheev, B.M. Vladimirovsky, N.A. Temur'yants, A.L. Voyeikov, Yu.I. Gurfinkel, E.N. Chirkova and other researchers made important steps to develop the ideas of the scientist on the basis of the achievements of modern science.

For the modern stage of development of the ideas of a scientist, the following achievements of modern science are of great importance [9]:

- experimental studies of the biological effect of weak (nonthermal) electromagnetic fields on biological systems revealed an unexpected connection with the scientist's assumption that the biological consequences of natural electromagnetic radiation are induced by solar activity;

- multiyear (1960-1985) studies of S.E. Shnol [10] to identify the nature of the so-called "macroscopic fluctuations," despite the researchers' conviction that all processes are determined only by the dynamics of internal causes, found an undeniable connection with the variations of solar activity. If the scientist believed that heliobiology reflects the laws and relationships of biological (organism) and physical (solar activity), now it turns out that we are talking about phenomena of physical nature. Then it turns out that if macro fluctuations are a universal phenomenon (inherent in the entire organic and inorganic world), then the connection with solar activity can be detected in any substance, including the working elements of all devices and in all exact measurements;

- in biological works of recent years, we obtained convincing evidences that the weekly rhythm of the biosphere is associated with changes in cosmophysical indices. The spectrum of biological periods of human activity has a similarity with the spectrum of cosmic periods;

- in science, the dispute about the decisive impact of external influences on the natural and climatic conditions of the Earth (V.V. Klimenko) and the absence of such effects (I.L. Karol, A.A. Kiselev) does not stop, but as the methods for investigating the periodicity of solar activity it becomes clear that, along with the 11-year cycles, there are hundred-year cycles (as the harmonics of 11-year-olds). In this respect the 20th century was one of the most active (E.N. Chirkova); that as the solar system passes through the galactic circle, the situation is highly dependent on the specifics of different sectors (V.V. Paraev, V.I. Molchanov, E.A. Eganov);

- the idea of torsion or socio-gluon fields (L.V. Leskov), cultural neuroscience (M.V. Falikman, M. Cole) is formed in the cognitive sciences and in cosmological studies

Cliometrics declared itself in the 1960s as one of the key areas of research in economic history, based on the active use of economic theory and quantitative (mathematical-statistical) methods and models. The works of Pitirim Sorokin, Simon Kuznets and their followers are mentioned as its predecessors. Deeper analysis [11] showed that the true founders of cliometrics should be considered A.L. Chizhevsky, who discovered a quantitative correlation between the cycles of solar activity and the intensity of historical events [12], and N. D. Kondratieff, who proved the existence of "long-wave conjuncture" [13] by processing large historical information bases. With the advent of quantitative (quantitative) history, the opportunity has opened to explore the development of political processes, the influence of climate on history, to analyze historical documents, long-term megatrends of historical growth. It remains to be regretted that, due to political reasons, these works were in intellectual isolation. Without a doubt, the factor of the fundamental novelty of the concepts put forward by Chizhevsky and Kondratieff also worked. For these reasons, the development of events in the humanities has taken its leisurely pace. The next impulse of cliometry was associated only with the fundamental works of D. North and R. Vogel, their followers focused on the dynamics of historical and cultural phenomena, economic and mathematical models laid the foundations for a completely new research direction - cliodynamics. The recognized leaders of this trend in historical and cultural research are P.V. Turchin, Jack Goldstone and a number of other scientists. In their works, there is a clear shift of emphasis from monopolistic theories to conceptual approaches, an attempt to impart scientific substantiation to history, therefore, the arguments of the history of the evolution of the biosphere, the facts explained by the laws of animate and inanimate nature, are the main ones. In order to achieve objectivity, the historian should look for and describe the channels and mechanisms of the indirect influence of nature on society, and in methodological terms it is necessary to build a general theory of the influence of the natural factor. At the same time, researchers realize that the "laws of history" are unlikely to reach the same level of accuracy as the laws of physics. But in qualitative form, it is possible to formulate some general assumptions of a theory that has sufficient resources to rely on broad empirical support. Periodization of historical dynamics should highlight milestones of social development, fix social phase transitions, as a result of which there was not just a change, but also a certain degree of negation of previous states,

a radical restructuring of all spheres of life [7]. The constructive connections of representatives of cliodynamics and the socio-natural approach are indicated by joint publications of scientists [P. V. Turchin, S.A. Nefedov. 2009] [14]. The new disciplinary direction is represented by a number of periodicals (Social Evolution & History, Journal of Globalization, "History and Mathematics", "Evolution", "Kondratieff Waves"). The established core of the concept is evidenced by the desire of scientists to determine the course of established ideas in the system presentation [Theory and methodology of history. 2014] [15].

It is difficult to sum up the process, which is barely gaining momentum. In our opinion, it is appropriate to quote the opinion of I.M. Savelieva [16], which gives an estimate of the theoretical update of historical science over the past 50 years and finds that the topic of world history has taken the lead in historical publications. New trends in the methodology of historical research were introduced by innovations in sociological knowledge - research related to such phenomena as chance, dynamics, variability, instability, mutations, search for causal relationships.

One can see some affinity for the methodological foundations of historiometry with the works of the representatives of cliometrics, cliodynamics, the concept of sionatural history (L.E. Grinin, A.V. Korotaev), the institute "History and Mathematics" (S.P. Kapitsa, S.Yu. Malkov, A.D. Panov), partly historical macrosociology, a synergetic approach. And nevertheless, we must emphasize that A.L. Chizhevsky foresaw much further and more thoroughly.

V.P. Kaznacheev [17] in the review of the prospects for the development of the scientist's ideas in the natural sciences of the 21st century concludes that the process of globalization of mankind is first and foremost a cosmogeophysical phenomenon where all other social and geopolitical events are the realization of a more complex cosmobiosocial evolution of our planet in the system of the universe.

In the interpretation of [18] epistemological "turns" of recent times ("cultural", "pragmatic", "memorial", "visual", "spatial") opened up new prospects for historical science. A new stage can be assessed as a "historiographic revolution". There is a significant expansion of the "field" of the historian's research: with the discovery of the universality of historical consciousness, collective memory has itself become the expression of historical consciousness. It is concluded that not only professional historians have a specific consciousness that is in constant "mutual" connection of the past and the current moment, but the whole of humankind. And this is close to the ideas of A.L. Chizhevsky that in the understanding of historical events, their assessment and prediction, we must see a separate person, social communities, and all of humanity as a whole.

### III. CONCLUSION

The concept of the natural historical periodization of the world-historical process first posed and solved the problem of combining the humanities and natural sciences. In the works of A.L. Chizhevsky we show that history is a unity of material (physical) and socio-political, neuro-physical factors, united by a common energy principle. Everything is the result of the

evolution of the electron, the basis of all forms is the electronic structure due to the regular rhythm of the Sun and distant space. Since we are talking about the action of forces not yet fully understood by the scientist, the concept will only gradually transform into a theory, in this way a great future is destined for it.

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