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Bibigul A. Dossova, Aiman Z. Zhumanova

SYNERGY IDEAS IN THE HISTORIC COGNITION

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Reviewers:
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K.Zh. Abilov, Professor of Karaganda Economic University of Kazpotrebsoyuz, Doctor of historical sciences;
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The monograph studies the reflection of the synergy ideas in modern historiography. It identifies opportunities of the synergy as an approach to historical cognition; describes the methodological foundations of historical stages of scientific methodology development, shows its evolution; analyzes the works showing the essence of synergetic paradigm of the worldview and revealing the integrative, interdisciplinary nature of the synergetic approach, which has significant theoretical and practical potential in modern social and humanitarian studies; studies proposed by scientists opportunities of a synergetic approach in historical cognition and attempts to give synergetic and formational characteristic for the periods of the history of Kazakhstan.

The monograph is designed for students, undergraduates, doctoral students, teachers and all those interested in the theoretical and methodological problems of historical studies.

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Foreword

The offered collective monograph is based on a monograph of one of the authors, Dossova Bibigul Aralbayevna “Synergy and Historical Cognition: Historiographical Approach”, published in Russian in 2012. Since then, more than eight years have gone and the theoretical issues raised in the published monograph have been developed further. This applies directly to synergy both as an interdisciplinary field of science and as methodology of the historical studies in general. Therefore, the team of authors set themselves a task to supplement the monograph of Dossova B.A. with relevant materials on considered by it scientific problems and to publish it in English. The chosen language of publication it's no accident, as the English language at the present stage is the language of science. The authors of the monograph want to contribute to the development of the languages trinity program in the Republic of Kazakhstan, which aims to further strengthen the country's successful integration into the global community and increase the competitiveness of Kazakhstan in all spheres, including the science. In recent years, in the scientific community of Kazakhstan, publication of scientific results in English has become a prerequisite for entry into the global scientific space. The monograph will provide the English-speaking scientists with the idea of the development of theoretical and methodological research in historical studies of Kazakhstan.

The authors of the monograph are hoping for a positive perception of the results of years of work by the the scientific community.

INTRODUCTION

The level of the society development directly influences the state of the science. During the last years, Kazakhstan experienced transformation in all spheres of life – in economy, politics, and culture. Important changes take place in the science. Today, Kazakhstan society faces new challenges, implementation of which will allow out country to take rightful place in the line of developed countries of the world. N.A. Nazarbayev in his policy essay "Course towards the Future: Modernization of Kazakhstan's Identity" expressed a thought that the furure of of our country depends on that how it moves along the route of enhanced economic, social and political modernization. In particular, he believes that "new modernization must not as before watch haughtily on the historic experience and traditions. In contrast, it must turn the best traditions into prerequisite and an important conditions of the modernization success. Without support on national and cultural roots, modernization will hang in the air. And I want it to stand firmly on the ground. And this means that history and national traditions must be accounted for obligatory" [1]. Role of the science in the society modernization is huge, so it must determine priorities of its development in order to solve tasks set for it by the society.

Historic studies take an active part in solving modern problems as its data are the means of human and society cognition. Activity and direct contribution depend, in our opinion, on theoretical maturity and methodological equipment of the historic studies. And this, in its turn, conditions the increasing significance of the history methodology as a discipline that specifically develops methodological apparatus of the historic studies. History methodology as a special history discipline studies the nature, principle and methods of historic cognition. It should be noted that today previous principals and methods of historic cognitions do not comply with the present-day level of the science

development and need to be revised. Analyses, reasons and the ways out of the existing situation of the modern scientific thought are considered in works of many authors (Soviet, foreign and domestic) [2–12].

Researchers underline the existing crisis circumstances in the historic studies of the post-Soviet area. Under the crisis of the historic studies, they understand "not stagnation or decline of its development (as it most often is interpreted) but such polarization of theoretic and methodological views and approaches, and consequently of concrete-historical concepts that in many aspects interrupts the unity of the root essence of the historic cognition" [13, p.3]. Crisis is first of all in our opinion expressed in disappointment with the Marxism-Leninism methodology, the theory of social and economic formations, sometimes its complete denial and attempts to address to civilization theory. This situation forces to pay attention to various approaches in the historic cognition. And in this regard, a question arises about the methodological renewal of the modern historic studies. The "Concept for the development of the historic consciousness in the Republic of Kazakhstan" says that "declaration of the state sovereignty by Kazakhstan and related to it new social and political realia caused significant transformation of the society and citizens consciousness. The perspective of the world, people and their history has dramatically changed. If before history of Kazakhstan was interpreted as a component of the integrated history of the USSR, gradually perception is formed that it should be considered in the context of the global history, history of Eurasia, nomad civilizations, history of Turk nations, countries of Central Asia" [14, p. 19, 23].

Scientists believe that perspectives of the post-Soviet historic studies are not quite clear and this is evidenced by the present-day state of affairs in humanitarian studies that is subjected to the influence of the following factors: first, this is theoretic and methodological crisis in the social studies which has

been discussed since the second half of the 80s of the XX century. The consequence of this crisis was refer of humanities scholars to consideration of particular, narrow issues and their reluctance to deal with theoretical problems of the history. Although it is necessary to agree that the amount of empirical materials that have been introduced recently in the historic researches requires theoretical bases; secondly, evidence of uncertainty of the historic knowledge development perspectives may be attempts to reject it a right to be considered scientific, in ability to explain the past and present, forecast future, it means they want to turn history into a peculiar type of journalism; thirdly – and this is a very dangerous symptom – history starts to lose its place ("ecological niche") in the line of disciplines studying human society and results of its activity. This is a consequence that the role of the "principal" social science is contended for by sociology, culturology, politology and etc. They want history to give them only facts for created by them theories and generalizations.

For the Kazakhstani science, certain difficulties in the sphere of scientific development are related to striving of Kazakhstan to newly re-think its cultural foundations, with refusal from only Europe-centered orientation of the culture and science, with inclusion into the culture of the nations of the Asia. Most researches see the reason of this situation in social studies in the domination of the scientific paradigm of the classical science among the most humanitarian scientists. Although, it time has already come for postnonclassical science with other perceptions of the unified world view, style and ideals of scientific mentality. Being under the influence of basic theoretical provisions of the classical paradigm, a historian strives to create universal, comprehensive and having no alternative theory of historic progress. The experience shows that this is impossible. Hence, there are disappointment and believe that the is no need in theory at all. At the same time, non-compliance of the history to the classic ideal of scientificity forms negative relation toward it as "pseudo science" that is

absolutely useless for the society. The solution can be found in the most urgent revision of methodological foundations of the historic studies, i.e. it is necessary to transfer to a new world-view level having refused from some radical postulates of the classical paradigm [15, 16, 17].

Postnonclassical rationality and related to it history methodology having originated in the middle XX century, at the modern step is at the nascent stage but its main features can already be outlined. The context problem in a historic research comes to the forefront. And it is necessary to underline the context if the broad sense of the word: not for a certain social system but for the whole humanity. In the postnonclassical period of science, problems of social and cultural and social conditionality of the historic cognition, analysis of science interaction with other phenomena of human culture must come to the forefront. "Close interaction of the epistemology, methodology and historic studies was supplemented by their synthesis with sociology and culturology of historic cognition" [18, p. 136].

In a word, present-day stage of science methodology development is determined by the understanding of that a human is an abstract subject separated from the world, and first of all included in the world as a human. A subject becomes a part of the object. Hence, understanding of impossibility of the science and knowledge development without accounting the human factor. Actualization of new priorities in gnosiological schemes dictates the use of effective methodological affirmations, such as principal of complementation, relativization of truth, methodological and ideological pluralism, interdisciplinary approach, humanization of the science. Studying and mastering new research approaches that correspond to characteristics of postnonclassical science, in our opinion, is the most important task of the historic studies of the post-Soviet period. One of such approaches is synergetic.

As it is known, synergy ideas have penetrated the sphere of social and

humanitarian researches from the natural science sphere (general systems theory, cybernetics, theory of universal evolutionism, and etc.). The penetration is a proof of the interdisciplinary character of the synergy that has become one of the connecting lines of the sciences about the nature and the sciences about the society. That is why synergy is determined as a sphere of scientific knowledge where interdisciplinary researches reveal general laws of self-organization, development of stable structures in open systems [19, p. 407]. Synergy as an approach can be briefly characterized by the three key ideas: non-linearity, self-organization and open systems. Synergy as an approach of the postnonclassical science strives to create general foundation for multiple system approaches including in the history, it offers a common language that adequately describes the design and dynamics of various systems. Actually, we deal with a new type of the scientific world-view [20, p. 28-49]. As far as, in its gnostic intrumentarium, synergy has taken also the sphere of phenomena of the nature existing independently of humans; the sphere of social life, culture created by people and supported by their activity; and the inner world of humans, their senses, experiences and perceptions [21, p. 312]. Synergy as qualitatively new and interdisciplinary in its character direction of the scientific search, in its essence, is designed to represent a peculiar "bridge" or, it is better to say, communicative and dialog channel between the natural scientific and social cognition. Integrity of the synergetic paradigm is evidenced by its "human dimension" as the most important feature of the modern science in general, which consists in recognizing the human problem as an interdisciplinary and central problem of our time. All this necessitates the use of synergetic approach in the modern science based on – the desire to resolve the crisis of social and humanitarian thought via the synthesis of new scientific approaches. History of emergence, establishment, and development of the synergy are not fully reflected in the research literature, although there already is a need for this due

to emergence of the interest in it on the part of domestic sciences. Such a task must become, in our opinion, a subject of a special research.

The aim of this monograph is to show the reflection of the synergy ideas in the present-day historiography and detect its opportunities in the form of approach in the historic cognition. This aim is achieved via implementation of the following main tasks of the research: to characterize the methodological bases of historical stages of development of the science methodology, show their evolution; consider the achievements of scientists in the sphere of the analysis of formal and civilizational theories that despite being representatives of the classical science, still do not lose their topicality in the modern historic studies due to the principal of complementarily, which in its turn can ensure methodological pluralism in the science; analyze works showing the essence of the synergetic paradigm of the worldview as a modern model of the scientific worldview and revealing the integrative and interdisciplinary nature of the synergetic approach having a significant theoretical and practical potential in modern social and humanitarian studies; explore the possibilities offered by researchers of the synergetic approach in historical studies and try to give synergetic and formational characteristic to the periods of the history of Kazakhstan.

The object of the research is the works of foreign and Kazakhstan researchers, whose works disclose the problems of methodology of the historic cognition in general and synergy in particular.

Priority in developing the main ideas, concepts of synergy belongs to the natural sciences: physics, chemistry, biology and others. Due to them, we apply such synergetic concepts as “casualty”, “irregularity”, “non-linearity”, “bifurcation”, “entropy”, “attractor” and etc.

Long-term search for a universal method of creating modern scientific worldview resulted in success of the natural sciences. We are talking first of all

about cybernetics, theory of universal evolutionism, general theory of systems and, of course, synergy. The common denominator that was achieved by the above theories states the unified organization of the world, its openness, non-linearity, ability to self-organization. At the origin of the synergy, there were chemists (I. Prigogine), physicists (among them there were H. Haken, S.P. Kurdyumov), biologists (among them there were M. Eigen), philosophers (I. Stengers) [22–25]. Consonance of ideas of synergy and cultural historical approach can be seen in the concepts of Russian researchers N.Ya. Danilevskiy, L.N. Gumilyov, Western scholars O. Spengler, A.J. Toynbee [26–29]. In our view, the general outline of both approaches is the rejection of rigid determinism of classical science, as they give priority to an open, self-organizing systems and humanistic values.

Having adopted the ideas of self-organization of natural scientific thought, social and humanitarian sciences, especially philosophy, began to use synergies in their research as a progressive scientific worldview and way of thinking. From this standpoint, works were written by Russian scientists who had investigated the possibility of using synergetic concept in social sciences and humanities and social practice (Ye. N. Knyazev, G.I. Ruzavin, V.I. Arshinov, S.A. Gomayunov, L.I. Borodkin, A.Yu. Andreyev, M.I. Levandovskiy, A.P. Nazaretyan, M.V. Sapronov, K.Kh. Delokarov, G.G. Malinetskiy, V.G. Budanov., Yu.A. Danilov, Ye. Sedov, B.B. Kadomtsev and others) [30–36]. Their studies show prospects of applying synergetic paradigm to the cognition of the human and society world. Scientists believe that the former methodological approaches to the modeling of complex social processes do not take into account or underestimate the ambivalence of the future, constructive chaotic beginning in the evolution and many others. Synergy, by contrast, is able to give general guidance for modeling and forecasting processes in complex social and natural systems. Thus, it may become the theoretical basis of modern

future-oriented inquiries. The main conclusion made by the researchers in their arguments – is understanding that the general principles of synergetic worldview tell us about the possibility of the development of innovative approaches to complex social systems, which would serve as a guide in certain scientific researches. Of course, for such systems yet there are no developed mathematical models. But synergetic perspective enables to constructively discuss issues on where the history goes, how the future organization of the elements of the world must be built, how to avoid adverse social bifurcations, catastrophes, how quickly enter the desired forms of social organization.

Synergetic features can be noted, for example, in "centauristics" (D. Danin, I.P. Yakovlev and others), sociology (K.Kh. Delokarov, L.V. Leskov and others), in pedagogics (V.I. Redyukhin, L.I. Novikova and others.), including in pedagogical science of Kazakhstan (Z.Zh. Zhanabayev, B.A. Mukushev, Sh. Taubayeva and others), political studies (A.B. Vengerov and others), economics (B.P. Yevstigneyev and others) [37–45]. Synergetic "translation" of the history has been the subject of analysis of many Russian researchers, who propose to abandon the classical paradigm of scientific understanding of the history [46–48]. In particular, S.A. Gomayunov, describing the integrative nature of the methodological approach to the synergy to the history, highlights that on its bases, a new model of the history methodology of the composite nature emerge, which allows overcoming the tendency of progressive collapse of the methodology of historic cognition that is increasingly becoming a set of unrelated and opposing methods. Thus, the outline of the historical synergy emerge as the composite method of historic cognition [47]. In Kazakhstan historic studies, too, there were studies discussing the possibility of the synergetic approach to historic research. These are works by Abil Ye.A., B.A. Dossova. [48-49].

In general, it is necessary to note the undeveloped state of the practical

applicability of the synergetic approach in historic cognition. This also applies to the historic studies of Kazakhstan. It is this fact that conditions the importance of the object of research of this work.

The methodological basis for solving research problems was a collection of modern methods of historic research. First of all these are scientific methods: historic, logical, structural; special historic methods: chronological, chronological, comparative historic, actualization, periodization methods. We are trying to achieve the goals and objectives set in the work on the basis of the updated methodology, the one, historical and scientific substantiation of which is carried out in the course of our research, namely on the basis of synergy ideas – non-linearity, self-organization and open systems.

The conceptual basis for the research is the ideas of: correspondence of the methodology types to the three phases in the history of science methodology – classical, non-classical and postnonclassical with continuity of scientific knowledge; philosophy of instability, open dialog between the natural scientific and social humanitarian thought, science and practice, human and nature (I. Prigogine, I. Stengers, H. Haken); the principle of complimentarily (N. Bohr) or "proliferation of theories" (P. Feyerabend), "centauristics" (D.S. Danin) directly related to the methodological pluralism in the science.

An important contribution to the methodological and theoretical understanding of the issues of the monograph were made by the works of I. Prigogine, I. Stengers, K. Marx, F. Engels, A.J. Toynbee, L.N. Gumilyov, F. Braudel, K. Popper, A.N. Nyssanbayev, N.A. Nazarbayev [2, 22, 27, 50–54].

Source base of the research were historiographical sources – monographs, educational literature, journal and newspaper articles, materials of discussions, conferences, "round tables" and others that allowed the authors to identify the level of understanding of the problem being researched. Source base can be divided into several complementary blocks.

The first block includes the works on the science methodology and the history philosophy. First of all, these are works of representatives of the Kazakhstan school of philosophy, logic and science methodology that has received international recognition. These are works of Zh.M. Abdildin, A.N. Nyssanbayev, K.Kh. Rakhmatullin and other [55–58]. Their works explore the issues of the status of the science, the essence of scientific rationality; analyze the influence of the environment, in which the science functions. “The works are characterized by changes in attitudes and ways of methodological analysis of the science, including the analysis of the methods of modern scientific cognition in the social and cultural context, discussion of the fate of the ideals and norms in the modern scientific cognition” [59 p.6-7].

In particular, in his works, A.N. Nyssanbayev expresses an opinion that the modern science methodology is characterized by its adherence to pluralism allowing to research human and society comprehensively. The scientist believe that in this case the methodological pluralism does not lead to an erosion of scientificity criteria, on the contrary, it summarizes the experience of logic and methodology developed throughout the history of thought [2]. Domestic philosophers and methodologists of the science are convinced that due to the lack of new theoretical and conceptual findings, the problem of developing new methodological and categorical tools is not that acute. Scientists believe that it is necessary to expand the number of developments in the methodology of historic, social and political, and legal studies, transitological, ecological and diasporological studies [21, p.282]. In general, Kazakhstan philosophers and methodologists of science suggested the idea of forming a creative way of thinking in the science.

We also used works by Soviet and Russian scientists: B.G. Mogilnitskiy, I.D. Kovalchenko, A.S. Lappo-Danilevskiy, V.V. Ilyin, V.S. Styepin and others, whose works deal with the problems of occurrence and development of the

scientific theory, the society systematicity; investigate the social, cultural and theoretical incentives for developing the methodology, characterize the role of social science methodology in the dynamics of contemporary culture and principles of thinking; highlight the theoretical and methodological issues of studying and teaching history, discuss the features of historical cognition. In general, these studies played a huge role in the theoretical understanding of the current state of the science, including historic studies [60–69].

This block may be supplemented with works of N. Bohr, P. Feyerabend, D. Danin, I.A. Yakovlev and others, who confirmed the effectiveness of the methodological plurality of the science, complementarity principle and combination of incongruous things [70, 71, 37]. In particular, in his works, P. Feyerabend expresses and substantiates the original concept of the theory of cognition, which denies the preservation of a stable "core" of objective truths in the scientific cognition. Methodological pluralism is based also on the ideas of centauristics that is – experience of combining incongruous things (D. Danin, I. Yakovlev). The researchers believe that the compounds of a centaur that are – consensus, convergence, compromise and complementarity are leading characteristics of pluralistic ideas in the science methodology.

The second block of works covers the synergetic branch of the science, and includes the works of I. Prigogine, I. Stengers, H. Haken, K. Mainzer, G. Nikolis and others [22, 23, 72–84]. These works set forth the essence of the theory of self-organization and problems of evolving the synergetic paradigm; discuss the prospects of synergy as a kind of vision of the world; characterize the definitions of the modern paradigm; analyze the process of transition of most fundamental scientific disciplines to researching a new type of objects – self-organizing and self-developing systems; show the interdisciplinary nature of the synergy, its conceptual importance, and that synergy is an important element in shaping the modern scientific picture of the world; explore the philosophical

foundations of the formation of a new non-linear style of scientific thinking in the course of formation of the synergy; show the role of non-linearity, openness and self-organization in expanding the boundaries of rationality that allows opening the possibility of a unified understanding of human and nature; recognize the role of synergy in the dialog between the humanitarian and natural scientific thought.

The third block consists of works that explore the synergetic paradigm from the standpoint of philosophical and social humanitarian methodology. At the same time, they can be attributed to the actual synergetic micro-mastering. These are researches in the field of culture, history and social philosophy, containing elements of synergy in their methodological basis. This is what represent the works of L.N. Gumilyov, O. Spengler, N.N. Moisseyev, V.I. Vernadskiy, P.T.de Chardin, A.P. Nazaretyan, F. Fukuyama, Yu.M. Lotman, V. Arnold and other researchers, who used the synergetic concepts and meanings implicitly when thinking of global problems of mankind [85–93]. Interest is arisen by the ideas of N.N. Moisseyev reflected in his concept of universal evolutionism. Moisseyev's hypothesis of Super System, being a component of his concept, declares the idea of the Universe as a single system, the components of which are closely related. According to the scientist, the development of so-called Super System and its components is a process of self-organization. With organization of the matter and emergence of the living matter and intelligent life forms, the human determines his "territory" that he is constantly trying to expand. But the stability of the system depends precisely on whether the human will be able to ensure the co-evolution, i.e. a dialog with the nature. After all, the fate of the Universe depends on this [94].

In the concept of ethnogenesis of L.N. Gumilyov, there can be found parallels with synergy. First of all, it is the idea of self-organization, in this case regarding the ethnic self-regulation, which is possible subject to the ethnicity

being a complex structure. Only under this condition, it will be able to survive under the influence of various disasters. “Simplification of the system” will lead to the onset of “stagnant” of the structure, which consequently loses its vitality and resilience to external shocks. L.N. Gumilyov believes that the main condition for the complexity of the system has to be its openness, tso there is an opportunity exchange energy and information. In general, L. Gumilyov managed to create an ambitious model of the existence of peoples, cultures and societies as the life's activity of a highly complex biosocial system subjected to the laws of the synergetic nature. It is reflected, first of all, by stating complementarity of entropic and anti-entropic, social and biological factors, the opening and closeness, necessity and accidence, order and chaos in the life of ethnic groups. In essence, the emergence of the theory of ethnogenesis by L.N. Gumilyov is associated with one of the first in modern social science attempts – in a dialog with the natural sciences to create a large-scale picture of the self-organization of the human history; moreover, it established a rich semantic field of holistic perception of the life of the human race in the science [29, p.321, 106-107, 135].

Philologist and historian Yu.M. Lotman drew attention to the need of using the concepts of the chaos theory in the methodology of historical research. Yu.M. Lotman in his works explored the phenomenon of the “cultural explosion”, at the moment of which “the choice of the future is realized as an accident”, and it is not subordinate to any causality or probability, and when present appears as a “flash of not yet expanded semantic space” containing a potentially all possible future development paths” [92, p.28-29].

Russian scientist Ye. Sedov studying the methods of the information theory, concluded that these methods are able to analyze the processes of self-organization of various types of systems, including social ones. According to the scientist, the ratio of the information and the entropy (unpredictable information) is determined by the structure of any system. The greater the

amount of entropy, the smaller the structural (predictable) information. Ye. Sedov examining all the stages of the transition of the system from the state of chaos to the state of rigid determination, made the conclusion that the system should maintain the optimal ratio: 20% – of entropy (unpredictable) and 80% – of structural (predictable) information. Otherwise, the system will lose its adaptive properties and will come to destruction, having made an abrupt transition from the rigid determination to entropy, that is, to chaos. His scientific discovery Ye.Sedov expressed in hierarchical compensation law, according to which "only subject to the limiting the diversity of the lower layer, it is possible to form various functions and structures at the higher levels of social systems" [95, p.100]. This means that it is necessary to limit the freedom not to cause the system destructurization. If conclusions of Ye.Sedov are related to the basic provisions of synergy, we can state that the development of social systems according to the proposed principles is their self-organized adaptation to the environment.

The works of N.A. Nazarbayev contain the idea of the negative impact of the closeness of the society as a system, to the progressive development of the country, state, society. Therefore, our young republic should take an active part in the global integration processes related to the trend of globalization. Expansion of openness of the Kazakhstan society will allow the penetration of new information that will lead to the democratization of the society, involvement of our country in the global processes of self-organization. In particular, in one of his recent works, N.A. Nazarbayev writes: "Closed society – is an opportunity to fly in the cage, even if this cage is large. Open society – is an opportunity to fly in the sky. And we, according to our history, and the free spirit, feel closer to the last allegory – an eagle soaring in the bright sun in the endless steppe sky ..." [54, p.233].

The common thing that unites these and other works – is non-linear

thinking, putting a priority on open systems, recognition of self-organization of complex systems, denial of standard frameworks of deterministic methods of scientific cognition, commitment to the philosophy of postnonclassical science, which takes into account casualty, predetermination of events from above, unpredictability, subjectivism, relativism, and etc., which is typical for synergetic scientific worldview.

In other branches of philosophical and social humanitarian methodology related to the practical synergetic mastering of the world, it is necessary to note the work of Soviet and Russian scientists: S.P. Kurdyumova, Yu.Ya. Klimontovich, V.V. Kazyutinskiy, Ye. Chernyavskiy, Ye.N. Knyazeva, S.A. Gomayunov, L.I. Borodkin, A.Yu. Andreyev, M.I. Levandovskiy, A.P. Nazaretyan, M.V. Sapronov and others. [20, 30–38, 45–48, 96–108]. Their works deal with the issues related to the development perspectives of complex systems that are studied synergy. It is due to the ideas of the synergy, according to many researchers, the change has been made in the scientific picture of the world and it was understood that science is a complex, open, non-linear system. The works state that the synergy becomes the core of the postnonclassical scientific worldview with the new methodological instrumentarium. Faith of the synergetic paradigm in the casualty and arranging order out of chaos, removes the shackles of tradition, facilitates individual creative process, provides an opportunity to choose. Works devoted to the use of synergetic methodological apparatus for analyzing the social problems had offered special terms to refer to the relevant scientific fields: sociosynergy, historical mechanics, models of self-organization, futurosynergy and others. Sociologists believe that sociosynergy differs from the classical methodology by the fact that it is based on a fundamentally different philosophical approach – philosophy of instability. This allows when constructing historical process models to take into account such important features of real systems as uncertainty, non-linearity. Sociologists

suggest to use synergy in the structural and functional analysis of social culture, where particular importance will be given to the construction of a systematic hierarchical model of social culture taking into account its synergetic nature, and etc. Synergetic approach was developed by the scientists in the study of political processes. Analyzing the synergetic aspects of modern history, political scientists point out that it is under the influence of the gradual accumulation of financial, political, legal, national, economic, military, psychological fluctuations (deviations) that the social system (society) enters the bifurcation state, and further its changes are becoming more and more unpredictable and spontaneous. At the same time an increasingly important role in these processes is being transferred to the casualty becoming a powerful factor of the further existence and development of the political system. Even economists are convinced (and many researchers write about it) that the theoretical economic problems will be solved subject to the researcher "admitting" at least some of the non-trivial ideas into their reasoning; such ideas have been accumulated in respect of non-linearity and behavior of complex systems. Synergy ideas appeared to be effective in the narrow areas of scientific thought, such as, for example, the phenomenon of labor. Here the idea of self-organization will have to play the role of inhibition of natural aggression in the society, as the evolutionary functions of labor in the present-day conditions have lost their capacity for self-regulation. The field of application of the synergy may also include a field of culture as an art. Researchers believe that the art cannot be studied with the natural science instrumentarium, since the spectrum of its phenomena is much wider than the range of the science phenomena. Scientists come to the conclusion that the art deals with unexpected, impossible phenomena and, therefore, the synergetic approach can be applied to its studying.

Research in various fields of science using synergetic models show an

interdisciplinary phenomenon of the synergetic paradigm. The synergy is interdisciplinary in its own nature, since it is aimed at finding universal ways in the evolution and self-organization in open non-linear systems of any kind, regardless of the specific nature of their components or subsystems.

The works on synergetic thinking applicability to the historical research describe a possibility of the synthesis of the leading system approaches in the theory of history on the basis of the new interdisciplinary branch – of synergy. Researchers believe that a non-linear way of thinking becomes a characteristic feature of the renewing methodology of history, and here categories used by the synergy appear to be productive. Moreover, this way of thinking facilitates the transformation of the history from the stating into theoretical science mastering the the subjunctive mood and scenario approach. This involves assessing the actions of historic events in their own cultural and psychological coordinates and in the context of alternative scenarios. What is meant here is not just the expansion of categorical apparatus of the history and other social and humanitarian disciplines, but also the use of sufficiently universal mathematical models developed in the framework of the theory of non-linear dynamic systems and mathematical chaos theory, which are closely related to the concept of the synergy. Synergy approaches are based on such concepts as non-linearity, instability, unpredictability, alternative of the development. The main question that interests historians in this regard – is the nature of the unstable situations development in the historical process, the impact of casualties, minor impacts that cannot fundamentally be foreseen and forecasted, on the course of future events, the situations development at the point of bifurcation.

Today we can talk about the three levels of synergy impact on the development of historical research: conceptual, categorical and methodological. As the experience of the past two decades has shown, it is in this order that the process of penetration of the synergy, its approaches and methods occurs in the

methodology and practice of historic studies. This process is accompanied by active discussions in the scientific periodicals. For example, in Russia, this discussion occurs largely on the pages of the journal “Obshchestvenniye nauki i sovremennost” (Social Studies and Modernity). In Kazakhstan, such a discussion cannot be observed yet. We hope that domestic historians will join in this discussion and in the pages of specialized historical journals, works on historic synergy will appear.

M.V. Sapronov notes that there are two sides to the use the concepts of self-organization in humanitarian research, particularly in historical research: firstly, synergy is considered as a new scientific paradigm that changed the outlook on the world around us and setting the specific methods for posing problems and models of solving them. Moreover, synergetic paradigm promotes finding a common language for the humanities and natural sciences that unite on the basis of solving the same problems; secondly, the other side is the explanation of specific historic events and phenomena with the help of categories and concepts of the synergy. In this case, the latter serves as a method or concept that can be described as a synergetic approach. The difference between it and the synergetic paradigm is seen by the researcher in that the synergetic paradigm is wider than the synergetic approach. An important comparison line is methodological and cognitive principles of application. In the synergetic paradigm such principles are: the principle of complementarity, ambiguity of truths, inherent value and usefulness of each theory. [50] Works on historic synergy evidence that the issue of the possibility of using the synergetic approach by historians transferred into practice. Application is found not only by the concepts and categories of the synergy, but also its specific computerized techniques. In general, there is a possibility of using the synergy as the approach in the research of the past, but with the caveat that it is not the only explanatory model and should be complemented by other well-known interpretations.

Opponents of the synergy as the historic cognition approach argue their position by the fact that naturalists read an entirely different meaning into the concept of the system, rather than historians. Moreover, the role of chaos in people's lives has been known for a long time and it is not necessary to give such a predominant value to this fact – believes Polish historian J. Topolsky [109, p.89]. Critics of the synergy are confused by "idle noise" around it. Russian scientist V.B. Gubin believes that there is no specifics in the synergy itself, no proper criticism of the "fashionable" trend and as a result it becomes a mass pseudoscience, "chatter" [110, p.122]. In our opinion, the criticism of V.B. Gubin is hardly justified. We agree that there are yet few works of the specific character. But, firstly, it is customary and necessary condition for the penetration of a new paradigm in every single science: first comes a hypothesis, theory, then – its practical test. Secondly, many modern methods and techniques of historical research used by historians, at a closer look are not more than a way to implicitly demonstrate the cognitive possibilities of the synergy. It is essential that all of them are now – in the framework of the synergetic paradigm – receive their theoretical justification.

In Kazakhstan, the discussion about the process of the synergy penetration in different areas of the social and humanitarian sciences is going on among the representatives of the pedagogical science. During the recent years, a series of monographs was published on this subject. In particular, wide implementation of the synergetic thinking in pedagogy is promoted by Z.Zh. Zhanabayev, B.A. Mukushev, L.Kh. Mazhitova, N.D. Khmel, M.S. Moldabekova and other [42,43,111–112]. The works of the scientists present the results of the research on the use of the synergy ideas for analyzing some issues of the theory of pedagogy, certain issues of didactics; state the feasibility of using self-organization theory as a research methodology of pedagogical processes and their laws. For example, Z.Zh. Zhanabayev shows the achievements of the

pedagogical science by using the synergetic concept in the study of problems of education, training and other components of pedagogy: notes the possibilities for acquainting students with elements of non-linear ideology and theory of self-organization in the process of mastering educational materials (in particular, while studying physics) in high school and university; formulates the basic principles of multi-level and multiplex control system for the training activities and identifies ways of using elements of probability theory and information in assessing student's knowledge, and etc. A Russian-Kazakh dictionary of terms of synergy is compiled; it reveals the content and significance of the theory of self-organization for the non-specialist audiences. [42]

Synergetic orientation in Russian pedagogical science research is represented by the works of V.I. Redyuhin, L.I. Novikova, M.V. Sokolovskaya, S.S. Sheveleva and other [39–41]. The authors of these works believe that modern education requires conceptual changes, as there have been changes in our understanding of the nature, cognition processes and human development. This requires practical organization of the interdisciplinary communication, promotion of cooperation of competing systems in terms of awareness of the general insufficiency. Synergetic approach to education (education synergy) states that the procedure of learning/teaching, communication method between the student and the teacher – are not a transfer of knowledge from one head to another, it is not broadcasting, enlightenment and presentation of a ready-made truths. This – is non-linear situation of open dialog, direct communication and feedback. This – is situation of awakening own forces and abilities of the student, his initiation into one of his own development paths.

In general, these works evidence that synergy more boldly explores new horizons of scientific application of ideas of self-organization, thinking non-linearity, openness of systems in various fields of natural science and social humanitarian thought.

The fourth block includes works devoted to the problems of formational and civilizational approaches to the scientific cognition. First of all, these are works of the founders of these approaches, as well as their followers, and opponents. The main works of K. Marx and F. Engels revealed the essence of the theory of social and economic formations and numerous comments and criticism of the Marxist theory gave us an opportunity to identify positive and negative aspects of this approach to the historic cognition. First, it is necessary to note works by Soviet historians, as the formational approach was the main methodological base for the Soviet historic studies. These are works by M.K. Kozybayev, B.G. Mogilnitskiy, S.G. Kara-Murza, A.Ya. Guryevich, V.V. Ivanov, A.I. Rakitov and others [10–12,51,64,63,113–119]. Works written during the Soviet period, are characterized by historical materialism as the best and most effective approach to scientific cognition of the society. The assessments vary with the change of the political situation in the country: more and more negative criticism appears toward the formational approach. In 90s, ambiguous attitude to the heritage of the founders of Marxism was formed: on the one hand, the call to remain faithful to the theory, but on the other hand, – a complete rejection of the materialist conception of history, and from the third point of view, – advice to return to the "pure" Marxism, abandoning the so-called "Soviet" period, the fourth party adhered to the opinion, which, in our opinion, is more feasible –, and which consisted in calling for qualitative and substantiated criticism of the formational theory not for condemning it to "death sentence", but for reabilitating its heuristic possibilities in present-day conditions. We believe that the latter side of criticism is more beneficial for post-perestroika history, as it will allow more painless switch to the modern stage of scientific historic cognition that is characterized by pluralism of opinions and approaches, as well as by the principle of complementarity, which means a kind of "team" approach to achieving the truth.

Civilizational theory is presented in the works of foreign scientists: A.J. Toynbee, O. Spengler; Soviet and Russian scientists: N.Ya. Danilevskiy, V. Altukhov, A.Ya. Guryevich, B.S. Yerassov, Ye.B. Rashkovskiy, L.N. Gumilyov, I.Ya. Zlatkin, G.Ye. Markov; Kazakhstani researchers: D. Kshibekov, N.E. Massanov, S.Ye. Tolybekov, Zh.B. Abylkhozhin and others [26–29,117,120–127]. Works of these scientists analyze the concepts of "civilization", "civilization theory"; discuss problems of the western and eastern civilizations, joining and separating trends in the global historic process, way of surviving of the mankind in the conditions of the global threat of nuclear disaster, environmental problems; analyze present-day state of the formational theory; offer various options for renewing the theoretical base of the Soviet historic studies; show effectiveness of studying the global historic process via civilizational approach, in particular, history of nomadic peoples.

The fifth block include studies discussing the problems of post-perestroika historic studies in Kazakhstan. In particular, the importance of history in the formation of sovereign Kazakhstan is written in his works by N.A. Nazarbayev. The works by the President of the Republic of Kazakhstan "On the Threshold of the XXI Century", "In the stream of history", "In the stream of history" and others raise the issues of reviving the national identity via studying the true histroy of Kazakh people, as having studied the past of the nation it is possible to build a reliable "bridge" to the future [128, 129, 54]. Modern Kazakhstani scientists M.K. Kozybayev, M.K. Koygeldiyev, M.K. Abusseitova, M.Kh. Assylbekov, K.N. Nurpeissov, K.M. Atabayev, T.O. Omarbekov and others in their works write about the possibilities open for a historian-researcher. First of all, – it is freedom from the ideological framework, which allow a scientist to make independent conclusions. But sometimes freedom in the works, according to some scientists, unfortunately, turns into permissiveness. Secondly, what the scientists talk about – is active study of the sources, as formation of the source

base of the science will facilitate the renewal of the methodological approaches in studying the history of our country. Thirdly, Kazakhstani scientists are concerned with insufficient development of the methodological problem of the present-day historic studies of Kazakhstan, as there are a few scientists who work on this complex problem [130–133].

The merit of the modern Kazakh historians – is preparation of new generalizing works on the history of Kazakhstan [134–139]. Common thing that unites them – is another perspective on the historic events that occurred in our country. First of all, the researchers tried to step away from the official interpretation of the history of Kazakhstan; this allowed Kazakhstan historic studies to acquire independence. The main thing is that present-day works on the history of Kazakhstan facilitate the development of the modern historic identity in Kazakhstan, awakening of the true interest to the history of the nation. Through the use of modern methods and techniques by the scientists in their studies, the history appears before us with all its achievements and negative lessons.

Soviet, and then Russian researchers published numerous works devoted to analyzing the existing situation in the historic studies of the post-perestroika period. First of all, these are works, which describe the methodological crisis in the modern historic studies. Among the authors, we can noted such as A.Ya. Guryevich, S.S. Neretin, D.Ye. Furman, B.G. Yudin, G.G. Diligenskiy, V. Altukhov, S. Korolyov, A. Nikiforov, L. Alayev and others [119–121,140–152]. These scientist, having expressed their ideas regarding the perspectives of the formational approach in the historic studies, call not to fully deny the methodological base of the Soviet period science, since Marxism preserved in the Soviet period should be rehabilitated.

In recent years, a range of scientific papers were published, which reveal the practical importance of synergy for addressing present-day issues of

gnosiology. In particular, web-site of the Russian scientist S.P. Kurdyumov (1928-2004) previews the topical works on synergy and published the research results of the global synergetic community. For example, the web-site has published an article of professor of MSU named after M.V. Lomonosov, L.I. Borodkin “Order of the Chaos”: Concepts of the Synergy in the Methodology of Historical Research”, where the author discusses methodological problems of using synergy consepts in historical research [153]. In 2019, proceedings of the 2-nd International Conference “Engineering of the Future. Problems of Digital Reality” arranged by the Keldysh Applied Mathematics Institute [154]. In particular, it is of interest was stirred by the article of Malinetskiy G.G. “Risks of Digital Reality”, where the author discussed a range of strategic risks of computer reality formation and development. [155]. In particular, according to the author, in the age of information technology, mankind had once again found itself in the bifurcation point: one path can lead to hypercontrol of machines over people, and the other path can find a compromise between the human culture and modern technology. Malinetskiy G.G. being concerned with the active implementation of artificial intelligence in people's lives, exclaims: “The lack of real, useful and meaningful work in a large part of humanity is pushing in this part to the Virtual Reality. This reality is the realm of games, where the leading process is gamification, where “everything is not real”. This leads to infantilization of a huge part of the population that does not want to recognize and comprehend what is happening (which is not as simple and rosy, as a computer screen) and, moreover, to take responsibility. On the contrary, they want to give it to someone, even a network algorithms as soon as possible. This creates a new request for extension of the limits of the virtual reality at the expense of the real one, which is the main and only. Therefore, the prospect of the advent of hypercontrol, hyper-empire with its devastating social consequences seems more than likely” [155, p.240].

Theoretical and methodological issues were discussed in her latest articles by Dossova B.A. [156-160]. Modern methodological positions are used in her scientific works on the history of Kazakhstan by Zhumanova A.Z. [161-162].

Thus, the source base of the study is fairly extensive. First of all, these are the works of the founders of the synergy theory (I. Prigogine, H. Haken), formational theory (K. Marx, F. Engels), civilization theory (N.Ya. Danilevskiy, A.J. Toynbee), work of their followers and opponents, as well as studies of Kazakhstan, Soviet, Russian and foreign scientists in the field of theoretical problems of science, philosophy, history, natural science and social humanitarian thought in synergetic research.

CHAPTER I

SYNERGY AND THE STATE OF THE HISTORIC COGNITION METHODOLOGICAL BASE AT THE MODERN STAGE

1.1 Three Stages of the Science Methodology Development and Emergence of Synergy in Researchers' Works

The cognition process is characterized by strong feedback communication: new discoveries lead to a new worldview and generate new methodological researches. Today, in our opinion, it is that stage when the scientist has denied many settings of classical science and had put forward their alternative to replace the old ones. Changes that take place in the science require new assessments.

But, first of all, it is necessary to discuss the modern state of the science, it is required to know the previous stages of the science methodology history. Recently, it is customary that most researches devoted to analyzing the scientific knowledge structure, origin and conceptual apparatus of the scientific knowledge are named methodological. There are several different interpretations of the essence of the methodology and its role in the system of knowledge that may be reduced to two groups: 1) methodology – is a set of methods, or a doctrine of methods. Objectively, concepts of "method" and "methodology" are identified, which leads to using them as synonyms; 2) methodology – is a theory of historic cognition, implementation of methods in the process of the historic cognition, study of the methods used each and every science, i.e. Method should be distinguished from the methodology [163, p. 13]. Some researches differentiate broard and narrow meaning of the methodology. In the first of these meanings, methodology is a set of general statements and philosophical principals determining the direction and resulting goals of this activity type. Methodology in its broader sense is a special discipline, the task of which is

theoretical research, analysis, reconstruction, justification and substantiation of the methods of the corresponding activity. As it is about the scientific cognition, methodology in its narrow meaning deals with methods, i.e. With rules, regulations and criteria of building the knowledge of higher levels, usually theoretical [12, p. 23]. The modern dictionary of foreign words gives the following determination of the concept "methodology" – first, "it is a doctrine of the scientific method of cognition", and secondly, "it is a set of methods applied in any science" [164, p.376]. In general, many scientists determine science methodology as a part of science studies dealing with the means and methods of scientific cognition, ways of substantiation and development, structures of the scientific knowledge. They believe that discussion of methodological issues "provides the mind with a habit to systematic, methodically correct thinking, and, of course, it continues to act also in the sphere of special research: it is always impacts the method of the research (for example, perspective, from which this object is studied), although such impact is obvious and is not found in the research itself or its results" [68, p. 11]. Thus, knowledge of the methodology provides the historian with an opportunity to systematically verify conclusions of others regarding the historic facts in terms of their methods, and only after getting the satisfactory results of such check, to rely on this conclusions, as they appear to be correct in the methodological sense [68, p. 12]. Many researches relate the problems of methodology importance to the following: intensification of scientific researches; a huge flow of innovations occurring in the science; complication of its (science) conceptual construct; improvement of the methods and means of the scientific thinking. Besides, there occurs a need in understanding the features of the interaction with other branches of the scientific cognition and with the whole social and cultural background of the society, within the framework of which the science is developing [111, p. 98].

In general, the researchers agree that in the science development, methodology has always played an important role, and the necessity in methodological support occurs when there is a problem requiring solution. And the old methods appear to be useless. Problem solution in this case requires the knowledge of vastness of the object relations, exit to the culture. In this case, it is possible to trace the link between the science and culture, with the help of which the science in the process of its development, especially in crisis situations, takes regulations ensuring its progress from the culture. An important peculiarity of the methodological activity is that to perform it, researcher expands his field of vision, in some way going beyond his science, those means and attitudes, way of thinking and acting that are typical of it. It is characteristic that in the science, after the period when the established style of thinking is not subject to radical changes, there comes a period of global scientific revolutions related to transformation of the style of thinking, while the noted characteristics of knowledge are subjected to reviewing.

The issue regarding the time of emergence of the modern science is disputable. V.A. Lektorskiy believes that "the science as a special way of getting knowledge emerged in Modern Times. There are grounds evidencing the antique and medieval science that differ from the modern one in a range of significant relations, as they developed within the framework of other cognitive attitudes and values" [165, p.48]. "Some believe that the science emerged with the human. From the point of view of others, the science was born by the ancient eastern civilization. The third party sees its beginning in antiquity having in mind European science and philosophy. The forth point of view – the science dates its beginning back to the period of late Middle Ages. As a more reasoned point of view, we can consider the opinion that the genesis of science should be linked to the XVII century" [21, p.14]. Why is the last point of view more appropriate? – asks Kazakhstan philosopher K.Kh. Rakhmatullin. In his opinion,

and in opinion of most scientists, if we understand science as a simple set of knowledge about objects and phenomena of the world then we can agree with the opinion that our far primitive ancestor could survive only having a certain amount of true knowledge about the environment. But the science is not simple, but strictly systematized amount of knowledge. Start of such systematization dates back to the ancient period; and is continued in the Middle Age. But this process then was far from perfection, to say nothing about its completion. If the specified science parameters are added with that it is a social institute, and is related to the development of its social status, growth of prestige of the scientific labor of a scientist, with emergence of the essence of the universities, academies and etc., then we cannot refer to the science as the one having all this attributes until the XVII century. Moreover, it should be noted that all these parameters could be acquired by the science only when the society began to be badly in need for a wide system of objective knowledge [21, p. 14]. Adhering to these arguments, we will not consider the period of so called pseudo-science that, according to the generally accepted classification of the science history is the first period, but will stop at the following historic stages of the science establishment and development.

The researchers single out three stages in the science methodology development that are aligned with their methodological instrumentarium: classical, non-classical and postnonclassical (neo-nonclassical according to V.V. Ilyin - D.B., K.S.) [18, 60]. In their opinion, classical science (XVII - late XIX century) is characterized by the following methodological attitudes: exception of the cognition subject from the scientific description; theory is built only based on experience; mechanical world picture acquires the status of general scientific one; the science localization takes place; hypothetical knowledge is eliminated from the science; monotheoretical and monological image of the science and deterministic approach prevail; simple and closed-loop systems are operated

with; the base is ratiocentrism, diciplinarity, reductionism, Eurocentric way of thinking [6, 18, 62, 166].

Classical stage is complied with the methodology type related to “the assurance of the scientists in possibility of understanding the object features irrespective of understanding what means are used to implement cognition and who implements the cognition” [111, p. 100]. Philosophy of the classical science: straightforward causality reigns in the world. Classical science operated with simple systems, or systems picked out from the contest of the whole: homogenous, stable, equilibrial, which tend to order and with predictable behavior. This was the kind of closed-loop systems characterized by linear relationships. Mechanical worldview of machine civilization gave birth to the world picture where order reigned, but the order of the present-day Pompeii. Consequently, the symbol of the Newton’s science period and, in some kind, model of the world was the clock pendulous device with its regularity of behavior, reversibility [37, p. 50]. Classical type of the scientific thinking is based on the representation that learning mind observes the world somehow from outside and thus studies it. Cognition task was determined as construction of objective picture of the reality. Methodology of classical science developed in the stream of these representations. Special attention was paid by it to the problem of relating theory and experience, while the theory was considered as experience generalization. It was supposed that it was possible to discover the unified correct method that in any situation warrants the true path to building a theory based on facts [18, p. 132]. Creator of the classical mechanics, I.Newton excluded the god (subject) from the nature by giving him the role of the initial impulse that is the master who wound up the “world clock” and then stopped interfering with their work. The bases of the “scientific approach” to the human is the recognition of materiality of his own nature and deterministic explanation of his mind, that is subordination of the spiritual world to the laws of the

mechanical casualty. Classical type of rationality focuses its attention only on the object and brackets out everything that relates to the subject and activity means. Analysis of the scientific knowledge as social phenomena allowed scientists to reveal two structures in some kind overlapping each other in the system of the developing knowledge. They are: “Internal” and “external”. “Internal” structure of the scientific knowledge represents interrelation between the theoretical and empirical knowledge, and “external” - dependence of both of them on the established in the culture ideals and norms of cognitive activity, worldview structures and values [167, p. 5].

L.F. Kuznetsova believes that the “term” of “worldview” is more and more often used as a means of methodological analysis. In the modern philosophical and special scientific literature, it is sometimes used to denote worldview structures underlying the culture of a certain historic epoch. The term “worldview” is used also in more narrow sense; then it describes the scientific world picture, it means those representations of the world that are special type of scientific knowledge” [167, p. 4]. Mechanistic scientific worldview is related to the name of I.Newton. According to it, the world objectively exists, matter is primary. Matter movement imagined as simple mechanical displacement subordinated to the objective laws, which are laws of mechanics (first of all, three laws of mechanics and law of gravitation discovered by Newton himself). Thus, he created the picture of unified, interrelated, eternal, endless and moving world controlled by the laws of mechanics [9, p. 66]. This scientific worldview is rightfully named mechanical one: for all objects and phenomena of the world, it treated from the point of view of laws of more developed science at that time - mechanics, it narrowed everything down to simple displacement of bodies under the effect of external force. Besides, materialism that represented the general theoretical, methodological base of it was limited: it did not see internal sources of movement.

Thus, most researches believe that classical type of the scientific thinking was based on the representation that learning mind observes the world somehow from outside and thus studies it. Cognition task was determined as construction of the objective reality. Condition of the knowledge objectivity was considered to be elimination of everything that did not relate to the subject from the theoretical description. Methodology of classical science developed in the stream of these representations. Special attention was paid by it to the problem of relating theory and experience, while the theory was considered as experience generalization. It was supposed that it was possible to discover the unified correct method that in any situation warrants the true path to building a theory based on facts.

Classical paradigm is replaced with the advent of new non-classical methodological attitudes that were preceded by disagreements within the classics itself (late XIX – middle XX century). During this period revolution takes place in the natural science. And correspondingly, there occurred understanding of non-classical methodology of science. One can agree with the researches that attitudes of the next methodology are: subject of cognition is within the object world; non-absolutization of the true worldview; recognition of variety of methodologies, i.e. Pluralization; relativity of the object to the means and operations of activity; indeterministic approach; anti-fundamentalism in interpreting ideal of scientificity; relativization of genuineness of the theories and the worldview [18, 5]. V.V. Ilyin believes that “nonclassics is seperated from classics by a gap, worldview, general cultural barrier, incompatibity of thought quality” [62, p. 19-26].

At the same time, non-classical type of methodology is related to understanding by the scientists that knowledge gained as a result of studying an object will belong to the means of (observation) cognition [111, p. 100]. Non-classical type of rationality reasons from that learning subject is not separated

from the objects world, but it is inside it. Non-classical methodology of the science did not set a goal of searching for unified correct, absolute method and building of unified world picture based on it. There occurred perceptions about the diversity of methodologies of the research, about dependence of these or those perceptions of the world on the character of methods and theoretical means, about the possibility and even desirability of equivalent descriptions of one and the same reality, as development of the science language in the process of re-wording of already created theories develops means for the science break through to new subject areas [18, p. 133]. The world opens structures and laws due to the intense activity of the human in this world. Only when objects are included into the human activity, we can understand their essential relations. Non-classical science was characterized by understanding of relativity of the theory genuineness, as each of them may contain a moment of objective genuine knowledge. Russian scientist S.A. Gomayunov believes that "domestic historic studies have not passed the stage of non-classical paradigm. The Western science responded to the change of the situation by the growth of the interest to hermeneutics. Probably, emergence of the school of "Annals" with its special methodology of researching mentality also evidences the development of the non-classical paradigm in the science theory" [47, p. 15]. Transformation that started in the science at the turn of the XIX - XX centuries became a sign of worldview crisis, which is named scientism. From this time on, overruling was started in relation to "overoptimistic" view on the science opportunities in solving both local and global problems faced by the human, including uttermost issues about the human life purpose [47, p. 18]. The listed features of the methodology of classical and non-classical epochs in the science development, in our opinion, do not evidence any strong confrontation between them. We can also see something in common, namely, the same interpretation of the scientific knowledge role: disclosure of the life nature, attainment of truth.

Preceding stages of science methodology development had lead the science to its present-day postnonclassical state, transfer to which took place in the late 70s - early 80s of the XX century. V.S. Stepin believes that "problems of the social and cultural conditionality of the scientific knowledge, analysis of the science interaction with other phenomena of the human culture, research of cognitive procedures has come to the forefront in relation to historically changing values and worldview orientations. Close interaction of the epistemology, methodology and historic studies was supplemented by their synthesis with sociology and culturology of historic cognition" [18, p. 136]. Ilyin V.V. being guided by the idea of Teilhard de Chardin about the "center of the perspective is the human that is at the same time the center of universe construction", is sure in the transformation of the non-classical chain "knowledge – reality" into neo-nonclassical ring "real knowledge and its human potential in scientification of the reality" [62, p. 32].

Neo-nonclassical or postnonclassical type of methodology is characterized by that scientists start to understand that knowledge gained as a result of objective practical activity aimed at studying an object, will be relative not only for the means of (observation) con, but also to that what worldview, values, norms guide the subject. This is the significant result of the methodological researches of the recent years, which must guide the scientific search [111, p. 101]. Context problem should be considered an important moments of the postnonclassical science. "If before the question was in the context for separate social systems, today the question is broader: what is the context for the whole mankind; is it necessary and if yes, how far should we cross the border of the social system itself, and what does it give for understanding the historic process?" [47, p. 19]. Today we can only assume what difficulties expect the researchers in order to understand unobservable, inimitable and resisting the experimental research objects. But it is clear for everyone that for more free

dialog with the nature, the human cognition will be forced to make its methodology more susceptible to the diversity of the reality. Therefore, we agree with I. Prigogine and I. Stengers, who described the methodological situation as follows: “We are approaching the problems, in which methodology is inseparable from the issue of the nature of the research object” [22. P. 267].

One of the characteristics of the modern science methodology is its worldview tolerance. Although, some scientists believe that this fast destructs the science. For example, A.N. Nyssanbayev, A.G. Kossichenko and other Kazakhstan philosophers are sure that “attempts to include the principally new content coming from prescientific, extrascientific and ascientific forms of cognition, only create the visibility of enrichment of the science, but in reality dissolves it in a set of these forms. Today it is clear that there is a process of attack on the science by several barely scientific forms of reflection: irrational forms of cognition speculating in “tiredness” from the rationalism; amorphous humanism, the bases of which lacks elementary solution for the problem of human essence, but there is a pretension for universality; at last, plane, trivial consciousness that is actually called consciousness by mistake” [2, p. 15-16]. In our opinion, alternative sciences (para-science, “folk” science, “home-made” and etc.) stimulate external, social and critical attitude ti the science, require it to agree not only standards with standards of internal scientific rationality, but also with the interests and needs of people, with ecological and humanistic values of the most common level. In this relation, alternative sciences somehow may make a contribution to the modern trend of humanization, ecologization and socialization of the science, democratization of its internal structures and fundamental prerequisites, activate its self-reflection and self-critisism [168, p. 103]. Today, there are no grounds to directly search for a universal code of the historic development. It is not fully correct to represent the latter as a formality, or civility, or synergy or anything other. But it makes sense using various

approaches and their methodological interaction to try to find an exit from the methodological crisis of the present-day historic studies.

According to the tradition of the classical gnosiology, the truth must be a unified system. Therefore, competition of various theories and approaches must obligatory end with the victory of one of these alternatives, which is recognized truely genuine. Indeed, all opinions previously recognized as true became false. That is why they must be denied radically. This task of radical destruction is performed by the scientific revolution. This system of representations is opposed to the modern mentality of the scientists and science methodologists, which is related to recognition of the scientific cognition to include various theories and various subjects. According to this system, various theoretical formations exist as equal ones without loosing their uniqueness and value in case of emergence of a new theory. "Harmonic ecology of the nature and culture, freedom that is not against but jointly with the diversity of life on the Earth, this is what supports modern representations about the rational", believe I.T. Kassavin and Z.A. Sokulyar [169, p. 5, 181].

Analysis of the state of the present-day state of the historic studies of the post-Soviet territory leads to a conclusion that the crisis situation is featured first of all by the methodological dead end. Collapse of the unchallenged dominance of the Marxist theory gave birth to some kind of "conceptual anarchy", the reverse side of which was highlighted indifference to the greater part of the historians-practitioners toward the methodological problems. B.G. Mogilnitskiy believes that "the task consists in forming new understanding of the history, which will comply with the modern scientific and social realia and will allow expending significantly our knowledge about the past, and also enriching the approaches to its understanding. General historic theory must not produce next scheme explaining all and everything in the mankind history, but develop methodological instrumentarium complying to the present-day level of the

scientific knowledge; this instrumentarium must be oriented to studying the diverse historic reality" [170, p. 9-11, 18].

Worldview tolerance is not the only form of the compromise that emerged in the present-day science. Tolerance that the science started to express toward other cultural forms not restricting themselves with cultural forms is more prominent. And if before, the science tries to isolate itself from other cultural forms as foreign for it, now it seeks parallels in them with itself, common grounds, hoping to find new breath and new impulses for development in them [2, p. 24]. For example, the preudo science or parascience are would-be scientific forms of activity and research that differs from the science by a range of significant moments, but at the same time imitate some of the features of the official scientific methods. Methodological pluralism is a special form of gnosiological pluralism and gnosiological relativism (point of view, according to which our knowledge is so variable and subjective that objective truth is inaccessible). "Pluralism and relativism are the core of the "gnosiological anarchism"" [64, p. 8].

Impossibility to program the historic process, presence of casualty in it, and what is the most important, diverse activity of the mankind conditions its multivariance. Multivariance generates the problem of alternativeness of the historic development. Alternativeness of the history means existence of different, including mutually exclusive possibilities of the further development of the society at one and the same moment; each of these possibilities may become a reality, be implemented in the historic practice of people. These possibilities are indicated as trends - alternatives [63, p. 53]. As N.I. Smolenskiy Believe "today it is impossible to establish the right for exclusive interpretation of the history by any of the scientific theories, multivariant approach must be established toward the past, which facilitates the indepth cognition of the historic objects" [171, p.3]. Professional analysis of the results of theoretic

researches by the historians is an argument against the some kind of nihilism toward the above searches, against believes that the existing methodology of the domestic historiography has no any scientific potential already, and against the previous ungrounded optimism and self-indulgence in the theoretic sphere. There can be neither "pure" historic research, nor "pure" theory that would avoid being effected by researcher's perceptions of the world, human, environment, i.e. effect of these or those values borrowed by the historian from one source, that is contemporary for him epoch. Presence of them for the historian is irremovable reality that is evidenced by the whole historiography development experience. At the same time, it is important to highlight that the reality that is contemporary for the historian does not just effect his understanding of the past, but it is one of the deepest grounds of such understanding. This significantly complicates the cognitive activity of the historian, subordinates him to certain political and other conditions of his epoch. This subordination cannot be eliminated by any variety of logical and methodological approach to studying history. The historian chooses the theory not without involving his values. Therefore, in our opinion, mechanism of the historic cognition is imperfect by default. Neutralization of values contradicts the logic of historic studies development, one of the driving forces of which is the social interest. The history is written for people. "Does theoretical pluralism has a scientific base or only a system of historian's values?" [171, p.5]. Everything is really unified, but not everything is similar. And, therefore, that is unified what is not similar. In ancient times and in Middle Ages people new that there is no life in the uniformity and, naturally, there cannot be a unity. T.P. Grigoryeva agrees with Heraclitus who used to say that "contrariety makes closer, diversity generates the most beautiful harmony, and everything is created via strife" [99, p. 20]. Thus, the common prerequisite, in our opinion, for the pluralism in the present-day scientific thought is belief in the fundamental

hypothetical character of the scientific knowledge and denial of its objective genuineness.

Renewal of the methodology is especially needed for the historic studies, phenomena of which are always in the process of movement. They are unpredictable and do not fit into the deterministic scheme. This is why, the applied methodology of cognition must be non-standard and diverse. In our opinion, one of the conditions for reforming the science is a turn to the principal of methodological pluralism meaning in its broader sense validity and necessity of existing of various directions and schools. This would allow the historic studies to free from the methodological monopoly that provided the one and single theory, the Marxist one, at the same time the one that is solidified in its form, with the status of the scientific synthesis that is true in explaining any states of the social development. In our view, in order to develop the pluralism, it is necessary to abandon the principal of considering the world in the light of just one beginning, the material and spiritual ones. For this purpose it is necessary to take the position that allows combining various approaches and points of view in the research [172, p. 31-33].

I.S. Alexeyev reminds that for the first time principle of complementarity was offered by the physicist N. Bohr. “In his lecture “Philosophy of Natural Science and Culture of Peoples” read in 1939 at the International Congress of Anthropology and Ethnography, N. Bohr, for the first time, used the idea of complementarity for describing the sociological problems. To describe the differences between the cultures excluding any simple comparison between them, N. Bohr offered to use the concept of complementarity: “We indeed may say that different human cultures complement each other. Actually, every culture is a harmonic equilibrium of traditional conformity, with the help of which hidden potential possibilities of human life can be discovered, so that they will reveal new sides to its unlimited richness and diversity” [173, p. 44-45]. N.

Bohr believed that complementarity is necessary for ensuring wide enough framework for describing fundamental laws in the nature that could not be covered by any unified picture. Principle of complementarity helps the new way of thinking when instead of pure alternative that with its rigidness distorts the reality, there comes additional way of observation that simplifies viewing the problem from different perspectives without hastily speaking of insuperable contradictions. Followers of N. Bohr also saw the importance of the complementarity idea in that it could be used in different spheres of thinking, in other branches, such as biology, psychology, philosophy, political studies and others, as "there were a lot of branches of the human thought, where one and the same fact could be considered in different but mutually complementing aspects" [173, p.178-180]. On that basis, one can assume that with the help of the principle of complementarity, it is possible to methodologically interact for formational, civilizational, synergetic and other paradigmal concepts. There are no doubt that different methodological approaches mutually complement each other. And academician I.D. Kovalchenko is right when he believes that "in the research practice, accounting and use of everything in the theory and methodology of the social studies that allows deepening it, i.e. more adequately present the essence of phenomena and processes of the objective historic reality, and expresses transfer from dogmatic gnosiological monism (in all its forms) to cognitive pluralism, but not in absolutizating the right of the scientist to interpret the progress of one and the same historic development according to his subjective perception, as it was quite often stated and is stated today in relation to the search of new approaches in understanding the past" [13, p.5].

The principle of complementarity, in our opinion, contains the conviction in "combining incongruous things", as we see it in so called centauristics. "A centaur is an inexhaustive extensive image generated by the Hellenic mythology. The deep meaningfulness of the centaur image may be expressed by

one formula: rider does not thresh the horse, and the horse does not attempt to throw off the rider. A variation of this formula: the rider cannot get off the horseback, and the horse cannot get rid of the rider. And here is the most important feature of centauristics: it is not a variation of a didactic theme "unity and struggle of opposites". There is no any uncompromising struggle of two beginnings in the centaur, and even there is no unavoidable victory of one of them and defeat of the other. If there is "victory" and "defeat", there is no centaur. The famous dialectic "negation of negation" is anathema to the centaurism... In other words, centaur is an embodiment of at least four favorable "c": consensus, convergence, compromise, and complementarity" [37, p. 10].

Centaur (system) in the methodology is a special type of objects arising within the frameworks of their system representation. "Existance of centaurs", believes professor D.S. Danin, combination of incompatible things in the nature, history, culture, must be every time confirmed by three necessary conditions: 1/ implementation of the rule of non-commutativeness of the centaur: "the rider and the horse cannot be interchanged"; 2/ confirmation of the incompatibility presumption whatever it is - a method of overcoming the incompatibility of the aspects for the sake of the centaur's viability" [37, p. 381].

Typical feature of such complementarity of the world picture was noted by I. Prigogine and I. Stengers. In their opinion, "different languages and points of view on the system may appear complemented as all of them are related from one side and by the same reality, but do not result in one single description. Irremovable plurality of points of view on one and the same reality means impossibility of existence of the divine pint of view that "sees" the reality as a whole..." [22, p. 289]. Along the disciplinary research, more and more interdisciplinary and problem-oriented forms of the research activity come to the forefront. Among the objects of the present-day science, a special place is occupied by natural complexes that include the human himself into the range of

the important things.

Thus, actualization of new priorities in gnosiological schemes dictates the use of effective methodological affirmations, such as principal of complementation, relativization of truth, methodological pluralism, interdisciplinary approach, humanization of the science. As a proof, G.A. Antipov quotes I. Prigogine and I. Stengers, who assessing the radical changes in the modern epistemology, state that "...any science becomes today a humanitarian science created by people for people" [8, p. 5].

History as a science about people, as we believe, will play a great role in promoting postnonclassical paradigm, as the history is directly related to the phenomenon of human culture. If we talk specifically about the post-Soviet historic studies, then, of course, first of all it is necessary to stray from the theoretical and methodological foundation of the Marxist historic studies, from the historical materialism. This was in its time called and is now called for by so called "bourgeois" historians who are convinced that today an end has come to the enstrangement between various forms of the historic thinking, and there goes their integration and the question is only in terminological nuances. The Soviet historic studies believed that "Marxist-Leninism historical method had brightly revealed theoretical flaws, limitedness and scientific helplessness of all forms of bourgeois historical method" [174, p. 51]. "Bourgeois" authors provide the modern trends of historical method (German neoidealistic historical method, existentialistic approach, phenomenological method, neo-Hegelianistic school, neopositivistic approach, and structuralistic method) with the role of antidote in the struggle with the materialistic understanding of the history. For example, essence of the neopositivistic assessment of the historic studies consists in denying specific laws of the historic development and in postulating only logical nature of the historic knowledge. Neopositivistic views on the history are most fully described by English sociologist K. Popper, who believes "Marxism to be

the most developed and most dangerous form of historical method among all those that have existed so far" [174, p. 97]. Belief of Marx that the characteristic feature of the science if not acquisition of knowledge about the past facts, but forecasting of the future, was considered by Popper to be erroneous as it had lead Marx to a side. The thing is that Popper thinks that Marx used some credible argument, according to which the science can forecast the future only if the future is predestined, if, shall we say, the future presents in the past, is folded in it. This had lead him to false belief that strictly scientific method must be based on the strict determinism. "Marx's "rigorous laws" of the nature and historic development clearly show the impact of the intellectual atmosphere, created by P. Laplace and French materialists. We may say that the belief according to which terms "scientific" and "deterministic" are if not synonyms but at least inseparably associated, is one of prejudices of that epoch, which has not been overcome till now [53, p. 101]. K. Popper is convinced that those who believe that Marxism essence is in the doctrine, according to which economic reason and, especially, class interest are the driving forces of the history, are vulgar Marxists [53, p. 126]. Critisizing Marxism, Popper distinguishes two different aspects in it. "The first one is historical method, i,e, concept, according to which the branch of the science about the society coincides with the sphere of application of the historic or evolutionary method and, especially historic forecasting. Popper believes that this concept must be dismissed. The second one is economism (or "materialism"), it means statement, according to which the economic organization of the society, organization of our exchange with the nature is fundamental for all social institutions, especially for their historic development" [53, p. 126]. In general, giving a positive estimate to the "economism", Popper still says about the danger of overestimating the economism, as sometimes "ideas", and in particular, those that make up out scientific knowledge, are more fundamental than the greater part of complex

material means of production [53, p. 127]. Thus, neopositivists deny the historical method, as the latter is based on recognizing the law, causalty and necessity. For them, the historic law is not an objective form of social phenomena interaction having the features of necessity and essentiality, but represents some hypothesis that is made up as a result of empirical comparison of events. Therefore, historic mission of the historian consists in describing the historic events based on the use of the laws that were discovered by other sciences. In other words, the neopositivistic interpretation of the history assigns the generalizing method with the "strictly instrumental role" [174, p. 97].

Representatives of structuralistic method relate the exit from the crisis phenomena with creation of the "new methodology" of the history, which is able to rethink the trends of the social and historic development, its perspectives. For the structuralists, the main factors of the history are objects of long-term existence that are opposed to transitory and temporal events. According to such approach, structures are declared to be sustainable in time of their existence phenomena (geographic discoveries, financial relationships, form of government, and etc.). The structure has a certain genesis. It performs its function only in combination with other structures. Structuralists consciously highlight the priority of logic integrity of the structure over its separate links. There is breakdown and hierarchy in using terms in the structuralistic history. Sometimes structures are named models and "ideal types", the macrostructures are differentiated; these macrostructures are in their essence are identified with structures in general, and microstructures, under which "events", "phenomena" are understood. The infrastructures include spiritual structures (idealogic, religious, artistic, moral, and etc.), and phenomena belonging to the government forms (administrative, military, legal, school, and etc.) and to the economic sphere (industrial, agricultural, and etc.) are identified with substructures [174, p. 104]. "Infrastructure" that forms a kind of "bottom platform of the society",

according to French historian F. Braudel, includes “material life” (food of people, their housing and clothes, and etc.), and the “upper platform” includes economic, political and spiritual life. “Above the huge aggregation of every-day material life, a network of its centers is expanded by the market economy that constantly supports life of its structures. And usually, only even higher, accumulating on the market economy, capitalism develops and flourishes. It can be said that with such an approach, one can see the economic life of the whole world as if on the real relief map” – believes F. Braudel [52, p. 402].

In general, the existing schools of the historical method are related to pluralistic multidimensional interpretation of social systems structures. We do not agree with the opinion that existed in the Soviet historic studies regarding the inability of all attempts of the representatives of “bourgeois” historiographies to find a way out of the crisis in solving the methodological problems of understanding the past. It is also worth to waive the idealization of the historic determinism, it means the study of objective and lawful interconnection and interconditionality of the historic phenomena and processes. Change of the thinking style as a set of norms and ideals of cognition is also necessary if we want to achieve effective results.

Although, the issue of the place of the humanitarian knowledge in the general system of sciences is not clear yet, social demand for is grows. And this urges the scientists to methodological self-determination. Personal aspect determines many moments in the research of the social and historic life. For example, I.D. Kovalchenko wrote that “when studying the past, the historian deeply accustoms to not only feelings of the historic characters, but to the whole researched by him reality, historic epoch in general, into combination of its objective and subjective aspects, into the unity of single, special and general. Without “accustoming” to the researched whole, it is impossible to “feel empathy to” and “understand” individual things... We, for example, will never

understand the reasons that forced Kutuzov after the Borodino battle to leave Moscow, irrespective of how long do we gain insight into his feelings, without accounting the general strategic situation that existed during the war" [67, p. 257].

In the present-day scientific cognition, there are changes in the strategic attitudes that sublime the human problem. The human becomes that junction point, to which many scientific research come. In gnosiological terms, humanitarian cognition uses the general principles of interpreting the individual historical events. In the humanitarian cognition, researcher's view is turned inward and comes from the inside of the social system studied, as the researcher himself is a part of this system, that is, the subject is included in the reflected object. "Humanization of the science is its deliberate focus on servicing the human, on subordinating its immanent goals to the general goal of the mankind social development. Technocratic thinking acts as a peculiar antithesis of the humanistic thinking: knowledge is replaced by information, understanding by memory, culture by the mediocre education. As a result, we receive more sophisticated information systems. And less perfect people" [175, p.110]. The modern historian should possess a healthy relativism. A.Ya. Gurevich believes that the important thing in the methodology of history is the problem of the historian's consciousness, his gnosiological status. The school "Annals" has committed, as is known, a revolution in the cognitive status of the history as a science: in 60-70, the active role of the historian as the cognizing subject was recognized. A.Ya. Guryevich in his articles ("Social History and Historic studies //Voprossy filossofii. – 1990. – No. 4; "On the Crisis in the Present-Day Historic Studies"//Voprossy istorii. – 1991. – No. 3, and etc.) criticizes Marxism methodology, establishes a crisis of the historic studies and offers an alternative to the social cultural, anthropologically oriented history. But the absolution of anthropocentric methods in the history are disputed by S.I. Zhuk, because he is

sure that this position suffers from Eurocentrism. “Such methods, in the opinion of S. Zhuk, are suitable for studying European, Christian civilizations and are not suitable for the societies of the East, where human and time and the history are perceived quite differently than in the “subjective” .societies of Europe. Otherwise, following Guryevich, the scientist continues that we are still, as in the times of K. Marx, will be “europeanizing” the history of the East, but only from the position of not the historical materialism, but historical anthropology” [148, p.187].

Under the conditions of the starting renovation of the historic studies, in our opinion, it is necessary to start developing a specific methodology of the historical knowledge, focused on the uniqueness of the historic studies. One of the conditions of such a special methodology, according to A.Ya. Guryevich, could be transition from the sphere of universal categories and theories of the global historical process to the sphere of, as they say, applied methodology for constructing “mid-level” theories that do not work in the mode of extreme generalizations, but actively absorb and interpret the results of research activity. The question is, therefore, in the need to generalize the practice of the historical craft, live experience of practicing historians, not for the purpose of granting them some recipes and specifications, but for the purpose of revealing the logic of the used by the historians procedures and identifying the leading trends of the historical thought and its modern orientations [116, p. 25]. Other researchers propose to develop a “methodology of local history” that is a specific methodology related to regional history, which is conditioned by the increasing role of the regional factor in the public life, as well as the departure of historic studies from the classic models of historical method, when there was no place for the local history as an independent discipline, as local processes were considered as particular manifestation of general laws. “At the turn of the XIX - XX centuries, the unity of the history, its forward motion and rational sense

were placed in doubt, as evidenced by the resonance caused by the work of O. Spengler “Decline of the West”. The ideas about the cyclic, closed in space and time historical integrities, slightly influencing each other, were also expressed earlier, but they were on the periphery of the research area. Now the research area of the history suddenly appeared to be discrete and instead of the global historic process, the researchers interests included local historical processes, a plurality of civilizations, each of which acted as an independent entity of the history” [176, p.158].

In general, these and other proposals that were to bring the historic studies out of the crisis, related to a departure from the usual stereotypes. Profound transformation of research methods and scientific approaches is brewing. One can even talk about a methodological revolution, the purpose of which, in our opinion, is to create new scientific paradigms that are open enough, mobile and effective theories, methods and scientific approaches. Creation of such a paradigm is an important condition for adequate reflection of historical reality. There is a belief that the crisis in the historic studies carries a positive beginning, as the crisis takes the science out of stagnation. And the main role in this process, of course, is given to the historian, who will change his methodological and gnosiological principles and orientations. This is what the final result of the liberation from the burden of the past and ability to answer the actual needs of the human of the XXI century depend on.

Therefore, according to most researchers, each step of the evolution of the science methodology has its own theoretical and methodological foundation. First of all, the change of the stages led to a change in the object of the scientific cognition (of the ideals and norms of the research, the scientific world picture and the philosophical foundations). The classic type of rationality pays more attention to the object rather than the subject. Rationality of the non-classical stage allows the idea of the object’s relativity against the means of activities.

Finally, postnonclassical rationality takes into account the correlation of the knowledge about the object not only with means, but also with the values and target structures of the activity. Change in the image of the object takes place via transition from simple systems (classical science) to complex (non-classical science) and further to developing one (postnonclassical science). For example, one of the developing systems is the natural complex, in which the human is also included. In classical and non-classical stages, the researchers used formational and civilizational approaches in their scientific cognition. The Soviet historic studies favored the formational theory. During the perestroika years, historians, wanting to "shrug off" the Soviet methodological framework, actively used civilizational approach in their research. Historians of the post-Soviet period, came to realize that effective research requires cooperation of different methodological approaches. Therefore, many researchers believe that characteristic feature of the modern postnonclassical stage in the history of the science methodology is along others methodological pluralism, due to which the formational and civilizational approaches were organically included in the methodological instrumentarium of modern historians. Methodological problems in the analysis of the formational and civilizational approaches to the historic studies will be discussed in the next section of this chapter.

So, the analysis of the points of view of foreign and domestic researchers regarding the stages of scientific methodology and methodological approaches in the historic cognition, has shown the growth of significant shifts in the general philosophical foundations of the methodology of the historic cognition. In our opinion, the Kazakhstan historic studies must adhere to the methodological pluralism that allows active use of the present-day trends in research, such as the synergy.

1.2 Methodological Problems of the Analysis of the Formational and Civilizational Approaches in the Historic Studies

An important methodological significance for the historian's research activity has the philosophy of history (the general theory of social development) that existed in the Soviet historic studies as a historical materialism (materialist conception of history). The historical materialism is going through difficult times. Its basic postulates (continuity of social and economic formations, primacy of the base and secondariness of the superstructure, inevitability of class struggle, and etc.) were attacked by a wave of criticism. The need for a substantial revision of the "ossified" dogmas of historical materialism was discussed by many researchers [146, 177 - 180]. But, despite the discussions (for example, about the Asiatic mode of production), formational "five years" were the only explanation of the global historical process. In the historic studies, it was impossible to go beyond the infallible dogma. In general, pre-Perestroika debates over the social and economic formations, in our view, was only a desire to reconcile the concept with the historical reality. May be that was why the option of waiving this "five years" had never been considered. Moreover, three or four, six-membered interpretation of the global historical process were offered. Therefore, one could forget about the progress of the methodological thought, because there was no attacks on the basis of the well-known scheme.

Another, in our view, effective stage of disputes of scientists and theorists comes after the perestroika events (mid 80-90-s). This stage is characterized by the search for the way out of the methodological dead end, as "it was ever more clear that it was necessary to abandon the dogmas and stereotypes that have developed in the Soviet period", and therefore "at this stage of the science development, formational theory ceased to play the role of undisputed paradigm in studying the world history" [180, p. 123]. As an alternative, the civilization

theory was put forward. Although, complete rejection of the formational approach, as many participants of the discussions that took place in the CIS historic studies in the second half of the 80s – the first half of the 90s believe, is not a solution for the situation that existed in the historic studies. Some even mention positive aspects of the formational analysis. For example, "if it comes to the formation analysis, then one or the other community (mankind, ethnic group) are studied in the staged "context", at a certain stage of the society development. This research approach, in the general opinion of the scientists, involves analysis of the development laws, cognition of the society in its internal fragmentation, study of the transition from formation to formation at all three levels of social reality that are global, regional, and personal" [180, p.125]. In addition, there is a wide expansion of various projects based on the idea of mutual complementation of the formations theory and civilization theory. Proposals to move away from the formational approach, replace it (or complement) with the civilizational one were made in the discussions of philosophers, historians, political scientists, and etc. [181]. But before proceeding to complementing or replacing, in our opinion, it is necessary to determine the differences and similarities of the two approaches.

It is known that the concept of "civilization" does not have any unambiguous definition so far. "Most often, the civilization is simply a certain epoch in the historical (economic, social, cultural and psychological) development of the society. For example, the following civilizations are singled out in the course of the history: local, special and global; pre-industrial, industrial and post-industrial; Western Christian, European, technogenic, capitalist" [182, p.6-11]. Russian researcher B.S. Yerassov quite rightly associates this blurring with the changes in the social thought "that perceives shifts in the scientific schemes, but often has a significant and sometimes distorting effect on these schemes. Far-reaching criticism of the formational

theory led not only to the abandonment of the ideological dogmas, but also to discrediting the productive model of macrosociology and history that appeared to be “overloaded” with ideological conclusions” [120, p.8].

Civilization theory was shaped in the frameworks of the two directions of the Western social thought and science developing in parallel: the integrated materialistic approach and the cultural-historical school of civilization studies [120, p.26-34]. Comprehensive materialistic approach to the study of civilizations was a kind of reaction to the dominance of the religious understanding of the world. Supporters of this direction considered civilization as a higher level of development, which goes beyond the “natural” society with its natural productive forces. “This direction, in which Marxism also developed, caught the enlightenment term “civilization” turning it into a tool of complex materialist approach that sees the development criteria, primarily in the level of material culture” [120, p.27-28]. Consistent materialism led to the formulation of the formational theory, in which civilization is an additional feature of the class society. While this feature was important in ideological terms, but useless in the analysis of “more important” aspects of the society that are its economic structure, social relations and political struggle. In our opinion, this kind of materialistic monism created difficulties in the activity of the historians who sought to preserve the multifactorial approach, as only it gave them an opportunity to stay in the mainstream of the civilization studies.

Cultural and historical school of civilization studies, in its turn, emerged under the influence of various sociological concepts and approaches. In principle, it can be stated that the “philosophy of history, philosophy of culture and theoretical sociology became important theoretical prerequisites forming their own civilization theory" [120, p.33]. But the main source of this theory, in our opinion, is the achievements of various social sciences and humanities in the study of the society. The accumulation of huge amount of information required

the researchers to create such a theory that would explain the general principles of functioning of different social systems and world history. Moreover, it became obvious that the societies differ from each other in their organization, cultural traditions and historic destiny. Therefore, methodological instrumentarium of the civilization theory was formed in the process of getting acquainted with the achievements of Western Europe to other societies, non-Western as well. As a result of this, various schools of general and regional studies were formed in non-Western countries: the Asian and African Studies, and etc. The dominant role in these studies was played by the historical comparative studies (comparison - D.B., K.S.) that was to "derive a theoretical idea to identify some of the universals, only which make it possible to carry out a general meaningful comparison of different cultures" [120, p. 34]. Of course, it should be noted that both schools had fundamental differences (crucial meaning in the study was given to various factors: material and spiritual, respectively), but this did not prevent them from coexisting in the same space, and to use the scientific achievements of each other. In general, civilization theory, conceptualizing social and cultural productive side of the historical process in its content, focuses on achievements of social and cultural activities, shows the continuity of the progressive movement of the human society, continuity of social experience, unity of the human race, thus, performs analytical and synthesizing function in the cognition of the society. And if the formational theory by most of the researchers of the postnonclassical period of the science development is denied, then the civilization theory retains its validity.

I. Ossadchaya believes that civilization, as well as the formation, includes material and production base and the full range of economic, political, legal, cultural, religious and other human communication forms that are peculiar to a historically specific stages in the development of the society. But the formation supposes a quite rigid structure: the decisive role belongs to the productive

forces and production relations forming the method of production, or the material basis of the society. The superstructure dominates over them; this superstructure consists of the rest of the listed above. The superstructure can facilitate or inhibit the development, but the main driving engine of the changes is the basis, the mode of production. Moreover, in the method of production itself, the main driving force is the classes, the class struggle, which turns the internal contradictions into the real source of the transformation of the society. This is where, the five formations and everything related to them come from [182, p.6-7].

In our opinion, the concept of "civilization" provides the entire range of forms of the human communication with equal importance, although in the history of different societies, the role of these or those forms, for example, religious, or political, or economic, could be different. Therefore, the civilizational approach as opposed to the formational one does not suffer from economic determinism and offers a wide range of structure-forming factors: economic, political, religious, cultural, and etc. And at the different stages the forefront is taken by one or the other of them predetermining the specific turns of the history.

Russian scientist L. Alayev believes that if the formational theory is destined to survive, it needs to acquire several levels: “a/ global general historical abstract incorporating 3 to 5 milestones experienced by the mankind, as well as theoretical abstract models of the society that are not possible in a particular history, but in the “pure” form reflecting the structures specific for each of the stages; b/ regional or civilization, where at each stage, the leaders and followers are determined and, respectively, regions of the primary and secondary (tertiary) relations of this stage, with the singling out the civilization models of the formations (such as “Islamic feudalism”); c/ local (“country”, ethnic), on which the general laws and models are specificated and modified

into individual, unique “development path”; here a huge role is played by environmental conditions, political destinies, ethnic characteristics, and etc. Without such a development, scheme of the formations will be useless and will die together with the rational kernel contained in it” [183, p.65].

Not everyone agrees with the view that Marxism will retain its position in the XXI century. “Too many things in Marxist philosophy belong to the XIX century”, believes A. Nikiforov [144, p.116]. V.V. Ilyin also believes that “the theoretical thought in Marxism atrophied, gradually, slowly but surely degenerating into “defense”, “struggle with the intrigues”, saving of obsolete things, and the ideology acquiring the state status, was becoming an instrument of transforming the reality, manipulator of human destinies and lives” [145, p.63].

It should be noted that in 1991-1992, “Obshchestvenniye nauki” journal in its pages launched a dispute on the subject: "Will Marxism survive perestroika?". The discussion was attended by many scientists [181-186, 143, 145-147]. For example, N. Kozlova is convinced that the Soviet version of Marxism is the embodiment of the “scientific ideology”. This theory claimed to be the science of sciences, where everything was clear and to be the one that possessed the ultimate truth. People who came to the science after the revolution “were interested in the knowledge-truth, but rather in the knowledge-force. Their reasoning emphasized the use of the theory not for the purpose of understanding the reality, but for changing it by applying the final theory to the reality, not obscuring the “essence” of the discussions that could lead towards the cherished goal” [186, p.66-67].

The main reason for the crisis of the modern historic studies, in our opinion, is not the Marxist-Leninist methodology by itself, but the state of the science (directly related to the state of the society as a whole), which we would define as a methodological monopoly that provided the "frozen" Marxist theory

with the status the ultimate truth. Meanwhile, it is quite obvious that none, even the most sophisticated methodological scheme, including the renewed Marxism, can cover the whole variety of the reality, all its aspects and deep meanings, to fulfill the role of the supertheory.

"While it is clear that the time axis (stages, formations) must be supplemented with the space axis (culture, civilization, specific development paths). But the two approaches: the formational and civilization one, cannot be opposed, as it is impossible to oppose the length and the width" [149, p.37]. In this regard, we shall note the qualitative characteristics of the formational theory and the civilizations theory of A. Toynbee, which is considered to be the culmination of the theoretical developments that were made by his predecessors. To comparatively characterize the formational and civilization theory of A.J. Toynbee, we used a number of sources and publications of the Soviet and post-Soviet researchers [27,149,181,187,188]. Comparative analysis, in our view, confirms our belief that, despite the various methodological foundations of these approaches, yet they have the right to co-exist in a single scientific space. Thereby performing their role in promoting the principle of complementarity in gnosiology.

The central concept of the formational theory is a social and economic formation (one of the main categories of the historical materialism, which characterizes a certain stage of the progressive development of the society). Each formation occurs on the basis of a specific mode of production. It is characterized by the development degree of the productive forces that determine the production relations specific for this formation type. The latter are the economic base for the formation of the corresponding superstructure: the ideological attitudes, views influencing the basis. Any formation is characterized by its own forms of the historical community of people: kindred, tribe, ethnic group, and nation. The formations are changed via a revolution. The central

concept of the civilization theory of A.J. Toynbee is civilization (certain spatial and temporal region including a group of countries with certain common spiritual features). Toynbee mentions 21 civilization. Civilizations are not static formations, but dynamic formation of the evolutionary type, and can be compared with each other. The civilization, if it is destined to emerge on the basis of a "primitive" society and implement its cycle, goes through the four same stages: 1) genesis is the period of the "birth" of a civilization; 2) growth is the period of progressive development of the civilization; 3) crisis is the period that starts the decline of the civilization; 4) disintegration is the period of degeneration of civilization resulting in its death. The formations theory and Toynbee's interpretation of the civilizations theory, besides the central one, also have other concepts that extend the frameworks of these approaches. The class struggle, method of production, economic basis, superstructure, linear development of the formational theory; Challenge-Response, creative minority, inert majority, city of God, Universal Church, Universal State, external proletariat, respectively, by A. Toynbee.

Now it is necessary to focus on the stages of the social development. According to the formational theory, in the history of the mankind, different social and economic formations replace each other: the primitive communal system, slavery, feudalism, capitalism, and communism. In the civilization theory by the English scientist, civilizations change occurs as a result of passing the four development stages: genesis, growth, crisis and disintegration. There are two parts of world history: the history of civilizations that vanished into the history and civilizations moving in the same direction.

It is interesting how the two theories treat the progress. The formationality idea is closely related to the idea of linear, qualitatively increasing historic time. The progress is seen as the main form of the movement, and the formationality as a method to deploy the progress. In the civilizations theory by A. Toynbee,

there is a rejection of the linear concept of the life path of the supersystems and historical process in favor of the idea of cyclical changes, that is, constantly changing model. At any given moment, the life journey of the mankind in general experiences a change and at the same time ensures the preservation of continuity. And finally, one more comparative characteristic is the ratio of the material and spiritual aspects in these theories. In the formational theory, the basis determines the superstructure. The determining factor in the development of the formation is a law of social production as a whole. According to A.J. Toynbee, spiritual values, religious systems, and activity of the intellectual elite ("creative minority") determine the development of the society.

Thus, what is the ratio between the two theories? Are formation and civilizations identical? What these concepts give, individually and together, for understanding the historical process? Can we talk about the formation of a new scientific paradigm, organically combining these two approaches? We agree with the participants of the "round table" that the "task is not to discard the formational approach, but to implement its dialectical negation. Civilizational approach must implement the same kind of methodological procedure, which was implemented by the physics of Einstein with respect to Newtonian physics. The concept of civilization will include formational approach as its special case when singling out the whole richness and diversity of the social and historical progress of its social and economic aspect" [149, p.46].

The following, in our opinion, is common for all versions of civilizational approach: alternativeness for the basic postulates of the formational concept; consideration of the society as a complex, contradictory systems; recognition of the subjective factor of the social development, the main thing in the productive forces is recognized to be the human with his culture, mentality, and the production relations are not limited to economic aspects; recognition of multiculturalism of the social and economic structures in any society.

Human-centered position of the civilization theory, in our opinion, is not always manifested in the assessment of the role of whole nations in the world history. For example, in our opinion, Eurocentrism is a weak point of the A. Toynbee's position in relation to the history of the nomadic peoples.

Nomadic civilization is attributed by A. Toynbee to “frozen” or otherwise “delayed” civilizations. According to the definition of the concept author, this “civilizations were born, but were stopped in their development after the birth. One can without hesitation name half a dozen of such societies”, says the scientist [27, p.181]. All of them are classified by the character of their “responses” to the ‘challenges”. There are those that were born as a result of the response to the challenge of the environment (Polynesians, Eskimos, nomads and others), and those that were born as a result of a response to the challenges of the social environment, some specific communities such as the Ottomans in the Orthodox Christian world, or the Spartans in the Hellenic world. The response of the “delayed” civilizations was fairly intense but of short duration due to the excessive severity of these challenges [27, p.181]. Challenges were harsh to the point that the “delayed” civilizations, having spent all their forces, stopped in their development. “Immobility was their original state, while they were alive. They occurred in this state wishing to continue their movement, but were forced to stay in their unenviable position due to the fact that any attempt to change the situation meant death. In the end, they were killed, either because ventured to move farther, either because they became stiff, frozen in an awkward position. This common situation of immobility in combination with a strong intensity might be observed at different historical examples in different historical conditions” [27, p.182]. In this case, the example is nomadic civilization.

According to A. Toynbee, nomadism originated there and then, where and when the society faced a challenge either from the physical nature of the

steppes, or the changing climate carrying with a strengthening of aridity processes. A.J. Toynbee's narration of the history of nomads starts with those distant times, when human first learned to tame and domesticate wild animals. A. Toynbee argues that as a result of the regular turn of the climatic cycle that brought a new onslaught of aridity, life of settled farmers and herders in the oases became difficult and they were forced to seek new habitats. Part of them not wanting to give up sedentary life and agricultural economy, left the drylands and moved closer to the edges of the steppe, where they settled, continuing usual life of sedentary farmers and cattle herders. At the same time, another part of them took a more radical solution: they forever left the oasis, abandoned sedentary forms of economy and way of life, returned to the steppe with the aim to establish their lives entirely and fully at the expense of its resources. "When they occurred in the open steppe fraught with drought, they completely abandoned the agriculture, just like their ancestors once completely abandoned the hunt and became engaged in cattle breeding. They did not try to leave the steppe, but adapted to it" [27, p.185].

Toynbee believes that, having survived in the harsh climatic conditions, the nomads gained certain advantages in contrast to agricultural civilization. "Firstly, the domestication of animals is an art that is higher than the domestication of plants, because it is a victory of the human mind and will over less obedient material. In other words, the shepherd is a better virtuoso than a farmer, and this thought is fixed in the famous passage from the Syrian mythology: "Adam knew Eve his wife, and she conceived, and gave birth to Cain, and said: with the help of the Lord I have brought forth a man. And she gave birth to his brother Abel. And Abel was a keeper of sheep, but Cain was a farmer. After some time Cain brought of the fruit of the ground to the Lord, and Abel also brought of the firstborn of his flock and of the fat thereof. And the Lord looked with favor at Abel and his offering, but on Cain and his gift did not

look with favor" (Gen. 4, 1-5) [27, p.185]. Secondly, nomadism outstrips agriculture also technically and economically, in these terms sustaining comparison even with industrialism that is another economic system that at the same time separated from the traditional agricultural society in Response to the next Challenge. The farmer produces raw materials that he may consume. The nomad like industrialist earns means of living from the raw materials that he himself cannot consume because they require task-oriented pre-treatment. The nomad lives at the expense of herbs that he cannot eat himself. Natural steppe herbage directly serve to the animals, which are then provide human with food items, and etc. From these features of nomadic cattle breeding, according to A. Toynbee, it follows that the nomads, having mastered the art of grazing and having got to grips with the harsh conditions of the steppe, can ensure the existence of their own and their families subject to special moral and intellectual qualities that they need to educate in themselves. Accordingly to this, the chiefs of nomadic tribes can provide the economic successes of the tribe only if they teach people to be hardy, to maintain composure, be able to endure hardship, just as it is done by the military commander in atmosphere of the war, they must possess the virtues of the shepherd and the commander. "Nomads could not win over the steppe, survive in such a harsh natural environment, if they had not developed the intuition, self-control, physical and mental endurance" [27, p.186]. Toynbee believes that the nomads for their benefits paid a high value: "horrible physical conditions that they were able to conquer, as a result made them not the masters, but slaves of the steppe. Nomads like Eskimos became eternal prisoners of the climate and vegetation annual cycle. Having established contact with the steppe, nomads lost touch with the world. And... despite the occasional raids on sedentary civilization, that temporarily included nomads in the field of historical events, the nomadic society was a society that had no history" [27, p.186].

Thus, A.J. Toynbee in his concept states that the nomads are people without the history, that they are nothing more than a tool in the hands of powerful external physical and "social" forces, that there is the eternal and irreconcilable antagonism between them and the sedentary peoples. Toynbee did not see anything but uniform circular motion once and for all fixed orbit in the history of the nomadic peoples, nothing but wars, attacks in response to fluctuating climatic factors, presence or absence of "social vacuums". The But, what about the progressive changes in equipment and technology of nomadic cattle breeding, household and culture of nomads. According to I.Ya. Zlatkin, "if he (Toynbee - I.Z.) was more objective "researcher of the history' and less dependent on the scheme created by him, instead of doubtful chronological table of military activity of nomads, he would have created the table of their cultural, technical and social achievements" [126 , p.148].

Kazakhstan scientist D. Kshibekov believes that "... the nomads are not just some mass of people moving aimlessly in the steppe, they are not some stray crowd or destructive force, but they are a part of the population engaged in cattle breeding that is form of household and way of life, which is largely determined by the specific natural conditions" [122, p.11-12]. D. Kshibekov also notes injustice of estimating the nomadic society by some researchers who consider the nomads to be barbarians. Periodic raids of the nomads to the agricultural oases, the scientist linked to the nature and essence of the nomadic cattle-breeding society, to the specifics of its mode of production and not to the aggressive and violent nature of the nomadic herders. Nomadic herders built their prosperity on the keeping and breeding of the cattle. Even wandering for the livestock must be considered as a way of developing the productive forces of nomadic cattle-breeding society [122, p.24-25]. N.E. Massanov agrees with D. Kshibekov, and believes that "the nomadic method of production is considered as one of the most optimal models of environmental determinism of the ways of

life, dynamically balanced with natural resources of the habitat, anthropogenic character of the vegetation in the habitats of the nomads" [123, p.6]. Despite the fact that the work of N.E. Massanov "Nomadic civilization of the Kazakhs: Foundations of the Nomadic Society Life Activity" (Almaty, 1995), was written largely from civilization perspective, yet (and the author writes about it) the methodologically the work was first of all based on the materialistic method of studying social phenomena and processes, assuming the primacy of the material production system and the primacy of the labor activity. But, in this case, the synthesis of the two approaches gave fruitful results in the research of nomadic civilization that is a confirmation of the effectiveness of the principle of complementarity. In our view, the opinion of N.E. Massanov is topical; he believes that "in the Soviet historiography "geographical nihilism" prevailed, and excluded the natural environment from the study and prioritized the "laws" of the social development beyond their causal relationships. At the same time, it rejected the views of the scientists who defended the need to account the environmental factors into the life of the society" [123, p.10]. Kazakh scientist believes that boundless belief in the "human creator", "transformer of the nature and society" conceptualized in the "Brief Course of the History of the AUCP(b) "became the ideological basis of the widely unfolded in the early 30-s planned campaign on transfering the nomads to sedentary life, "which resulted in the predicted by academician V.V. Radlov "depopulation of the steppe". Geographical nihilism became one of the causes of the tragedy in the first place of the nomadic peoples of the former USSR", thinks N.E. Massanov [123, p.10]. D. Kshibekov positively treats the settling down of nomads because this saves nomadic herders from the constant discomfort in life, especially in winter conditions, having allowed creating cultural centers, well-arranged household. "The socialist system contributed to the rapid development of the social progress, eliminated the former cultural and economic backwardness", believes

D. Kshibekov [122, p.220]. Zh.B. Abylkhozhin thinks that “power-based methods transferring to the sedentary way of life was by no means the only reasonable alternative to nomadism (as it is declared in historiography), since its transformation could occur in a natural way, without lots of victims and subsequent negative consequences, many of which were projected in our present day” [189, p.239].

Zh.B. Abylkhozhin is convinced that it is illegal to consider an economic system to be “poor”, if it has formed its own civilization with the effective social adaptation mechanism, developed cultural traditions, high technological skills. “The ancient inhabitants of the Steppe worked out surprisingly clear guidelines for the organization of production, learned to quickly and flexibly respond to the stochasticity of the environment, were able to mitigate the disturbance coming from there through deliberate utilization of the dispersed in time and space resources. They perfectly mastered the methods of genetic improvement of their livestock and target control of herd density and structure, showed profound knowledge in the sphere of phenology and ethology of animals. All this knowledge was transferred from one generation to another, withe every next one acquiring more and more new impulses to its self-development and improvement. And this moment was a source of dynamism of the cattle-breeding culture” [189, p.239]. Indeed, it is impossible to get away from such facts as the appearance of wagons pulled by a horse or the development of weaving and metal treatment in the first millennium BC in the steppes of southern Siberia, the fact that at the turn of our era through the steppes of Eurasia the Silk Road was laid, which contributed to the involvement of the nomads into the then world circulation of goods and ideas, which in the 6 century BC Turkic nomads developed their own writing, and examples are numerous. And if we supplement the above with discovery of many monuments of culture, art and folklore of many nomadic peoples by archaeologists and

philologists. In our opinion, a “frozen” civilization could not achieve such a success.

A. Toynbee having deprived the nomadic civilization of the past, does not give it hope for the future. He is confident in the historical doom of the nomadism and the forced displacement of the nomadic economy and society in the nearest future by the inhabitants of settled countries, organized and led by the Western civilization [27, p.196]. English explorer, is right in some sense. Indeed, in the present boundaries of the nomadism itself in its pure form, it cannot exist. Nomadic forms of production, having reached a certain level, have exhausted their forward motion potential characteristic for them. The more especially as the circle of the nomadic peoples narrowed and they lost the features that define them as a nomadic society. Is everything so inevitable? Some believe that nomadism has no place in the modern world. Others believe that nomadism has a right to exist, but only slightly transformed and given the current conditions of coexistence of different societies. According to Zh.B. Abylkhozhin, it is not worth to idealize the nomadism “because we well aware that the nomadic type of economic and cultural activities is objectively historical dead end of the social development. But ... this branch is a part of the tree of the world civilization intended for a certain time to perform its designated function, and premature cutoff of which may cause slow drying of the whole giant” [189, p.237].

The history of the nomadic civilization is an integral part of the general historical and philosophical concept of A.J. Toynbee regarding the history of the whole mankind. Given that in the history of the civilization, two percent of the time belong to human existence on the Earth, Toynbee believes that all of them have the same organic cycle of development; it is the genesis, growth, crisis, disintegration and death. For the question of the causes of emergence and evolution of civilizations, the scientist finds a universal key that is the

interaction of historical “Challenges” and “Responses”. A “Challenge” on the part of the external physical or “social” environment surrounding a given society, and the “Response” of the society on this “Challenge”. The whole subsequent history is a continuous change of the Challenges and Responses, each successful response, moving society forward, creates a new challenge that .must also be responded. Inability of the society to properly respond to the new Challenge leads to the end of its development, and it dies.

A. Toynbee having considered nomadism according to his classical scheme and attributed nomads to “frozen” civilizations, argues that once having excellently responded to the challenge of the nature, nomads, having spent all their forces for emerging, were no longer able to respond to the following challenges and therefore slowed down in their development. Having surveyed the millennial history of the nomadic tribes and peoples and their relationship to the external natural environment and to the neighboring sedentary peoples, Toynbee has come to the final conclusion that nomadism today is doomed to rapid and complete disappearance via its forced displacement by the inhabitants settled countries. This conclusion is a logical consequence of his whole concept of nomadism, the main place in which is occupied by the thesis on the eternal opposition of material and spiritual interests of the nomadic steppe dwellers and the population of settled oases, which are the cause of the alleged objective, independent of the will of these and those natural factors. That the traditional enmity arises due to physical reasons for which neither nomads nor farmers are liable. These physical reasons are, according to Toynbee, in the very nature of the nomadic cattle breeding, forcing nomads to forever and always move in a circle, for once and forever fixed orbit, moving from one seasonal pasture to another. The English scientist believes that this constant repetition of the same operations completely deprives the nomadic society of internal prerequisites for their progressive development. Therefore, in this regard the historian concludes

that the nomadic peoples, in fact, do not have their history. Depriving the multimillion society of its historical roots, Toynbee has deprived them of the future, having drawn a picture of forced displacement of the backward civilization by more advanced one. Such a responsible role is given by Toynbee to the Western civilization. L.N. Gumilyov believes that the cultural and historical school, having found a place for the role of Turks in the mankind history, is not able to explain the internal laws of the historical development, because using such an approach, they cannot be compared and are incommensurable. There appear unjustified gaps in the understanding of the mankind history [29, p.156].

Making a general conclusion, we would like to note that, despite some disagreement with the conclusions of A. Toynbee regarding the nomadism history, yet we cannot mention the originality of concept of the English historian. The opinion of the scientists regarding the historical process deserves some close study by researchers and critics. Special attention should be paid to the concept by the scientists of the post-Soviet countries, because after the collapse of the formation-class reductionism, the vacuum occurred in the methodological approach of the historic cognition. Under the new conditions, particular urgency is acquired by the understanding of the important role of such methods of historic cognition that deepen the thinking and actualize the historical vision. In this regard it should be noted that the civilizational approach played a significant role in changing the consciousness of historians and their relation to the theory of the social and economic formations. Without abandoning the latter, the modern scholars, in our opinion, show their commitment to the principle of complementarity, which promotes complementarity and interpenetration of different scientific approaches in the historical epistemology. Formational and civilization theories on the post-Soviet scientific space should not serve as an alternative to each other, since together

they contribute to a more objective scientific cognition of the history. The civilization, as well as the formation, includes material and production base and the full range of economic, political, legal, cultural, religious and other human communication forms that are peculiar to historically specific stages in the development of the society. Only the accents in the characterization of the historical stages are placed in these different approaches differently that worsens the problem of the primacy of the base or the superstructure. But civilizational approach has no severe restrictions when giving prerogatives; the entire range of forms of human communication receives equal importance. You can not say that about the formational approach. Here, the material basis of the society is crucial. And why, above all, what should be abandoned by the historical research is the rigid economic determinism that characterizes the formational approach, and from the class approach, which was considered by the "ruling" as "bad" one. And if researchers make the Human a criterion of the evolution (no matter in what function he is treated: as employees, entrepreneurs or consumers), the research purpose shift. The analysis object becomes the problem of economic efficiency in terms of Human interests. Yet we need to get rid of simplification of the historical process, which makes the researcher "to drive" this or that society into a deterministic scheme. In general, it is necessary to move away from the Soviet version of Marxism, which was the embodiment of the "scientific ideology" and to try to rediscover the genuine Marxism and method for the scientific cognition, which was proposed to them to study the history of the mankind. And then the concept of civilization will include formational approach as its special case when singling out the whole richness and diversity of the social and historical progress of its social and economic aspect.

Thus, the researchers believe that the science methodology in its development went through three stages, each of which corresponded to its methodological orientations that led to the changes in the scientific worldview,

the object of the scientific cognition, ideals and norms of research. Classical science operated with simple systems, non-classical one with complex systems, and the postnonclassical science with developing systems, one of which is a natural complex including the human. The methodological instrumentarium of the classical and non-classical periods of the science methodology were characterized by the formational and civilizational approaches. The Soviet historians were guided in their historic cognition by the theory of social and economic formations. So this kind of monism created the well-known problems of the historic cognition in the post-Soviet period. Exit from the methodological dead end was seen by many scientists in moving away from the historical materialism and exposure to other approaches, such as the civilizational one. It was understood that the cooperation of the methodological approaches would be able to bring the post-Soviet historic studies out of the current crisis. That methodological pluralism, being a characteristic feature of the modern postnonclassical stage in the science history, will facilitate painless joint entry of the formational and civilizational approaches into the modern methodological instrumentarium into the post-Soviet historic studies. The principle of complementarity, in its turn, will play a huge role in finding an equivalent in a uniform scientific space for the formational and civilization theories, as this will lead to the objective research results.

So, the prospect of the historic cognition is seen in the synthesis of the formational, civilizational and other approaches of the modern period in the history of the science methodology. In this regard, if the modern historic studies of Kazakhstan is interested in the prospective exit of the methodological dead end, it should not reject the achievements of previous phases in the history of the science methodology in general and historic one, in particular. Since this can effect the preservation of the expert knowledge continuity that will help to preserve the positive features of the achievements of the past in historic studies

and become a solid foundation for the future of the domestic historic studies. Therefore, it is required to give priority in the historical research to the methodological pluralism and the principle of complementarity. This will allow the domestic science to methodologically enrich itself, it means, without rejecting the old methodological platform – the theory of the social and economic formations, to use other approaches civilization in the historic cognition: civilizational that gained popularity in the post-perestroika period and other promising approaches, including synergetic one, which together make up the worldview paradigm of the modern scientific picture of the world.

CHAPTER II

SYNERGY – APPROACH OF THE POSTNONCLASSICAL SCIENCE

2.1 The Basic Notions and Perceptions of the Synergy

Conclusion made by us regarding the effectiveness of the methodological pluralism and the principle of complementarity for the perspective development in the current conditions of the historic studies, sets the task for the researchers puts to find and develop new methods of historic cognition, which will complement the existing ones. One such method, in our opinion, is synergetic.

The term "synergy" (from the Greek synergyia –joint or cooperative action) in science was introduced by Professor Hermann Haken, Director of Synergy Center at the Institute of Theoretical Physics and Synergy University of Stuttgart, the publisher of the Springer book series on synergy, in framework of which he published by now more than 70 volumes. "Haken, introducing the new term, outlined the general direction of research movement: study on overall laws that act in the systems consisting of separate parts. Haken believed from the very beginning the synergy was understood as a kind of direction of the research, and, of course, not as its final result" [75, p.54]. The word "synergy" has two meanings. On the one hand, this refers to the cooperative action of the elements of the complex systems; on the other hand, to the cooperation of the scientists from different fields of knowledge [79, p.3].

Synergy is often defined as the science of self-organization that "means spontaneous complication of the form or in the more general case of the system structure with slow and smooth variation of its parameters" [106, p.11]. At the same time, the science knows several concepts of self-organization that were developed in the context of various disciplines and areas of knowledge when solving various theoretical problems. Thus, in the early 50s and 60s cybernetic concept of self-organization were formed; they are called classical. The self-

organization in its classic cybernetic sense is the process of structuring the system, which is controlled from inside this system. In the 60s in the cybernetics, a new, non-classical concept of self-organization emerges, in which the concept of control loses its former position.

In the 60s and 70s, the concept of dissipative structure comes to the forefront; it was suggested by the Belgian scientist of Russian origin I.R. Prigogine and his co-authors, and the concept of self-organization as the formation of a dissipative structure. I.R. Prigogine with a group of scientists worked on the problems of chemical thermodynamics. Their attention was focused on oscillatory chemical reactions that were peculiar dynamic structures, "chemical clocks" (an example of the oscillatory reaction may be a kind of a reversible reaction that occurs in a homogeneous mixture and leads to a periodic increase and decrease of the concentration of one of the participating substances. Normally in the thermodynamics, structuring is associated with establishing the thermodynamic equilibrium. Considering oscillating chemical reactions, Prigogine and his collaborators "communicated" with the structure implemented in a hardly equilibrium state (when the equilibrium is reached, the chemical reaction is stopped). They called it dissipative structure, since it is implemented in the conditions of dissipation that is energy dispersion into the environment (the system operates, so to say, with friction) and is supported due to the assimilation of the energy by the system from the environment. The dissipative structure, thus, exists in the continuous of continuous energy exchange between the system and its environment (the energy transfer can be combined with the mass exchange, i.e. exchange with the substance).

Almost in parallel with Prigogine school, the project of the new science of synergy, describing the phenomenon of self-organization in highly non-equilibrium systems, was offered by the German physicist H. Haken, who worked in the field of laser theory. Haken's synergy is a theory of a different

kind than the non-equilibrium non-linear thermodynamics of I.R. Prigogine and his colleagues. Its central concept is the concept of order parameter borrowed from the classical physics of phase transitions (crossings between physically uniform parts of the system). Order parameters are called “values or, in the language of physics, modes, if they subdue the behavior of the system”. To explain the order parameters, Haken resorts to the notions of thermodynamics, but then uses very different categories that make up the foundations of the theory of non-equilibrium phase transfers [190, p.7-9]. Order parameters determine the state of the system, and the variables of lower ranks adapt to them. This circumstance makes it possible to describe the macro systems using variables that belong to the order parameters. In each system definition of the order parameters lays the real basis for its consideration using a small number of variables. For example, in the sociology, the human development index (HDI) includes only three indicators: life expectancy, per capita income and level of education [191, p.53].

Almost simultaneously with Haken, the concept of self-organization was put forward by M. Eigen who worked in the field of molecular biology. Eigen and his colleagues focused on the chemical mechanism of self-organization that is formation of cycles of reactions involving nucleic acids and proteins, cycles having replication and capable to survive in such a way in the prebiotic evolution process [190, p.10]. Referring to the works of Prigogine and his school, M. Eigen clearly shows that consideration of the development process is fundamentally impossible within the linear thermodynamics, that is near the equilibrium. The Eigen’s models belong to the stationary state that is hardy equilibrial [24, p.6]. The scientist believes that “in the beginning”, whatever the precise meaning of this concept was, it is likely that there was a molecular chaos, and in the giant variety of chemical compounds, there was no any functional organization. Thus, self-organization of the matter that we associate

with the “origin of life”, was to begin with random events [24, p.28]. In what environmental conditions can self-organization occur? M. Eigen believes that only in the absence of equilibrium, because the living matter avoids coming to equilibrium. Equilibrium (in an isolated system) is the state of the maximal entropy. If we keep the system far from equilibrium, we must constantly compensate the growth of the entropy, that is, to “feed” the system with the free energy or matter rich in energy [24, p.28].

An important aspect of the self-organization is that parts behave in such a way that they act in concert. Examples of such systems can often be found in biology: concurrence of a large school of fish, migration of birds, and etc. This behavior can be interpreted as a consensus between parts that is concurrence between the state vectors and order parameters. In accordance with the general laws of self-organization, it is necessary to focus on its own, natural tendencies of the nature and society development. Self-organization is provided via interactions within the system being in a state of “excited” non-equilibrium. In addition, it is essential that self-organization is not imposed from outside the system, although it is triggered by some external effects, these effects are not formative. As examples of self-organization one can name the process of arrangement of birds into a flock, people on the street into a queue at the store, entrepreneurs into a business association, and etc. For example, “self-organization in the theater is interesting: before the performance everyone behaves individually, when the play begins, everyone is absorbed by the action on the stage” [102, p.10].

The authors of “The Concept of Self-Organization: Establishment of a New Way of Scientific Thinking” (M., 1994) believe that the terms in which the self-organization is learnt, are not immune to pairing: among them, an important place is occupied by the “order and chaos”. “Self-organization is used to name establishment of the order in a system. While the role of chaos is important:

establishment of the order is mediated via disordered, unstable chaotic state of the system. The chaos, thus, remaining the antithesis of the order, synonym for disorder, becomes a function of creative beginning: it appears to be a condition of self-organization. However, the words “order” and “chaos”, involved in the concepts of self-organization have strict sense. They are backed up by not only thrilling images. “Order” means, for example, dissipative structure. It is also associated with Haken’s “order parameters” subjugating other characteristics of the system. The chaos, in its turn, is defined as the unstable random behavior of the system. If the system is in the state of chaos, it is impossible to predict its further evolution [190, p.26-27]. So, from its very beginning, synergy is a science of self-organization of the world, its phenomena and processes. As a new discipline, it emerged at the meeting of several sciences (physics, chemistry, biology and so on).

Researchers involved in synergy developed an appropriate conceptual and categorical apparatus. In their opinion, the basic concepts of the synergy are a non-linearity, open system and self-organization. *Self-organization* is the processes of spontaneous ordering (transition from chaos to order), formation and evolution of structures in open non-linear media [20, p.365]. Or in other words, ability of elements of a non-equilibrium system in the absence of external influence to come to ordering of their internal structure over time. Terms of occurrence and maintenance of the self-organization are highly non-equilibrial links, availability of a sufficiently large number of interacting elements, while the behavior of interacting elements must be cooperative and coherent, but presence of the inhomogeneous environment is required. The self-organization (self-development) is the ordering of a system due to the action of its components, i.e. certain internal laws, capabilities and forces. The self-organization is not imposed from the outside of the system: external action only triggers the self-organization.

Open system (media) is a specific kind of systems (media) that exchange with substance, energy and/or information with the environment, i.e. They have sources and drains. Capable of self-organization open systems tend to have a volume sources and drains, namely the sources and drains in each point of the system [20, p.365]. Each point of an open system can be regarded as a separate "organism" capable of self-development. Using the external environment, it recreates and develops its structure from inside. For example, you can develop your brain and muscles depending on the media, with you exchange the information, energy. The notion of openness means constant interaction of the system with the environment, during which adaptation occurs, adjustment of all elements of the system to changing conditions of its existence.

Non-linear medium (system) is the medium, in which the processes are described by non-linear equations. This is a medium that can evolve in different ways, it holds bifurcations. Non-linearity in the worldview sense is the multivariance of the ways of evolution, presence of the choice of alternative ways and a specific rate of evolution, as well as the irreversibility of evolutionary processes [20, p.364]. The non-linearity is closely related to the concept of randomness. It is important to emphasize that, as the history of rationality forms development shows the more complex and diverse the world, the greater the role of randomness in it. In this regard, determinism is presented as "one of the world description languages, moreover, one of the most simplified languages" [38, p.118].

Categorical apparatus of the synergy include such concepts as bifurcation, attractor, dissipation, fluctuation, entropy and others. Let us consider the main ones: *bifurcation* is a branching point of possible ways of the system evolution, which at the level of the mathematical description corresponds to the branching of solutions of non-linear differential equations [20, p.364]. In other words, bifurcation is a state of a system facing the choice of possible development

paths. Physical meaning is as follows: bifurcation is a branching point of evolution paths of an open non-linear system. Therefore, the non-linear system itself can be defined as one that "carries “holds” bifurcations. The thing that is called bifurcation in the synergy, also has deep analogies in the culture. In fact, notions of bifurcation are already contained in the legends and myths of the peoples of the world. When the fairy knight stands wondering at the roadside stone on a road fork, and the path selection determines his fate, it is essentially a visual and figurative representation of bifurcation in the human life. The future state of the system at the time of passing the “threshold” value is represented by a bunch of possibilities. A point that characterizes the “threshold” value is called a bifurcation point. At this point, the system is in a non-equilibrial state, from which it can be derived by an infinitesimal impact. Examples of bifurcation points in the historical research may be such a historical situation as duality of power. For example, the dual power period in Russia in 1917 and the situation in the period of presidential elections in Ukraine in 2004. The society as a system faced the choice of the future development path.

Attractor is a steady state (structure) of the system, which is in some way “attracts” (lat .: attrahere –attract) the whole variety of system “trajectories” defined by different initial conditions (when the system enters the cone, or the sphere of the attractor, it inevitably evolves until this stable state (structure)) [20, p.364]. The concept of attractor is close to the concept of “purpose”. Let us suppose that about the society we know everything that is necessary to describe it. It will be a set of parameters expressed as numbers. For example, per capita income, education level, and etc. These parameters represent the coordinates (points) in some phase space of the society, and the points represent its current state. If the parameters of the society change, the point shifts. Its shift outlines some curve that is name a trajectory which is determined by the laws of the society evolution. If these laws are immutable, in the phase space, an area

emerges that attracts trajectories, the attractor. The self-organization is a core, the foundation, around which all the other elements of the system start to group around. This field of attraction is referred to as the attractor. Search and identification of such attractors is another challenge for the study of complexly organized open objects, such as the human society. The historians can use this category in their study while analyzing the objectives of the society. For example, the objectives of the national liberation struggle or the reforms in the society. The objective in this case includes all of the society's resources.

Entropy in Greek means “circulation”, “mutual shift”, “transfer”. The entropy defines the state of the system in terms of its internal order. “It could be worded differently: the entropy is a measure of the system ordering. The higher the order, the lower the entropy; the greater the chaos, the higher the entropy” [79, p.34]. With regard to the social organism, the entropy can be defined through the adaptive capabilities of the society and its elements: the higher the entropy, the less the social system’s ability to adapt to the changing environmental conditions, that is, the less vital force remains in it. Therefore, the main task of this system is to develop anti-entropy mechanisms that allow it to adequately respond to the “challenges” of the outer world. In this study, this historical category can be used to study the energy rise (dissatisfaction, tension, and etc.) resulting in further chaos in the society. For example, when studying the mechanism of the planned reforms of the Russian Empire on the territory of Kazakhstan, which led to a loss of vitality by the Kazakh people for resisting it.

Fluctuations are random deviations of instantaneous values of variables from their average values, the index of chaotic processes at the micro level of the system [20, p.366]. Translated from Latin, this work means “oscillation”, and in the general sense, it means the temporary deviation from the equilibrium state [79, p.38]. Numerous fluctuations (deviations) occur at the bifurcation point and one of them accidentally triggers the system to switch to a new stable

position. This category in the historical research is effective in the study of coups, revolutions, or when studying the history of any country in the conditions of the occupation regime.

Forming it conceptual and categorical apparatus, synergy is trying to establish laws that reflect the specifics of the new worldview, because in the conditions of accelerated rate of change in the world, we are witnessing, it is difficult to talk about the stationary structures, the stable, unchanging entities as something lying in the basis of the universe. Stationary self-organization structure that emerged on the drains of the open system studied in the most synergetic models, are, in the strict sense, the dead ends of the evolution.

To understand the essence of synergy and the process of self-organization, we need to address some of the physical phenomena, first of all explain the second law of thermodynamics, which says where the processes do in the closed systems and systems that are almost equilibrial: they are going to the thermal chaos, to the state with maximal entropy. Since the entropy is characterized by the phenomenon of irreversible processes, it increases and brings the system to chaos. And the "chaos" according to the definition of H. Haken, in its "special sense, means the irregular motion" [23, p.363] Irregular motion, in its turn, leads to instability, which results in the formation of a new space and time structure of the system. At the point of instability, which Prigogine calls bifurcation point [73, p.50], a difference between the stable and unstable collective motions – modes (according to H. Haken – D.B.). Stable modes adjust to the unstable ones and can be eliminated. In general, there is a struggle between collective motions. The degree of freedom decreases, and the remaining instable nodes serve as the order parameters, which determine the macroscopic behavior of the system. At the same time, the joint actions of the regular and random forces leads the system to its new state. H. Haken schematically presented this process as follows: old structure → instability → new structure [23, p.379]. The new

structure was formed as a result of self-organization occurring after repeated impulses. Such impulses are produced by random forces. In any given system, according to H. Haken, such fluctuations occur. Fluctuations are periodic, which again and again leads the system to a new state. Assuming that there is a number of systems, the law of competition attains the power, selection comes into play [23, p.237]. According to I. Prigogine, the system has the right to participate in the "selections". In this selection, an element of casualty presents unavoidably: the macrocosmic equation is not able to predict the trajectory that will be taken by the evolution of the system [22, p.218].

Thus, fluctuations, and the selection result in the evolution of the systems. In general, as a result of the self-organization in the system, suddenly order can occur out of the chaos. This order of things, in the opinion of I. Prigogine, is characteristic for the open systems, such as for example, the Universe [22, p.215]. Despite the fact that in the Universe, there are closed systems, the majority of the systems are open and so they freely exchange energy with the environment. As the open systems we can identify the biological, social system, which means that any attempt to understand them as part of a mechanistic model of the classical science are doomed to failure. The open systems re mobile and subjected to destruction. In the bifurcation point, its further destiny is decided: whether the state of the system becomes chaotic, or it will move to a new, higher level of organization, which the authors name the theory of dissipative structure. I. Prigogine does not exclude self-organization when suddenly order can occur out of the chaos. After having selected one of the possible ways of development, the system "lives" according to the laws of the determinism; and so on until the next bifurcation point [22, p.40].

Now, the scientists are sure that the systems capable of self-organization, are the open systems. The openness of a system involves an exchange of the matter and energy with the environment. But the openness of a system is still not

a sufficient condition for its self-organization and self-development. And this is proved by the Russian scientists, in particular Ye.N. Knyazeva and S.P. Kurdyumov. They believe that the openness of a system is a necessary, but not sufficient condition for its self-organization: that is, any self-organizing system is open, but not any open system organizes itself, building a structure. “It depends on the mutual game, competition between the two opposite beginnings: generating structures, increasing inhomogeneity in a solid medium (works of the volume source), and diffusing, scouring inhomogeneity of the beginning of very different nature. The scattering beginning in the open system can overpower, subdue the source job, erode all heterogeneities created by it. In this mode, structures may not occur” [192, p.166]. But, on the other hand, the scientists believe, in the complete absence of dissipation, the organization can not arise spontaneously. It is necessary to understand the role of dissipation (evil) as a factor in eating away too much, and therefore as a necessary element for the self-development of the world. “Dissipation in an environment with non-linear sources acts as a cutter, with which the sculptor gradually but purposefully takes away all the excess from the boulder. Since dissipative processes, scattering is, in fact, a macroscopic manifestation of the chaos, and the chaos at the micro level is not the destruction factor, and the power leading to the attractor, to the tendency of the self-structuring of the non-linear medium” [30, p.9]. Prigogine I. believes that it is not necessary to fully discard the classical dynamics, it is just necessary to understand the “causes and limits of its achievements” [193, p.15].

Irreversibility of the entropic barrier, unpredictability and randomness of the “choice” of the system at the bifurcation point, chaos and subjunctivity - all this, despite all the “non-”, leading to the order, in our opinion, is a phenomenon of synergetic model of the scientific cognition. In general, according to the definition of Ye.N. Knyazeva and S.P. Kurdyumov, *synergy* is a new interdisciplinary direction of the research, within the framework of which, the

processes of transition from the chaos to order and backwards (self-organization and self-disorganization processes) are studied in open non-linear media of various nature [20, p.366].

The self-organizing systems meet the following requirements: 1) openness that provides the inflow of energy from outside that is required for the transition to a qualitatively new state; 2) the achievement of a strong irregularity by the system, in which it loses stability; parameters that characterize such condition are named critical; 3) exit from the emergency situation via a leap into one of the possible new stable states. The development of such systems is characterized by two different stages that replace each other in cycles. Initially, there observed a relatively long evolutionary stage, during which the qualitative state of the system does not change. But during the stage, due to the changes in the external conditions or due to the growth of the internal contradictions, the system transfers into the extremely non-equilibrial state and loses its stability. The system cannot stay in the critical state for a long time. The second, relatively short stage of its abrupt transition into a qualitatively new stable state (self-organization in the narrow sense of this term) begins. In this regard, it should be noted that complex systems have the potential to qualitatively new stable states. It is a matter of chance in which of the possible final states, the transition takes place. However, once the transition has occurred, there is no turning back. This state begins a new stage of evolutionary development until the next bifurcation point. The very abrupt transition is a collective process, wherein the elements compose the system, whose behavior before was chaotic, in the critical point exhibit the ability to act in an organized and interconnected way [194, p.71].

In general, the diagram of the process, which I. Prigogine identified as the order of chaos, in the “humanitarian” language can be described as follows: the system exposed to the environment, comes to such a state, when the threat of its destruction occur. It is customary to name this moment a bifurcation point.

Before the bifurcational explosion, the system development could be guessed, after the explosion, one may only talk of the forecasts of several alternative options of further system development. Why are we not able to predict? Because the system is non-equilibrial, open and, therefore, sensitive to the internal parameters, which are incorporated in it. The researcher cannot follow the evolution of each of the system parameters as the social system is complex. As a result of undetermined parameters, processes begin to manifest leading the system to an unstable state. Therefore, the researcher needs to gather as much data about the system as possible, and having studied them, to predict their reaction in critical moments.

At the bifurcation point, the system has several options for further development: either it finds inner reserves in order to avoid the chaos (collapse), or transfers into the state of the chaos, and in this state would prefer to search for the ways to self-organize, or would prefer to stay in an uncertain, unstable state and to spend all its power to prevent the chaos. This, of course, not to move to another level of the development. In these options, random external factors may play their role. Therefore, we are not able to accurately determine the fate of the system. Alternativeness of the ways is associated with the fact that we are unable to unravel the mechanism of self-organization, its core, the so-called field of attraction, "attractor", to which elements of self-organization rush. Thus, the historians face the task of identifying and studying these attractors.

The above tells us that when studying the social system, it is necessary to remember that it is non-linear, its elements are interrelated to each other and, therefore, it is necessary to study the system holistically. And synergy is committed to this, becoming one of the modern directions of the interdisciplinary research. In this case, the question is not only in the dialogue of the sciences and disciplines, but also in the joint work of the various theories and concepts within the historic studies.

Yet it should be noted that when the system is in the state of order, its elements actively interact. In addition, each system element (subsystem) is independent and free to some extent, and strive to meet their needs. This suggests that the order in the system persists despite the differences between its elements and that a variety of sub-systems is one of the main conditions for maintaining the order in the system.

Summing up, let us give the key words offered by H. Haken, which would best express the main content of the synergy: 1. The test systems consist of several or many similar or dissimilar units that interact with each other; 2. These systems are non-linear; 3. When considering the physical, chemical and biological systems, we are talking about the open systems that are hardly thermal equilibrium; 4. These systems are subjected to internal and external oscillations; 5. The systems may become unstable; 6. Qualitative changes take place; 7. In these systems, emergent (unexpected - D.B., K.S.) new qualities are revealed; 8. Spatial, temporal, spatial temporal or functional structures occur; 9. The structures may be ordered or chaotic; 10.In many cases mathematization is possible [75, p.55].

Thus, the scientific work of two eminent scientists Ilya Prigogine and Hermann Haken leads to the emergence of the modern interdisciplinary direction of the science - synergy in the 70-s of the XX century. At the same time, the sum of its categorical and conceptual apparatus.

The synergy is a sphere of scientific knowledge where interdisciplinary researches reveal general laws of self-organization, development of stable structures in open systems, it means synergy is defined as a science of self-organization. It provides a methodological framework and analytical instrumentarium for the study of unstable situations, transient processes, randomization and alternatives of the development in a variety sciences: natural and humanitarian ones (including historic studies). The synergy studies the

complex systems characterized by openness and self-organization. As part of the synergy, collective action of individual parts of a disordered system are studied; this results in the self-organization that is formation of ordered structures in the disordered systems.

2.2 Synergetic Paradigm of the Worldview: Modern Model of the Worldview in the Works of Synergetic

Researchers differently define the synergy – as a paradigm, concept, theory, approach, and method. If you try to draw a staircase, where each step is assigned to the listed categories, taking into account the importance of each of them for the scientific cognition, we get the following (from the highest level): paradigm → approach → concept → theory → method. Such a scheme is related to the fact that the method prerequisite is the scientific theory. If the theory is ultimately the result of the process of cognition of the reality, the method acts as a way to achieve this goal. The concept, in its turn, contains a few theories. The theory, being a form of generalized reflection of the reality in thinking, reveals new relations, the aspects of an object, and thus helps the practice to master them more successfully. But at the same time, the theory is knowledge that has a well-defined shape. And while none of the theory, whatever strict and objective it is, does not give a definitive, absolutely complete knowledge about the subject. Only the interaction of different theories creates a single concept, which will help the integrated scientific cognition. The scientific approach is broader than the concept considering that, it facilitates the definition of paradigmatic attitudes for coordinated action of several concepts. Paradigm also synthesizes and directs the scientific approaches on the way that will lead a study according to the accepted by the modern scientific community pattern.

In our opinion, the synergy is an approach, as it contains a set of theoretical and methodological provisions that are more and more accepted by

the scientific community at the present stage of the science development. The synergy is important, in fact, as an approach to understanding the evolution of open non-linear systems, as a special way of thinking. That is, it is important precisely because of its methodological, not doctrinal aspect. If we keep in mind the integral side of the synergy for a wide range of schools that hardly belong to the natural sciences, we can conclude that for them, synergy can serve primarily as an image (style) of thinking, as a new, unexpected perspective of seeing the world. Wide heuristic opportunities of the synergetic worldview today are perhaps not fully understood. They consist not so much in advises, as in the ways of setting new non-standard issues stimulating research in specific areas. The synergy can "tip" how to make the next step in the research and what in principle can be expected. A correct statement of the problem and the choice of the search direction, as a rule, are more valuable than the actual solution for the problem.

It seems to us, the starting point for synergetic research was the desire to change the still ruling mechanistic picture of the world in the science. It is important to note in this regard the broad sense of the ideological stratum of the synergy that covers not only natural and technical phenomena of the reality, but also actively penetrates into the objects of traditional social and humanitarian knowledge. Perception of the reality presented in the synergy by the ideas of self-organization, non-linearity and open systems. It is on this basis, the synergy builds its paradigm of perceiving the world, its phenomena and processes. This basis is associated with the idea of processes irreversibility in the world, the idea "that at all levels - from elementary particles to cosmology - casualty and irreversibility play an important role, the value of which increases with the expansion of our knowledge. Science is rediscovering time for itself", says I. Prigogine [195, p.35].

It is surprising that the study of the non-linearity and self-organization

phenomena conducted by the synergy, lead to understanding the proximity of the synergy and consciousness of the human of the East. Attention is drawn to a certain fundamental kinship of the synergetic ways of thinking with the Eastern way of thinking and perception of the world. Worldview presented in the teachings of the East (Hinduism, Buddhism, Daoism) is often described as holistic, that is integral. T.P. Grigoriyeva believes that those who could appreciate the wisdom of the East, never trusted in force, and they were never embarrassed by the prophecy of R. Tagore, who wrote: "The East will change the whole picture of modern civilization, breathing life into it there, where it is mechanical, replacing the cold calculation with the human feeling and trying not so much to the power and success as to the harmonious and vivid development, truth and beauty" [99, p.17].

Kazakh philosophers are convinced that "the cognition in the Eastern culture is holistic, specifically cogitated; it does not degrade the world into pieces, does not study it in parts, it does not lose the "colors" of the world, it is not rationalized; an experiment is absurd in it, mathematics is a play of forces in it, and etc." [196, p.13]. The scientists, therefore, believe that if the task of understanding the world (even though, such a statement is absurd for the ancient cultures of the East) is set, it must be understood via referring to oneself. And to confirm their words, they quote the maxim of the ancient Chinese treatise "Dao De Jing": "Without leaving the yard, it is possible to understand the world. Without looking out of the window, you can see the natural dao (the way of a man to himself – D.B., K.S.). The farther you go, the less you cognizes. Therefore, a sage does not wander, but cognizes (everything). Not seeing (things), he penetrates them (their essence)". This is the method of cognition in these cultures; it is self-cognition, conclude the researchers [196, p.17]. Thus, in the ancient East, cognition requires the preservation of the world in the variety of its relations, in its entirety, and imposes the requirement on the human to

develop to the level, from which the human can learn this holistic world, that is, in the East, it is human who should change, and develop, and world he studies remains as is. But, in our opinion, only the interaction of the cognition cultures of the East and the West will allow achieving objective knowledge. We therefore agree with the opinion of T.P. Grigoriyeva, who compares the correlation between the East and the West with the functional asymmetry of the cerebral hemispheres of the human: “right one is more ancient, it is responsible for a more holistic vision, intuition, unity; left one is responsible for logic, analysis and synthesis. But only together they provide the vital activity of the Whole” [99, p.23].

In general, first of all, the idea of unity and coherence of the world unites the East and the synergy. Also the eastern idea about the pervading interrelation of elements in the world can be seen in the synergy. The concept of Not-being, or the firstborn Chaos is one of the powerful ideas of the East and it largely coincides with the synergetic understanding of the non-linear medium, which potentially hides possible ways of evolution.

Several researchers in the synergy see a “new world view, attitude that radically changes the understanding of the required (natural, deterministic) and random in the foundations of the world order” [44, p.56]. Through the synergy, according to A. Vengerov, in a completely new way causes and forms of inanimate matter and historical processes in the economic, political, social and other spheres of human activity start to be treated. And also the question is in the paradigm shift in the methodology of the social sciences, rejection of the previous understanding and acceptance of determinism, orientation to the discovery of new species and reinterpretation of the materialist dialectics as the basic method of scientific cognition of the reality. The scientist believes that “the materialist dialectics, with its primacy of the essential over the random and other postulates under the pressure of new knowledge of the late XX century

and the new historical experience mainly exhausted its cognitive and prognostic potential, at least in the social sphere" [44, p.56]. The synergy claims to have one of the main roles in forming a new vision of the world around, giving the unusual ideas and concepts, turning the crystal ball of the knowledge with its other facet, it teaches us to see the world differently. The leading position in the new understanding of the world is the position indicating that the human with his knowledge, goals and values cannot be isolated from the outside world studied by him. The person in this process "is not out of the object being studied, but inside it. He is always just a part studying the whole" [197, p.66]. The new approach entails a tendency to linking the gnosiological and value aspects of the scientific activity. This is due to the fact that the valuable knowledge does not exist as an independent phenomenon detached from the object properties of things. They have certain foundations in the subject. The values assume knowledge of the objective characteristics of the nature objects, no less than the knowledge of the characteristics of the subject of the activities and the society. Being a feature of the relation between the society and the nature, value is one of the most important characteristics of the worldview. It becomes apparent that the complexly organized systems can not be imposed with their development ways. Rather, you need to understand how to promote their own development trends, how to bring the systems to this paths. In the most general terms, it is important to understand the laws of life together of the nature and humanity, their co-evolution. The problem of controlled development takes, thus, a form of a self-governed development issues. In addition, the synergy shows us how and why chaos can act as a creative beginning, constructive mechanism of evolution, how a new organization can develop from the chaos by its own. The synergy recognizes that for complex systems, usually there are several alternative ways of development. Non-uniqueness of the evolutionary path, lack of rigid predestination narrows the basis for the position

of the pessimism of eschatological sense. “The hope grows stronger for the possibility of choosing further development paths, wherein they would suit the human and at the same time would not be detrimental to nature" [20, p.17-18].

The nature of the learning subject in the course of two centuries, was valued as an object of human activity. Over the past two centuries, mankind sought primarily to change the nature; not to destroy it completely and be done in some way also with the human, today it is necessary to regain the ability to understand the nature. “While the artificial products can be deterministic and reversible, the nature contains casualty and irreversibility as its essential aspects. This leads to a new picture of the matter: it is not considered more as passive, as it is case of the mechanistic picture of the world, and it is capable of spontaneous activity. This turn is so fundamental that we can speak of a new dialog of the human with the nature ..., writes I. Prigogine, the vision of the world that is around us, and the fact that we have within ourselves, converge” [74, p.32-36]. This idea of convergence (approximation) of the world of the human and the world of surrounding him nature is of particular interest. The synergy as a new vision of the world eliminates the gap between these two worlds, because it establishes the general mechanisms of self-organization inherent to both of them. Thus, the science, including the natural sciences, becomes humanitarian, humanized, and the complex world of human subjectivity, in its turn, is not alien to the scientific - synergetic - approach. This new rationality of the science leads us to rethinking the relationship between people, as well as the relationship between the human and the nature.

The synergetic vision emphasizes, in our view, the human factor manifesting itself in the originality of activities associated with his historical paths. This problem is solved through “the new dialog of the human and the nature”. Novelty manifests itself, firstly, in the awareness of the relativity of the human forces, and secondly, in the impossibility of his refusal from his active

role in the world. The most adequate perception of the such world perception is, in particular, the approach based on the idea of self-organization, which is developed by the scientists at the M.V. Keldysh Institute of Applied Mathematics and the Institute for Mathematical Modeling of the RAS, at the Faculty of Computational Mathematics and Cybernetics of the Moscow State University (Russia), who note the need not to impose, but to facilitate the disclosure of own development trends laid in the complex social natural systems [30 p.3-4].

The mankind must fit into the natural cycles of the biosphere, that is the natural circulation of substances, provide the opportunity for co-evolution with the nature as part of the ecological niche which it now occupies. What is, however, the sense of the changes that have taken place (in terms that are of interest to us) in the human relationship to the nature? I. Prigogine believes that in the deterministic world, the nature lends itself to the full control of the human, representing an inert object of desire. "If the nature as the essential characteristics, is inherent with instability, then the human must more carefully and delicately treat the world around him, at least because of his inability to clearly predict what will happen in the future" [73, p.47]. The nature like the inner world of the human, you never know for sure how it will behave in any given moment. The inner world of the human has always been a mystery to others. Similarly, the nature is mysterious in its inconsistency, instability, and some alarming unpredictability. Only with this in mind, it is possible to abandon the arrogant calculations in relation to what surrounds us. "The contours of the new rationality are outlined, which leads to the idea of instability. This idea puts an end to the claims for absolute control over any sphere of the reality, puts an end to any possible dreams of completely controlled society. The reality cannot be controlled at all in the sense that was proclaimed by the former science", says I. Prigogine [73, p.51]. In this regard, we would like to quote the remark by A.

Yakimovich: “Four times hurt in search of himself”, quoted by the authors of the article “The Philosophy of Self-Organization. New Horizons” V. Arshinov and I. Svirskiy. Referring to Z. Freud, Yakimovich enumerates three fundamental “insult”, which human had to accept. “Firstly, the cosmology of Copernicus denied the idea of the central position of the Earth in the Universe. The second blow was launched by... the Darwinian theory of the origin of species, we had to get used to the idea that we are some kind of the monkeys. And finally, the third unpleasant surprise was, according to Freud, the new science of psychology of the twentieth century and its unequivocal conclusion: consciousness, thought, mind in the human does not prevail”. And then Yakimovich suggests that the era of post-communism in the East and “posthistorism” in the West are the era of the “fourth insult”. “Again, a favorite toy is taken away, that is the belief that people are able to build a rational world order, of course, around themselves and with their sovereign Reason at the center” (“Nezavissimaya Gazeta”, May 16, 1992). Thus, concludes V. Arshinov and Ya. Svirskiy, in philosophical and ideological aspect that what Yakimovich calls “the era of the fourth insult”, is both what we call “the era of postnonclassical science”, the characteristics of which are focused in the synergy by H. Haken, in the theory of dissipative structures by I. Prigogine and his colleagues, in the concepts of non-linear deterministic chaos, strange attractors, bifurcation, and etc. [198 p.60-61].

The social system is non-linear, since the interaction between the members of society can have an unexpected effect. At each time point, fluctuations (deviations) occur that can be amplified or suppressed by the society. We agree with I. Prigogine that “the future is not fixed rigidly: time is some structure, and it implicitly includes the ethical responsibility ... But cognition of internal complexity and unpredictability of the natural world around us should not lead to a pessimistic position” [74, p.37-38].

It is essential that the concept of non-equilibrium and instability acquired

the status of the universe only in the synergetic vision of the world. Just a little while ago, as noted in the literature, they were perceived as a nuisances that must be overcome (when "development was understood as gradual, without alternatives ..."), which, if any, were seen as no more than an random deviations from the main stream, and subordinated to it by the objective laws of the universe, ultimately reducible, poured and absorbed by the main course of the events. Mechanical determinism that prevailed at the time, adheres to the opinion that the "according to the causal chains, the course of the development can be figured out unlimitedly into the past and the future. Development is retrodictable and predictable. The present is defined by the past, and the future by the present and the past" [30, p.4].

Understanding by the society, and its vital activity takes place within a well-defined way of thinking that defines, respectively, quite certain forms of knowledge, methods for its acquisition and use. Today, irreversible, non-linear processes are no less real than the linear and reversible ones. It turned out that the world in which we live, is open to the energy, matter and information exchange, and the chaos is able to play not only destructive, but also constructive role. "The rediscovery of the chaos in the modern exact natural science is also the discovery of the time horizon of the fundamental unpredictability of many future events that if occur, simply will take place as universal and unique, but not the natural ones. Thus, the rediscovery of the chaos fills the anthropic principle with the new synergetic sense", believe Russian scientists Ye.N. Knyazeva and S.P. Kurdyumov [20, p.46]. Being the most important factor of the universe, the non-linearity establishes the indeterminacy of all processes in the Universe. At the same time, the synergy does not deny the role of the laws, but gives credit to the factor of the chaos in the universe. But fixing the destructive role of the chaos, the synergetic methodology and associated with it worldview also underline its creative

beginning. The fact is that serving as a means of complicating the organization, as a means of harmonizing the rates of development of the various fragments of the complex structure, which leads the system through the bifurcation to the new, more ordered and complex state, the chaos leads to the fact that other systems (especially more complex ones) near the points of exacerbation, come to decay, obeying the peculiar principle of selection of the most advanced systems in the given conditions. Thus, the chaos is constructive. But it should be noted that the synergy is not completely eliminates the determinism, as it remains a powerful explanatory principle of the world at a time when the system is determined at the point of bifurcation. This system is based on the adoption of the principle of complementarity emphasizing the co-existence of the randomness and necessity. The randomness dominates in the state of so-called bifurcation of the system, and the need at times of post-bifurcation, inter-bifurcation, "cooling down" states of the system. Here, already the laws of determinism and randomness are engaged. Saving in unity of this different explanatory principles, eventually allows considering the synergy to be one of the creators of a kind of postnonclassical rationality [34, 38]. The essence of this new type of rationality consists in the due consideration of non-linearity, transparency, irreversibility, non-equilibrium, casualty, bifurcation and other properties of the of reality that until now remained outside or on the periphery of the "conceptual and holistic scientific analysis". However, its main purpose is expressed in the desire "to make the science not just knowing, but also knowing, environmentally oriented", to critically evaluate not only the new role of the science in the modern conditions, but also the understanding itself [22, p.65].

In our opinion, one of the problems of our time consists in overcoming the attitudes seeking to justify and reinforce the isolation of the scientific community. Between the science and the society, it is necessary to establish new communication channels. We all know that the human changes the environment,

creating the “new nature”. “But in order to understand the world created by human hands, we need the science, which fulfills the mission of not only an obedient tool of external interests and is not a cancerous tumor irresponsibly growing on the substrate of the society”, believe I. Prigogine and I. Stengers [22, p.65].

The processes that became the subject of the synergy, allow a fresh look at what is essentially an irreversible world and self-organizing matter. The Universe is the irreversible and self-organizing world, and there is an objective reality, in which the human lives. Therefore, N. Klimontovich is right that “The synergy is a new worldview different from the Newtonian classicism” [199, p.8]. It can be assumed that the synergy offers a new picture of the world that is the world as a set of interrelated self-developing processes. As the essential characteristics of this world, the scientists identify variability qualitative diversity, non-equilibrium and irreversibility. I. Prigogine and I. Stengers quote Jacques Monod, who most recently described the picture of the world as follows: “The human must finally wake up from the thousand-year sleep and having awaken, he will be all alone, in absolute isolation. Only then he will finally realizes that, like a gypsy, he lives on the edge of the alien to him world. World, deaf to his music, indifferent to his aspirations, as well as to his suffering or crimes” [22, p.43]. The synergy, in our opinion, is an important step in creating the new picture of the world in which we see not a collision of perfect atoms, but self-organization, irreversibility, emergence of the order out of the chaos, radical consequences of small (“permitted in a free society”) actions.

Taking the position of the synergetic thinking, we replace the classical principle of “freedom is the deliberate necessity” with the other ons: “freedom is the deliberate right and choice responsibility”. Immediately, the problem of personality and freedom emerges. How does “the concept of the synergetic type” or “self-organization model” (according to A.P. Nazaretyan) [32, p.91]

effect this problem? K.Kh. Delokarov believes that “such a methodological problem, in many ways reminiscent of the dialectical pattern, probably, reflects the underlying features not only the world, human culture, but also of the personality. After all, the personality is “torn” between the order, the desire to live in the Universe, as at home, and the creativity that is beyond the rules and order, in the freedom. Reflecting this duality of human nature, cognition as a social cultural phenomenon that focuses on the cognition of the laws reflecting the stable, recurring, necessary relations, but it is the very same that breaks the boundaries erected by it” [34, p.112]. After all, at the individual level, there is always a mess, chaos, highlighting an event that leads to the era of instability. That is why it is necessary to learn to live in open and non-linear conditions, to live with chaos knowing its laws, rather than trying to get rid of it. No less important, in our view, for the synergy, is the fact that it considers complex, evolving and open systems. This requires the use of the non-linear science ideas.

Thus, the synergy, in our opinion, is important, first of all with its methodological and gnosiological aspects, which promote the development of a particular style of thinking. Expansion of the method up to the level of methodological consciousness may indicate the formation of the style of the scientific thinking, that is, the formation of the style of thinking in a certain sense synthesizes the methodological efforts of a certain historical period in this field of the science. We agree that we do not face the old dilemma of the tragic choice between the science, which condemns the human to isolation in the world devoid of magic charm, and unscientific, irrational protests ... because we, as scientists, “begin to grope our way to the complex processes forming the most familiar world - the world of nature, where the living beings and their communities develop. We are ... entering into the world of becoming, emerging things” [22, p.79]. The synergy is inextricably linked with optimism. In the present situation of accelerated and unstable development of the world, the

synergy has a major sounding. This is an optimistic attempt to understand the principles of evolution and co-evolution of complex systems, to reveal the reasons for the evolution crises, instability and chaos, to master methods of the non-linear control of complex systems, in a state of instability. At the same time, the synergy provides only the general framework of a study, mental scheme or heuristic approach to a certain scientific study. Specific applications of the synergetic models to the complex human and social systems require further detailed research. Such a research can only be carried out successfully with a deep knowledge of the relevant scientific discipline or close collaboration with experts in this disciplinary area. The synergy provides a certain approach or points some kind of direction of the research.

As you can see, the researchers are confident that the synergy as a worldview has a profound philosophical implications. It not only leads to a change in thinking, but also partly rebuilds our attitude to the world, perception of the surrounding reality, and even change our life stance. The synergy shows us unexpected aspects of the world, such as its instability, non-linearity and openness. The synergy contains humanistic potential. Its interdisciplinary character allows the mankind to find a way out of the crisis situations through developing the "scenarios" of development. Awareness of this possibility gives us hope for resolution of a plurality of global catastrophes. In broad terms, in accordance with the general laws of the self-organization, it is necessary to focus on own, usual tendencies of nature development and learn how to get into resonance with them, and not to violate the nature by continuing indiscriminate and thoughtless foreign interference in it.

This statement emerging from the modern synergetic researches coincides with what is meant by the eastern way of life, thinking and human activity. The latter have always been characterized by adherence to naturalness and non-violence over the nature of things. In accordance with the general principles of

the synergetic worldview, it is necessary not just to build or even rebuild, but to initiate, to deduce the social system to its own line of development. It should be noted that the synergy and the associated worldview acquires an important practical significance, as the new paradigm of restoring the integrity of the image of the world, assist in finding and developing more adequate principles and laws of survival for the whole mankind in this world.

CHAPTER III

SYNERGY IDEAS IN THE HISTORIC COGNITION: HISTORIGRAPHIC PRACTICE ANS PERSPECTIVES

3.1 Synergy Achievements in Natural and Social Humanitarian Sciences Research

At the present stage of the science development, interest is growing in respect to the new scientific approaches and interdisciplinary research. This interest is due, in our view, to the emergence of new scientific ideals, which, first of all, include the understanding of the world as a single system, where people interact with each other and with the nature. The pressing problem of global catastrophes requires mutual efforts of all of the intellectual potential from the various areas of culture. It seems that the age of disputes of the humanitarian and natural truths is completed.

The scientists identify three major phases in the science history - syncretic (various forms of knowledge existed together in the undifferentiated state, and it was difficult to organizationally identify the actual scientific knowledge from other kinds of beliefs and philosophies in the world); disciplinary (organization of the scientific research is based mainly on the disciplinary (subdistsiplinary) feature - physics, chemistry, and etc.); problem or task-target (usually interdisciplinary) stage (organization of scientific communities and research are gradually being built already on problem-target basis). The modern scholars, giving priority to the last stage, are still confident that “the disciplinary form of organization is far from exhausting its potential “resolving power”, and it will dominate for a long time” [200, p.3].

Interdisciplinary studies were a distinctive feature of the second half of the XX century. Picture of the world, which was established in the science of the first half of the XX century and the related to the restructuring ideas of the classical science, at the present stage is subjected to radical revision [201]. “Fundamental concepts and ideas of the individual sciences are becoming

increasingly clear as aspects or fragments of a common whole that is the system of knowledge about the evolution of the Universe and human as a natural element of cosmic evolution. All these radical restructurings of the world picture can be regarded as a revolution conditioned by the changes in the subject area of the modern scientific knowledge" [201, p.32]. The peculiarities of the modern science may be called complex research programs, which are attended by experts from various fields of knowledge, both natural and humanitarian.

The problem of interdisciplinary research occurred as a result of increased interaction among natural, social and engineering sciences, development of integration processes of the scientific theories and methods of cognition, wide introduction of complex and system approaches into the practice of the scientifical research. The scientists characterize the interdisciplinary research as a special form of interaction between the sciences, when obtaining meaningful knowledge about the research subject takes place through the system of subordinated subject monodisciplinary constructions, strictly subordinate to the global goal, and opening more opportunities for obtaining the integrated, comprehensive knowledge about the research subject [202 p.139-151]. V.I. Vernadskiy believed that the growth of the scientific knowledge in the XX century, quickly erased the boundaries between the individual sciences. We are increasingly specialized not on the sciences, but on the problems. This allows, on the one hand, to extremely dive into the phenomenon under the study, and on the other hand, to extend its coverage from all points of view. The scientists believe that "... there are some more fundamental problems, there is finally a specific point of view or representations of the cosmos, which will inevitably affect in the same way all the professionals, in whatever field of science they work" [86, p.33].

The problem-oriented form of research is one of the important characteristics of the postnonclassical science. In contrast to the discipline ones,

such researches are dealing with implementing integrated programs. As a result, to achieve the goal, they engage the knowledge of theoretical and experimental, applied and fundamental sciences. Forward and backward linkages are arranged between them; the processes of interaction of the principles and concepts of pictures of the reality emerging in various sciences are strengthened. Changes in these pictures occur not so much under the influence of the intradisciplinary factors as via the "paradigm grafting" of ideas put forward by the other sciences" [203, p.16]. At the present stage, it is understood that the science development requires qualitative integration of the scientific knowledge, for no way of processing the subject is not better than the others.

In our opinion, the integrity is based on the principle of complementarity in the science that first was formulated, as we have already noted, by N. Bohr. For that matter, it is known that the court of arms of Niels Bohr featured the ancient Chinese symbol of Yin and Yang - two equal curvilinear shapes, light and dark, together forming a circle. This is an image of the world. And above the shield, there was traditional arched heraldic tape with the familiar Latin inscription: CONTRARIA SUNT COMPLEMENTA. In Russian this literally means: opposites are complementarities [37, p.33]. Essentially, any integral approach in the science is another attempt of perceiving the world in its "centauristicity" (namely, as a combination of incompatible things).

Russian scientist S.A. Gomayunov believes that specialization of the scientific cognition interferes with seeing the whole picture. Such a situation interfered not only with interdisciplinary dialog. He quotes the statement of N. Wiener that currently only a few scientists can name themselves either mathematicians or physicists, or biologists, without adding further limitations to it. This fully can be attributed by us to the historic studies. Which scientist dares to call himself a historian? The history is divided by regions, spheres, approaches, and in each cell of this complex matrix, there are its own successes,

samples, ideals, sometimes very different language, different ways of thinking. The issue of the unity of the history is transmitted under the control of philosophy, but it is solved there in the abstract and is not accepted and considered by the historians in certain studies [47, p.20].

Objects of the modern interdisciplinary studies are open and self-developing objects, including humans as a special component. Examples of such systems are the medical and biological objects, a range of major ecosystems and the biosphere as a whole, objects of biotechnology (mainly genetic engineering), systems "human-machine" (including computer networks and future systems of artificial intelligence), and etc. [18, p.137]. We may add that in the last decade, such systems also included the social systems. And one of the most promising forms of implementing the mutual enrichment of the various sciences can be the synergetic approach. The emergence of such an approach is dictated, as was shown above, by the needs of the modern society, to solve the problem of which becomes possible only through integration and dialog of the sciences.

The synergy is becoming one of the modern multi-disciplinary research, or transdisciplinary research programs. Apparently, it is this area of knowledge initiates profound changes in the methodological foundations of the modern science, in the philosophical worldview, in the style of scientific thinking. Today, some kind of a new non-traditional worldview – synergetic worldview. There are good enough reasons to believe that synergy can serve as a basis for interdisciplinary synthesis of the knowledge. The synergy is interdisciplinary in its own nature, since it is aimed at finding universal ways in the evolution and self-organization in open non-linear systems of any kind, regardless of the specific nature of their components or subsystems.

The modern methodology acquired a new regulatory function, which manifests itself in the synergetic approach that focuses on establishing the interdisciplinary dialog and the synthesis of the sciences. "The historical

significance of the integration processes in the modern science consists not in creating for the first time a unity of the science - it has been available for already a long time - but in how to change the shape of that unity, to develop the highest theoretical composition of the science in general, which will be consistent with its dialectical content ..." [204, p.175]. In this context, in our view, it is necessary to perceive the interdisciplinary phenomenon of the synergetic paradigm.

Call for the unification of various knowledge branches of is not new. The path offered by the synergy is not new too: the creation of some general concept relying on a number of similarities between the processes of different nature. But it (synergy) focuses on a coherent, coordinated nature of the processes of self-organization in complex systems. Such an approach is totally new and has not been applied before the synergy.

The synergy aspire to blur the boundaries between the natural science and social science, and to construct a universal picture of the world. According to A.P. Nazaretyan, “the specified strategy in the modern science revives a number of fundamental attitudes” of the “pre-Galileo” natural philosophy, including the new synthesis of paradigms of causal and target determination, subjective and objective approaches, and etc. This in its turn is associated with organic transfer of the disciplinary stage of the science development in the postdisciplinary (problem) one, just as centuries earlier disqualification of subjective target categories served as a watershed between the predisciplinary picture of the world and the science dissected into individual disciplines” [32, p.92].

Former science considered the results of the science cognition to be the highest value having objectivity in comparison with the other methods of human communication with the world. Today, it begins to lose these ambitions. Therefore, in the modern scientific studies, including the social and

humanitarian ones, ideas of self-organization, integration, interdisciplinary dialog, openness and complementarity of the sciences acquire a growing number of supporters. On the other hand, the scientists of the natural science profile are interested in problems related to thinking, perception, and etc., which are directly related to the problems of the humanitarian sciences. Evidence of this is the works from the series related to the synergy published by Springer, whose chief editor is a German physicist H. Haken.

The objective significance of the synergetic paradigm, in our opinion, lies primarily in its concept of universal evolutionism that finds its special manifestations in the ideas of, for example, N.N. Moisseyev. He writes: "The the scheme, which I call the universal evolutionism, is based on "the hypothesis of supersystem". Our entire Universe is a kind of unified system, all its components are related to each other [94, p.5]. N.N. Moisseyev, as a hypothesis about the beginning, offers the hypothesizes about the initial explosion. Axioms of the states: existence of casualty and uncertainty; influence of the past on the present and the future; self-organization is not an absolute tyranny - not everything that a genie released from a bottle can do, can be observed in the reality. There is a system of selection laws that are rules of distinguish the real from the virtual.

The language that the scientist used to describe the initial empirical generalizations, which he called axioms of the states is substantially identical to the Darwinian triad – variability, heredity, selection. The next Moisseyev's group of empirical generalizations may be called the mechanisms of the state changes: 1) Darwinian class of mechanisms is an evolving system that is not affected by any random factors, and its transition from one state to another is determined expressly. In this case, the observer is able to predict possible developments of the events (movement of the spacecraft). But it is impossible to talk about the full determinism of the Darwinian type processes, as the reality

around us is still subject to the action of casualties. Thus, Darwinian type mechanisms are the foundation of the conscious activity of the human; 2) bifurcation mechanisms. The development of such processes is unpredictable. Let us imagine that the system evolves under the influence of some external force. Up to a certain time, the process is Darwinian in its nature. But at some point, this external force (load) can achieve a critical value when the unambiguous of the system's transition to a new state is broken. In this case, the principles of selection allow for a whole set of possible states. And in which of them, the system will transfer, depends on the random factors that will effect it at the moment when the load reaches its critical value. Since the values of the random factors are technically unknown, we are not able to assess trends of the post-bifurcation development, but also to determine the "evolution channel", where it will take place. The more complex a system is, the more bifurcation transitions take place in it. The specificity of bifurcation mechanisms is their unpredictable outcome. For example, in the social systems, it is revolutionary restructuring of public institutions. Knowledge of the Darwinian type mechanisms allows a person to plan his actions, enables the opportunity for targeted development. With regard to the bifurcation mechanisms, their knowledge allows avoiding unpredictable and dangerous situations; 3) "assembly mechanisms". The mechanism is associated with the cooperativity, that is association of individual elements in the systems. In the process of "assembly", that is, the emergence of the system, new properties can emerge. The most striking example is the second law of thermodynamics. This is one of the most fundamental and profound laws of physics. It does not make sense for separate particles, individual molecules. It manifests itself only at the level of populations: only with a sufficient numbers of interacting particles, fundamentally new system properties emerge. It becomes possible to introduce a new characteristic of the system - entropy, and to find that it increases with time.

This is the macrocosm law. In a microcosm, it does not make sense. The second law of thermodynamics cannot be derived from the Newton's laws and the fundamental laws of physics. This is a typical result of the “assembly” of emergence of new system properties of the world around us [94 p.8-9].

According to N.N. Moisseyev, the global evolutionary process of the supersystem and its individual components development is a process of self-organization. It is not chaotic, but follows some general trends. The nature in its infinite evolutionary process is in some way opens more and more new, potentially inherent to it forms of the matter organization. This is who the living substance, and then intelligent life forms emerge. Reason enables human to “equip their ever-widening ecological niche. The formation of the collective Reason creates a potential opportunity to ensure the stability of the system “biosphere-human”. And since the system is unstable, then any opportunity to stabilize it, to ensure coherence of the society development with the possibilities of the biosphere, i.e. ensuring their co-evolution, is a fact of extreme importance for the fate of the mankind [94, p.14].

In line with synergetic research, articles were published by Ye.N. Knyazeva, S.P. Kurdyumov [20, 30]. They analyze the terminology adopted in the synergy, introduce new concepts from the field of physics, mathematics (e.g., LS, HS- and S - systems), attempt to implement their philosophical rethinking. This refers to the results of the study of thermal conductivity, combustion and diffusion processes in the open non-linear media, which were carried out in the M.V. Keldysh Institute of Applied Mathematics of the RAS. In particular, it was found that in this type media, escalation mode of development processes are possible, it means the regimes, in which the characteristic values unlimitedly increase within a finite, limited time. Specific macro-picture of the process depends on the struggle of two beginnings: diffusing beginning of the very different nature and beginning that creates inhomogeneities in the medium.

“The mechanism underlying the escalation modes is a broad class of non-linear positive feedbacks. The escalation mode is a certain type of model problems, which are widely used in the analysis of complex systems. It is idealization, model representation that often used to pass through the important, even paradoxical, properties that are not visible, obscured by numerous adverse factors in the study of the real processes” [30, p.12]. The scientists believe that the methodology of solving the “escalation problems” allows from the non-traditional point of view, to consider a number of classical problems of mechanics associated to the processes of compression, cumulation, collapses. There is a reason to assume that there are, probably, new approaches to the problems of collapse, which is rapid compression of substances, chemical kinetics, meteorology (catastrophic phenomena in the Earth's atmosphere), ecology (growth and extinction of biological populations), neurophysiology (modeling of signal propagation on neural networks), epidemiology (outbreaks of infectious diseases), economy (phenomena of rapid economic growth), and etc. In all these problems, apparently, mechanisms of positive feedback work, resulting in escalation modes [30, p.13].

Being a broad interdisciplinary direction, the synergy as its “hard core” has the results of “advanced” areas of modern mathematics that are non-linear dynamics, mathematical chaos theory, catastrophe theory. The mathematical description of catastrophes that are abrupt changes that occur as a sudden response of the system to a smooth change in the external conditions, is represented by the theory of singularities and bifurcations. Their application to concrete problems in various fields of the science caused a lot of controversy. The first information about the catastrophe theory appeared in the Western press approximately in 1970, where it was reported about the revolution in the mathematics that was comparable only to that of Newton's invention of differential and integral calculus. It was argued that the new science, the

catastrophe theory, is much more valuable to the mankind than mathematical analysis: while the Newton's theory allows us to explore only smooth, continuous processes, the catastrophe theory provides a universal method for the study of all of abrupt transitions, breaks, sudden qualitative changes. There were hundreds of scientific and pseudo-scientific publications that applied the catastrophe theory to such a variety of objects, as the study of the heart beats, geometrical and physical optics, embryology, linguistics, experimental psychology, economics, fluid dynamics, geology and the theory of elementary particles. Among the published papers on the catastrophe theory, there are studies of the stability of ships, simulations of brain activity and mental disorders, revolts of prisoners, behavior of stock gamblers, influence of alcohol on drivers of vehicles, censorship policy in relation to erotic literature. Mathematical papers of the founder of the catastrophe theory R. Thom were reprinted in bulk issue. Qualitative feature of works by R. Thom on the catastrophe theory is their unique style: anticipating the direction of future research, R. Thom has not only evidence, but also the precise wordings of his results. V.I. Arnold to prove the style of R. Thom, presents a sample from a review of prospects of the catastrophe theory made by R. Thom in 1974: “Catastrophe theory leads us to deeply polytheistic view: in everything we should see the hand of the Gods. And here, perhaps, the catastrophe theory will inevitably find limits of its practical applicability ... May be it will be possible to prove the inevitability of certain disasters, such as diseases or death. Cognition will not necessarily be the promise of success or survival: it can also lead to confidence in our defeat, at our end” [93, p.88].

The city of Günzburg (Germany) in 1997 hosted the conference of the German Society of complex systems and non-linear dynamics, where reports devoted to the applicability of the synergetic concept were presented in various fields of science. For example, how it was possible to use the non-linear

dynamics in psychiatry, was demonstrated, in particular, in the report of H. Emrich. Affective psychosis represent unexpected phases of instability of human mental activity. Attacks of disease exacerbation are sudden for the patient himself, but they appear to repeat according to some non-linear law. We can trace specific, sometimes long-term cycles in the course of the disease. Studying non-linear dynamics and building phase calendar of instabilities, it is possible, to a certain extent, to predict the timing of the next exacerbation of the disease [205].

New scientific direction that is dynamic theory of information, is also included in the synergy. For example, D.S. Chernavskiy is sure that in some areas of the synergy and information overlap. As a result of the synergy emergence and its implementation in the computer science, the situation changed in the traditional information theory: 1) studies were started regarding the issue of the evolution of information, in particular biological one. The problem of the origin of life entered its new phase; now it is formulated as a problem of the spontaneous emergence of a new valuable biological information. In this regard the concept of objects, capable of generating, transmitting and receiving information was expanded. The statement that this is only characteristic for people is no longer satisfactory; 2) scientists started to research physical mechanisms underlying the reception, storage and processing of information. At its present stage the computer studies are closely related to biophysics using the synergy, or more precisely, its special section of the dynamic information theory [106, p.4]. The purpose of the dynamic information theory, believes D.S. Chernavskiy, is to formulate the basic concepts of the information in the language of the dynamical systems theory, or in other words, in the language of the synergy. This approach allows us to build a dynamic model of information process and to trace the evolution of the emergence (the birth) of the information and change of its value [106, p.22]. D.S. Chernavskiy

believes that “the development of the Universe includes a step of generating valuable information, that is, there was a random selection of one of the many options and memorizing of it. “Valuable” this choice was for that form of matter, which was formed in this world, and in particular for us. However, in all the processes of generating information, however different these processes are in their size, there are similarities: valuable information is generated as a result of random selection due to instability and subsequent “cleaning” of the option selected by the “exclusive” cooperation” [106, p.32].

What the synergy gives to the information, or, in other words, it what new does the dynamic information theory gives? Chernavskiy believes that “the information theory left unanswered questions about the “purpose” and the value of the information. The “synergetic” answers are as follows: 1) purpose - desire to preserve its information; 2) the value of information can vary with time within a wide range (from zero to maximum). Verbal and intuitive approaches give plausible and sometimes opposite results. This happens when the process being discussed is complex, contains unstable stages and generally “synergetic”. It is, therefore, necessary to bring the dynamical systems theory. Otherwise, the contradiction is perceived as a paradox that can be solved by the synergy” [106, p.40-41]. “Synertization” of the natural sciences, although it began with no direct influence on them by the humanitarian sciences, evidences the overall turn in the modern scientific thought towards the humanitarian problems. As part of the emerging interdisciplinary dialog the historic studies has something to say, and it deserves to to be heard and understood [46, p.105].

Russian scientist Ye.A. Sedov in his work “Information and Entropy Properties of the Social Systems” showed that the methods of information theory, developed by C. Shannon for purely applicable tasks of the communication engineering, appear to be a universal means of analysis of self-organization processes both of the simplest physical bodies, and most complex

intellectual and social systems [95]. The information is considered by the scientist as a general scientific concept with a common feature that is its function of increasing order (determination) of movement, which extends, in particular, and on the processes that occur during the functioning of the social systems. For example, the lack of information in dispatcher services leads to traffic chaos, lack of information in the security agencies and investigative bodies leads to the chaos of crime, lack of information in the medical services causes chaos of morbidity and premature death outcomes, and etc.

According to Ye. Sedov, ratio of information and entropy defines the structure of any system. The scientist introduces the concept of a structural or otherwise redundant information that is contained in each system. Such information is predictable, so it is necessary to form the structure of the system as it defines the rigid links between its elements. And the entropy acts as unpredictable information. The greater the amount of entropy, the smaller the structural (predictable) information. For us, the ratio of these parameters is important in order to understand the information and entropy properties of the social systems. Ye. Sedov to clarify this ratio, suggested to explore all the stages of the system transition from the state of the uttermost chaos and maximum entropy to the state of rigid determination and zero entropy [95, p.95]. Graphically it looks as follows: the starting point of the spiral coil is the point of "I" (chaos and maximum entropy), and the end point of the spiral is "K" that is the regid determination. Thus: the path from the point "I" to the point "K" is the process of accumulation of the structural information (Is). The ratio, when the entropy is 20%, and the structural information is 80%, is considered optimal for the system, as the unpredictable information (entropy) corresponds to the actual state of things. We cannot know all that is hidden from us or waits for us ahead. But if the ratio is changing toward the increasing entropy and the system as a result is moving to the end state of "K" that is rigid determination, then what

happens is that the system loses its adaptive properties. Having reached the rigid determination, the system is doomed to destruction, because it can make a sudden transition from point “K” to point “I”. The system cannot stay long in the state of complete determination and, of course, cannot exist with the maximum entropy (chaos). The system should maintain an optimal ratio of 20% to 80%.

Ye. Sedov believes that “the considered by us common information-entropy mechanisms of development can now be used as a basis for the analysis of the general properties and specific examples of the social systems development and degradation” [93, p.96]. For example, the scientist believes that abrupt transitions are characteristic of totalitarian systems, which existed in the socialist countries. “Unlike the totalitarian systems, according to Ye. Sedov, normally developing society, having reached the optimum ratio, has the ability to go to the next hierarchical development level, that is, to begin formation of new information links between the elements of the previous level” [95, p.98]. But in order to go to the next level, the system needs to spend a large amount of physical and human resources. It is necessary to use them wisely, in order to prevent a catastrophe. Reflecting on this problem, Ye. Sedov made an important conclusion that is recognized as the “hierarchical compensation law of Sedov”, according to which “only subject to the limiting the diversity of the lower layer, it is possible to form various functions and structures at the higher levels of social systems” [95, p.100]. Freedom must be limited, believes the scientist, since as absence of restrictions leads to de-structuring of the system as a whole. “The crowd, where everyone yells what he wants, creates an indecipherable buzz” [95, p.99]. This belief touches on the problem related to the ratio of freedom and determination in the interrelationship of citizens and the state: boundless freedom, as well as rigid control are unacceptable for the system. The search for an optimal ratio between the provision of the necessary freedom to

every member of the society and the reasonable restrictions of this freedom in the name of maintaining public order has been and remains one of the most complex, sensitive social problems relevant to all human communities [95, p.100].

Russian scientist M.V. Sapronov attempted to link the conclusions of Sedov with the basic provisions of the synergy. “In fact, the social systems development according to the above the principles is in fact their self-organized (i.e. not controlled from outside) accommodation (adaptation) to the environment. The set of ways, in which the adaptation takes place, can be considered as a culture in its broadest sense, i.e., as human activity and its results, expressed in the historical facts, events and phenomena. So it is possible to link the information and entropy properties of the systems and synergetic paradigm with the generally accepted definition of the object and subject of the history as a science: human, his social organization and the whole diversity of forms of human activity, thinks the scientist [50 p.161-162]. When the structure of the social system, is in an evolutionary phase of its development, the challenges of the external environment are neutralized due to the adaptation mechanism. When an external impact is much greater than the adaptive capacity of the society, the latter is destabilized and is at the point of bifurcation. Then the old ideals collapse, the previous attractor loses its “force of attraction”. Several “force fields” occur at a time, and each of them claims to be the attractor. It cannot be predicted to which of these fields, the social system will strive, because it has the maximum degree of freedom to choose its future ideal. It is possible that the old attractor will be “demanded” again. It is here, where the mechanisms of self-organization manifest themselves: the system independence from the initial parameters, alternativeness of the development paths, a huge role of casualty and small effects (fluctuations). In any case, the strategy of the system remains the same: to adapt to the new conditions of

existence by choosing some ideal and adequate ways to achieve it. After passing the bifurcation point, the system again accumulates the structural information, gradually gaining stability and predictability of its development [50, p.162].

As a result, one can conclude the following: the development process of any complex structural, open system should be seen as an alternation of order and chaos, prerequisite to which is accumulation of the structural information and break through the chaos to a higher informational level (system complication). The researchers believe that the synergy for the first time filled the ancient idea of cyclicity with objective meaning, thus abstracting from the concrete historical (empirical) criteria for justification. In addition, the introduction of the category of "entropy" allows looking at the chaos, disorganization, not only as to the undesirable elements of the reality, but also as a necessary condition for the existence of social organisms [50, p.163]. We agree that the subject of the study of the society from the perspective of the synergetic approach may be adaptation (mode of existence) of the system or individual elements to constantly changing environmental conditions (including, and especially, in times of bifurcational explosions). The tasks are to identify the object structure: its substantial links, their type and characteristic, location within a larger system; its representations of the ideals and the most important elements of being: good and evil, freedom and unfreedom, and etc .; their correlation with the ideals and objectives of the "control center" ("managed periphery"); finding boundaries of the "comfort zone" within which the object can with minimal losses (energy cost) satisfy its spiritual and physiological needs; analysis of specific ways of life. M.V. Sapronov believes that "perhaps, the most difficult and methodically not developed objective is determining the ratio of the structural information and entropy: if for technical systems, this problem is quite simple, for the social organisms, it is difficult not only to identify, but also to present the criteria adequately reflecting the real state of the

object in terms of its informational and entropic properties. The development of such criteria should be carried out within the framework of interdisciplinary research, taking into account all aspects of the phenomenon under the study. If this problem is solved, it will allow not only the analysis of the social systems current state, predictions for the future, but also implementation of policies consistent with the public interest" [50, p.171].

Thus, sociology considers the synergetic direction as a new field of the postnonclassical rationality. Sociologists agree with the opinion of Ilya Prigogine that the confrontation between the ethical and scientific values is associated with the penetration of the idea of fluctuations instability into the social sciences, understanding of unusual complexity of the human society that is ability to "undergo a huge number of bifurcations". It creates a new situation in the world as the complex systems have a "high sensitivity to fluctuations", which "gives us both hope and anxiety". All this led to the fact that the world has "forever lost guarantees of the stable and enduring laws" [38, p.122].

The synergy gradually and more and more confidently paves the way to the political science methodology too. Political analysts believe that the political and legal reality is one of the areas of the synergetic reading. Yet such a reading is possible today at the level of the most common methodological approaches, but not at the level of model display, specific recommendations, forecasts, although such a level of cognition can be very useful [44, p.55-69]. After all, in politics we observe a lot of instable, random processes, acting synergetically non-equilibrial social institutions. Things we design, plan, sometimes give the opposite results. It happens also that the random political actions (for example, information leakage, death of a political leader, and etc.) lead to the disruption of public foundations, and even the world order. Politics indeed give the synergy unusually rich material for its further methodological development. For example, the collapse of the bipolar system of international relations, the end of

the “cold” war, and etc. Such an analysis is, in our view, will be useful for understanding and forecasting the future of many nations. Such synergetic analysis is done in his work by A.Vengerov regarding the future statehood in Russia. After all, Russia is concerned that if the universal process of federations disintegration affects it. The scientist thinks that it is especially important in this context, to carry out synergetic analysis of the accumulated in Russia fluctuations, which become dangerous for its normal federal existence. And fluctuations are almost the same that occurred in the former USSR. For example, financial ones: some republics, other structural formations believe it to be possible at first to fully cover their financial needs, and only then to transfer the remaining funds to the federal budget. However, such variations, believes A. Vengerov, arise and at the federal level too: mismatch grows between the constitutions and laws of the republics and the Russian Federation Constitution. Fluctuations are accumulated in the military, national, personal-power spheres. And all this is happening against the background of distressing economic, financial, ecological state of the society. From this A.Vengerov concludes that statements about the Russian state entering the next bifurcation zone have serious underlying grounds. They do not belong to the category of pessimistic or optimistic predictions, this is just present day social reality [44, p.60-61]. The society needs to reverse the growing pressure of these fluctuations, and then there is a hope for a transition of the nation to a new condition.

For the political science, in our opinion, urgency may be gained by that methodological layer of the synergy, which covers the problem of randomness. After all, history shows that it is often the case that generates a bunch of opportunities for further development of the society. The synergy treats the random things as the phenomenon having common characteristics for random things in other spheres of the social life too. And so the political analysts need to take seriously this category and use its common grounds in the political science.

A. Vengerov distinguishes between two kinds of random things, which are worth paying attention by political scientists: one type is an event that manifests itself in the mass, similar, one type phenomena and processes, when quantitative or qualitative characteristics of each phenomenon or process are unknown, unpredictable, but can be calculated or determined based on the probability theory. The probability theory works in the sphere of politics, for example, in the evaluation of public opinion, in particular, the views of voters. The second type of casualty in the politics serves as the events that have individual character. Their occurrence is unpredictable, quantitative and qualitative characteristics are unknown, they cannot be calculated in advance. In these cases it is impossible to say anything until they occur. These are, for example, natural disasters, accidents, certain types of political and other crises, about which they say that they "broke out", and etc. Such cases include, for example, assassinations of political leaders, which then influence the political life. "This type of random things in the political life creates conditions and opportunities for the development of events in completely unexpected, unpredictable ways", says A. Vengerov [44, p.63]. In our opinion, every politician who claims to power, it is necessary to develop the intuition to anticipate the casualty. This politician has a charisma and appears in the eyes of the people as a prophet. It should be noted that the charisma in political life plays the role of some kind of attractors that gather important elements of the system around themselves, involve them in the struggle for power. Such an attractor is capable to give the system additional impulses of instability, dis-equilibrium and transfer it into a different state.

Another Russian scientist F. Letnikov believes that the best way to illustrate the application of the synergism theory (the term "synergism" refers to the quality of interpersonal communication and cooperation in the society – D.B., K.S.) is the example of the state functioning as an open non-equilibrial

dynamic system, which generated material and energy streams and through which they pass. It is the openness of the system, according to the scientist, that allows it to accept, absorb free streams of energy of high density and enables the state to complicate its structure. “Primitive built dynamic state systems are unable to efficiently absorb these streams. Consequently, any state should primarily improve its structural organization, since the higher it is, the greater its ability to oppose the destabilizing factors” [191, p.52].

Interest is stirred, in our view, by the opinion of F. Letnikov regarding the homeostasis (stability) of open non-equilibrial systems. The scientist believes that the people and government agencies in different degrees oppose the radical revolutionary transformations, because they are more accustomed to be in a state of homeostasis, rather then to move on to a different qualitative state. This is where a certain conservatism of the open non-equilibrial systems can be found; they are struggling to resist their removal from the state of homeostasis, because such a transition is associated with strong energy effects [191, p.53]. If stability is broken, then we know that the system will tend to self-organize. F. Letnikov gives the example of the case of self-organization that is the Eurasian Community of Nations. Interactions with the external environment leads to emergence of the streams in the material and energy exchange along the lines: an external source of energy and matter (neighboring state) – concentrating these flows open dynamic system (a specific state) – external environment (another state), into which the streams flow. “It is due to the energy balance between these three elements (Belarus, Kazakhstan, Russia), that creates the necessary preconditions for the emergence of the self-organization laws in varying degrees of ordered space and time structures. The whole variety of shapes of self-organization if conditioned by the degree of the interaction of such systems” [191, p.53].

But the most important condition for the self-organization of the state, in

our opinion, is the availability of highly professional civil servants, disciplined and morally rich masses of people, since they directly act as elements (subsystems) of the structure, ensure the functioning of the state. The degradation of one or the other leads to a crisis, and perhaps even to the death of such a state. For example, to strengthen Kazakhstan's statehood, we can propose the following measures: cultivation of the national aristocracy that is people of high spirit and morality, patriots of their country. Such people will become an example for other members of the society and will contribute to the revival of the moral potential of people, which is one of the main conditions for overcoming the difficulties encountered by the society, country; also the country needs to cultivate the image of decent, noble and honest citizen, proud of his origins, remembering his ancestry and preserving his family's tradition. The state having such citizens, has strong roots and it is not so easy to shake, conque it, and etc. With such high-quality human material that has complex structure, any state is capable of self-organization.

In general, summing up the achievements of the synergy in political science, we can state the following: methodological possibilities of the synergy with respect to the politics open up new horizons of knowledge, including the relationship of the social, political and legal components of the political science.

It should be noted that in terms of the synergy, even more narrow issues are considered, such as the phenomenon of labor. The researchers believe that the study of labor and its role in the development of the civilization in terms of the synergy is possible in several directions: first, as a specific tool of aggression sublimation; secondly as negentropic process; and finally, thirdly, as an independent social system in terms of its internal evolution and development. Using the terms of the synergy, we can say that the evolution of labor functions that perform an instrumental role in deterring aggression in a totalitarian monosystem were, on the one hand, insufficient, and on the other hand,

programmed heteroregulation violated the principle of self-regulation. Produced protective means of society from its own natural aggression, as a rule, were generated by the doctrines of the elite apparatus part of the society. Thereby evolutionary principle of unconscious self-organization is disturbed [97].

The synergy found its application in the field of culture such as the art. In Russia, monograph by I.A. Evin was published; it is called “The Synergy of the Art” (Moscow, 1993). In this paper, the concepts and principles of the synergy are used in the research of art studies and aesthetics issues. I.A. Evin writes that “there are areas of research where traditional approaches work fine. But there is a range of problems, and they are formed by the synergy itself, where the new methods simply have no alternative. This study of the behavior near unstable critical modes: sharp, abrupt transitions, chaos and order interaction, rhythmic behavior and laws of deviation from the rhythms and others” [102, p.12]. The author is convinced that the natural scientific explanation of the art is impossible, otherwise it would lead to the substitution of the art with the science. But the substitution is out of the question, since the spectrum of the art phenomena is much wider than the range of the phenomena of the science. I.A. Evin comes to the conclusion that the art has to do with the impossible and improbable, and therefore, synergetic tools can be applied to the study of it [102, p.163].

Efficacy of synergy principles application in the pedagogy are described in many works [39−43]. Especially the works of Kazakh scientists on this issue can be distinguished [42,43,111,112]. In particular, Sh. Taubaeva considering the synergetic approach in pedagogy, identified the synergy potential as follows: 1) openness of the education system and pedagogy as a science (integration with the global pedagogy; wide use of integrated technologies, especially the Internet; the interdisciplinary nature of pedagogy in the field of various sciences); 2) integration of the science and humanitarian knowledge (the

synergy as a bridge for the mutual penetration of the science and humanitarian content of the education; reading of courses in the synergy to both physicists and linguists); 3) polyphony (sound of many voices – D.B., K.S.) and complementarity of the theoretical, technological and methodological approaches to the education (conversational nature of various approaches, ideas, concepts in line of synergetic worldview, their mutual complementarity) [111, p.177].

M.S. Moldabekova relates the emergence of self-organization with self-education, including mechanisms for improvement and self-development of the personality, observed behavior of which is strongly associated with its evolution, i.e. prehistory. The researcher believes that the "self-organization, apparently, plays a crucial role in training and development, as it provides the prerequisites of transformation in the structure of personality and emergence of a new subject of educational activity. The formation of newly formed structures, in general, acts as the process of ordering the system, replacement of one order and corresponding structure with the other that is more efficient in terms of developing personality internal needs. Emerging and developing newly formed structures in solving the educational problems by students can be seen as the space and time ordered organizations, i.e. dissipative structures arising from chaos" [112 p.306-307].

Z.Zh. Zhanabayev and B.A. Mukushev in his monograph "Synergy in Pedagogy" (Almaty, 2002) write that the use of synergy to describe the pedagogical process allows the following conclusions: the pedagogic system is an open and complex system owning non-linearity, non-equilibrium and discontinuity, functioning under the laws of the synergy; it is practicable to use the theory of self-organization as the methodology of research of pedagogical processes and their laws; terms of structural self-organization of the system of social nature are applicable to pedagogic systems; conceptual apparatus of the

synergy compiled as applied to the natural and social systems is an essential tool in understanding complex objects [42, p.118].

Representatives of the Russian pedagogical science, who published many papers on the subject, also agree with these conclusions. In particular, S.S. Sheveleva is convinced that the formation and development of the modern model of education is impossible without the dialog and co-creative research of specialists in various fields of knowledge. As a result, the corresponding synergetic paradigm of the "open model" of education involves openness of the education to the future; integration of all ways of human exploration of the world; development of the synergetic ideas about the openness of the world, integrity and interconnectedness of the human, nature and society, and their inclusion into the education processes; free use of different information systems, which today are no less important in education than direct communication with the teacher; personal orientation of the learning process; psychological attitude of students to the super-task, and in this regard the education is in constant search and change, constantly creating new guidelines and objectives; the change in the teacher's role: transition to joint actions in the new non-trivial situations in the open, changing, irreversible world [39, p.132].

L.I. Novikova and M.V. Sokolovsky believe that pedagogy, until recently, developed under the influence of the classical science and quote the opinion of Ya. Komenskiy, who compared the perfect training with clock mechanism, working clearly and correctly (i.e. technologically, and therefore monotonously). The scientists believe that obviously, here the question is only in the transfer of the final knowledge" [41, p.134]. Another Russian educator V.I. Redyukhin in his article "Synergy – the "Blue Bird" of the Education", writes that one of the conditions for the subsequent real change in the social and pedagogical consciousness is production of the content of education based on the concept of the "synergy". The scientist believe that "this requires practical organization of

the interdisciplinary communication, promotion of cooperation of competing systems in terms of awareness of the general insufficiency" [40, p. 144-153]. In general, the Russian educators and scientists are convinced that the education system, which was built in accordance with the ideals and norms of the classical science, operates as a closed system that deprives it of its ability to self-development. It is necessary to form the modern concept of the education associated with the significant changes that have occurred in our understanding of the nature, processes of cognition and human development over the past few years.

By the way, in economics, too, according to many researchers, it can be effective to solve the problems from the standpoint of the synergetic approach. Many are convinced that the basis of whole modern economic theory is the principle of equilibrium, according to which the market becomes similar to a stable mechanical system such as scales, so that the deviation of the system from its equilibrium state gives rise to forces ("the invisible hand"), seeking to bring the system back to its initial state. But it should be noted that in areas such as the stock and financial markets, money circulation and credit, the economic system can remain non-equilibrial for indefinitely long time. Therefore, the classical economic theories "can neither predict nor describe the changes taking place" [206, p.137].

The author of one of the monographs included in the famous series of books on the synergy, T. Pu notes: "Undoubtedly the most spectacular event in the modern systems theory was discovery of the chaos ... The chaos is inseparable from the existing foundation of the economic theory" [207, p.79]. Discussing the effect of "dispersing" of neighboring paths that is typical of chaotic systems, T. Pu makes the assumption that the economic forecasts are often flawed because the economic system, like the weather, is unpredictable, despite the relative simplicity and determinism. More confidently we can use the

short-term forecast; “when the period is small enough, exponential dispersing of nearby paths does not occurs” [207, p.79].

L.I. Borodkin quotes the opinion of the authors of the foreword to the book by W-B Zhang “Synergetic Economics”, who when evaluating prospects for the use of the synergetic methods in economics, argued that any section of the economic science can be attributed to the field of application of the synergy. “If we want to look beyond the horizon of the narrow world, where everything seems stable and where there is no place for catastrophes and restructuring, we cannot do that without the use of the synergetic approach” [208, p.80]. As W-B Zhang notes, the synergetic economics studies properties of evolutionary economic systems, in which “the order gives rise to the chaos, but a new order begins in the chaos”. According to him, the presence of the chaos characterizes such economic systems as labor markets, credit and money markets, urban systems, transportation and communication systems [208, p.80].

In our view, although the subsystems in any system are free, any way they have to obey the same principles, regardless of their nature. Obeying, they create analogies at the joints of the various sciences. The synergy, blurring the borders between the natural and humanitarian sciences, calls for refusal from the rigid determinism and welcomes the multidimensionality and relativism. And having put all this in the basis of the cognition theory, it seems to us that it will not be necessary to condemn ourselves for the skepticism or subjectivism. On the contrary, for the researchers, wide horizons of the scientific cognition open, since it is possible to synthesize the achievements of many sciences. Or, as expressed by H. Haken: “We break through the tunnel from both sides of the big mountain, which until now divided the various areas of research, in particular, the “exact” and “inexact” sciences” [23, p.381]. The German scientist believes that further possible directions of the synergy development can be illustrated by an example taken from philology. Using synergetic terminology, we can say that

language is the order parameters subjugating subsystem, which are the people. During the life of an individual, the language changes only slightly. After the birth, the individual learns the language that is subordinate to it, and throughout his life he contributes to the preservation of the language. A number of facts relating to the languages, such as competition, fluctuations (change of word meanings, and etc.), can now be investigated in the framework of the synergy [23 p.381-382].

The "Obshchestvenniye nauki i sovremennost (Social Science and Modernity)" journal, promoting the new methodological direction, has published in recent years, a number of articles devoted to some aspects of this approach. According to G.G. Malinetskiy, the published articles can be divided into three broad classes: the first consists of studies, in which based on the ideas and approaches of the synergy, new philosophical concepts are introduced, such as "new thinking", "non-linear thinking", and etc. In another class of works, known general ideas of the synergy (chaos, attractors) are used to create new humanitarian concepts. Such approaches emerge as synergy of the political science or synergy of the historical process. These approaches are developed within the humanitarian disciplines and do not appeal to certain results or mathematical apparatus of the synergy. Finally, the third class includes works, which put forward approaches requiring collaboration of the humanitarian and natural scientists. They suggest the possibility of analyzing the humanitarian problems with the methods of the natural sciences and therefore use more specific criticism [209, p.98-99]. Taken together, these works call the researchers to bolder use the synergetic models in the scientific cognition, which will help in changing the worldview orientations. Exit from the methodological crisis is possible, if the scientists are gradually moving away from the traditional tenets of the classical science and transferring to the modern approaches of the postnonclassical science, one of which is the synergy.

It should be noted that the synergy takes the natural scientific knowledge from the scientism and gives it a “human character”. In this sense, human dimension itself performs a unifying role and integrates the general scientific function serving as one of the central elements of the new paradigm. “From the methodological point of view”, note V.I. Arshinov and N.D. Kazakov, “the synergy is of interest as one of the quite typical examples of integrative trends manifestations in the modern science, being, in a certain sense, the model of “conceptual and methodological symbiosis” of ideas and methods of modern physics, cybernetics, systems theory, non-linear mathematics, and computer modeling. Its birth is also conditioned by the general context of deep, global factors of the social and cultural order, transformation which are experienced at the moment by the whole scientific picture as a whole” [210, p.44-45].

So, the works of scientists allow us to say that the synergy as one of the modern approaches of the scientific cognition, made its contribution to the spread of non-linear thinking and introduction of such categories as “stability and instability”, “bifurcation”, “entropy”, “self-organization” and etc into the scientific instrumentarium. In our opinion, research in various fields of the science carried out in line with the synergy, provide an opportunity to expand the boundaries of the synergetic approach and change the philosophy and conceptual base of the humanitarian sciences. At the same time, the synergy does not claim for the hegemony over other scientific approaches (formational, civilization, social and biological, and etc.), but rather integrates them, combining them, and identifying multidimensionality of the view on the subject. These and other examples of the use of the synergetic approach in the research evidence the popularity of the synergy, but, in our opinion, the synergetic approach is not a panacea, since science cannot violate the principle of complementarity, according to which none of the approaches can describe the research object in such an exhaustive way, as to eliminate the possibility of

alternative approaches. And the introduction of the principle of complementarity means giving up claims for achieving the omniscience in the framework of this or that theoretical construct.

Thus, unlike most of the new sciences, emerging as a rule, at the junction of the two pre-existing and characterized by the penetration method of one science in the subject area of the other, the synergy occurs based not on the border, but the interior points of various sciences, with which it has non-zero intersections. In the studied by the synergy systems, modes and states, physicist, biologist, chemist and mathematician, sociologist, teacher, and etc. see their material, and each of them, using the methods of his science, enriches the overall supply of synergetic ideas and methods. As we have seen, the synergy as the interdisciplinary approach in the scientific cognition is used in many sciences.

But in general, interdisciplinary research at the present stage of the science development is increasingly embodied in the scientific research, because the scientific effect occurs most often on the frontiers of the science. One of the obstacles to integration, in our opinion, is the insufficient degree of development of topical problems of the scientific research methodology, as well as by-branch organization of the science that has lost its relevance today. In order to change the situation, it is necessary to more actively use the postulates of the postnonclassical science in gnosiology, such as for example, the synergetic approach, which lead the interdisciplinary research to a new level. As a result, the synergy and the related methodology and worldview will be an adequate response of the science to the urgent questions of the mankind.

3.2 Synergetic Approach in the Historical Research

he methodological basis of the Soviet historic studies was historical materialism, which arose as a philosophical theory deliberately aimed at

overcoming subjectivism and idealism. This problem was solved by a number of methodological practices included in the content of the historical materialism. One of the first developed ideas was the concept of organic integrity of the society defined and determined by material production as the most important aspect in ensuring the life of the society. This became the starting point of the materialist conception of the history as a whole and the nature of each social phenomenon separately. Such a conception of the history as written by K. Marx in his "German Ideology", "proceeding from the material production of the immediate life, consists in considering the actual production process and understanding associated with this method of production and generated by it form of communication, i.e. civil society at its various stages, as the basis of the whole history; then it is necessary to represent the civil society activities in the sphere of public life, and reasoning from it to explain all the different theoretical generations and forms of consciousness, religion, philosophy, morality, and etc., and to follow the process of their emergence on this basis, due to which, of course, it will be possible to represent the whole process (and therefore also the interaction between the different aspects)" [51, p.37]. It is also necessary to add that the founders of Marxism considered the history of all hitherto existing societies to be the history of class struggle. "A freeman and a slave, patrician and plebeian, lord and serf, guild-master and journeyman, in a word, oppressor and oppressed, stood in constant opposition to one another, carried on the uninterrupted, at times hidden, and open struggle that every time ended with either a revolutionary reconstitution of the society or the common extinction of the struggling classes" [114, p.24].

The formational approach has a number of properties, among which the leading one is the primary role of the material production method in the historical process. The discrepancy between the production relations and productive forces entails a change of the base and superstructure. In addition,

attention is paid to the classes and the class struggle. In this case, the history is a change of social and economic formations. Five-membered path of the formations must be passed through by all the nations. Otherwise, consistency and identity becomes an exception. As it was with the famous "Asiatic method of production". When the formational approach in the historic cognition of the world is presented in the form of the casuality relationship with the linear nature. Retrodictability and predictability excluded the randomness. And the main thing is that the Marxist concept shied away from the personalized measurement of the history [51, 113, 115].

Can we completely abandon the formational theory or still try to solve the problem of its updating? Many researchers think, and we have already said about this, that it is not necessary to abandon the historical materialism. L. Alayev believes that it is necessary to divide the scientific and ideological components of Marxism. "The ideological component, or the doctrine of the socialist revolution, or "scientific communism", says the scientist, was defeated, and it is better not to come back to this part of Marxism, and to discard it completely and irrevocably" [183, p.61]. The other side of Marxism, the scientific and methodological one, is also put into the question, and requires clarification, and will finally become obsolete only after the appearance of another, broader and more comprehensive method. Proposals to rethink the classic categories of the historical materialism may be perceived by some people as an attempt to preserve the appearance of ideological virginity with the real rejection of the thesis about the primacy of the economy. The class or economic interest is a powerful force, and it must be considered, but this power is not the only one. The main content of the Marxist thesis about the basis and superstructure must consist not in justifying the determination of one by another, but in understanding the relationship and interdependence of all manifestations of sociality [183, p.63].

It should be noted that attempts to improve Marxism were found in the Soviet Union, but they were declared to be “revisionism”, “defamation of socialism”, and etc. Now that the defamation appeared to be better than the reality, many things can be revised, the outdated and illogical things can be discarding, to start the re-building of the theory. It is in the end does not matter whether the new theory will be perceived as the updated Marxism or “anti-Marxism”. It is important that is sufficiently consistent and practically applicable. “At one time, through the Marxism, domestic historians learned the idea that the history should be interested not only in the great personalities, wars and conquests, but first of all in the life and activity of the masses. But understanding of this idea was somewhat one-sided, as the primary attention was given to the social and economic processes and manifestations of the class struggle. Now it became clear that an important role in the determination of historical events is also played by the social and psychological and spiritual processes taking place deep in the collective consciousness [211, p.9]. According to A. Ya. Gurevich, in Marxist methodology, there was no place for the study of the life of “a commoner”, as it was seen as “infinitesimal”, which diverts attention from “the root of the matter”. Daily life that is a human life, completely disappears from the history, or rather, it was not even tolerated in it. And the issue is not that the political and economic subjects are to be “colored” with colorful details – puppies from real life, strokes of individual, psychological portraits. The question is in the entirely different plane. This is a question about the nature of the historical explanation, in other words, the methodological question [117, p.25].

It should be noted that in 60-80s of the XX century, an attempt was made to introduce the civilizational approach to the Soviet theory of the history. It is in this years, when there occurs the understanding that this approach would help to overcome the linear idea of the history, which was typocal of the historical

materialism.

In our opinion, civilization theory, so popular in the global science in the XX century, today is itself in a state of profound crisis. Although the theory maintains its position in the Western science, yet it finds extensive use in developing countries, where this theory serves as a form of establishing new, civilized self-consciousness [212, p.118]. In the former Soviet Union, prospects of the civilizational self-consciousness development are associated with overcoming the identity crisis that occurred as a result of the loss of the communist perspective. Most of the post-Soviet space scientists have come to the idea of giving up the special approach to the phenomena of the social life, which dominated in our country throughout the Soviet period. According to the opinion of Ya. Shemyakin, the most appropriate designation of this approach is formational reductionism, indicating the reduction of the whole diversity of the social life to the formational characteristics [213, p.53]. In order to overcome the crisis, the civilization theory needs to master the next level of the science development, become a part of postnonclassical science, the main strategy of which is generation of new historical theories related to specific projects of development of civilizations on the local and global levels.

The synergy has a great importance for the interpretation of the civilization theory in the postnonclassical science. How this happens, can be seen when trying to interpret the civilization theory of A. Toynbee using non-linear thinking.

More or less stable notions of global and local civilizations somehow involve religious belief or its reinterpretation by the historians. The ideas about global and local civilizations, the laws and the meaning of the history were most fully developed by Arnold Toynbee. For him, the core of the history was the dialog of the Gos and human (in the form of the “challenges” of the God and the "answers” “responses” of the human that conditioned the formation and

development of civilizations) [27 p.106-113]. It is this system of “challenges” and “responses” that every time makes the mankind implement a “response”, which is the same that is to be made by the system at the bifurcation point, according to the synergetic approach. In this analogy, we can see the broad contours of the civilization theory of A. Toynbee and the synergetic theory. According to Toynbee, if “challenges” guide the movement of the civilization, the human will still defines it, since it is free in the choice of "answers” choosing the “response”. In order to give an adequate response to the universal Challenge, spiritual revival of society is needed, it depends only on which way to go. It is necessary to make randomness informed, to accelerate the process of self-organization.

General contours of the theories are outlined in that they give the priority to open systems, which are unpredictable and, therefore, can not “fit” in the standard framework of deterministic methods of the scientific cognition. The rejection of rigid determinism of the classical science are related to this. The I. Prigogine's theory of dissipative structures consists in that a system, in which as a result of its openness, heterogeneity focused, requires dispersal (dissipation) mechanism. The inflow of new energy, information, and etc. is needed for creating a new structure. The inflow leads to inhomogeneity of the system. The paradox is in that these opposite “operations” in the system (inflow of the substances, information and etc., and dissipation mechanism) are integral and necessary condition for the system self-organization. In works by A. Toynbee, it is manifested in predetermination of the world development from heaven, and in the synergy in the instability of the system at the bifurcation point and the randomness of development selection be the system. But it should be noted that the laws of determinism still valid in the both theories. In the theory by I. Prigogine between the bifurcation points, and in the theory of A. Toynbee in the rising sense of uncontrolled flow of life (entropy). At such moments with

sobering clarity action of the historical determinism is expressed.

In the both theories, a special place is occupied by the non-equilibrial systems, in particular, society and culture. Every culture in its development passes a point of bifurcation (in the Toynbee's theory, this point can be correlated with the period of "crisis of the civilization") [27 p.293-334], at which a kind of explosion takes place, a flash of not yet expanded semantic space. It contains potentially all the possibilities for future the development paths. It is important to emphasize that the choice of one of them is determined neither by the laws of causality, nor by the probability; at the time of the explosion, these mechanisms are completely disabled. The choice of the future is realized as a casualty. The dominant point that arises as a result of the explosion and defines the future movement, can be any element of the system, or even an element from another system, randomly drawn by the explosion into the weaving of possibilities of the future movement. However, in the next stage it already creates a predictable chain. Speaking of the continuity and heterogeneity of the mankind's Responses to the divine Questioning, A. Toynbee raises the question of alternativity of the historical development. In the synergy, although the choice of a historical alternative at the bifurcation point occurs spontaneously, the fact of the choice having become the historical reality, requires the historian to assess the past retrospectively proceeding from this fact. As a result, instead of the real picture of the unpredictable development of non-equilibrial cultural or social system, we get a picture of the determined linear development, which we used to call the history.

For the history theory of the classical science, only the fact of the choice that occurred at the point of bifurcation has significance. It is considered as an "objective" phenomenon because it is an event that happened in the history, and that led to the prospect of the future development and opportunities for understanding the development of the foregoing. And all the other influences,

that competed at the bifurcation point and remained unfulfilled, sort of do not exist.

The synergetic motives manifest themselves in understanding the problem of the meaning of the history by A. Toynbee. All civilizations have their own "destiny", and not everyone can withstand it, to realize themselves through. The case principle coupled with the influence of the environment (the need), here remains the dominant base for the processes. Speaking of civilization crisis, the British scientist names its main reason that is the "inability to self-determination, as the result of which, the internal unity, harmony and proportionality become lost" [27, p.355]. But under the condition of hibernation, there is always a potential for a breakthrough, a Response to a new Challenge describing the process of self-organization of the society, stated in the language of A. Toynbee.

In general, the both theories recognize that the history of human culture and, along it the history as such, is unthinkable in its development without some "distortions" and "bends" in the field of the human spirit. Modern forms of cognition, including historical epistemology, in accordance with their needs, bring back from oblivion and restore the scientific value of the elements of different theories of the history. And the most important value, to which the synergy and the theory of the English historiosophy too call to come back, is spirituality and rejection of self-assertive assessment of his activities by the human. And the words of Ilya Prigogine prove this: "Twenty-six attempts preceded the creation of the world, and they all failed. World of the human arose from the chaos of debris left over from the previous attempts. It is too fragile and in danger of once again coming to naught. "Let's hope that this time it worked", said the God having created the world, and this hope accompanied the whole subsequent history of the world and mankind, emphasizing from the beginning of this history, that it bears the stamp of fatal uncertainty" [22, p.386].

In recent years, the scientific knowledge takes on a different character,

different from the classical science. In some respects, a new postnonclassical science is formed; it studies the objects within which the repeatability is limited as well as the possibility of an experiment. Such objects as the civilization, biosphere, and such systems that as their element include the human himself, is no more of scientific interest. Therefore, the civilization theory is still relevant; while its emergence evidenced the crisis of the classical science methodology and the onset of the time to search for new ways to solve scientific problems. One such ways is wide use of the methods of non-linear thinking offered by the synergetic approach in the scientific research.

"Once "The Communist Manifesto" globally announced the birth of a new approach to the study of the social organisms. And as in the middle of the XIX century, the historical materialism only acquired traits of the more or less formalized and complete theory, the same way today the concept of the self-organization in the social sciences is not yet fully covered with flesh and filled with blood, frightening some like a ghost, and pleasing others like good house spirit, without which the house is not cozy" [50, p.158]. Therefore, representatives of different branches of knowledge are thinking about the possibility of using the synergy in their scientific field. Social scientists in the synergy see a way out of the methodological dead end, in which it finds itself after the events in our country. We have already discussed the attempts to use the synergy in many of the social sciences (political science, sociology, pedagogy, and etc.). The synergy did not escaped the historic studies too. The opportunities to use the concepts and methods of synergy by the historians has been already discussed for a long time. Since the mid 90-s of the XX century, Russian publications on the methods and methodology of the historical research started to describe a new component related to the discussion of possible use of the concepts and synergetic methods and related mathematical chaos theory by the historians [208]. The article of Polish historian and methodologist, Jerzy

Topolsky “Discussion on Applying the Chaos Theory to the History” gives a new impulse to the debate started. In particular, the scientist rejects the general approval of the idea of using the chaos theory in the historic cognition. He argues that “the revolutionary achievements of the natural sciences, to which the theory of chaos belongs, is tempting for use in the social sciences and history, in order to replace the already discredited mechanistic point of view” [109, p.89]. J. Topolsky asks the question: is it possible, based on this theory, to transfer to a new method of writing the history? The scientist believes that naturalists put an entirely different meaning into the concept of the system rather than the historians. Topolsky writes that, of course, you can look at the society as a system, “but it will be not just a look like at something observed from the outside, as a botanist observes the development of a plant, a zoologist –development of an animal, and the meteorologist – the weather front formation; in the history, as in the whole social reality, the main element is the human being, his action and motivation” [109, p.90]. This statement contains, in our opinion, the essence of the objections of the Polish methodologist against the use of the concepts of the chaos theory in the history. J. Topolsky believes that the role of chaos in people's lives has been known for a long time and it is not necessary to give such a predominant value to this fact. On the whole, Topolsky is convinced that the chaos theory “does not provide the historical analysis with anything more than a set of new terms and metaphors. By no means, it provides explanations that would be deeper than factual description. We will not change the history just by changing the narrative language” [109, p.99]. Of course, supporters of the synergy do not agree with the scientist. They claim that, first, there is no need “to change the history”; second, understanding of the nature of the process under the study using the general scientific categorical apparatus still has never hurt, but have assisted in developing specific areas of knowledge; third, J. Topolsky in his article has not mentioned a

very important applied aspect of the chaos theory. The fact is that efficient algorithms are developed for detecting the presence of chaotic modes in the empirical time series. “So, having a systematic (quantitative) data on the dynamics of a historical process, it is possible with the help of available programs to get an answer to the question: whether the process being studied is in an unstable state, “on its way” to the bifurcation. Let us agree, this is a significant increment of knowledge about the object of research [208, p.84]. Some experience has already been gained in the use of computer programs to detect chaos in specific historical research. For example, in the works of Russian scientists, attempts were made to show what benefits can be provided by the synergetic approach to a historian studying the social and economic history of Russia in the late XIX-early XX centuries, in what the increment of new knowledge consists. Is it only in that the events known to historians within the period in question can be interpreted in another, “general scientific language”? But such an interpretation may have considerable heuristic potential, as often it was possible to understand the phenomena studied only when considered in a broader “conceptual framework” [198, p.85]. There are quite a few works of scientists from the near and far abroad, who based their historical research on the conceptual instrumentarium of the synergy [214–216]. Thus, we can talk already that the issue of the possibility of using the synergy by the historians has transferred into practical plane. Application is found not only by the concepts and categories of the synergy, but also its specific computerized techniques.

But critics of the synergy are still confused with all this “empty noise” around the synergy. Russian scientist V.B. Gubin to prove this, analyzes doctoral thesis of V.L. Romanov “Social Self-Organization and state administration”. Reviewing the work, the author has come to the conclusion that there was a stir because of journalists who believe Prigogine to be the man who resolved the global riddle of the thermodynamic (macroscopic) irreversibility.

Although, according to the scientist, “the Nobel Prize was given to him (Prigogine – D.B., K.S.) not for this but for the study of “dissipative structures” [110, p.122]. V. Gubin believes that a few people know, even among theoretical physicists, what exactly is done in the synergy. This situation is due to the lack of proper criticism. As a result, the synergy became fashionable and it was “seized also by some active, broad-minded humanitarians” [110, p.122]. The scientist opposes intensive introduction of the synergy into the social sciences, as the social scientists do not fully understand what the synergy is, and at the same time taking the liberty to accompany various unfounded allegations, disguised as scientific ones, with the word “synergy” . “And this is despite the fact that all this will not meet objections as potential critics themselves do not know what the synergy is” [110, p.123]. V. Gubin does not see any specifics in the synergy. He considers that the joint (cooperative) effects of different factors was there before. And the abrupt transformations were predicted in the historical materialism, and the ownership of the means of production were in fact considered as a kind of attractor. So concludes Gubin, the synergy discovers nothing new and generally distracts “the attention from regular science” [110, p.124]. The scientist believes that in order to even use the word “synergy”, we must first get some synergetic effect, in contrast to “non-synergetic”. “I have never encountered such a comparative analysis of the effects. Perhaps because it is unrealistic, because all significant effects have always been associated with the completely constructive non-negligible interaction of initial elements” [110, p.127]. “The very promising synergetic approach, says V. Gubin, gave birth to a mouse. And at the same time when astrology distracts ordinary people, housewives and simpletons, from the normal view of the world, the verbal “synergy” distracts the scientific resources from the real scientific work” [110, p.123]. The scientist proposes to introduce the “synergetic approach” in the register of pseudo-sciences, as indiscriminate praise of the synergy is related to

the anti-scientist, unscientific epidemic of the last ten to fifteen years. The initial reason for the epidemic is the necessity of eradicating the historical materialism [110, p.123]. In general, believes V. Gubin, such addiction to the synergetic concept indicates the occurrence of a deep crisis of the social science. The article by V.B. Gubin caused a resonance in the scientific community, as evidenced by the collective letter of S.P. Kurdyumov, G.G. Malinetskiy, V.L. Romanov, V.I. Arshinov to the editorial board of the "Filosofskiye nauki (Philosophic Sciences)" (2003, No. 5), in which they condemn the flagrant violation of the ethics and culture of the scientific discussion, admitted by V. Gubin. In particular, the scientists put the blame on V. Gubin for insufficient study of the basic works of the scientists regarding the problems of social synergy. In addition, the review looks like a sad experience of the Soviet critics that is putting labels of "junk science". At their time, this label was given to cybernetics, genetics and others. In this case, it is necessary to accept the fact that it is incorrect to allow judgments and expressions that do not match the style of the scientific discussion. The chief editor of the "Filosofskiye nauki (Philosophic Sciences)" Yu.A. Zinevich in his reply to the letter of the scientists who do not agree with the review of V. Gubin to the doctoral thesis of V. Romanov, on the whole, takes the side of Gubin. He argues that the article by V.B. Gubin is directed not against the science, but precisely in its defense, since it shows the incorrectness of a broad interpretation of the synergy and declaring it to be almost a new worldview. Yu.A. Zinevich states: "Meanwhile, it seems to me (and by the way, not me alone) there may be appropriate careful attempts of its application, if they are properly justified, as one of the research methods in interpreting the behavior of the non-equilibrial systems (which may include the society), and even then only because the synergy is unobviously based in the contracted form on a certain logic that is the logic of the relationship by interaction" [217, p.150]. V.B. Gubin in article responding to the letter of the

scientists criticized a number of publications regarding the synergy in order to prove his position on the new direction in the science. In particular, having considered the work by V.G. Budanov, Gubin concludes that his work is really "naive hope to combine the science, religion and theosophy, with the absence of concrete results and even thought about the appearance of the results". Then he writes: "But what they can be held accountable for, if in the 6th volume of the authoritative Moscow Series "Synergy" (Moscow: Moscow Engineering Physics Institute, 2003), the scientific community was proposed an article titled "Language – Fractalized Cumulative and Dissipative Crystal" (104-122)?" V. Gubin is surprised that no reaction of the scientific community followed. And wonders: "Is there any scientific community?" [218, p.152].

In our opinion, the criticism is not entirely justified. We agree with the opinion of M.V. Sapronov that there are still few works of a particular character, which would allow to speak about the actual birth of the scientific method in the research. This also applies to the historic studies. But, firstly, it is customary and necessary condition for the penetration of a new paradigm in every single science: first comes a hypothesis, theory, then – its practical test. Secondly, many modern methods and techniques of historical research used by historians, at a closer look are not more than a way to implicitly demonstrate the cognitive possibilities of the synergy. It is essential that all of them are now – in the framework of the synergetic paradigm – receive their theoretical justification. The two streams from above and below, describing he abstractly generalized and specific unique issues in the historic knowledge are in some way striving to one another [50, p.158]. Therefore, without fear of "non-humanitarian" phraseology, we must boldly introduce the conceptual and categorical apparatus of the synergy in the historic cognition.

The scientists note that there are two sides to the use the concepts of self-organization in humanitarian research, particularly in historical research: firstly,

synergy is considered as a new scientific paradigm that changed the outlook on the world around us and setting the specific methods for posing problems and models of solving them. Moreover, synergetic paradigm promotes finding a common language for the humanities and natural sciences that unite on the basis of solving the same problems; secondly, the other side is the explanation of specific historic events and phenomena with the help of categories and concepts of the synergy. In this case, the latter serves as a method or concept that can be described as a synergetic approach. The difference between it and the synergetic paradigm can be conventionally represented as a comparative characteristics. In particular, the nature of using the synergetic paradigm consists in that the new worldview gives certain models for formulating and solving problems, and the synergetic approach is a method of study of specific historical phenomena and events. Purpose and tasks of application: the synergetic paradigm describes the reality in all its diversity; the synergetic approach explains the specific events and phenomena of the past. There are no any conditions (borders) of using the paradigm (within the postnonclassical picture of the world), the approach is applied primarily to events and phenomena, for which it is not enough to use other methods and methodologies. Method of application: the paradigm uses a variety of methodologies to explain concepts and theories, and the approach uses its own categories and concepts. The next comparison line is methodological and cognitive principles of application. In the synergetic paradigm such principles are: the principle of complementarity, ambiguity of truths, inherent value and usefulness of each theory. The synergetic approach is one of many theories and concepts that complements other explanatory models [50, p.160]. In general, there is a possibility of using the synergetic approach as a method for researching the past, but with the caveat that it is not the only explanatory model and should be complemented by other well-known interpretations.

Russian scientist S.A. Gomayunov believes that features of the method

are given by the features of the subject. Considering the methodology of the local history, the scientist concluded that "the subject of the local history is a complex spacial and temporal local integrity that is built on the horizontal and vertical relations. Moreover, the integrity itself acts as a self-organizing system that independently paves its development path, and its path being a historical path, is characterized by irreversibility [176, p.163]. In this regard, S.A. Gomayunov believes that these parameters of the research subject force to opt for such a method as a synergist. "Conceptual matrix of the historical synergy is oriented so that to maximally deeply explore all aspects of communities life associated with the self-organization processes. To this end, it has an appropriate conceptual grid, quite clearly marked and meaningful principles of self-organization, understanding of the conditions, under which this process becomes possible. In addition, the synergy has excellent compositions capabilities that allow it not built on top of other systemic approaches (formational, culture-systematic, social biological, and etc.), but to integrate itself into them, turning them to face each other and thereby defining a multi-dimensional view of the subject. The synergy integrates the systematic research strategies, at the same time enabling to hold the focus of cognitive effort on the system-forming factor" [174, p.163]. In terms of the synergy, all the societies can be examined through a dichotomy: System - Anti-system. According to S.A. Gomayunova, the concept of Anti-system joins the state of various types - from the third dynasty of Ur in Mesopotamia in the late III millennium B.C. to our contemporary dictatorships. The required prerequisite for the society falling out of the open self-developing system state into the state of the Anti-systems (closed type system) is some of the effects that destabilize the normal functioning of the subsystems leading to disturbances in the structural relations. And if in these conditions, political and ideological subsystem becomes the system-forming factor, the society is doomed to degeneration into the Anti-systems. The further destiny of the Anti-

systems is described in terms of the mechanism of bifurcation processes. The synergetic approach, summarizes S.A. Gomayunov, without denying other possible approaches, allows to find a common mechanism of birth of the Anti-systems, some of its essential characteristics, takes into account the concrete historical specifics of a scientific phenomenon [33].

As the scientists believe, the synergetic interpretation of the system evolution enables the humanitarian science, in particular history, to review its methodology and approaches in studying the mankind history. Refusal from the rigid determinism and transfer to the non-linear thinking facilitates the transformation of the history from predominantly descriptive into theoretical science mastering the subjunctive mood and scenario approach. This involves assessing the actions of historic characters and masses, first, in their own cultural and psychological coordinates, and second, in the context of alternative scenarios. In particular, a "synergetically" thinking historian, political scientist and economist, can no longer absorb this or that decision by the straight-line comparison of the previous and the following conditions: they must compare the actual course of subsequent events to the likely course of the events in the alternative key decision [32 p.92- 93]. Of course, this kind of thinking requires a large amount of information and intellectual effort from the researchers, which generally distinguishes the scientific discourse from the everyday one. In addition, subjunctive emphasis in formulating the problem in question will help to calculate the moves of the subsequent events, i.e. will play a role in the development of the scientific futurology.

A.P. Nazaretyan believes that today, it is possible to sum up the interim results of the interdisciplinary work regarding the use of the conceptual apparatus of the synergy in the humanitarian knowledge. Without pretending to be exhaustive coverage of the subject, the scientist identifies a number of theoretical results, which seem to him the most important and consonant to the

general trends in the modern science development. It should be remembered that the spread of the synergetic paradigm became a powerful factor, providing blurring of boundaries between the natural and social sciences and constructing a universal evolutionary picture of the world [205]. Within the framework of the classical and non-classical natural sciences, human presence in the world was seen as a kind of "mistake". In the neo-nonclassical science, imbued with the idea of self-organization, the Cartesian thesis of "I exist" is taken empirically as the most reliable and initial one for building a universal theory, hence every naturalistic model that ignores the human existence is treated as deliberately misleading. The self-organization model, the society (or civilization in its broadest "cosmosociological" meaning) appears as a special type non-equilibrial system, which ensures the stability via artificial mediation of external (with the natural environment) and internal relations. Accordingly, the whole set of mediating mechanisms that is the tools and other material products, languages, ethics, and etc., are unified by the concept of the "culture". A.P. Nazaretyan singles out the law of techno-humanitarian balance (or the law of evolutionary correlations): the higher the potential for the industrial and military technologies, the better are the means of deterring aggression, which is required for the survival of the society. With an increase of disparities between the "force" and "wisdom" of the culture, phase of the environmental and geopolitical expansion begins, accompanied by a corresponding psychology and ideology. In the past, such a phase usually completed with crisis and death of the social organism that undermined the natural and (or) organizational basis for its own existence. This is a real fact illustrated by many historical examples, fueling technophobia mood characteristic to the retrograde romanticism of modern ecologists, as well as the concept of closed cycles of civilization cycles depriving the mankind of unified history and evolutionary perspective. The synergetic development model allows in a new perspective to consider the

background and content of the current global crisis, which is a characteristic expression of the law of techno-humanitarian balance (disparity of values and norms of regulators of the available technological potential, which were developed by the previous historical experience), as well as the prospects for resolving the most acute problems and the likely price that have to be paid for it. Planetary civilization that mastered the unparalleled technological potential will be able to avoid self-destruction at the next steep turn of evolution only if people this time also will have time to in a timely manner improve the system of basic values, norms, and self-organization mechanisms, in accordance with the new requirements of the history. This implies, in particular, that diversity of macro-group cultures self-organized according to the model "they - we", will come to naught, transforming into the growing diversity of micro-group and individual cultures. This process may be facilitated by the development and wide spread of computer networks, which are free human contacts from the spatial dependencies, convert the content of commodity-value relations, eroding state, customs and other borders, thereby convert the very existence of the state, national and other macro-formations into an anachronism, but provide arbitrary grouping of people according to their interest [32, p.91-92].

Recently there are many studies that use mathematical concept of the chaos. The scientists create mathematical models of social phenomena that are deliberately chaotic due to the nature of equations. The main problem with this approach consists in the model's compliance to the actual practice. The "authors of the "chaotic modification" of the well-known armament race model by Richardson – A. Saperstein and S. Grossman, G. Mayer-Kress, in their article, noted that the question of the relationship of the model with the reality remains open" [101, p.79]. Certain directions of works on the application of the synergetic theory are establishment of the existence of chaotic modes according to specific historical sources. Russian scientists A.Yu. Andreyev, L.I. Borodkin,

M.I. Levandovskiy write that the most frequent case of such research is the analysis of time series. A number of researchers believe that it is not enough to be limited by only establishing the chaos in the system, though such an establishment is the most striking property of the chaotic nature of the processes under study. For a historian, detection of the chaotic component in the investigated dynamic series can be crucial; in this case we can talk about the internal instability of the process when small influences or random fluctuations can result in major consequences, a drastic change in the nature of the process under study (while in "normal" , steady-state, small perturbations can cause only small consequences). Finally, the recent studies offer after establishing the presence of the chaos, to introduce models verified by mathematical methods into the circulation [101, p.79]. An interesting debate on the issues discussed was launched abroad in 1991 by the "History and Theory" journal. These articles were reviewed and analyzed by Russian scientists A.Yu. Andreyev, L.I. Borodkin, M.I. Levandovskiy in their work [101]. In particular, they pay attention to the article of the famous economic historian D. McCloskey "History, Differential Equations and Narrative Problems". The process of introducing of the mathematical chaos theory into the methodology of historical research for McCloskey presents a problem of interaction between a humanitarian and representative of the "exact science", naturalist. This problem of the relationship of the "narration" by the historian and the metaphor of the natural science origin. It is the theme that should, according to the author, unite two opposing cultures. The theory of "small impact with large consequences" is tied by McCloskey with non-linear differential equations. The problem of "the nail for a horseshoe" from the famous children's poem describing the "key issue of the military history" comes to the forefront (a poem translated by S. Marshak tells the story of a defeat of the army because "there was no a nail in the forge". As a result, the horse remained unshod, it limped, which resulted in the murder

of the commander. The cavalry was left without the control, and was defeated. And the verse ends with the following lines: “And all for the want of horseshoe nail” – D.B., K.S.). D. McCloskey associates not so important in themselves facts, such as that same horseshoe nail, “snuffbox of Napoleon” and so on, with the cause of chaos manifestations in the development of various historical processes [101, p.89-91].

It should be noted that the idea of applying natural science methods to the historical material in the Soviet era was offered by historian L.N. Gumilyov. His concept, being an alternative to the existing approach in studying history, received its embodiment in the form of passionate ethnogenesis theory. One of the main theoretical assumptions of the theory author is the belief that the human, being a part of the biosphere is affected by the sun's energy, the decay energy within the earth and cosmic energy. The interaction and the impact of these types of energy per person is the cause of ethnogenesis, i.e. the origin, development and disappearance of an ethnic group. Therefore, according to L. Gumilyov, it is useless to study the history by chronological tables. The analysis of the history must include ethnogenesis. “Ethnogenesis is a natural process of the biosphere, emerging occasionally and being one of the components of ethnic history, along with the three constantly active factors: 1) social and political, because people always established a certain order of relationships in their collective; 2) technical, for there had never been a man with no instruments of labor; 3) geographic, for their livelihood is taken from the natural environment, and as the Earth's landscapes are diverse, the ecosystems, including the people are also diverse” [29, p.321]. L.Gumilyov believes that “the ethnogenesis dynamics goes due to the fourth factor that is passionate impulse, sometimes occurring in certain parts of the Earth's surface, and generating not one ethnic group, but a range of ethnic groups, called superethnos, i.e. a system, in which individual ethnic groups are blocks, links and subsystems” [29, p.321]. Like the

synergy, the ethnogenesis theory expresses the idea of self-organization, in this case about the ethnic group self-regulation. L.Gumilyov believes that an ethnic group is a complex structure, and therefore, it increases the resistance to external shocks. But if an ethnic group “at its birth was not enough tessellated as, for example, in Velikorossiya of the XIV-XV centuries, he himself started to distinguish sub-ethnic formations, sometimes formed as social strata [29, p.106-107]. The author believes that when in the ethnic group, a “simplification of the system” occurs “stagnant” structure and resistance decrease. The system is complicated when it is opened for information and energy exchange [29, p.135]. In the theory of ethnogenesis by L. Gumilyov has developed concept of the chimera (chimera is a demon with the head of a lion, body of a goat and the tail of a dragon. Figuratively, this is a combination of elements that cannot be organically joint). According to scientists, if the established ethnic system is “invaded by new alien ethnic integrity, being unable to find an ecological niche for itself, it is forced to live not at the expense of the landscape, but at the expense of its inhabitants. This is not just a neighborhood or symbiosis, but the chimera, that is, the combination of two different incompatible systems in the same integrity . Typically such chimeric compositions arising on superethnic level (when the composition consists of two representatives of superethnic systems) result in the death of these structures” [29, p.327]. Next to the phenomenon of chimerical systems, there is the symbiosis of ethnic groups, where each of them, taking a special area in some landscape, complements by itself and results of its activity the other ethnic group, in the form of co-existence in the absence of relations of parasitism of one on the other [29, p.327]. In general, L. Gumilyov managed to create an ambitious model of the existence of peoples, cultures and societies as the life's activity of a highly complex biosocial system subjected to the laws of the synergetic nature. It is reflected, first of all, by stating complementarity of entropic and anti-entropic,

social and biological factors, the opening and closeness, necessity and accidence, order and chaos in the life of ethnic groups and etc. In essence, the emergence of the theory of ethnogenesis by L.N. Gumilyov is associated with one of the first in modern social science attempts – in a dialog with the natural sciences to create a large-scale picture of the self-organization of the human history; moreover, it established a rich semantic field of holistic perception of the life of the human race in the science.

A significant contribution to the development of the synergetic approach with regard to the methodology of historical research belongs to Yu.M. Lotman, whose school is famous with fruitful introduction of formal methods and interdisciplinary approaches among other things. Yu.M. Lotman was the first researcher, who drew attention to the need of using the concepts of the chaos theory in the methodology of historical research. Having apprehended the ideas of I. Prigogine regarding the special laws of random processes, Lotman published the article "Clio at the Crossroads" (1988), which reflects his main thoughts on this issue. The scientists believed that the interpretation of the relationship of the regular and random things in the history, existing until now in the historical science, are unsatisfactory. Any ideas, due to which the self-awareness of history occur, are themselves the product of their epoch; according to this, the idea of events regularity, on which the foundation of the historic studies rests, belongs to the scientific thinking as a whole and is also subject to change. "The notion of the "scientific history" accumulated ideas and discoveries and also the habits and prejudices, forming some set of ideas, the origin of which was forgotten, and the internal inconsistency was smoothed by familiarity. Fight with the romantic concepts of the history, which oppose the idea of the history regularity as personal activity an individual, it pushed the historic studies to identifying the objectivity with impersonality and unconsciousness of historical processes... The history of public institutions, the

struggle of social forces and ideological movements in some way canceled the history of people, relegating them to the role of figurants in the global drama of humanity. Their significance, of course, is not denied, but resembles a theater program where the role is accompanied by names of several artists who are equally well perform the same role in the play" [219, p.366]. To become the subject of the historical analysis, a person must be considered as a "representative"; and the thing that makes him different from other "representatives" of this category, is beyond the history. Thus, the concepts of "objective" thing, which is the subject of the study, and "regular" are identified, as well as the notions of "subjective" and "random". Meanwhile, in the historical movement, personal and extra-personal processes occur side by side, and if the first of them can be described in terms of spontaneous laws, then in the processes that are done through the human consciousness and with the help of human consciousness, a person faces a choice of behavior and consistently correlate his actions with the purpose, representations of the results. This opportunity opens up many alternatives for the history, the existence of which is as real as an accomplished course of events, which is deprived of rigidly deterministic nature.

In his monograph "Culture and Explosion", Yu.M. Lotman writes that "every "great" event not only opens up new roads, but also cuts the whole bunches of future probabilities. If it is remembered, then the description of these lost paths become not virtuous reflections on optional subjects for the historian. Thus it is necessary to take into account another factor: different, but typologically similar historical movements such as Romanticism movement in different European countries, or various forms of anti-feudal revolution may at the time of the explosion choose different roads. Their comparison in some way demonstrates what would have happened in this or that country, if the results of the explosion had been different for it. It brings a whole new aspect to the

comparative study of cultures: something lost in one historical and national space can be implemented in the other, and their comparison gives a reasoned nature to the reflection about what would happen if the historic choice was made otherwise" [92, p.98]. Examples of such dual nature of interpreting the chaotic behavior in the culture systems are seen by Lotman in the fate of scientific discovery, or, more generally, the creation of any art; they are not deducted from the past, and their consequences cannot be uniquely predicted [92, p.99]. The proportion of the moments of historical fluctuations grows, that is, situations in which the further destiny of the system depends on random factors and on the conscious choice. This introduces such things as personal responsibility and moral behavior of its members into the historical process. On the one hand, historical being approaches the creative world, and from the other, the concepts of morality, inseparable from the freedom of choice.

The historic studies, in our view, more than other humanitarian sciences, needs anti-crisis measures. One of the main objects of the historical research is we ourselves. And it is hard to find a more non-equilibrial structure. And more complex one too. The mankind, in general, is always subject to the chaos, unpredictability, instability, that is, all those categories, to whoch the synergetic paradigm appeals. The history as a whole needs the possibility to explore future development alternatives. While many believe that the history does not respect the subjunctive case. And that all the alternatives, ultimately, are reduced to, poured into, absorbed by the main course of events. The synergy also leads to understanding the deep irreversibility of the development, its multivariance and alternative, both in historical retrospective, and in the perspective. As Ye.Knyazeva and S.Kurdyumov believe, "according to the synergetic vision of the world, alternative histories, different ways of historical events development are objectively determined by the internal characteristics of the social environment, and not just, as it is commonly thought, by a variety of possible

activities and events in life of people, even historical figures, leaders" [220, p.42].

Classic, traditional approach to managing complex systems is based on a linear representation of their functioning, according to which predictability of the result is clear, since the control action is known. The more energy you invest, the more, perhaps, the returns. The linear representation is encountered by us, for example, when carrying out reforms that not always lead to the desired results. This happens when you do not take into account the unpredictability, complexity, reaction of subsystems, and etc. To clarify this, let us give an illustrative example of historical interpretation proposed by G.G. Malinetskiy [209 p.98-112]. Researchers do not always take into account the contradictions between the intentions and the means that are at the disposal of the scientists. But it is needed to weigh the results and tools with the approaches. So, what new can be offered by the non-linear dynamics? First of all, these methods of processing time series, designed for the exact sciences, but useful for the analysis of historical processes. Second, this is the study of unstable decisions determining the future with the help of the bifurcation diagram for the historical processes. In the nonlinear dynamics, the fundamental role is played by attractors, that is "development goals". Such an attractor, for example, can be a lake in a mountain valley, to which a drop of water ("point") strives. The drop movement depends on the terrain ("phase spaces") and streams in the lake. In this case, the relief of the area and streams within the lake act as the laws of evolution. Let us suppose that there was a metamorphosis of the attraction area, that is, the lake basin. For example, the basin has changed geographically. Hence, the attraction area disappears. The drop is no longer goes into the lake. Historically, in the long term perspective, the changes are radical, i.e. the future of the society, "the development goal" changed Perhaps, it would be interesting from this point of view to analyze certain periods in the history of different

civilizations [209 p.109-110]. For example, continuing the theme of the future of the society, let us consider the strategy of development of Kazakhstan till 2030 as a historical example. For this, so that “the lake is not gone” and “the drop is not evaporated”, i.e., in order the community achieves the intended purpose, and at the same time has fewer losses and disappointments, it is necessary to figure out all the nuances: the parameters of the society change, trajectory, and etc. Having proclaimed the important priorities, to find a way to their realization. Fight with tuberculosis, drug addiction, solution of environmental problems, security of seismic regions, demographic aspect, further democratization of the society, and etc. – the right decisions on these issues requires the efforts of many sciences: mathematics and sociology, geography and medicine. And, of course, the history. Together, they must predict the consequences of political decisions so that in time and without loss to achieve the intended purposes of the society. And since the society is an open system, its study requires modern, relevant methodological approaches, one of which is the synergetic approach.

Solution of specific tasks plays an important role in the development of any scientific field. For the historical synergy, in our opinion, these are solution of specific problems of forecasting (futurological function), subjunctive modeling (hypothetical function). And also expansion of such research projects of the “alternative history” type, that is, the analysis of alternative ways of historical process in some turning points (in the bifurcation points). At the present stage, it is technically possible, since there is a number of tools for simulation and computer-aided research. But for a successful outcome, of course, we need to know enough about the epoch under research, to build a sufficiently reliable and realistic model. G.G. Malinetskii also agrees that the history will become a “provider” of super-tasks in this century. Firstly, because in this area, we are dealing with complex, irreversible developing, unique systems. Such systems challenge the traditional methodology adopted in the

natural sciences, and require a deep understanding of the analytic experience, which is in disposal of the humanitarian disciplines. Secondly, the processes studied by the history, have a deceptive "transparency", because we ourselves are part of the system under study, and this leads to the need to develop a methodology that allow eliminating the "objective evidence" of the results of the study. Third, the depth of understanding in this area influences directly on that how reliable and reasonable the forecast of the mankind development will be. This forecast affects the generation of the strategy of our civilization development, on what changes the mankind can and must accept, and, of course, on many specific decisions made [209, p.99]. According to the scientist, the interdisciplinarity of the synergy is associated with the need to use a model of social psychology, economy, results of simulation modeling to obtain answers to historical questions. Perhaps the most important concept is the "field of the development paths". In fact, throughout the history, starting from the individual and ending with the mankind as a whole, the choice has to be made repeatedly. To refuse some ways, preferring others. The sense and meaning of many scientific disciplines is increasingly determined by how intelligently and informed choice they allow to make. The possibility of the history in conjunction with other disciplines, including computer modeling, in recent years has increased dramatically. The traditional history focused on the study of a particular historical path and faced the past. The theoretical history may put not only a reality at the forefront, but also opportunities, the situation of choosing the bifurcation point of the historical process. The theoretical history has to deal not only with a critical analysis of the past, but also with the "subjunctive mood" [209 p.100-101].

So, G.G. Malinetskiy believes that the use of the synergetic analysis in the historical research helps to improve predictive capability of the historic studies. Any community interested in longevity, seeks to assess the prospects of its

further development. This is where it is helpful to study the turning points on the historical path (bifurcation points), in which the choice of alternatives occurs. The analysis of these alternatives may be one of the key problems of the science of the XXI century, believes the scientist [221, p.99]. G.G. Malinetskiy proposes to develop the interdisciplinary approach, which he named the historical mechanics. It should become a tool for theoretical analysis of long-term planning, forecasting of the historical development future. Since the history subjects are complex self-organizing systems, historians are interested in developing the nonlinear dynamics and synergy that allow finding out the general laws of self-organization, and suggesting the ways to describe these objects. G.G. Malinetskiy is sure that development of the historical mechanics is necessary, since traditional approaches, such as the method of observation, experiment, are not effective in the study of developing systems, to which the history subjects belong. "Besides, the theory suggests the possibility of changing the system parameters. It implies the apparatus for obtaining information not only about the realized path, but also about the other permissible ("virtual") paths. Construction of the theory is associated with the introduction of "conjunctive mood" into the historical analysis" [221, p.101]. Of course, for a variety of systems, there is a horizon of predictability, the non-linear dynamics has the concept of dynamic chaos, wherein the sensitivity of the initial data of the system leads to unexpected paths. The faster the path scatter, the less time we have for making a reliable forecast. The "horizon of predictability" deprives us of the dynamic forecast, predicting its specific state, but we can determine the probability, averaged characteristics [221, p.103].

In the forecasting process, a huge role is played by new modeling tools and computer-aided research. For example, with the help of mathematical modeling, where models were "macro-economies" and models of military operations, the staff of the Computing Center of the USSR Academy of Sciences

and the Faculty of History of the Moscow State University made simulations of the Peloponnesian War. In this case, it was implicitly assumed that the main interests of all residents of the state were the same, i.e. everyone was interested in the victory and no one was interested in the defeat (or the last group action can be ignored). However, in the era of passionate crisis, the situation may be completely different. The leadership of the country may not be the elite, "which makes a stake for the collapse", and is ready to undertake "the operation against the will of the patient" G.G. Malinetskiy believes that the analysis of these situations would be of great interest for the historians, since it involves development of specific sociological and social psychological models [209, p.111]. We can see that the productivity of the interaction of exact and social sciences, particularly the history, causes no doubt, and their future cooperation will be promising.

The successful synergetic simulation can be confirmed by the study of the Russian scientist L.V. Leskov, in which he tried to analyze the predictive potential of the theory of self-organizing systems, or the synergy, on the example of the Western civilization, that is, the countries of Western Europe, the USA and Canada [96]. L.V. Leskov says that the traditional methods of social prediction based on classical rationality, have a number of drawbacks: one-dimensionality, linearity, lack of alternatives, and others. Sociosynergy differs from the classical methodology by the fact that it is based on a fundamentally different philosophical approach – philosophy of instability. This allows when constructing historical process models to take into account such important features of real systems as uncertainty, non-linearity. The scientist having analyzed the contemporary problems of the Western civilization, came to the conclusion that a systemic crisis had put the Western community on the threshold of bifurcation and its further evolution had necessarily polyvariant character. Therefore, the modeling of the evolution of the Western civilization

beyond the bifurcation threshold should begin with the construction of a range of evolutionary scenarios.

L.V. Leskov identifies six scenarios of the evolution of the West and their respective main factors that may play a role in the transition to the corresponding scenario [96, p.153-154]. From the point of view of the synergetic prognostics, believes the researcher, all the above scenarios are uniordinal, but not equally probable. In real life, these scenarios form a bound unity, the evolutionary process can develop based on a combination thereof. But the modeling approach proposed by L.V.Leskov, involves assessing the probabilities of each of these scenarios. The difficulty lies in the fact that if an established mode of the self-sustaining development of the system, its behavior is determined and the future is designated by the immediate past, then in a neighborhood of a bifurcation point, the system behaves quite differently. A fundamental role is played by casualties, secondary factors. Influence of small things can achieve a colossal scale; they are not opposed by anything, the system has lost its property of self-regulation. A well-designed program of targeted actions can play a role of such factor that will determine the direction of the system motion in the chosen scenario. And then effect will be taken by another important feature of self-organizing systems, predicted by the theory: starting from a certain level, the system motion mode becomes stable; it acquires properties of the attractor (random perturbations are automatically suppressed, the system returns to its previous motion mode). In this state, it is not the past that is obvious, but the future determines the system dynamics. To consider each of the scenarios, L.V. Leskov offers to define a set of order parameters, which is able to have the greatest impact on the transition of the system to a particular scenario. The scientists highlights several of them: energetic, environmental, economic, population and social political. As a result of calculations, the scientist concluded that the chances of the West for a prosperous future does not

exceed 45% [96, p.158]. L.V.Leskov believes that to preserve its civilization, the West should pay attention to such a scenario: transition to the noosphere, the main factors of which are support of the fundamental science, advanced technology, education and strengthening of world unity. This scenario, in our opinion, is quite acceptable for Kazakhstan, which has a fairly high intellectual potential. Movement toward the noospherization will allow our country to get rid of the status of the world's raw material appendage.

Thus, futurosynergy allows choosing the future development consciously and purposefully. The synergy makes it possible to expand the methodological base for addressing the problem of the historical development alternatives, to apply a new general scientific instrumentarium to study the unstable situations related to unpredictable course of the process at the bifurcation points.

S.A. Gomayunov in his work explores the possibility of synthesis of the leading system approaches in the history theory on the basis of the synergy [47]. The goal of the research is to determine the contours of the historic synergy as a composite method of the historic cognition. As a result of research, S.A. Gomayunov made the following conclusions: the synergy has composite capabilities in the theory of historic cognition. It really synthesizes opposing methods, collecting them into some coherent whole. The result of the synthesis is not a mechanical consolidation of the methods, and not a simple takeover of one by another. The composition is a multi-unity structure given by the subject of the historic cognition, by the personal beginning of the history. It follows that human nature has a complex composition, having a “embodiment” (“material”), “sociality” or “culture”, and etc. The composite method combines all of these modes, restoring the holistic vision of human nature. Of course, a variety of these areas will be preserved, but their relationship and interaction will have a completely different meaning. The synergetic approach in contrast to the private methods of studying human nature, leads to the attainment of personal

beginning, which transforms human nature. Therefore, separate methods within the composition has to be focused on observing the disclosure of personal beginning in the specific modus of being. S.A. Gomayunov is sure that the causes of a historical phenomena are not in the social, material, cultural, and etc., but in the act of the personality. The synergy as a composite method acquires a new quality also because it involves non-scientific ways of cognition of the world. Pushing the boundaries of the scientific cognition, the synergy clearly shows that appeal to the history cannot be reduced to cognition only. Like is known by like. At the same time cognition grows into comprehension of completeness, which is possible only through a personality action [47 p.128-130].

The history provides the synergy with the rich material for the further development of methodological bases. For example, the entire history of the collapse of the Soviet Union and creation of the CIS is a direct analytic material for the synergetic approach. The Soviet system by the end of the 80s came to the non-equilibrial state and as a result numerous fluctuations (deviations) from the standard state started to accumulate. We can separate financial, political, economic, psychological, ethnic and other deviations, which together have led to the destruction of the system. By the summer of 1991, the system enters the bifurcation state, and its further destiny becomes unpredictable. There were a few options. But suddenly (also one of the components of the synergy: we can not predict exactly which path system at the bifurcation point will choose), the turning point in the so-called historical path was the meeting of the three Union leaders who decided the fate of the USSR. We have witnessed a post-bifurcation period of the system, when each of the union republics sought its ways out of the chaos through inventing their own self-organization mechanism. The path of the subsystems to self-organization of the former closed system, which was the Soviet Union, was a difficult one and for many it had not ended yet. The

synergetic analysis of the collapse of the USSR, in our opinion, will be useful for understanding the processes of decay of many other federations.

And it will be also useful for constructing future forecasts of the state system of the former Soviet republics, including Kazakhstan. After all, the diagram made can also be realized in the subsystems, and then an effective mechanism of self-organization will be important. For example, for Kazakhstan, it will be important, if the historians dealing with the recent history, and not only it, will analyze the obvious and explosive fluctuations, which may include: uneven economic development of the regions of the country; so-called tribalism, which in some way affects the political stability; absence of the middle class that leads to social tensions, and etc. The analysis of existing deviations (fluctuations), which can later lead to irreversible crises via the synergetic instrumentarium, in our opinion, will prevent many of the social cataclysms in our country.

Thus, the analysis of the possibilities of using the synergetic laws in the society research, in our opinion, suggests that the society (as an object of the analysis) has all the features required for the self-organization: the society is an open system that exchanges energy, matter and information with the environment; internal subsystems of the society are interconnected with each other; the society as a system is capable of a strong disequilibrium. The main danger of using the synergy in the social sciences consists, in our opinion, in a direct transfer of the natural science concepts onto the social phenomena beyond the holistic synergetic picture of the world.

Numerous studies in the field of social and humanitarian reclaiming of the world, taking the synergetic elements as their basis, evidence the rise of synergitization of the social sciences, the onset of the associated with this ideological shift. At the same time, it is important to emphasize also that the striving of the methodological searches that has manifested themselves here, are

increasingly being implemented as a movement toward the dialog-based perception of the methods and languages of the scientific understanding of the world, as an exit of the science to the level of the reciprocal, mutually complementary links and relations, including in the field of dialog of the natural scientific and social humanitarian traditions of the scientific reclaiming of the world. An extremely important fact that is reflected in these studies is the recognition of the synergetic paradigm as a “positive” response to the need of not the sciences themselves, but the course of the human history.

3.3 Synergetic and Formational Periodization of the History of Kazakhstan

As it has already been said, today, in our view, an important task of the historic studies is a way out of the methodological dead end. In this regard, particular urgency is acquired by the understanding of the important role of new approaches and directions of the historic cognition that deepen the thinking and actualize the historical vision. One of such approaches is the synergy.

Historical cognition is both studying of the history, and the formation of a historian. Through the historian, the history changes its form of its existence, becoming an integral and effective part of the present. Through the history, the historian changes himself, thereby not only linking the past and the present, but also converting them [47, p.24]. When studying the essence of the synergetic approach, the question arises: how is it possible to use it in historic cognition. At first glance, many of its tenets were announced earlier via other concepts. “In addition, the synergy with its conceptual apparatus, mainly of physical and mathematical origins, causes fear and rejection in the humanitarian scientists, which is motivated by the threat of “physicalization” "stories”of the history” [47, p.25-26]. But it is already clear that the synergies should be perceived as a certain world vision and the scientific worldview.

In our opinion, the syntagmatic (joint – D.B., K.S.) transfer the ideas of synergy in the space of different theories is quite interesting. The Russian scientists did this on the example of the formational theory, cultural and systematic approach and sociobiology [47, p.54-93]. In particular, the transfer of the synergy ideas into the space of the formational theory, they carried out on the example of the Russian history. We will try to do this on the example of the history of Kazakhstan. Our task will be to give synergetic and formational periodization of the domestic history. The periodization procedure requires a clear bespeaking of the criteria for dividing a single process, which should be of a qualitative nature. The historical synergy, considering the society as self-organizing systems, bases the periodization procedure on the following assertions:

a) as the society is a system (formation), to identify its qualitative determination, it is necessary to detect the system-forming factor. It, being a useful result of the system, is implemented through the functioning of a diverse set (combination) of subsystems. The combination is different in different conditions. Hence comes the position of the plurality of system-forming factor display in the historical process;

b) as the specific set of subsystems that ensure achievement of the desired result by the system, sets the system quality, the periodization criterion is considered to be the change of system quality;

c) change of the system quality is performed through the system entry into the special mode of development, called a bifurcation model. In this mode non-linear connections and relationships dominate with the leading role of the casualty [47, p.57-58].

Before proceeding to the attempt of synergetic and formation periodization of the domestic history, we need to characterize the situation with the solution to the problem of periodization of the history of Kazakhstan. It

should be noted that the current stage of the periodization problem development is characterized by the extension of various approaches and principles of temporal typology of the historical processes. The only thing that unites these approaches is the confidence in the revision of the Marxist-Leninist methodology and formation approach. The issues of periodization criteria and clear definition of terms remain unsolved. For example, it is proposed to base the periodization of the history of Kazakhstan on the content-historical, political and legal, general historical, ethnic and cultural principles, as well as periodization associated with oral and written traditions of the Kazakhs. Many Kazakhstani researchers try to analyze the problem of periodization of the domestic history [222–225].

The world famous Kazakh historian M. Kozybayev, when making periodization of the domestic history, uses content-historical principle, thus abandoning the periodization criteria of the formation approach. The scientist begins the periodization with a period of the emergence of human on the territory of Kazakhstan and till the VIII century B.C. The second period (VII century B.C. – VI century A.D.) – period from Saka till Hun. The third (VI-IX centuries) – time of Turkic-speaking tribes. The next Kipchak period (X-XII centuries), during which the ethnic groups are formed and consolidated. The Mongol period (XIII – XV centuries), after which from the XV until the early XVIII century, the time of the Kazakh khanates comes. During this period, the Kazakh nationality, ethnic group is formed. The pre-Soviet period from the XVIII century till1917 is defined by M. Kozybayev as colonial period [224, p.4]. The authors of the textbook “History of Kazakhstan from ancient times to the present day (Overview)” (Almaty, 1993) offer the following periodization [135]: 1 / Kazakhstan in antiquity (2.5 million – V century); 2 / Kazakhstan in the medieval times (VI–XVII centuries); 3 / Kazakhstan in the Russian Empire (XVII century – 1917); 4 / Kazakhstan in the conditions of the totalitarian

system (1917–1991). Here, the authors were guided by general historical criterion (antiquity – Middle Ages) and political and legal (Russian and Soviet periods). In our view, the synthesis of the criteria does not give us the internal logic that would allow introducing the general historical picture.

The researchers should pay attention to the periodization by O. Ismagulov. In her article published in 1995, the scientist divides the history of Kazakhstan into the ancient period (lower, middle, upper Palaeolithic – 700 thousand years B.C. – 40-10 thousand years B.C.; Neolithic – 7-5 thousand years B.C.; Eneolithic – 4-3 thousand years B.C.; bronze age – 2 thousand B.C.). Then comes the Early Iron Age – I millennium B.C., Antiquity – I half of the I thousand years B.C., the Middle Ages are divided into early, middle or later (V - XVI centuries). Modern and contemporary times are from the XVII to XIX century, and the modernity is related to the XX century. [225]. As you can see, the author for her periodization used the general historical criterion (antiquity – Middle Ages – modern times and modernity). In addition, O. Ismagulov offers additionally use the linguistic, ethnic and anthropological criteria, thereby expanding the boundaries of the using the possibility of applying various departments of the historic studies: archeology, anthropology, history, and etc.

In 2002, the textbook was published by A. Kuzembayuly, Ye. Abil "History of the Republic of Kazakhstan", in which the periodization of the domestic history is as follows: 1 / Prehistory (3 million years – VIII century B.C.); 2 / Ancient period (VIII century B.C. – V century A.D.); 3 / medieval period (V -XVI centuries); 4 / Modern times (early XVII century – 1868); 5 / Colonial period (1868 – 1991). [137]. The typology of the textbook is based by the authors on the general historical, political and legal criteria. Radical, in our view, is the assessment of the Soviet period in the history of Kazakhstan. Apparently the researchers were guided by the fact that during the Russian and

Soviet periods, Kazakhstan was a dependent state, and only since 1991, we can talk about the acquisition of true independence and sovereignty by our nation.

The scientist V. Galiyev does not agree that the periodization of the history of any nation should be based on the development of the productive forces. Such a criterion, according to the scientist, does not facilitate objectivism, as it misses political and cultural development. V. Galiyev believes the periodization of the pre-revolutionary history of Kazakhstan proposed by aristocratic-bourgeois historiography and taken up after the Soviet historiography to be simplified. According to it, “the modern period in the history of Kazakhstan is the period of incorporation to Russia, which began in the 30s of the XVIII century and ended in the 60s of the XIX century” [222, p.84]. V. Galiyev believes that an important feature in this period was the struggle of the Kazakh people against Dzungars: "Of course, the adoption of Russian citizenship by Abulkhair was an important foreign policy action in the history of Kazakh people. But in this period of the history, it had no significant impact on the life of families, communities, and villages. Formal adoption of the so-called citizenship was only a diplomatic move of Abulkhair, due to which he solved another more important task of our foreign policy” [222, p.85]. V. Galiyev offers his periodization of the pre-revolutionary history of Kazakhstan, which is closely linked to the oral and written traditions of the Kazakhs, “who put forward their principles of periodization in the heroic epos “Yer-Targyn”, “Kambar batyr”, in the writings of Kadyrgali Dzhalairi “Dzhami al-tavarikh”, in works by Tattimbet, Bukhar-zhyrau, in the works of the outstanding Kazakh educators and their followers” [222, p.85]. The scientist considers the new period in the history of Kazakhstan to be the struggle of the Kazakh people against Jungar aggression (the II quarter of the XVII century – middle XVIII century), that is, until the defeat of the Dzungars khanate. During this period, according to V. Galiyev, the people put forward batyrs, who headed the people's

struggle for the national independence. Since the early XVII century, in the sources, the concept of zhuzes begins to appear, a new tribal structure of the population started to be manifested, and etc. [222, p.85]. The second half of the XVIII century and early XIX century (up to 1819) are allocated by Galiev as period, which should be named as follows: "Strengthening of the Kazakh statehood. Ablaykhan and his successors". In this period, according to the scientist, the characteristic changes occur in the social and economic development, but especially in the development of the culture, folklore, and epic literature [222, p.86]. The next period is the 20-60-s of the XIX century – "Accession of Kazakhstan to the Russian Empire – entry, conquest, colonization". It was during this period, believes V. Galiyev, was marked by a continuous chain of national liberation movements, which have become a kind of indicator of the degree of the accession of Kazakhstan to Russia. The next period "Disintegration of the feudal and patriarchal relations and strengthening of Russian influence" (from 1867 – 1868 till the late XIX century) – is the period of penetration of capitalist relations, changes in the administrative and judicial management system. This periodization of the pre-revolutionary history of Kazakhstan, according to V. Galiyev, will push scientists to revise the concepts of the history of the Kazakh people. "And the periodization should be based on the issues of statehood, struggle for independence, social and economic processes in the public life", believes V. Galiyev [222, p.86].

As we see, in the modern historical science, there is a range of views on and options of the periodization of the history of Kazakhstan. They all evidence that there is a search for the best option that would have the least difference in the approaches. The periodization of the history is one of the challenges of the domestic historic studies. Thus, the traditional classification of the historical stages of the mankind is still effective. Therefore, in our study design, we decided to use a variant of periodization proposed by a group of authors of the

book “History of Kazakhstan (from ancient times to the present day)”. In five volumes. (Almaty,1996-2010) [134]. Here, the authors relied on the general historical, political and legal criteria. The first covers the period from ancient times, from the Palaeolithic to the Mongol invasion in the XIII century, the second - the XIV- early XVIII century, that is, the period of formation and development of the Kazakh Khanate as a nation state, and the formation of the Kazakh ethnic group, and the third - from 30-s of the XVIII century till 1917 that is the historic period of the country as part of Tsarist Russia. The fourth and fifth volumes are devoted to the period from 1917. Since the Soviet period, Kazakhstan, as well as the Russian Federation, became an integral part of the Soviet Union, then we agree with the characteristics and analysis that were given to the next historical stage by the Russian researchers.

The first period of the national history is traditionally called the period of ancient Kazakhstan, which includes the Stone and Bronze Ages, the period of the union of tribes and early states on the territory of Kazakhstan. Throughout the ancient period, economic and cultural way of life, domestic and foreign policy depended on the environmental and climatic conditions. Arid zone could afford to develop only nomadic cattle breeding in the steppes and semi-deserts and irrigated settled agricultural economy in the river valleys and oases.

The system that existed in this period was characterized, in our opinion, by two factors:

1. Nomadic cattle breeding that dominated and was dictated by climatic conditions;

2. Evolution of the human society, starting with the original communities, through the tribal communities in tribal organizations, unions of tribes and early states.

The first factor is recognized by all historians studying the ancient history. The scientists believe that the “ancient history of the Great Steppe is primarily

the history of cattle breeders tribes, who have mastered the steppe in the III-II millennium B.C. Created here type of stock raising and cattle breeding and agricultural economy, as well as the culture type accompanying such economy, has never known a complete break with the tradition of previous epochs, even though under the influence of achievements in the material culture (e.g., the emergence of bronze, and later iron production), or changes in the natural conditions (more or less moisture climate); the everyday life was insensibly changing" [226, p.18-19]. Choice of the nomadic cattle breeding by the ancient inhabitants of Kazakhstan was dictated by the nature itself. In this case, the nature acts as an attractor, which in some way attracts all the opportunities of the nomadic society and makes it evolve considering the potential of this particular attractor. The word synergy itself in Greek means joint or cooperative action. The nomadic civilization to some extent corresponds to this concept, as the nomadic cattle breeding as a form of production could not survive for so long without a concerted, cooperative actions of the participants of this production. The nomadic cattle breeding as a kind of complex structural system depended on the concerted action of subsystems and on the transparency of their relationship. Especially that the success of this type of management often depended on random or natural aspects of the environment. Of course, there is a certain order and logic in the annual migrations, but this procedure is developed by accounting for the chaos that is invisibly present in the nature and it must be reckoned with and always be taken into account. Self-organization of this complex system as the nomadic society, in our view, depended on accounting each other interests by the nomads and the nature.

Speaking of the second factor, it should be noted that prior to the Bronze Age on the territory of Kazakhstan, our distant ancestor has gone the way from primitive human herd through the tribal community to the union of tribes. A distinctive feature of the human society of the prehistoric period is the

dominance of the social homogeneity. Andronovo and Begazy-Dandybay archaeological cultures indicate that in the XVIII - X centuries B.C. the stratified society is forming and it is close to the formation of the states [137 p.10-14]. The subsequent complication of the political system and social organization led to formation of the ancient states of Kazakhstan (the VII century B.C. - V century A.D.). The researchers believe that in the Andronovo epoch, the territory of Kazakhstan was inhabited by Aryan tribes, whose successors were their descendants and Saka Sauromats [226, p.27-30].

End of the first millennium B.C. and the beginning of our era is a turning point in the history of Kazakhstan. As a result of the invention of iron and transition to the nomadic mode of production, the economic life of the population Kazakh steppe changes. Various tribal alliances are formed, such as Saks, Usuns, Kangyuy and others, who are considered as proto-state formations on the territory of Kazakhstan. The political system of such associations can be called direct democracy or military democracy, "because community members directly, without any intermediaries, participated in decision-making ... and only armed men, soldiers were full members of the community" [137, p.17]. One of the important moments in the genesis of the proto-Kazakh tribes was penetration of northern Xiongnu, or Huns to the territory of Kazakhstan from the territory of China in the first century A.D. "With the massive penetration of the Huns to the territory of Kazakhstan and further movement of the Hun tribes to the west was associated with the change of the anthropological type of the indigenous population and the spread of proto-Kipchak dialect of the Turkish language" [137, p.27]. The State of Huns existed according to the military and administrative principles. The Hun state structure was as strictly hierarchical, as their social structure. "The Huns state, which grew out of a military democracy developed in the fight against neighboring tribal alliances and Chinese kingdoms" [226, p.61]. The constant threat from the neighbors and Huns own

commitment to conquer foreign lands, worked out strict discipline, courage, mobility among the ranks of nomad soldiers. The nomadic civilization as a system was not in steady state, it was always on the move, which allowed it to actively absorb the information from the outside, absorb it into itself and thereby complicate its structure. And a complex structured system in the synergy has more chances for self-organization. The growth of livestock enhanced the increase of the entropy, which results in a decrease of order and increase of the chaos. Tension amplifies and when it reaches the bifurcation point, the nomadic society faces the need to choose its path that will resolve the situation. It is seen from the history that the conquest of foreign territories by nomads is often associated with the expansion of pastures. Maybe this explains the frequent feuds of nomads with their neighbors, as the seizure of foreign lands is one of the ways of self-organization that are proposed to the system at the bifurcation point.

The researchers emphasize the power of the supreme power in the face of Chanyu that is the Son of Heaven, who, due to the distribution of key posts to his closest relatives, could create a rigidly centralized state. In our view, the formation of the ruling elite of the tribal aristocracy, where the kinship was crucial for receiving positions, contributed to the fact that the nomadic system preserved for a long time. One of the decisive conditions for the system self-organization, in our opinion, was the fact that all this aristocracy acted as patriarchal top of the tribes, as their “natural” leaders who are vitally connected with ordinary tribesmen. Another condition for the self-organization of the system, in our view, is the close link of a nomad to the environment. The existence of the cult of the sun, fire, sky in the tribes evidences this. The nomadic society as a system has one of the key concepts of synergy that is openness. Maybe that's why the nomads, in particular the ancestors of Kazakhs, worshiped Tengri (Sky), seeking to dissolve as much as possible in the most

open system that is the Universe. The dominant form of religious beliefs – the cult of the ancestors – contributed to the consolidation of kinship and tribal relations, which for centuries were self-regulators of social institutions in the nomadic society. But the history shows that the centralized nature of the management requires creating conditions. Underdevelopment of the appropriate infrastructure, for example, the transport system, would not allow managing and keeping under control such a vast territory. It is not surprising that centrifugal tendencies began to emerge; and led to the disintegration of the state into smaller state formations. This process resulting in the fact that in the middle V century B.C., ancient states of Kazakhstan practically ceased to exist. But already in "the V - VI centuries in Kazakhstan, a new state emerged, which was able to unite all the nomadic peoples of Eurasia and turn them into a powerful military power, which became flush with Byzantium, Iran and China. This was the Grand Turkic Khaganate" [137, p.28]. We can assume that the VI century was a turning point, the system-forming one in the subsequent history of our country and even in the mankind history. Because, as noted by many historians, the formation of Turkic Khaganate interrupted disconnection of the Mediterranean and Far Eastern cultures, and Turks became a connecting link, a mediator between them [137, p.28].

According to the general historical criterion, the medieval period is divided into two sub-periods: early-medieval and later-medieval. Early medieval period of the history of Kazakhstan begins with Turkic Khaganate period and continues until the Mongolian invasion. In the early-medieval period (VI-XIII centuries), there were such state formations as Turkic Khaganate, the Western Turkic and Turgesh Khaganates, Karluk (Karlyk), the state of Karakhanids, Khitan, Kimek (Kimak) Khaganate, the state of the Oghuz, Kipchak confederation, state of Kerayit and Naiman. Ethnical and political map of Kazakhstan begins to change with great Migrations period (II-V centuries). As a

result of settlement of Turkic-speaking tribes on our territory, the lands of Kazakhstan fell under the power of Turkic Khaganate (VI century). “From the very beginning of their coming to the forefront of the history, the Turkic-speaking peoples have never been homogeneous and integrated group of tribes. Moreover, they have never been aware of their unity. They were strongly differentiated both in economic and cultural characteristics, and in language and ethnic origin” [136, p.35].

The medieval system of the Turkic-speaking peoples of Kazakhstan was supported, in our view, primarily by four factors:

1. Economic factor - a constant need in the territories for migrations;

2. Consolidation against external enemies - the Chinese, the Arabs and the Turks of Central Asia;

3. Military and administrative control system specific to nomadic and semi-nomadic way of life;

4. Political system based on a synthesis of power with the tribal nobility and tradition to transmit power of the supreme ruler by inheritance.

In our view, a kind of culmination of the evolution of state formations inhabiting the territory of Kazakhstan in VI - XIII centuries, was Kypchak Khanate / early XI century – 1219 /. It was consolidating attractor of Turkic-speaking tribes and clans. As noticed by Kazakhstan scientists, “Kypchak always were ethnic and cultural community united by a common name, language and culture; and the scientists quote the observations of V.V. Bartold, who believed that "the movement of the Kipchaks is a rare example of occupation of a vast territory by a nation without political union and without establishing their own statehood. There were separate Kipchak khans, but there had never been the Khan of all Kipchak. Huge area, inhabited by the Kipchaks remained at that time outside the Muslim world ...” [136, p.48].

Studies of the historians showed that the power of the Kipchak khans was

inherited from father to son. Headquarters of the Khan was called horde, where Khan's administration was located, it managed the property of the Khan and the Khan's army. According to its military and administrative aspect, Kipchak Khanate, following the ancient Turkic traditions, was divided into two wings: the right - with the base on the Ural River at the place of the town of Saraychik, and the left - with the residence in the town of Sygnak. The right wing was more powerful. The Khanate center, most likely, was in the Turgay steppes. Military organization and military-administrative system was given utmost importance because they reflected the specificity of the nomadic life and were the most organic and suitable for the nomadic way of life. The strict hierarchical system of the dominant aristocratic elite (khans, tarkhans, baskaks, beks, bays) was vividly expressed, along with the kidreds and tribes were also divided according to their social significance.

"Kipchak society was socially unequal. The basis of the property inequality was private ownership for livestock. The number of horses was the major wealth. Many in the country of Kipchaks, as reported by the written sources, owned several thousands of beautiful horses, some of them had 10-thousand and larger herds. Encroachment on the property was strictly punished, it was considered punishable, according to established customary law (Torah). Livestock that was privately owned by Kipchak families, was marked with tribal marks (tamgas). Owing huge herds, aristocracy was the actual owner of the pastures, on which the animals were kept, although legally the property was not registered. The right to dispose of the pastures and to regulate migrations belonged to Kipchak khans and tribal nobility" [135, p.76]. Unstable political situation in the region was maintained by Khorezmshahs, whose purpose was to weaken Kipchak ulus. As the ideological basis of this policy, they chose the Islamization of Kipchak. "Meanwhile, significant groups of Kipchak tribes remained outside the Islam until the end of the XII century. The space between

Jand and Farab till the late XII century was considered to be the territory of Pagan Kipchaks" [135, p.78]. Khorezmshahs using the rivalry of Kipchak leaders for power, constantly tried to take the lead in the region. The fight went on with varying success. But claims of those and others was suspended by the era of the Mongol invasions.

As we can see, according to most researchers, pre-Mongol period is characterized by instability, the lack of united supratribal power at the vast territory of Kazakhstan. At the same time, there are several independent khanates, which did not want to obey the strong center. Here one can talk about the occurrence of imbalance of the system. In this situation, the bifurcation mechanism should act. But the Mongol conquest had left no chance for choosing an alternative of further development of the system.

Therefore, the period of late medieval history of Kazakhstan from the middle of the XIII century to the early XVIII century can be considered the new period of the domestic history.

In the first half of the XIII century, the peoples and nations of Kazakhstan became a part of the Mongol Empire. "First of all, negative consequences of the Mongol invasion are obvious for the social and political, economic, ethnic and cultural development of the region. However, creation of the Mongol Empire, in particular of the Golden Horde, on such a vast geopolitical space led to the formation of a single political system, within which there was observed the development of trade, international relations, as well as spread of the idea of centralized power, important elements of statehood and fiscal services" [227, p.7].

The integrity of the system that occurred in the XIII century, was supported primarily by the following three factors:

1. External factor - the threat of destruction on the side of the leaders of the Mongolian uluses;

2. The existing political system, which is characterized by the fusion of tribal aristocracy with the descendants of Genghis Khan;

3. The Islamization of Dasht-i-Kipchak.

The Mongol conquest had a negative impact on the state economy (the economic structure of the region changed), delayed social development. The public relations fixed the most backward forms, there was a widespread of the slave-owning system (many thousands of captives were turned into slaves). "Retardation of the social (feodalized) development was the result of the drastic decline of agriculture and urban culture, increase of the proportion of the extensive nomadic cattle breeding" [227, p.90].

In the steppe cattle-breeding areas, Mongol conquest led to the strengthening and preservation of the early class, feudal relations. On the conquered territory, the decimal system of administrative and military organization of the population, some kind of the system of vassalage was spread. "Every Noyon having received a "hundred", "thousand", ten thousand" in hereditary possession, was, above all, a vassal of the prince, owner of one of Ulus-principalities, into which the Mongol Empire was divided, and then he was a vassal of the Mongol Emperor, as the head Empire and the Mongol troops" [227, p.90]. Nomadic and semi-nomadic population of the conquered countries, also was included into the uluses of the Chingisids and was divided into tens, hundreds, thousands, tens of thousands. They composed the new uluses (fiefs) of the Mongolian aristocracy and the new army units. The division was based on the tribal structure of the local population, and this was an important factor contributing to its securing for a long time [227, p.90].

The presence of the Mongols at the territory of the Dasht-i-Kipchak, of course, could not help affecting the change in the ethnic composition of the region. Distribution of the ethnic groups and peoples who had long lived on the territory of Kazakhstan, and their lands among the three Mongol uluses

cemented their long-time stay within the framework of different political entities, thus extending the disunity of the population in its ethnic, economic, cultural aspects [227, p.91].

We agree that "the formation of the Mongol Empire, and later of the Golden Horde and the states Chagataids and Ugedeviches (Kaidu State) enabled the development of integration processes in the broader sense, than territorial framework of Kazakhstan, that is, in terms of interaction and mutual influence of the bearers of Eurasian steppe culture and sedentary agricultural culture of countries conquered by Mongols. Moreover, it gave the opportunity to the population of Kazakhstan to communicate openly with the Muslim East, Europe and China. The Mongolian authorities stimulated development of trade, international relations, universally introduced the system of postal and coachmen service. Trade and cultural relations were established between the previously distant peoples. Within the territory of ulus, caravans, diplomatic missions moved, travelers went to distant lands and brought information about distant countries and peoples of previously unknown Asia to the Europe. Mongols brought the idea of centralized power to the steppe, joined earlier unorganized tribes, introduced steppe legislation that was adapted to the new conditions. Many norms of the social organization and forms of statehood were used subsequently in the states on the territory of Kazakhstan in post-Mongolian time" [227, p.91-92].

The political system also got into a period of crisis expressed in the strifes, the cause of which was the strive of the descendants of the Great Khan "to make his dynasty completely self-sufficient, and his ulus –the independent possession. Gradually, the plenitude of the power went full into the hands of ulus rulers, the empire disintegrated into several independent states. The main causes of its collapse were the struggle of the masses against the Mongol yoke, fragility, conglomeratedness of the empire, force of arms that absorbed many of

the countries and peoples, constant strife, lack of economic ties, cultural, historical traditions" [227, p.75].

In the conditions of disequilibrium, a new field of attraction – attractor was forming, which acted as "future in the present". It brings those subsystems to the forefront, which in the future can play the role of system-forming factor in the new system [47, p.59]. The attractor is formed from the second half of the XIV century, when the Golden Horde began to be weakened by the centrifugal forces. "Within 1357 to 1380 Golden Horde throne was occupied by two and a half of dozen of khans" [135, p.101]. The power crisis leads to a decrease in the defense capability of the empire. The Timur's campaigns completely devastated Golden Horde, after which it had never recovered. As a result, "by the middle of the XV century in several large uluses, their own khans were validated, and the Golden Horde ceased to exist" [135, p.101].

Initially possession of Chingizids collapsed in Dasht-i-Kipchak and Transoxiana. Then the very Kazakh Khanate was formed, which led to the national consolidation of the Turks of East Dasht-i-Kipchak, Turkestan and Zhetysu [227 p.96-103].

The third system-forming factor - Islamization - played a role in strengthening the Mongol rule (XIII-XV centuries). The religious world of the Kazakh tribes consisted of two layers of beliefs: a substrate of animism, which gradually superimposed layer of Islam. The first goes back to ancient Turkic and Mongolian tradition. The nomadic tribes of the steppes and deserts, however, were adopting the religion rather slowly. However, by the tenth century, the majority of the population living in the South and Central Kazakhstan, was converted to Islam, although rather superficially. "Subsequently, from the XIII to XIV centuries, Islam was also accepted by the Mongols of both Golden Horde, and the Chagatai ulus. Accordingly, by the time of formation of Kazakh Khanate, both the aristocracy of "white bone", and the entire population were

Muslims" [228, p.31-32].

The researchers identify three stages in the history of the introduction of Islam in Golden Horde: under Berke Khan, Uzbek Khan and Edige Emir [226, p.266].

A favorable period for propagation and strengthening of Islam in Golden Horde was the reign of Uzbek Khan (1313-1341). "During his reign, Islam was declared to be the official state religion of the descendants of Jochi, and the culture of Golden Horde culture some Muslim imprint" [226, p.267]. The spread of Mohammedan faith most successfully went among the ruling elite and the urban population of Golden Horde state. "The nomadic steppe - Dasht-i-Kipchak - in the XIV century as a whole remained superficially affected by Islam, and the inhabitants of the steppe for the most part were still dominated by the old shamanistic beliefs, as evidenced by the preservation of ancient pagan rites of burial. At the beginning of the XV century, Edige emir (Idiki, Idiku) attempted to forcedly introduce Islam among the nomadic population of Golden Horde. ... However, these forcible methods to resolve religious problems did not result in the complete victory of Islam in the Kipchak steppe. There were a lot of Pagans left, and this situation continued in the XVI-XVII centuries" [226 p.269-270].

A new stage in promoting and strengthening Islam among the nomads of the Kipchak steppe was associated with the actions of the Russian government. "... In Russia, there was formed a mistaken view that the entire population of the former Jochi Ulus are orthodox Muslims, and Islam was the only source of their ideology, political system and social life. ... And meanwhile, in the steppes of Kazakhstan of the first half of the XVIII century, Islam was the religion of the people only nominally" [226, p. 270-271].

In the second half of the XVIII century, the attitude towards Islam on the part of the Russian government changed. It started to assist in promoting Islam

and strengthening its position in its Asian possessions (construction of a mosque, Muslim preachers were sent, religious schools were opened). “Since then, Muslim culture and Islam spread in Kazakhstan not only from the south, as it was originally, but also from the north. This circumstance ultimately led to the fact that the former Kipchak steppe completely and finally became Muslim” [226, p.272].

But it should be noted that one cannot belittle the role of Islam in Kazakh society. As “the establishment of Islam in the Kazakh society contributed to the strengthening of the supreme power of state institutions, the further consolidation of the people assisted in strengthening of the unification of Kazakh secular nobility on an ideological basis and the clergy and secular aristocracy of the towns of Central Asia. However, it should be noted that in everyday, practical life, among the widest layers of the Kazakh society, ancient pre-Islamic beliefs and rituals continued to prevail. They played a significant role in the social and family life, in the family and kinship relations, which were still defined by the establishments of the customary law (adat). Intertwining and interacting pre-Islamic traditions of the Kazakhs and Islam were a syncretic religion that for centuries was common in the Kazakh society” [227, p.585].

In the middle of the XV century, in 1459-1460, a group of Turkic-speaking nomadic Uzbeks led by sultans Dzhanibek and Kerey migrated from the Uzbek ulus to the Western Semirechye and departed “be a Cossack”, that is to conduct “Cossack” lifestyle. This event, according to the researchers, played a crucial role in the formation of the Kazakh people [226, p.115].

The XV - XVII century is the period of the history of Kazakhstan, when in the bifurcation point, the system-forming factor changed. Implementation takes place, in our view, via the activities of two subsystems:

1. Statehood based on a particular ethnic basis. Many tribal groups included in the Kazakh nation, and its ethnic territory were associated in the one

state. “Kazakh Khanate was in fact a single political body, distinguished by a greater or lesser degree of stability. It survived the time of formation, rise and fall, and in the XVII century disintegrated into separate khanates (within the territorial limits of zhuzes). The khanate territory repeatedly changed its shape under the influence of mainly foreign policy events, but almost always within the limits of the settling of the Kazakh ethnic group - from the Irtysh and Karatal to Syrdarya and Ural (Yaik), from the Altai and Tien Shan to the Caspian and Aral” [135, p. 144].

2. The basis of the Kazakh society and the Kazakh statehood on two social and economic structures, “which gave them greater resistance and stability” [135 p.160-161]. It should be noted that in the late Middle Ages, the formation of the social and economic structure of the Kazakh society was quite significantly effected by the consequences of the reduction in urban culture and agriculture, strengthening of the nomadic cattle-breeding economy that took place during the period of the Mongolian domination in southern Kazakhstan. Change in the economic base affected the transformation of the social relations as a whole towards the patriarchy. The best pasture and wintering territories for long were occupied by more powerful kindreds and tribes. On the whole, the territory of the khanate was regarded as the one belonging to the ruling kindred of Chingizids [226, p.391].

It is also necessary, in our view, to note the impact of class origin on the Kazakh society. “The highest aristocratic class - “ak-suyek” (white bone) were Chingizids: khans, sultans, olgans or tore, and khodjas. The Chingizids did not belong to any Kazakh kindreds and tribes, they were the ruling group of the society. Descendants of Chingizids had the title of sultans and had a hereditary right for the ulus, had power and were freed from incurring any obligations in favor of the Khan. The lower class (“kara-suyek”) included leaders of kindreds and tribes (bis, beks, emirs) [135, p.162].

Thus, the scientists identify two main principles in the social structure of the Kazakh society during the khan period. They are:

1. Division of the Kazakh society into two main opposed to each other social groups: ak-suyek (white bone) and kara-suyek (black bone) that differed not so much by economic, as by political and legal characteristics. Moreover, the principle of dividing the society into groups on the basis of the classes and associated sign of the difference in the rights were structured very consistently. The Kazakh idea of ”black” and “white” bones clearly shows how sharply the idea of the hereditary aristocracy was expressed among the Turks.

2. The hierarchy of kindreds and tribes included in the three associations called Ulu zhuz, Orta zhuz and kishi zhuz by the Kazakhs. Accordingly, the social position of each individual representative of kara-suyek, whether hereditary bi or ordinary nomad was determined by the privilege degree of his family and tribe. The presence of the three zhuzes, that is, three associations of tribes belonging to a single Kazakh nation and occupying a fixed by the tradition part of the common Kazakh territory, made the Kazakhs community very strongly and very deeply ranked community [226, p.391].

The system enters a period of instability in the XVII century. Kazakh Khanate were falling apart more and more. The nomadic nobility competed for power. The territory is divided in three zhuzes ruled by independent khans. The external circumstances worsened. Claims of the rulers of Central Asia in regard of the southern territories. But the most important external enemy at that time was the Dzungars. “Already in the 20s of the XVII century, the great masses Oirats migrated from Om, Tobol, Ishim, and Irtysh” [135, p.155]. Even the strengthening of the Kazakh Khanate during the reign of Tauke Khan (1680-1718) could not stop the process of disintegration of the Khanate. Regular raids of Dzungars onto the Kazakh lands led to the flight of the Kazakhs outside their ethnic territory. "The massive loss of livestock and pastures led to a significant

aggravation of the economic crisis in the Elder and Middle zhuzes. Reduction of subject territory and the number of subjects weakened the positions of khans, intensified hostility and strife. In a difficult economic and political situation, the question arose regarding the adoption of Russian citizenship. Further stages of the political, economic and ethno-cultural history of the Kazakhs were related to the time of colonization of Kazakh lands by Russia" [135, p.156].

On October 10, 1731, on the initiative of the khan of Younger zhuz Abulkhair, geater part of the Assembly of Kazakh foremen were in favor of the adoption of Russian citizenship. Despite the forced move toward Russia due to the Dzungars aggression, yet the researchers noted the impact on decision-making by vested interests of Abulkhair, "who with the support of the Russian administration, hoped to weaken the positions of his political opponents, to rise above his potential rivals in the struggle for individual rule" [135, p.179].

The Russia's policy in relation to the attached land of the Kazakhs was based on the desire to consolidate its power and influence by all means. To do this, the tsar government took a number of measures: organization of reconnaissance expeditions to the territory of Kazakhstan, foundation of the border towns, such as Orenburg in 1735; all kind of support for pro-Russian nobility; Cossacks support at the expense of oppressing the Kazakhs (Tsa decree in 1756 forbidding the Kazakhs in the winter drive cattle to the right bank of the Ural); elimination of Kazakh statehood through introducing a new system of Russian governance, which should lead to the cancellation of the Khan's power (Charter of 1824 on "Orenburg Kirghiz"). "With the administrative and political reforms, the tsarist government eliminated the traditional administration system, opened wide opportunities for the settling the Kazakh land by Russian migrants, forcing nomads on unsuitable land. After receiving an uncontrolled power over the greater part of the population, Russia expanded colonization policy in almost all spheres" [135, p.185].

A new stage in the history of Kazakhstan as a part of the Russian Empire (from 1731 to 1917) is characterized by the system-forming factor which, in our opinion, is realized via the functioning of two subsystems:

1. Peculiar form of administrative and political organization of the Kazakh society, functioning in application to the purposes and objectives of the Russian Empire.

2. Existence of centuries-old tradition of nomadic people to live in conditions of natural self-regulating mechanism of public relations. Here the general principles of synergetic concept and nomadism can be traced. The main condition of self-regulation is freedom. In synergy, the free flow of energy and information from the outside, and in nomadism, the opportunity to live within a limited scale, and have the right to move freely. Despite the apparent chaos and instability, as a result of the internal self-organization, the system triggers the natural mechanism of self-regulation.

With regard to the first subsystem, it is necessary to note that from the middle of the XVIII century, Khan's power system in Kazakhstan was affected very much by the political institutions of the Russian state, which were the most active (but not the only) among the whole complex of factors that influenced the destabilization of potestarian-political organization of the Kazakh society. In search of social support in the nomadic society, the Russian administrative and political system absorbed the individual links of the social and political structure of the Kazakhs, legislatively vested them with authority amplified by military and political forces to perform new functions in relation to the goals and objectives of the Russian Empire in the Kazakh region. As a result, the traditional political institutions of the nomadic society, i.e. sultans, Khan's power, gradually lost their independent integrative role at the level of vertical social ties that provide the dynamic equilibrium of the economic and social development of the society, and thus lost their place in the structure of the

society [135, p.200].

Reforms of 1867-1868, 1886 and 1891 formed nine areas: Semipalatinsk, Akmolinsk, Torgay, Ural, Semirechensk, Syrdarya, Transcaspian, Samarkand, Fergana [227 p.356-357]. According to the researchers, the system of public administration started to play a crucial role in the social organization of the nomads, because every village, community, associative group patronymy were assigned to specific links of this administrative and territorial governance of Kazakhstan. In general we can say that for the first time through the Russian system of territorial and administrative management, the centrifugal tendencies were overcome and the state centralization of the Kazakh nomadic society was ensured" [226 p.357-358].

With regard to the second subsystem, which indicates the existence of the traditions of the natural self-regulation of the Kazakhs, we can note that it stood the test, despite the various Russian innovation and due to maintaining formed by the Kazakhs forms of the social consciousness. The appealing by every individual to the traditional values of their clan groups and tribal ideals still dominated. Kindred or "ru" as a social institution promoted the principles of self-organization of the ethnosystem of the nomadic civilization. "In the period from the cancellation of the Khan Institute till cancel of the power of sultan rulers (1822-68), the colonial administration faces a powerful influence on the internal politics of the Steppe by tribal leaders (Sypatay – uly zhuz, Edige Shon – aydabol, Yesseney – kerey, Shorman, Mussa – karzhas, Kunanbay – tobykty, Ybyray – kipchak, Alshynbay, Zhangutty – karakessek, Akkoshkar – kuandik, Zholaman, Yesset –tabyn, Zhankozha – shekty and et al.), and, thus, begins to pay attention to the subtle mechanisms of internal connections of the nomadic society, which always remained out of sight, and served a source of hidden resistance of the Kazakh society to the destructuring influences and development of self-regulation system and ethnic self-preservation" [229, p.5]. All attempts

of the tsarist government to radically reform the traditional system of power relations in the nomadic society, ultimately proved to be unproductive in the pre-revolutionary period, as deeply rooted in the nomadic culture, tribal organization the Kazakhs quite successfully adapted to these innovations [136, p.187]. Zh.B. Abylkhozhin argues that, having developed the adaptive mechanism and powerful enough potencies of the synergism, that is self-organizing structure provided the ability to integrate in arid ecosystems. While, this process proceeded so harmoniously that the very cattle breeding economy became the carrier of well-defined ecological function (as proved, underload of pastures, for example, reduces the productivity of sward, nitrogen cycle slows down and eventually cause their degradation). The effectiveness of "including" the nomadic complex into the environment was evidenced, according to Zh.B. Abylkhozhin, by that within it, the favorable prerequisites for its development were received by the tendency to preservation of the dynamic equilibrium of the natural and social economic factors. "The idea of such a equilibrium spontaneously drove here all the economic and behavioral motivation. Because of this, a reasonable equilibrium was reached in relation to the nature use and environmental protection aspects of the activity that allowed avoiding deep conflicts with the nature and, therefore, to maximally mitigate the consequences of the destructive feedback loops in the functioning system "environment-society" [189, p.200-201] .

An important factor in strengthening the system of self-regulation of the nomadic society, in our opinion, is the customary law that is, the source of the Kazakh rights in the khan period (XV-XIX centuries) represented by the legislative monument "Zhety zhargy" (seven establishments). Or otherwise "The Code", "Laws" of Tauke Khan. The purpose of the "Laws" was the adaptation of the customary law to the new needs of the Kazakh society. "The main focus of the "Code" of Tauke was observance of the Kazakh elite privileges,

protection of property and order ruling in the patriarchal family, and the support of the Muslim religion. Judging by the fact that the composing (or acceptance) of “Zheti zhargy” was attended by representatives of all three Kazakh zhuzes, we can conclude that fixed by range of laws territorially was valid not only in individual zhuzes, but also within the whole Kazakh Khanate” [226 , p.373].

Privileges that were granted by “Zheti zhargy” to the descendants of Genghis Khan, evidence that the Kazakh society of the Khan's period was a hierarchically organized social structure of class groups and strata, which were in close and controversial relations with each other. “The highest level of the social hierarchy was occupied by sultans and khodjas. The step below belonged to tribal nobility that was not a part of the Chingizids. The bottom step of the social ladder was occupied by ordinary nomadic cattle-breeders united in tribal communities. A special group was formed by slaves” [227, p.520]. In our opinion, such a social gradation of the Kazakh society was the core of the stability and serves as the basis for self-regulation and self-organization of the society in any historical situation. Not the least role in the process of “self-preservation”, in our view, plays also the freedom-loving nature of the Kazakh people. This is confirmed by the national liberation struggle of the Kazakhs against the establishment of the Russian colonial rule.

In spite of the complete loss of own statehood, public consciousness of the Kazakh people dis not lose its identity. The ideology of freedom and independence helped to fight against the colonialists and their chauvinistic ideology. “The ideas actively distributed by Kazakh intelligentsia, facilitated the awakening of the Kazakh society, influenced the sense of justice, morality of the Kazakh people” [230, p.726].

Being part of the Russian Empire, Kazakhstan experienced the full strength of the absolutist power of Tsarist Russia. It is, therefore, quite justified to believe that the characteristics of the new period of Russian history (XVIII -

early XX centuries) by Russian scientists can be transferred to the history of Kazakhstan of this period. But with the proviso that the two subsystems are typical for Kazakhstan not from the XVIII century, but probably from the middle of the XIX century. Thus, the system-forming factor is realized through the functioning of two subsystems:

1. Special type political order (absolute monarchy).

2. Economic factor, especially after the entry of the Russian empire in the global market system.

The combination of these subsystems as a system-forming factor provides the Russian society with the peculiar nature of the dynamics, that is, the development of the "catch-up" type. As the economy began to determine the level of the society development, and in comparison with the Western Europe Russia lagged behind in many ways, the task of "catching up" forms the basis of the state strategy.

In order to "catch up" with the West, the Russian government strengthens the industry, especially the military one. At the same time, the industries that focus on the production of basic necessities get weaker. Village becomes a sphere of pumping raw materials. S.A. Gomayunov believes that "as the scale of the changes can be very significant, the rates are quite high and all that happens is rapid, the researchers refer to this phase as the "revolution from above". The initiator of the "revolution from above" is the state represented by the monarch and the radical part of the bureaucracy [47, p.63-64]. The scientists believes that as the transformation impulse comes from the administrative apparatus, these transformations themselves have anti-social nature. The interests of the state come to the forefront. Naturally, the counter-reformist mood in society grows, leading to anarchy. "The outburst of anarchy usually creates craving for order, and as the result the rigidly hierarchical centralized statehood is recreated (wins), which is ready to unite the society for a new '."jump"... But the natural

resource of the absolutism opportunities was limited, and the more clearly it can be traced to the middle of the XIX century (after the defeat of Russia in the Crimean war), in the country, movement whose goal is the elimination of the existing system gain strength. Having superimposed on the crest of the social explosion of the early XX century, being able to master the mass consciousness of broad social layers, the radical left movement appeared to be the most prepared for the struggle for power in 1917, at the time of maximum chaos and disintegration of the Russian society" [47, p.64-65].

1917, being a bifurcation point, outlined the range of further ways of development: from the restoration of the monarchy to establish the extreme left dictatorship. The combination of various internal and external factors, as well as tremendous role of certain historical figures, including V.I. Lenin, allowed to realize one of these paths. Structuring of the new system lasted until about the summer and fall of 1918. In Kazakhstan, in our view, till the late 20s.

Functions of the system-forming factor in the formed system were performed by two subsystems:

1. The special type political system of totalitarianism.

2. Ideology, the bearer of which was the party.

The new society aims to not just "catch up", but also "overtake" the West, which continues to really be a model, but at the level of ideology acquires the appearance of the "enemy", because the society is trying to go along the "untrodden" way, in relation to which all other options are understood as a dead end. Bet on exclusivity entails a radical change: the society from the open system turns into the closed one, dropping the "Iron Curtain" around it. In an effort to expand the mobilization capabilities of the system for carrying out a more ambitious "jump", the state uses people as a resource, their main property of being an ideal part of the state mechanism. The initial effect of the "jump" fires imagination. But the laws of the social entropy, increase of which in closed

systems inevitably accelerates, plunge the society first in the “stagnation” and then lead to rocking and collapse of the system.

The society rather quickly, in terms of the historic proportions, arrived to a new bifurcation point. But the action of the bifurcation mechanism in closed systems has serious specificity. The explosion may follow the explosion, the system can decay and structure many times, while maintaining its quality, and finding a variety of manifestations for it. This is evidenced by the reproduction of the stereotype according to which the West is still the “model”. Hence, the strategy to “catch up and overtake” remains with all the ensuing consequences” [47, p.65-66]. That is why, there is much concern now about the issue of alternative ways of development of the Kazakh society at the bifurcation point. In our opinion, it is necessary to choose the path of inclusion in the global context, but to developed independently and on our own foundation.

Speaking about the new phase of the history of Kazakhstan, which begins on December 16, 1991, when the state independence of the Republic of Kazakhstan was proclaimed, it is impossible not to note the uniqueness of this period. Today, it is difficult to give any general characteristics of the modern society, but it is clear that the choice at the bifurcation point was made and our further task is to ensure the openness of the system, to enable it to develop while self-organizing and cultivating the non-linear thinking.

The system-forming factors of the modern period in the history of Kazakhstan, in our opinion, can be the following:

1. Formation of the political system, which is characterized by the formation of the strong presidential power and the new political elite.

2. Formation of the market economy due to the rejection of the Soviet model of planned economy.

3. Deployment of the process of the society democratization.

4. Formation of the multiparty system.

5. Striving of Kazakhstan to enter the global economic and political space.

6. Formation of the ethnic and national identity of the people, to achieve political cohesion.

Among the concepts comprehended in the past few years as the determinants of self-consciousness of the Kazakhs, the four gained the greatest importance. The first of them was Islam, although for most Kazakhs today, it has more of a symbolic than a spiritual significance. The second element, perceived as a distinctive feature of the modern Kazakh identity, is belonging to the Turkic language group. Most likely, Turkism will remain an abstract marker of the Kazakh identity, creating a predisposition to cooperate within the Turkic community, but it will be less attractive as an active political force. The third element that is central to current ideas about national identity, is vague legacy of the nomadic lifestyle. The fourth element is a passionate attachment to the land. Sedentary people imprint their own history in the incorruptible man-made monuments. On the contrary, the greatest achievement of the nomads was the desire to leave as little evidence of their existence as possible. Merging with the environment, they became almost invisible part of the natural environmental cycle. “The main feature of the modern Kazakh identity that underlies all other characteristics, is rarely mentioned today legacy of the Soviet past. In the Soviet period, the social and cultural changes were implemented with such a force that they became an integral part of the life of the Kazakhs. This created a gulf between the Kazakhs in Kazakhstan and Kazakhs in China, Mongolia and other countries” [228, p.100-108]. The first president of independent Kazakhstan N.A. Nazarbayev, in 1999, wrote that “the last decade of the national history, the seven years, which denoted the finding of the centuries ago lost statehood, had its own internal logic, its indelible mark in the national consciousness. Apart from the legal, economic or political innovations that period resulted in profound changes in the psychology of the nation that comprehended its place in

the history. ... In the last decade of the twentieth century, the Kazakhs regained this full-blooded breathing of a free nation ...” [129, p.16-17].

So, we tried to demonstrate synergetic and formational periodization of the history of Kazakhstan. What is the unfolding of the formational theory after syntagmatic transfer of the ideas of synergy into it? “It is obvious that, on the one hand, the formational theory set its face toward the history, or more precisely, it becomes more sensitive to the array of facts, which is the field of the domestic history. The need to throw something away or to fit into a ready scheme is lost. There is no a ready-made schemes, it is in some way is all the time “being prepared”. On the other hand, the formational theory clearly states the border of applicability, the area where it functions most efficiently. In this area, it is indispensable (but not invariable) and valuable” [47, p.66-67].

In general, our attempt to show the effectiveness of the synergetic approach in the historic cognition also helps to revive the formational theory, which is not widely popular in the modern historic studies in recent years. We hope that this kind of transfer of the ideas of the synergy to other known theories, reveals new aspects of the applicability of the synergetic approach in the historical epistemology. In our opinion, further study of the prospects of the synergetic approach in the scientific cognition of the history of Kazakhstan, will allow the domestic historic studies to expand its methodological tools and, thus, will contribute to the resolution of the modern research problems.

In our opinion, the synergy is a broad concept, a kind of vision of the world, as it with its methodological and epistemological aspect promotes the development of a particular style of thinking and perception of the world. The synergy establishes a new dialog between the human and nature, giving priority to the co-evolution in this dialog. This is an optimistic attempt allows revealing the reasons for the evolution crises, instability and chaos, to master methods of the non-linear control of complex systems, in a state of instability. The

interdisciplinary nature of the synergy allows many sciences to find common points of coincidence in the scientific cognition and find a way out of the current crisis. Thereby allow solving of many global problems. The synergy as a science about the self-organization, orients the systems to identifying their own natural mechanisms of self-organization. This will allow for more careful treatment of the nature and will teach to fall into resonance with it. The co-evolution principle that guides the synergetic approach corresponds to the eastern mentality, a characteristic feature of which were the adherence to the naturalness and non-violence over nature. Therefore, the main principle of synergetic perception of the world is based on bringing the systems onto their own development lines. In general, the synergetic vision of the world restores the integrity of the image of the world, thus helping to develop general laws of the mankind survival.

Despite the fact that the synergy has natural science roots, yet many studies have shown that it is effective in the study of the human world. The society has all the attributes necessary for self-organization; these are openness for the exchange of energy, information and matter; internal subsystems of the society are interconnected with each other; the society as a system is capable of a strong disequilibrium. Some kind of synergitization of social sciences and humanization of natural sciences evidence a certain change of worldview prerequisites in the scientific cognition. There comes the time for a fruitful dialog between the natural sciences and social humanitarian tradition of the scientific reclaiming of the world. Our attempt to show the effectiveness of the synergetic concept in the historic cognition facilitated the revival of the formational theory, which is not widely popular in the modern historic studies in recent years. Synergetic and formational periodization of the domestic history offered in our paper, shows the natural of the synergy in expanding the methodological instrumentarium of the modern historic studies of Kazakhstan.

The historical synergy as an integral part of the entire synergetic model of the scientific cognition is sufficiently compelling tool in solving historical problems that remain unresolved as a result of the onset of the methodological crisis. The historical synergy as a representative of the postnonclassical science does not claim for every possible use and does not require unconditional adherence to this path. This is just one of the approaches in the science, which in conjunction with all the others will lead the history to a new level.

CONCLUSION

The current state of the historic studies in the post-Soviet space, including in Kazakhstan, prompted many researchers to pay attention to the reduction of the effectiveness of previous methodological, conceptual, theoretical approaches in historic cognition. As a result of reviewing the methodology and scientific rationality of classical, non-classical and postnonclassical stages in the science history, many foreign, Russian and Kazakh scientists have concluded that the way out of the methodological dead end of modern science, history in particular, can be the use of the modern approaches of the postnonclassical science in the historic cognition. In particular, interest is awakened by the synergetic approach, the principles of which correspond to the modern scientific processes, the main features of which are increasingly integration, interdisciplinarity, complementarity and openness of the dialog maintained by the science. In this paper, we attempted to show the achievements of the researchers in discovering the basics of the synergy, its interdisciplinarity, transparency and efficiency in the historic cognition. As a result of research, we came to the following conclusions:

1. Most scientists recognize the crisis of the post-Soviet state of the contemporary historic studies. The crisis is primarily associated with disappointment in the heuristic capabilities of the theoretical and methodological foundation of the Soviet historic studies. Pessimism about the theory of the social and economic formations led to that many historians, including domestic ones, ceased to actively pay interest to the problems of the history methodology. That, naturally, led to the impoverishment of the theoretical foundations of the modern historic studies. Many scientists associate the anti-crisis measures with the increased analytical, generalizing, certain studies on the theory of history. These works will contribute to expand the discussion about the current situation, which will create interest in the methodological problems of the history in the

scientific community.

The way out, according to historians, consists in developing specific methodology of historical knowledge, taking into account the peculiarity of the historic studies. Terms and conditions: the transition from the sphere of the theory of the global historical process to the theory of "middle level", to the field of applied methodology; development of a methodology for the local history (methodology linked to the local history), as there is a strengthening of the role of regional factor and local history in the public life. Suggestions of the scientists in general call to move away from the usual stereotypes and strive to create a new scientific paradigms, theories, methods and approaches. Active role in this "methodological revolution" is given to the historian.

2. Systematization of the main characteristics of the historical stages of the evolution of the science methodology helped in identifying the following methodological orientations of each of these stages: 1. The stage of the classical science (XVII – late XIX): general scientific status of the mechanistic picture of the world, its absolutization; experience defines theory; denial of hypothetical knowledge (which led to the conviction that the history had no subjunctive mood); putting a priority onto one theory and determinism (the concept recognizing the objective law and causation of all phenomena of the nature and society), ratiocentrism (exaggeration of the role of the mind in cognition, separation of it from the sensory (empirical) knowledge), disciplinary reductionism (reduction of one scientific theory to another that contributes to a simpler and clearer description of a phenomena), europocentric and linear thinking; handling simple and closed systems; exclusion of randomness, uncertainty, complementarity and alternativity; it was considered that the condition of the objective cognition was of the removal of everything that relates to the subject from the theoretical description; 2. Stage of non-classical science (late XIX–middle XX centuries): relativity of the true picture of the world;

recognition of the diversity of methods and approaches in cognition; indeterminism, relativism, the role of the subject in cognition (the subject is within the material world); 3. Stage of postnonclassical science (middle XX century): awareness of the relativity of knowledge in relation to the means of cognition and to that which worldview, values guide the subject; expansion of the role of context in cognition (the context for the whole mankind); recognition of ideological tolerance (pluralism of opinions), the principle of complementarity, the humanization of the science, alternative sciences (parascience, "home-made", and etc.), plurality of theories and subjects of scientific cognition, irrationalism, antiscientism (emphasis on the relativity of the scientific thinking), "gnosiological anarchism" (denial of universal method of research).

In general, according to the scientists, classical, non-classical and postnonclassical stages in the evolution of the science methodology resulted in the changes in the object of the scientific cognition (ideals and norms of research, the scientific picture of the world and philosophical foundations). As a result of change in the object, transition takes place from the simple systems (classical science) to complex (non-classical science) and further to developing one (postnonclassical science). One of the developing systems is the natural complex, in which the human is also included. Maintaining continuity in the scientific cognition of the history will allow using the positive features of the past achievements that form the basis of the modern domestic historic studies.

The modern science methodology gives priority to the study of the human factor, which highlights the role of the historic studies. Modern historians need to change their methodological, gnosiological principles and orientations, as it affects the result of introducing modern scientific thinking to the study of the history. The main components of such thinking, in our opinion, is the recognition of reality around us as a multi-variant, capable of self-development,

as well as recognition of the human as an inseparable object of the research;

3. Supporters of the formation approach believe that the transfer from monism to pluralism is impossible for the historic studies, as it will result in the loss of understanding of the laws and social function of the historic studies.

The civilization theory, in contrast to the formational one, assigns the entire range of forms of human communication with the equal importance. This makes it possible to change a point of view on the role and importance of the economic factors in the process of historical development, i.e. to abandon the economic determinism.

Comparative characteristics of the formational theory and the civilization theory of A. Toynbee revealed: they have differences in terms of their central and secondary notions (formation – civilization, basis and superstructure – Challenge-Response; exploiting class and the exploited class – creative minority and inert majority, and etc.). The death of a civilization is not always accompanied by the revolution as it happens when in the change of formations; in the social development stages (primitive communal system, slavery, feudalism, capitalism, communism genesis, growth, breakdown and disintegration). Relationship to the progress: high-quality, progressive growth of the progress from formation to formation – cyclicity, non-linear growth, variability of progress in each civilization; ratio of material and spiritual matter in these theories: in formation development, the determining factor is the laws of social of production – the society development is determined by the spiritual values, religious systems and activity of the intellectual elite.

The comparative characteristics showed that the civilization theory, to some extent, is wider than the theory of social and economic formations, as it incorporates not only economic indicators of the social development, but also political, social, psychological, legal, cultural, religious, and other forms of human communication.

The modern domestic historian should not completely abandon the formation approach. It is necessary to revise the Soviet version of Marxism, which for many years was the confirmation of the ideology and to some extent lost its status as a scientific method.

Thus, the Marxist-Leninist methodology that existed in the Soviet historic studies, in our opinion, is not the main cause of the crisis of the modern historic studies of the post-Soviet space. The reason is the methodological monopoly, which provided the "frozen" Marxist theory with the status of the single truth. Everyone knows that supertheory is impossible in a variety of truths. The way out is seen in the broader use of the principle of complementarity, which uses various methodological foundations in solving the research problems. This is confirmed by the comparative analysis of the qualitative characteristics of the formational theory and civilizations theory of A.J. Toynbee made in this paper. The conclusion is that, despite the various methodological foundations of these approaches, yet they have the right to co-exist in a single scientific space;

4. The popularity of the civilizational theory among the historians of the post-perestroika time was dictated by some disappointment in the authenticity of the conclusions drawn on the basis of formation approach used in research. But the boundless trust into the civilizational approach, in our opinion, is not quite true. This can be seen, when considering in practice the assessment of the role of the nomadic peoples by A. Toynbee. In our opinion, his assessment experiences Eurocentrism. Conclusion of Toynbee that the nomadic civilization in its essence has no history, does not correspond to the philosophy of the civilization theory, which gives equal importance to all the civilizations that existed and exist in the world;

5. Classical gnosiology did not allow competition between different theories, even if allowed, the end result was to "come" to a uncontested axiom. The modern historians mentality and science methodology allows for many

theories and many subjects of the scientific cognition. This means equality and equivalence of different theories and approaches. Such a position is acutely needed by the historic studies, phenomena which are contradictory and always in motion. Moreover, the objects of the historical research are unpredictable, and, therefore, do not always fit into the determined scheme. This means that the cognition methodology applied must be non-standard and more flexible. This can be achieved by means of the methodological pluralism, meaning in its broadest sense, the legitimacy and necessity of the existence of various trends and schools. For historic studies, this means a departure from the methodological monopoly, which ensured the Marxist theory with the status of a complete scientific synthesis, correct in explaining any conditions of the social development. Experience shows that putting a priority to one of the beginnings - material or spiritual - is not always effective;

6. Since the middle XX century, in the world, different concepts of self-organization were formed: the classic cybernetic concept of self-organization; the concept of self-organization as the formation of dissipative structures (I. Prigogine and his Brussels school), concept of self-organization in molecular biology (M. Eigen), synergy (H. Haken and the Institute of Theoretical Physics and synergy of the University of Stuttgart).

The synergy has several definitions: paradigm approach, concept, theory, method, model, science, and etc. As well as several names: “synergy” (H. Haken), “synergetic type concept”, “self-organization model” (A.P. Nazaretyan), “non-linear non-equilibrial thermodynamics”, “theory of dissipative structures” (I. Prigogine), “theory of pre-biological evolution” (M. Eigen), “information development theory” (Ye. Sedov), “catastrophe theory” (V. Arnold), “non-linear dynamics” (G. Malinetskiy) and others. All of these synonyms, in our opinion, are unified by that they explain the qualitative changes in the nature of the phenomenon under research via its own internal

dynamic properties.

In our opinion, the synergy is an approach, as it contains a set of theoretical and methodological provisions perceived by most modern scientists and taken by them as a model for scientific cognition. To disclose the features of the synergetic approach, in our opinion, the scientists need to develop specific synergetic methods of the scientific cognition guided by the paradigmatic attitudes of the synergy;

7. The role of the synergy in changing the mechanistic picture of the world is that it develops a new dialog of the human with nature. The synergy as a new vision of the world eliminates the gap between these the human world and the natural world, because it establishes the general mechanisms of self-organization inherent to both of them. With this interrelation, the human understands relativity of his power and, thus, is forced to reconsider his active role in the nature. The rationality of the modern science is associated with the idea of instability, which excludes the absolute control over the nature and society. The unpredictability of the world around us imposes the additional responsibility on the human for his actions. The synergy in a new way discloses the role of chaos: by fixing the destructive role of the chaos, the synergetic methodology and associated with it worldview also underline its creative beginning. The chaos is constructive, since it leads to that more complex systems near the exacerbation points come to decay, submitting to the peculiar principle of selecting systems that are the most advanced ones in these conditions;

8. The synergy promotes the development of a special non-linear thinking style, giving the paradigmatic framework for the study of complex social and natural systems that are in the state of instability. The scientists at the present stage need to develop specific application of these attitudes in respect of the certain scientific research. The synergetic thinking in a new way considers the

problem of individuality and freedom. It associates freedom with conscious right and responsibility of choice. A personality must establish a relationship between the desire and responsibility.

The synergetic vision of the world contributes to the bringing the social systems onto their own lines of development, as the general laws of self-organization are oriented to the own development trends of the system.

9. The synergy as a modern interdisciplinary study has one of the most important characteristics of the postnonclassical science, that is, the problem-oriented form of research that deals with implementing the complex programs. The word "synergy" means not only the cooperative action of the elements in complex systems, but also the cooperation of scientists from different fields of knowledge. The historic studies especially requires such property of the synergy, since at the present stage, the historians are increasingly choosing the narrow specializations, which makes it difficult to carry out the research. It is difficult for a narrow specialist to see the comprehensive picture of the historical period, situation, evens, and etc. An integrative, problem-oriented nature of the synergy would contribute to attracting specialists into the historic cognition not only from different historical sections, but also from other sciences, both natural and social and humanitarian ones. The synergy focuses on a coherent, coordinated nature of the processes of self-organization in complex systems. Such an approach, in the opinion of the scientists, is totally new and has not been applied before the synergy. The synergy blurs the boundaries between the natural and social science, and thus strives to build a universal picture of the world.

The synergy found its use not only in the sciences, in which is emerged – physics, chemistry, biology, but also proved to be effective in mathematics (catastrophe theory, non-linear dynamics, mathematical chaos theory, and others). For example, developed by Russian mathematicians and physicists “escalation modes”, that is, model problems that are widely used in the analysis

of complex systems. The synergy played a positive role in the development of a new scientific direction, the dynamic information theory, the purpose of which is to formulate the basic concepts of information in the language of the synergy. “Synertization” of the natural sciences, in our opinion, testifies to the general turn of the modern scientific thought toward the social and humanitarian problems. For example, the methods of the information theory proved to be a versatile tool for analyzing the self-organization of not only the simplest of physical bodies, but also the most complex social systems. This is proved by the development of information and entropy properties of the social systems (Ye.Sedov).

Significant progress of the synergy in the humanitarian sciences can be observed on the example of political science, sociology, pedagogy, philology. Even in such specialized areas as the arts, phenomenon of labor. These works represent the characteristics of all three classes of the synergetic research: use of the philosophical concepts based on the ideas of the synergy; use of the synergetic concepts (chaos, attractor, and etc.), which contribute to the development of the new humanitarian concepts (or the synergy of political studies or the synergy of the historical process), and the works requiring joint activity of humanitarian and natural science representatives. They analyze the humanitarian problems by the methods of the natural sciences and, therefore, use more specific criticism. The synergy dialogueness allows establishing contact between the natural and social sciences.

So the desire for renewal of the methodological foundation forces all the more intensively use the modern approaches based on the ideas of the postnonclassical science in the scientific cognition. One such approach is the synergetic one that is based on the ideas of self-organization, non-linearity and open systems. In our opinion, use of the synergetic ideas accelerates the transition of the science, understood as a source of power over the world

(monocentric model), to the science, understood as a personal journey and inner transformation of the researcher. The synergy casting doubt on the mechanistic model of the worldview, spread the horizons of the research. Being the "brainchild" of the natural science, the synergy found its application in the research of the objects of traditional social and humanitarian knowledge. Having established a dialog between the earlier "parallel" worlds, the synergetic paradigm is valuable with its conceptual and methodological, general scientific, philosophical level of generalization. We should also note the value of practical application of the synergy, as it helps to restore the integrity of the image of the world. Awareness of the integrity, in its turn, assists in developing joint laws of survival.

The synergetic concept is problem-oriented, thus it contributes to the high-quality integration of the science. We need to develop the interdisciplinary orientation of the synergy in order to achieve high-quality research results. Integrity of the synergy is evidenced by its "human dimension" as the most important feature of the modern science in general which consists in recognizing the human problem as an interdisciplinary and central problem of our time;

10. As for the synergetic approach in the historical research, it is possible to ascertain the prospects for such a dialog. For example, the synergetic interpretation of the civilization theory of A. Toynbee identified a number of significant comparisons that are common for both approaches: 1. Toynbee's system of "challenges" and "responses" makes the mankind to make the choice that is to be made by the system at the bifurcation point, according to the synergy; 2. Both theories give priority to the open systems, because they are unpredictable and, therefore, cannot be explained by deterministic methodology of the scientific cognition; 3. Recognition of randomness of the path selection by the system at the bifurcation point in the synergy, in the civilization theory – in the predestination of the world development from above; 4. Both theories

recognize the effect of the historical determinism between the bifurcation points and “choices”; 5. Both theories see the cause of the “crisis”, “chaos” of the system in the loss of the inner unity of the subsystems, in the lack of coherent actions, harmony, proportionality.

The most important thing that unites these theories is a call to restore the main value, which is spirituality and rejection of assertive evaluation of his activities by the human. In general, the interpenetration and complementarity of the synergy and civilization theory of Toynbee proves that the synergy is based on the internal points of different approaches, with which it has non-zero intersection;

11. Opponents of the use of the synergetic approach in the historic cognition argue as follows: the concept of the “"system” has a different meaning in the natural and humanitarian sciences; the role of the chaos is not new and it is not necessary to give it so much importance. In general, such terms as joint, cooperative action of different factors, abrupt changes that are attributed by the synergy to itself were known before. And property of the means of production was actually seen as a kind of attractor; the synergy provides only a collection of new terms for the historical research, which, in fact, do not change the history; lack of proper criticism in relation to the synergy, as many historians do not have a fair understanding of the specific heuristic possibilities of the synergy in the historic cognition; the synergy lacks the specifics. The main reason of the indiscriminate praise of the synergy, say the opponents, is related to the desire of many historians to eradicate the historical materialism in the historic cognition. And such a desire was the result of the crisis of the social science.

In our opinion, the opponents of the synergy are right that there are currently a few historical researches using the synergetic approach. But they are there. And this is only the beginning. Moreover, many researches conducted earlier, are a demonstration of cognitive possibilities of the synergy and now,

quite legitimately, they gain theoretical justification in the framework of the synergetic approach.

Conceptual and categorical apparatus of the synergy has a general scientific, conceptual character and assists in developing a specific historical research. Moreover, the synergy in recent years increasingly expands its applied nature, associated with the expansion of the specific computer-aided procedures.

The task of the historians at the present stage is to transfer the synergetic approach to the plane of the synergetic method, that is, from the certain models of formulating and solving problems to proceed to the study of specific historical phenomena and events. And then the borders of the synergy as a method of historical knowledge will be clearly defined, and specific research results will appear, in the absence of which the synergy is accused by its opponents;

12. It should be noted that certain results in the historical synergy already exist. For example, S.A. Gomayunov in his study proved that the synergy has the ability to synthesize the leading system approaches in the sphere of the history theory. The scientist tried to outline the contours of the historical synergy as the composite method of historic cognition. As a result, S.A. Gomayunov came to the conclusion that the synergy really synthesizes opposing methods, collecting them into some coherent whole. The composition is based on the personal beginning of the history that allows for the complex research of the human nature.

Evidence that the synergy, blurring the boundaries between the natural and social science, creates a large-scale picture of the self-organization of the human history, is the analyze of the ethnogenesis theory of L.N. Gumilyov. In his theory, L.N. Gumilyov considered the existence of ethnic groups as the life of a complex biosocial system that is subordinate to the laws of the synergetic nature. First of all, the ethnogenesis theory expresses the idea of the ethnic

group's ability to self-regulation, as the ethnicity has a complex structure, and it is able to exchange information and energy with the outside world.

In our view, a particular application of the synergetic approach in historic studies is represented by the attempt of the Russian scientist M.V. Sapronov to link the information and entropy properties of the systems and the synergetic paradigm with the generally accepted definition of the object and subject of the historic studies: human, his social organization and the whole diversity of forms of human activity. According to the scientist, the system has an adaptive mechanism, and the external challenges are neutralized. When the capacity is exhausted, the system is at the bifurcation point, in which the system faces several “force fields”, attractors. We can not predict which of the attractors will be in demand, because the system has the freedom of choice. It is at this point, when self-organization mechanisms manifest themselves: alternativity of the development pathways, the role of randomness. Once the choice is made, the system is again accumulating structural (predictable) information that allows it to acquire the stable development. M.V. Sapronov concludes that the development process of any complex structural, open system should be seen as an alternation of order and chaos, prerequisite to which is accumulation of the structural information and break through the chaos to a higher informational level .

In general, studies on the historical synergy show that the objects of historic cognition have all the features of self-organization: openness, non-linearity, interrelation of subsystems, disequilibrium. But this circumstance, in our opinion, does not mean that the synergetic approach is a universal tool for studying historical phenomena. It would, therefore be a mistake, to directly transfer the natural science concepts of the synergy onto the social environment without taking into account its specificity. The synergy played an important role in changing the ideological orientation of those historians who took the

synergetic elements as a basis for their research. The methodological search of these works evidence, first of all, the implementation of the move toward the dialog of different approaches of the scientific cognition.

Thus, we can conclude that the synergy is important with its practical side. For the historical synergy these are solution of specific problems of forecasting (futurological function), subjunctive modeling (hypothetical function). Besides, the historical synergy discloses its capabilities through syntagmatic (joint) transfer of the synergy ideas to the space of different theories. For example, the formational theory. As a result the synergetic and formational periodization of the domestic history is implemented. This periodization allowed us to expand the opportunities of the formation approach, as in every period of the history of Kazakhstan, we found and marked, not only economic, but also other factors, such as mental, social and biological, political, cultural, and other system factors of a particular period in the history of Kazakh people. The synergetic and formational periodization of the history of Kazakhstan showed the fruitfulness of the synergetic approach in the study of the domestic history. The system-forming factors identified by us in every period of the history of the country, revealed a new facet of the history of the Kazakh people. The researchers dealing with the synergy, did not create a single paradigm of applying the provisions of the synergy in all areas of the scientific knowledge. If we talk about the social science, in particular the historic studies, we mention only the introduction of elements of the new paradigm derived from the natural sciences, and the use of these elements in the individual branches of the social knowledge.

It may be noted that the synergy leads to a paradigm shift, a change in the scientific picture of the world and style of thinking. The synergetic picture of the world, the accents fall on the formation, co-evolution, coherence, co-operativeness of the world elements. At the same time it gives a new impulse for

discussing the traditional problems of randomness and determinism, chaos and order, openness and closeness of the systems, parts and the whole, the goals of the evolution. The synergetic style of scientific thinking is the evolutionary, non-linear and integrative thinking. In all likelihood, it is too early to speak of the synergetic paradigm as a generally accepted and sufficiently developed paradigm. But it is clear that the synergy, having the natural scientific base, been born by the non-equilibrial thermodynamics, and non-linear analysis, carries on its expansion into a variety of fields of knowledge that are very distant from the natural sciences. And this expansion has its grounds. As the synergy reveals some universal patterns of self-organization and evolution of complex systems, both natural and human. Analysis of the work on the synergy showed that the use of the synergy in many areas of knowledge is promising and fruitful. We hope that it will prove to be fruitful for the historic studies too.

REFERENCES

1 Article of the Head of the State "Course towards the future: modernization of Kazakhstan's identity" URL: http://kyzmet.gov.kz/ru/pages/statya-glavy-gosudarstva-vzglyad-v-budushchee-modernizaciya-obshchestvennogo-soznaniya

2 Nyssanbayev A.N. Metody nauchnogo poznaniyz. [Methods of the Scientific Cognition] (in Russian) (A.N. Nyssanbayev, A.G. Kossichenko et al.: Institute of Philosophy – Almaty: Kazakh Encyclopedia, 1996 –160 p.

3 Stepin V.S. Teoreticheskoye znaniye: struktura. istoricheskaya evolyutsiya. [theoretical Knowledge: Structure, Historical Evolution] (In Russian) – M.: Progress-Traditsiya, 2000 – 744 p.

4 Genezis kategorialnogo apparata nauki [Genesis of the Categorical Apparatus of Science] (in Russian) /A.N. Nyssanbayev, A.G. Kossichenko et al.; Editor-in-chief K.Kh. Rakhmatullin, A.N. Nyssanbayev. – Alma-Ata: Nauka KazSSR, 1990. – 317 p.

5 Logiko-gnoseologicheskiy analiz nauki. [Logic and Gnosiological Analysis of the Science] (in Russian) – Alma-Ata: Gylym,1990.– 496 p.

6 Ilyin V.V. Teoriya poznaniya. Epistemologiya. [Cognition Theory. Epistomology.] (in Russian) – M.: MSU, 1974. –136 p.

7 Santsevich A.V. Metodika istoricheskogo issledovaniya. [Methodology of Historical Research.] (in Russian) – Kiev: KSU, 1984. – 305 p.

8 Antipov G.A. The Problem of Forming the New Knowledge and Ways of its Analysis //Methodological Problems of Science: Interuniversity Collection of Scientific Papers. – Novosibirsk: NSU, 1986. – 187 p.

9 Filosofsko-metodologicheskiye problemy nauki. [Philosophical and Methodological Problems of Science] (in Russia) – Alma-Ata: Nauka, 1986. – 224 p.

10 Kemerov V.Ye. Metodologiya obshchestvoznaniya: problemy. stimuly. perspektivy. [Methodology of Social Sciences: Problems, Incentives and Prospects.] – Sverdlovsk: UrSu, 1990. – 164 p.

11 Ivanov V.V. Metodologiya istoricheskoy nauki. [Methodology of the Historic Studies.] (in Russian) – M.: Vysshaya shkola, 1985. – 168 p.

12 Rakitov A.I. Istoricheskoye poznaniye: Sistemno-gnoseologicheskiy podkhod. [Historic Cognition: System and Gnosiological Approach.] (in Russian) – M.: Politizdat, 1982. – 303 p.

13 Kovalchenko I.D. Theoretical and Methodological Problems of Historical Research. Notes and Reflections on New Approaches // Novaya i noveyshaya istoriya. – 1995. – No. 1. – P.3-33.

14 Kontseptsiya stanovleniya istoricheskogo soznaniya v Respublike Kazakhstan. [Concept of Formation of Historical Consciousness in the Republic of Kazakhstan.] (in Russian) – Almaty: Kazakhstan, 1995. – 32 p.

15 Sapronov M.V. Concepts of Self-Organization in the Social Sciences: a Trend or an Urgent Need? (Reflections on the Future of Historic Studies) // Obshchestvennyye nauki i sovremennost. – 2001. – No. 1. – P.148-161.

16 Filosofskiy analiz nauki v kontekste sotsiokulturnoy transformatsii obshchestva [Philosophical Analysis of the Science in the Context of Social and Cultural Transformation of Society] (in Russian) / Editor-in-chief A.N. Nyssanbayev. – Almaty: Institute of Kazakhstan Development, 1995. – 93 p.

17 Koygeldiyev M. Methodological Issues of the Domestic History // Otan Tarikhy. – 2003. – No. 1. – P.9-13.

18 Stepin V.S. Activity Concept of Knowledge (discussion with Igor Alekseyev) // Voprossy filosophii. – 1991. – No. 8. – P.129-139.

19 Philosophical Dictionary. – M.: Politizdat, 1991. – 520 p.

20 Knyazeva Ye.N., Kurdyumov S.P. Osnovaniya sinergetiki. Rezhimy s obostreniyem. samoorganizatsiya. tempomiry. [Synergy Foundations. Escalation

Modes, Self-Organization, Tempoworlds.] (in Russian) – SPb.: Aleteiya, 2002. – 414 p.

21 Filosofiya i metodologiya nauki: Dlya aspirantov i magistrantov [Science Philosophy and Methodology: For Graduate Students and Undergraduates] (in Russian) / Edited by K.Kh. Rakhmatullin et al. – Almaty: Kazakh Universitety, 1999 – 403 p.

22 Prigogine I., Stengers I. Poryadok iz Haossa. [Order from Chaos.] (in Russian) – M.: Progress, 1986. – 272 p.

23 Haken H. Sinergetika: Ierarkhii neustoychivosti. [Synergy: Hierarchy and Instability.] (in Russian) –M.: Mir, 1980 – 404p.

24 Eigen M. Samoorganizatsiya materii i evolyutsiya biologicheskikh makromolekul [The Self-Organization of Matter and Evolution of Biological Macromolecules] (in Russian) / Translated from English by V.M. Andreyev; Edited and Foreword by M.V. Wolkenstein. – M.: Mir, 1973. – 216 p.

25 Shuster G. Determinirovannyy khaos: Vvedeniye [Deterministic Chaos: Introduction] (in Russian) / Translation from English – M.: Mir, 1988. – 240 p.

26 Danilevsky N.Ya. Rossiya i Yevropa. [Russia and Europe.] (in Russian) – M.: Kniga, 1991. – 574 p.

27 Toynbee A.J. Postizheniye istorii. [Understanding History.] (in Russian) – M.: Progress, 1991. – 736 p.

28 Spengler O. Zakat Yevropy. [Decline of the West.] (in Russian) – Novosibirsk: VO “Nauka ”, 1993. – 592 p.

29 Gumilyov L.N. Etnogenez i biosfera Zemli. [Ethnogenesis and Biosphere of the Earth.] (in Russian) – M.: Rolf, 2001. – 560 p.

30 Knyazeva Ye.N., Kurdyumov S.P. Synergy as a New Vision of the World: dialog with I. Prigogine // Voprossy filosofii. – 1992. – No. 12. – P.3-21.

31 Arshinov V.I., Savicheva N.G. Civil Society in the Context of the

Synergistic Approach // Obshchestvennyye nauki i sovremennost. – 1999. – No. 3. – P.131-138.

32 Nazaretyan A.P. Synergy in the Humanities: Preliminary Results // Obshchestvennyye nauki i sovremennost – 1997. – No. 2. – P.91-98.

33 Gomayunov S.A. Anatomiya Antisistemy: k voprosu o prirode totalitarnykh obshchestv. [Anatomy of the Anti-System: the Question of the Nature of Totalitarian Societies.] (in Russian) – Kirov: KSU, 1991. – 215 p.

34 Delokaron K.Kh. Systemic Paradigm of the Modern Science and Synergy // Obshchestvennyye nauki i sovremennost. – 2000. – No. 6. – P.110-119.

35 Shterenberg M.I. Is Synergy a Science? //Filossofskiye nauki. – 2004. – No. 6. – P.130-139.

36 Nazaretyan A.P. Does History Know the Subjunctive Mood? //Filossofskiye nauki. – 2005. – No. 2. – P.7-18.

37 Vestnik RGTU. Issue 1. Centauristics: Experience of Combining Incongruous. / Edited by D. Danin I. and D. Khubova. – M.: RGTU, 1996. – 388 p.

38 Delokarov K.Kh. Rationalism and Sotsiosinergy // Obshchestvennyye nauki i sovremennost. – 1997. – No. 1. – P.117-124.

39 Sheveleva S.S. For the Establishment of the Synergetic Model of Education // Obshchestvennyye nauki i sovremennost. – 1997. – No. 1. – P.125-133.

40 Redyukhin V.I. Synergy – the “Blue Bird” of Education // Obshchestvennyye nauki i sovremennost. – 1998. – No. 1. – P.144-154.

41 Novikova L.I., Sokolovskiy M.V. “Educational Space” as an Open System. (Pedagogy and Synergy) // Obshchestvennyye nauki i sovremennost. – 1998. – No. 1. – P.132-143.

42 Zhanabayev Z.Zh., Mukushev B.A Sinergetika v pedagogike.

[Synergetics in Pedagogy.] (in Russian) – Almaty: Alem, 2002. – 128 p.

43 Zhanabayev Z.Zh., Khmel N.D. Synergistic Nature of the Educational Process // Poisk. – 1996. – No. 1. – P.61- 64.

44 Vengerov A.B. Synergy and Politics // Obshchestvennyye nauki i sovremennost. – 1993. – No. 4. – P.55- 69.

45 Yevstigneyev V.R. Ideas of I. Prigogine in Economics. Non-linearity and Financial Systems // Obshchestvennyye nauki i sovremennost. – 1998. – No. 1. – P.112-121.

46 Gomayunov S.A. From the Synergy History to the History Synergy // Obshchestvennyye nauki i sovremennost. – 1994. – No. 2. – P.99-106.

47 Gomayunov S.A. Kompozitsionnyy metod v istoricheskom poznanii.[Composite Method in Historic Cognition.] (in Russian) – M.: MSPU, 1994. – 143 p.

48. Abil Ye.A. Methodological Problems of Applying the Natural Science Methods in Historical Research: History and Synergetics /Author's Abstract for Doctoral Dissertation on the Historic Studies – Karaganda, 2007. – 45 c.; a.k.a. Istoricheskaya nauka i sinergetika: metodologicheskiye problemy. [Historic Studies and Synergy: Methodological Problems.] (in Russian) – Kostanay: LLP "Kostanaypoligrafiya", 2008. – 184 p. and others.

49. Dossova B.A. Synergy as a New Area of Interdisciplinary Research // Historic Studies in the XXI Century: Proceedings of International Bekmahanov Readings. – Almaty, 2001. – Part 2. – P.92 – 97; Synergetic Method in Historical Epistemology (on the Problem Statement) // "Valikhanov Readings – 7": Proceedings of the International Scientific and Practical Conference. – Kokshetau, 2002. – Vol.1. – P.100 – 102; The Role of the Synergetic Paradigm in Updating the Methodology of the Modern Historic Studies of Kazakhstan (on the Problem Statement) // Vestnik KazNU. Historical Series. – 2002. – No. 4 (27). – P.3 – 5; Synergy – Method of Histroical Research // Kazak Tarikhy. –

2004. – No. 5. – P.127 – 131; Some of the Arguments of Synergy Opponents // Vestnik KazNU. Historical Series. – 2006. – No. 1 (40). – P.18 – 21; Synergy Potential in Integrating the Natural and Humanitarian Knowledge //"Natural and Humanitarian Sciences and their Role in Implementing the Program of the Industrial and Innovative Development of the Republic of Kazakhstan": Proceedings of the III International Scientific and Practical Conference. – Almaty, 2007. – P.172-174; Synergetic and Formational Periodization of the History of Kazakhstan //"Valikhanov Readings – 12": Proceedings of the International Scientific and Practical Conference. – Kokshetau, 2007. – Vol.2. – P.104 – 108; Kazakhstan in the Russian Empire: An Attempt of Synergetic and Formation Periodization of the Domestic History //Eurasian Steppe Region. Historical and Cultural Interaction and Modernity: Theses of Reports and Messages of the V International Scientific Conference. – Omsk-Karaganda, 2007. – P.39-41; Achievements of the Synergy in Natural and Social and Humanitarian Sciences Reseach //KazUU Khabarshyssy. – Histroic Serties. – 2008. – No. 4 (51). – P. 44-52; The Crisis of Cognition in Post-Soviet Historic Studies: Some Conclusions // Eurasian Steppe Region: Historical and Cultural Interactions and Modernity: Theses of Reports and Messages of the VI International Scientific Conference. – Omsk-Kustanay, 2009. – P.228-229 and others.

50 Sapronov M.V. Synergetic Approach in historical Research: New Opportunities and Difficulties of Application // Obshchestvennyye nauki i sovremennost. – 2002. – No. 4. – P.158-172.

51 Marx K. and Engels F. German Ideology. Criticism of Modern German Philosophy Represented by Feuerbach, B.Bauer and Stirner, and of German Socialism Represented by its Various Prophets // PSS. – M.: Gos. izd. pol. lit., 1955. – Vol.3. – P.7-544.

52 Braudel F. Dinamika kapitalizma. [Capitalism Dynamics.] (in Russian)

– Smolensk: Poligramma, 1993. – 125 p.

53 Popper K. Otkrytoye obshchestvo i ego vragi. Vremya lzheprorokov: Gegel. Marks i drugiye orakuly. [Open Society and Its Enemies False Prophets Time:

Hegel, Marx, and Other Oracles.] (in Russian) – M.: Feniks, 1992. – Vol.2. – 525 p.

54 Nazarbayev N.A. Kriticheskoye dessyatiletiye. [Critical Decade.] (in Russian) – Almaty: Atamura, 2003.– 240 p.

55 Abdildin Zh.M., Nyssanbayev A.N. Dialektiko-logicheskiye printsipy postroyeniya teorii. [Dialectical and Logical Principles of the Theory Construction.] (in Russian) – Alma-Ata: Nauka KazSSR, 1973. – 420 p.

56 Nyssanbayev A.N. Filosofiya vzaimoponimaniya. [Mutual Understanding Philosophy.] (in Russian) – Almaty: Kazakh Encyclopedia, 2001 – 544 p.

57 Rakhmatullin K.Kh. Zvyozdy: Nauka i suyeveriye. [Stars: Science and Superstition.] (in Russian) – Alma-Ata: Kazakhstan, 1984. – 64 p.

58 Balgimbayev A.S. Aktivnost subyekta v postroyenii teorii. [Subject Activity in Theory Construction.] (in Russian) – Almaty: Kazakh Encyclopedia, 1999 – 69 p.

59 Burova Ye.Ye., Karabayeva A.T., Kirillova G.R. Vvedeniye v filosofiyu i metodologiyu nauki.[Introduction into the Science Philosophy and Methodology.] (in Russian) – Almaty: Repub. Publishing Cab. of Kazakh Academy of Education named after I.Altynssarin, 1999. – 269 p.

60 Stepin V.S. Stanovleniye nauchnoy teorii (Soderzhatelnyye aspekty stroyeniya i genezisa teoreticheskikh znaniy fiziki). [Formation of Scientific Theory (Content Aspcts of the Structure and Genesis of the Theoretical Knowledge of Physics).] (in Russian) – Minsk: BSU, 1976.–320 p.

61 Stepin V.S. Scientific Revolutions as Bifurcation “Points” in the Knowledge Development // In book: Nauchnyye revolyutsii v dinamike kultury [Scientific Revolutions in the Culture Dynamics] (in Russian) / V.S.Stepin, I.T. Frolov, V.A. Lektorskiy et al. – Minsk: Universitetskoye, 1987–384 p.

62 Ilyin V.V. Classics-Nonclassics-Neononclassics: Three Epochs in the Development of Science // Vestnik Moskovskogo Universiteta. – 1993. – No. 2. – P.16-35.

63 Mogilnitskiy B.G. Vvedeniye v metodologiyu istorii. [Introduction into the Histroy Methodology.] (in Russian) – M.: Vysshaya shkola, 1989. – 175 p.

64 Kassavin I.T. Teoriya poznaniya v plenu anarkhii: Kriticheskiy analiz noveyshikh tendentsiy v burzhuaznoy filosofii nauki. [The Cognition Theory in Captivity of Anarchy: Critical Analysis of the Latest Trends in Bourgeois Philosophy of Science.] (in Russian) – M.: Politizdat, 1987. – 191 p.

65 Kezin A.V. Nauchnost: etalony. idealy. kriterii. Kriticheskiy analiz metodologicheskogo reduktsionizma i plyuralizma. [Scientificity: References, Ideals, Criteria. Critical Analysis of Methodological Reductionism and Pluralism.] (in Russian) – M.: MSU, 1985. – 127 p.

66 Kelle V.Zh., Kovalzon M.Ya. Teoriya i istoriya: problemy teorii istoricheskogo protsessa. [Theory and History: Problems of the Historical Process Theory.] (in Russian) – M.: Politizdat, 1981. – 288 p.

67 Kovalchenko I.D. Metody istoricheskogo issledovaniya. [Methods of Historical Research.] (in Russian) – M.: Nauka, 2003. – 486 p.

68 Lappo-Danilevskiy A.S. Metodologiya istorii. [History Methodology.] (in Russian) Part 1. Theory of Historical Knowledge. – SPb.: Tipografiya B. Bezobrazova i K., 1910. – 291 p.

69 Epistemologiya i postneklassicheskaya nauka [Epistomology and Postnonclassical Science] (in Russian) / RAS, Institute of Philosophy; (editor-in-chief V.I. Arshinov). – M.: RAS Institute of Philosophy, 1992. –157 p.

70 Feyerabend P. Izbrannye trudy po metodologii nauki. [Selected Works on the Science Methodology.] (in Russian) – M.: Progress, 1986. – 543 p.

71 Bohr N. Izbrannye trudy. [Selected Works.] (in Russian) – M.: Nauka, 1971. – 311 p.

72 Nikolis G., Prigogine I. Poznanie slozhnogo: Vvedenie. [Exploring Complexity: Introduction.] (in Russian) – M.: Mir, 1990. – 342 p.

73 Prigogine I. Instability Philosophy // Voprossy filossofii. – 1991. – No. 6. – P.46-52.

74 Prigogine I. Priroda, nauka i novaya racional'nost'. [Nature, Science and New Rationality.] (in Russian) (Translated from German by Ye.N. Knyazeva) // Prigogine I. In the Search for New Understanding of the World / I. Prigoginee, Ye. and N. Rerichs. Phylisophy and Life Series. – M.: Znaniye, 1991. – No. 7.– P.32-41.

75 Haken H. Synergy is 30. Interview with Professor H. Haken // Voprossy filosofii. – 2000. – No. 3. – P.53-61.

76 Meinzer K. Complexity and Self-Organization // Voprossy filosofii. – 1997. – No. 3. – P.48-61.

77 Sedov Ye.A. Odna formula i ves' mir: Kniga ob entropii. [One Formula and the Whole World: Book of Entropy.] (in Russian) – M.: Znaniye, 1982. – 290 p.

Synergy: Collection of Articles/ Edited by B. Kadomstev. – M.: Znaniye, 1984. – 207 p.

79 Klimontovich N.Yu. Bez formul o sinergetike. [Without Formulas about the Synergy.] (in Russian) – Minsk: Vysheyshaya shkola, 1986. – 223 p.

80 Knyazeva Ye.N., Kurdyumov S.P. Zakony evolyucii i samoorganizaciya slozhnyh sistem. [Laws of Evolution and self-Organization of Complex Systems.] (in Russian) – M.: Nauka, 1994. – 179 p.

81 Dobronravova S. Sinergetika: stanovlenie nelinejnogo myshleniya. [Synergy: Formation of Non-Linear Thinking.] (in Russian) – Kiev: Lybid, 1990. – 152 p.

82 Loskutov A.Yu., Mikhaylov A.S. Vvedenie v sinergetiku. [Introduction into Synergy.] (in Russian) – M.: Nauka, 1990. – 272 p.

83 Kurdyumov S.P., Malinetskiy G.G. Sinergetika – teoriya samoorganizacii. Idei, metody, perspektivy. [Synergy - Theory of Self-Organization. Ideas, Methods, Perspectives.] (in Russian) – M.: Znaniye, 1983. – 64 p.

84 Abbassov A.F. Slozhnost'. Vremya. Sinergetika: Obshcheteoreticheskij analiz problem slozhnosti i razvitiya slozhnyh sistem. [Complexity. Time. Synergy: General Theoretical Analysis of the Problems of Complexity and Development of Complex Systems.] (in Russian) – Baku: Elm, 1991.– 212 p.

85 Moisseyev N.N. Algoritmy razvitiya. [Development Algorithms.] (in Russian) – M.: Nauka, 1984. – 304 p.

86 Vernadskiy V.I. Izbrannye trudy po istorii nauki. [Selected Works on the Science History.] (in Russian) – M.: Nauka, 1981. – 359 p.

87 Teilhard de Chardin P. Fenomen cheloveka. [Human Phenomenon] (in Russian) – M.: Nauka, 1987. – 240 p.

88 Fukuyama F. End of History // Voprosy filosofii. – 1990. – No. 3. – P.134-147.

89 Huntington S. Clash of Civilizations // Polis. – 1996. – No. 4. – P.34-44.

90 Nazaretyan A.P. Agressiya, moral' i krizisy mirovoj kul'tury. [Agression, Moral and Crises of the Global Culture.] (in Russian) – M.: Naslediye, 1996. – 183 p.

91 Nazaretyan A.P. Civilizacionnye krizisy v kontekste Universal'noj istorii. (Sinergetika - psihologiya - prognozirovanie). [Civilization

Crises in the Context of Universal History. (Synergy – Psychology – Forecasting).] (in Russian) – M.: Mir, 2004. – 367 p.

92 Lotman Yu.M. Kul'tura i vzryv. [Culture and Explosion.] (in Russian) – M.: Progress, 1992. – 270 p.

93 Arnold V.I. Teoriya katastrof. [Catastroph Theory] (in Russian) – M.: Nauka, 1990. – 126 p.

94 Moisseyev N.N. Universal Evolutionism (Position and Effects) // Voprossy Filossofii. – 1991. – No. 3. – P.3-28.

95 Sedov Ye.A. Information and Entropy Properties of the Social Systems // Obshchestvennyye nauki i sovremennost. – 1993. – No. 5. – P.92-100.

96 Leskov L.V. Futurosynergy of the Western civilization. (Problems of Synergetic Modelling) // Obshchestvennyye nauki i sovremennost. – 1998. – No. 3. – P.149-162.

97 Shkurkin A.M. Labr Phenomenon: Synergetic View // Obshchestvennyye nauki i sovremennost. – 1988. – No. 1. – P.122-131.

98 Kazyutinsky V.V., Stepin V.S. Interdisciplinary Synthesis and Development of the Modern Scientific Picture of the World //Voprossy filossofii. – 1988. – No. 4. – P.31-42.

99 Grigoryeva T.P. Dao i logos (vstrecha kul'tur). [Dao and Logos (Meeting of Cultures).] (in Russian) – M.: Nauka, 1992.

– 424 p.

100 Branskiy V.P. Theoretical Foundations of Social Synergetics // Voprossy filossofii. – 2000. – No. 4. – P.112-129.

101 Andreyev A.Yu., Borodkin L.I., Levandovskiy M.I. History and Chaos: New Approaches in Synergy // A Comparative Study of Civilizations of the World /Interdisciplinary Approach/: Collection of Articles – M.: RAS Institute of World History, 2000. – 352 p.

102 Yevin I.A. Sinergetika iskusstva. [Synergetics of Art.] (in Russian) – M.: Nauka, 1993 – 171 p.

103 Prytkov V.P. Justification of Synergy // Voprossy filossofii. – 2001. – No. 4. – P.146-149.

104 Barantsev R.V. The Immanent Problems of Synergy // Voprossy filossofii. – 2002. – No. 9. – P.91-101.

105 Yurzhenko L.V. Synergy of the Social and Cultural Analysis: Sociological Analysis: Author's Abstract ... Candidate of Sociological Sciences – Kiyev, 2000. – 20 p. (in Ukranian).

106 Chernavskiy D.S. Sinergetika i informaciya. [Synergy and Information] (in Russian) – M.: Znaniye, 1990. – 250 p.

107 Fyunfshtyuk K. Synergy as a New Cognitive Model in Humanities.: Thesis ... Candidate of Philosophical Sciences – M.,1998.

108 Vassilkova V.V. Synergy and Social Self-Organization Theory: Thesis ... Doctor of Philosophical Sciences – SPb., 1999.

109 Topolsky Ye. Discussion on Applying the Chaos Theory to History // Istoricheskiye Zapiski. – 1999. – No. 2 (120). – P.80-99.

110 Gubin V.B. Synergy as a New Pie for "Postnonclassical Scientists" or a Comment on the Author's Abstact for Doctoral Dissertation // Filosofskiye nauki. – 2003. – No. 2. – P.121-155.

111 Taubayeva Sh. Issledovatel'skaya kul'tura uchitelya: metodologiya, teoriya i praktika formirovaniya. [Research Culture of the Teachers: Methodology, Theory and Formation Practice.] (in Russian) – Almaty: Alem, 2000. – 381 p.

112 Moldabekova M.S. Self-Organization in Developing Teaching // Chaos and Structure in Non-Linear System. Theory and Experiment. Proceedings of the International Conference. – Karaganda, 1997. – P.306-307.

113 Marx K. and Engels F. Theses on Feuerbach // PSS. – M.: Gos. izd. pol. lit., 1955. – Vol.3. – P.1-4.

114 Marx K. and Engels F. Manifest Kommunisticheskoj partii. [Manifesto of the Communist Party.] (in Russian) – M.: Politizdat, 1977. – 63 p.

115 Marx K. Capital. Criticism of Political Economy // PSS. – M.: Gos. izd. pol. lit., 1960. – Vol.23. – 752 p.

116 Gurevich A.Ya. Social History and Historic Studies // Voprossy filossofii. – 1990. – No. 4. – P.23-29.

117 Gurevich A.Ya. On the Crisis in the Present-Day Historic Studies //Voprossy istorii. – 1991. – No. 2-3. – P.21-37.

118 Kara-Murza S.G. Soviet Science and Bureaucratic System: Dimensions of Cooperation // Voprossy filossofii. – 1990. – No. 9. – P.24-34.

119 Neretina S.S. History with History Methodology // Voprossy filossofii. – 1990. – No. 9. – P.149-155.

120 Sravnitel'noe izuchenie civilizacij: Hrestomatiya [Comparative Study of Civilizations: A Reader] /Compiled, Edited and Foreword by B.S. Yerassov. – M.: Aspekt-Press, 1999. – 556 p.

121 Rashkovsky Ye.B. Vostokovednaya problematika v kul'turno-istoricheskoj koncepcii A.J. Toynbee. (Opyt kriticheskogo analiza). [Oriental Issues in Cultural and Historical Concept of A.J. Toynbee. (Experience of Critical Analysis).] (in Russian) – M.: Nauka, 1976. – 199 p.

122 Kshibekov D. Kochevoe obshchestvo: genezis, razvitie, upadok. [Nomadic Society: Genesis, Development, Decline.] (in Russian) – Alma-Ata: Nauka, 1984. – 238 p.

123 Massanov N.E. Kochevaya civilizaciya kazahov: osnovy zhiznedeyatel'nosti nomadnogo obshchestva. [Nomadic Civilization of the Kazakhs: Basics of Life Activity of the Nomadic Society.] (in Russian) – Almaty: Sotsinvest, 1995. – 319 p.

124 Tolybekov S.Ye. Kochevoe obshchestvo kazahov v XVII-nach.XX vv. Politiko-ekonomicheskij analiz. [Nomadic Society of the Kazakhs in the XVII-early XX centuries. Political and Economic Analysis.] (in Russian) – Alma-Ata: Nauka, 1971. – 633 p.

125 Markov G.Ye. Kochevniki Azii. Struktura hozyajstva i obshchestvennoj organizacii. [Nomads of Asia. Structure of Economy and Social Organization.] (in Russian) – M.: MSU, 1976. – 318 p.

126 Zlatkin I.Ya. Koncepciya istorii kochevyh narodov A.Tojnbi i istoricheskaya dejstvitel'nost' // Sovremennaya istoriografiya stran zarubezhnogo Vostoka. Problemy social'no-politicheskogo razvitiya. [Concept of the Nomadic Peoples History of A.Toynbee and Historic Reality // Modern Historiography of the Countries of the East. Problems of Social and Political Development.] (in Russian) – M.: Nauka, 1971. – 255 p.

127 Khazanov A.M. Kochevniki i vneshnij mir. [Nomads and External World.] (in Russian) – Almaty: Dayk-Press, 2000. – 604 p.

128 Nazarbayev N.A. On the threshold of the XXI century. – Almaty: Oner, 1996. – 286 p.

129 Nazarbayev N.A. In the Stream of the History. – Almaty: Atamura, 1999. – 294 p.

130 Atabayev K.M. Here's Question! Cardinal Changes in the Society. Chronology of the History and National Identity // Yegemen Kazakhstan. – 2001, October 30. – 5 p.

131 Omarbekov T.O. How do we Write History? // Kazakh Adebiyeti. – 1998, February 24. – No. 8 – 2 p.

132 Kazakhstan tarikhy kone zamannan buginge deyin: Ocherk. [History of Kazakhstan from Ancient Time till Present Days. Review] (in Kazakh)/ Chief Editor M.K. Kozybayev. – Almaty: Dauir, 1994. – 446 p.

133 koygeldiyev M. Omarbekov T.O. Tarikh tagylyma ne deydi? [What History Says?] 9in Kazakh) – Almaty: Ana tili, 1993. – 208 p.

134 Istoriya Kazahstana (s drevnejshih vremen do nashih dnej) [History of Kazakhstan (from Ancient Time till Present Days)] (in Russian) : In 5 vol. /M.Kh. Assylbekov, K.S. Aldazhumanov, K.M. Baypakov, O.I. Ismagulov, M.K. Kozybayev (chief editor), A.K. Koshanov, M.A. Kul-Mukhkhammed, B.Ye. Kumekov, K.N. Nurpeissov, Yu.I. Romanov, K.A. Sagadiyev. – Almaty: Atamura,1996-2010.

135 Istoriya Kazahstana s drevnejshih vremen do nashih dnej (Ocherk) [History of Kazakhstan from Ancient Time till Present Days (Review)] (in Russian). /Editorial board: A.K. Akishev, M.Kh. Assylbekov, K.M. Baypakov, Zh.K. Kassymbayev, M.K. Kozybayev (chief editor), T.A. Mansurov, K.N. Nurpeissov, K.A. Pishchulina, Yu.I. Romanov. – Almaty: Dauir, 1993. – 416 p.

136 Istoriya Kazahstana: narody i kul'tury [History of Kazakhstan: Peoples and Cultures] (in Russian) / Massanov N.E. et al. – Almaty: Dayk-Press, 2000. – 608 p.

137 Kuzembayuly A., Abilev Ye. Istoriya Respubliki Kazahstan. [History of the Republic of Kazakhstan.] (in Russian) – Astana: “Foliant”, 2002. – 368 p.

138 Mukanov M.S. Kazak zherinin tarikhy. [Hisotry of Kazakh Land] (in Kazakh) – Almaty: Atamura, 1994. – 80 p.

139 Kan G.V. Istoriya Kazahstana. [History of Kazakhstan.] (in Russian) – Almaty: Arkaim, 2002. – 221 p.

140 Yudin B.T. Social Genesis of the Soviet Science // Voprossy filossofii. – 1990. – No. 12. – P.16-31.

141 Furman D.Ye. Our Concerns and World History // Voprossy filossofii. – 1999. – No. 11. – P.44-60.

142 Altukhov V. Contours of the Non-Classical Social Theory // Obshchestvennyye nauki i sovremennost. – 1992. – No. 5. – P.59-73.

143 Rozhansky M. From the Dead End of the Historic Mind // Obshchestvennyye nauki i sovremennost. – 1992. – No. 2. – P.150-158.

144 Nikiforov A. Will Marxism survive perestroika? //Obshchestvennyye nauki i sovremennost. – 1990. – No. 3. – P.115-129.

145 Ilyin V.V. Theoretical Thought in Maxism has Atrophied //Obshchestvennyye nauki i sovremennost. – 1991. – No. 2. – P.59-66.

146 Crisis Phenomena in the Soviet Historic Studies. Discussion of Historians, Philosophers, Jurists // Obshchestvenniye nauki. – 1989. – No. 3. – P.184.

147 Is Marxism Dead? Discussion Materials // Voprossy filossofii. – 1990. – No. 10. – P.19-52.

148 Zhuk S.I. Is the History One-Dimensional? // Voprossy Istorii. – 1992. – No. 8-9. – P.186-187.

149 Formations or Civilizations? / Materials of the “round Table”/ // Voprossy filossofii. – 1989. – No. 10. – P.34-59.

150 Mogilnitskiy B.G. Some Results and Perspectives of Methodological Studies in the Domestic Historiography // Novaya i noveyshaya istoriya. – 1993. – No. 3. – P.9-19.

151 Smolenskiy N.I. On the State of Studying the Theoretical Problems of the Historic Studies // Novaya i noveyshaya istoriya – 1990. – No. 4. – P.202-206.

152 Saveliyev I.M., Poletayev A.V. Istoriya i vremya. V poiskah utrachennogo. [History and Time. In the Search for the Lost.] (in Russian) – M.: “Yazyki russkoy kultury”, 1997. – 800 p.

153 Borodkin L.I. “Order from Chaos”: Synergy Concepts in Historical Research Methodology”. URL: http://spkurdyumov.ru/evolutionism/poryadok-iz-xaosa/

154 Engineering of the Future. Problems of Digital Reality: Proceedings of the 2nd International Conference (7-8 February 2019, Moscow). – M.: M.V. Keldysh IAM, 2019 – 300 c. doi:10.20948/future-2019 URL: http://keldysh.ru/future/2019/proc.pdf

155 Malinetskiy G.G. Risks of Digital Reality // Engineering of the Future. Problems of Digital Reality: Proceedings of the 2nd International Conference (7-8 February 2019, Moscow). – M.: M.V. Keldysh IAM, 2019 – P. 228-249. – URL: https://keldysh.ru/future/2019/21.pdf doi:10.20948/future-2019-21

156 Dosova BA., Konkina GS., Minar A, Yessimkhanova NI Methodological base of the historical science USSR: problem of effectiveness in modern stage //International Scientific Journal Theoretical & Applied Science. – 2015. – Issue 11. – Vol. 31 – P. 18-22. – URL: http://dx.doi.org/10.15863/TAS.2015.11.31.4

157 Dossova B.A. Methodological Orientations of Science Phases: Implications for Historical Science// Nauka teoria i praktyka – 2015: Proceedings of the XI International Scientific and Practical Conference. – 2015. – Vol. 2. Prawo. Politologija. Filozofia. Historia. – Przemysl: «Nauka i studia», 2015. – P. 84-89

158 Dossova B.A. Methodological Pluralism and the Principle of Complementarity as a Reflection of Postnonclassical Type of Methodology// Topical Issues of the Domestic History and Archeology: Proceedings of the International Scientific and Practical Conference in honor of 70-the Anniversary of Zhauymbayev S.U. – Karaganda: Publishing Department of the KSTU, 2017. – P.197-201

159 Dossova B.A. Historical Materialism through the Prism of Modern Methodological Orientations// Modernization of the Public Conscience and Kazakhstani New Humanitarian Sciences: Proceedings of the International

Scientific and Practical Conference. – Karaganda, 2018. – P.119-124

160 Dossova B.A. System-Forming Factors in the History of Kazakhstan: Synergistic View on the Period of Modern Times// Life and Creativity of Bukhar Zhyrau Kalkamanuly – Spiritual Values of Modern Society: Proceedings of the International Scientific and Practical Conference in honor of 350-th Anniversary of Bukhar Zhyrau Kalkamanuly – Karaganda, 2018. – P.11-15

161 Assankanov A., Kentbek S.K., Zhumanova A.Z. Studying the History of Soviet Language Policy in Kazakhstan// Vestnik Karagandinskogo Universiteta. “History. Philosophy” series. – Karaganda, 2016. – No,3(83). – P. 33-43

162 Kentbek S.K., Omirbayev A.B., Zhumanova A.Z. Significance of Newspapers in Studying the Liberal and Oppositional Directions //Vestnik Karagandinskogo Universiteta. “History. Philosophy” series. – Karaganda, 2016. – No.2(82). – P. 58-68. and others.

163 Zevelev A.I. Istoriograficheskoe issledovanie: metodologicheskie aspekty. [Historiographic Research: Methodological Aspects.] (in Russian) – M.: Vysshaya shkola, 1987. – 160 p.

164 Sovremennyj slovar' inostrannyh slov. [Modern Dictionary of Foreign Words.] (in Russian) – SPb.: “Duet”, 1994. – 740 p.

165 Lectorsky V.A. Is the Integration of Natural Sciences and Human Sciences Possible // Voprossy filossofii. – 2004. – No. 3. – P.44-49.

166 Kuzmin M.V. Modelling of Complex Things // Filosofskaya i social'naya mysl'. – 1992. – No. 12. – P.8-41.

167 Kuznetsova L.F. Kartina mira i ee funkcii v nauchnom poznanii. [Picture of the World and its Function in Scientific Cognition.] (in Russian) – Minsk: “Universitetskoye”, 1984. – 150 p.

168 Kassavin I.T. Poznanie v mire tradicij. [Cognition in the World of Traditions.] (in Russian) – M.: Nauka, 1990. – 208 p.

169 Kassavin I.T., Sokulyar Z.A. Racionalnost v poznanii i praktike. Kriticheskij ocherk. [Rationality in Cognition and Practice. Critical Review.] (in Russian) – M.: Nauka, 1989. – 192 p.

170 Mogilnitskiy B.G. Some Results and Perspectives of Methodological Studies in the Domestic Historiography // Novaya i noveyshaya istoriya. –1993. –No. 3. –P.9-19.

171 Smolenskiy N.I. On Development of the Theoretical Problems of the Historic Studies // Novaya i noveyshaya istoriya – 1993. – No. 3. – P.5-8.

172 Baturina L.L., Dossova B.A. Methodological Pluralism in the Science as a Condition for the Spiritual Development of the Society// Spiritual Issues and the Place of Religion in the Modern Society: Proceedings of the International Scientific and Practical Conference. – Shymkent, 2001. – Vol.1. – 326 p.

173 Alekseyev I.S. Koncepciya dopolnitel'nosti (Istoriko-metodologicheskij analiz). [Complementarity Concept (Historic and Methodological Analysis).] (in Russian) – M.: Nauka, 1978. – 253 p.

174 Salov V.I. Istorizm i sovremennaya burzhuaznaya istoriografiya. [Historicism and the Modern Bourgeois Historiography.] (in Russian) – M.: Mysl', 1977. – 253 p.

175 Gumanitarnoe znanie. Sushchnost' i funkcii [Humanitarian Knowledge. Nature and Function] (in Russian) / Edited by G.A. Podkorytova. – SPb.: Publishing House of the St. Petersburg State University, 1991. – 137 p.

176 Gomayunov S.A. Local History: Methodology Problems // Voprossy Istorii. – 1996. – No. 9. – P.158-164.

177 Topical Theoretical Problems of the Modern Historic Studies / Materials of the "Round Table"/ // Voprossy Istorii. – 1992. – No. 8.9.

178 Gulyga A.V., Timoshenko A.G., Kim S.G., Nechukhrin A.N., Ramazanov S.P. / Conference "Historic Studies and Perestroika" // Voprossy

Istorii. – 1988. – No. 12. – P.3-15.

179 Sakharov A.M. Metodologiya istorii i istoriografiya (stat'i i vystupleniya). [Methodology of History and Historiography (Articles and Speeches).] (in Russian) – M.: MSU, 1981. – 216 p.

180 Batyrina L.L. Seeking a Way Out of the Methodological Dead End. Overview of the Discussions of the First Half of the '90s // Vestnik Karagandinskogo Universiteta. – 1997. – No. 2. – P.123-128.

181 Voprossy filosofii. – 1989. – No. 10; Reports at the Academic Council of the RAS Institute of Global Economy and International Relations on "Global Economy and International Relations".– 1991. – No. 5, 6, 9.

182 Ossadchaya I. About the Civilizational Approach to the Analysis of Capitalism // Mirovaya ekonomika i mezhdunarodnye otnosheniya. – 1991. – No. 5. – P.6-11.

183 Alayev L. Marxism and the Problems of Theory Renewal // Mirovaya ekonomika i mezhdunarodnye otnosheniya. – 1991. – No. 4. – P.60-69.

184 Altukhov V. Marxist Dialectics Facing the Challenge of the Time // Obshchestvennye nauki. – 1990. – No. 5. – P.84-98.

185 Korolev S. Via a Broad Public Dialog to a New Synthesis of Ideas // Obshchestvennye nauki. – 1990. – No. 4. – P.22-37.

186 Kozlova N. Ideologization of the Science Has Led to the Simplification of Culture // Obshchestvennyye nauki i sovremennost. – 1991. – No. 2. – P.66-74.

187 Semenov Yu.N. Socialnaya filosofiya A.Toynbee. [Social Philosophy of A. Toynbee.] (in Russian) – M.: Nauka, 1980. – 200 p.

188 Khachaturyan V.M. The Problem of Civilization in the "Study of History" by A. Toynbee as Assessed by the Western Historiography // Novoye i noveysheye vremya. – 1991. – No. 1. – P.204-218

189 Abylkhozhin Zh.B. Tradicionnaya struktura Kazahstana: social'no-ekonomicheskie aspekty funkcionirovaniya i transformacii (1920-1930 gg.). [Traditional Structure of Kazakhstan: Social and Economic Aspects of Functioning and Transformation (1920-1930).] (in Russian) – Alma-Ata: Gylym, 1991. – 240 p.

190 Koncepciya samoorganizacii: stanovlenie novogo obraza nauchnogo myshleniya. [Concept of Self-Organization: Establishment of a New Way of Scientific Thinking.] (in Russian) – M.: Vysshaya shkola, 1994. – 250 p.

191 Letnikov F. Synergy of Eurasia // Mir Yevrazii. – 2003. – No. 1(2). – P.51-54.

192 Kurdyumov S.P., Knyazeva Ye.N. U istokov sinergeticheskogo videniya mira: rezhimy s obostreniem // Samoorganizaciya v nauke: opyt filosofskogo osmysleniya. [At the Roots of the Synergistic Vision of the World: Escalation Modes // Self-Oranization in the Science: Experience of Philosophical Reflection.] (in Russian) – M.: RAS Institute of Philosophy, 1991. – P.166-167.

193 Prigogine I. Re-Discovery of Time // Voprossy filossofii. – 1989. – No. 8. – P.3-19.

194 Ravinskiy R.Ye. Self-Organization as the Targeted Development Factor // Voprossy filossofii. – 2002. – No. 5. – P.67-77.

195 Prigogine I., Stengers I. Ot sushchestvuyushchego k voznikayushchemu: Vremya i slozhnost' v fizicheskih naukah. [From Being to Becoming: Time and Complexity in the Physical Sciences.] (in Russian) – M.: Nauka, 1985. – 232 p.

196 Metodologiya nauki v kontekste vzaimodejstviya vostochnoj i zapadnoj kul'tur [Science Methodology in the Context of Interation of the Eastern and Western Cultures] (in Russian) / A. Nyssanbayev, L.G. Kossichenko, A.A. Khamidov et. al. – Almaty: Akyl kitaby, 1998. – 162 p.

197 Moisseyev N.N. Natural Scientific Knowledge and Humanitarian Thinking // Obshchestvennyye nauki i sovremennost. – 1993. – No. 2. – P.63-75.

198 Arshinov V., Svirsky Ya. Self-Organization Philosophy. New Horizons // Obshchestvennyye nauki i sovremennost. – 1993.– No. 3. – P.59-70.

199 Klimontovich N. Steps to Recognition // Znaniye-sila. – 1983. – No. 3. – P.7-15.

200 Aliyev U.Zh. Obshchaya disciplinarnaya teoriya nauki. [General Disciplinary Theory of Science.] (in Russian) – Almaty: Gylym, 1996. – 136 p.

201 Vorozhtsov V.P. Gnoseologicheskaya priroda i metodologicheskaya funkciya nauchnoj teorii [Gnosiological Nature and Methodological Function of the Scientific Theory] (in Russian) / V.P. Vorozhtsov , A.G. Moskalenko, M.P. Shubina. – Novosibirsk: Nauka, 1990. – 287 p.

202 Kazyutinsky V.V., Stepin V.S. Interdisciplinary Synthesis and Development of the Modern Scientific Picture of the World //Voprossy filossofii. – 1988. –No. 4.– P.31-42.

203 Stepin V.S. Scientific Cognition and Values of Industrial Civilization // Voprossy filossofii. – 1989. – No. 10. – P.3-19.

204 Integraciya sovremennogo nauchnogo znaniya (metodologicheskij analiz) [Integration of the Modern Scientific Knowledge (Methodological Analysis) /N.T. Kostyuk, V.S. Lyutay, V.D. Belogub et al. – Kiev: Vishcha shkola, 1984.– 184 p.

205 Nazaretyan A.P. Models of Self-Organization in the Sciences about the Human and Society. URL: http://www. synergetic.ru (about).

206 Yegorov D.G., Yegorova A.V. Self-Organization of the Economic Process in Terms of Non-Linear Thermodynamics // Obshchestvennyye nauki i sovremennost. – 2003. – No. 4 – P.135-146.

207 Pu T. Non-linear Economic Dynamics / In book: Problemy

istoricheskogo poznaniya. [Problems of Historic Cognition.] (in Russian) – M.: RAS Institute of World History, 2002. – 249 p.

208 Borodkin L.I. History and Chaos: Synergy Models in Discussions of Historians // In book: Problemy istoricheskogo poznaniya. [Problems of Historic Cognition.] (in Russian) – M.: RAS Institute of World History, 2002. – 249 p.

209 Malinetskiy G.G. Non-Linear Dynamics – Key to Theoretical History? //Obshchestvennyye nauki i sovremennost. – 1996. – No. 4. – P.98-112.

210 Arshinov V.I., Kazakov N.D. Synergy as a Model of the Interdisciplinary Synthesis // Matematika, yestestvoznaniye i kultura. – M.: Nauka, 1983. – 189 p.

211 The History of the East. East in Antiquity. – M.: "Vostochnaya literatura" RAS, 1999. – Vol.1. – 688 p.

212 Ionov I.N. Civilizations Theory and Scientific Knowledge Evolution // Obshchestvennyye nauki i sovremennost. – 1997. – No. 6. – P.118-125.

213 Shemyakin Ya.G. Change of Paradigms in the Modern Russian Cultural and Historic Context (Reflections on "Understanding History." by A. Toynbee) // Obshchestvennyye nauki i sovremennost. – 1991. – No. 2. – P.52-62.

214 Borodkin L.I. Komp'yuternoe modelirovanie istoricheskih processov: eshche raz o matematicheskih modelyah // Krug idej: razvitie istoricheskoj informatiki. [Computer Modeling of the Historic Processes: Once again on the Mathematical Models // Range of Ideas: Histroic Informatics Development.] (in Russian) – M.: RAS Institute of World History, 1995. – 205 p.

215 Andreyev A.Yu. On the Problem of Modeling Random Dynamical Systems in the Analysis of a Historical Process // Newsletter of the Association "History and Computer" – 1995. – No. 14. – P.15-22.

216 Andreyev A.Yu., Borodkin L.I., Konovalova A.V., Levandovskiy

M.I. Metody sinergetiki v izuchenii dinamiki kursov akcij na peterburgskoj birzhe v 1900-h gg. // Krug idej: istoricheskaya informatika v informacionnom obshchestve [Synergy Methods in Studying Dynamics of Stock Pricing at the St. Petersburg Stock Exchange in 1900-s. // Range of Ideas: Historical Information in the Information Society] (in Russian) / Edited by L.I. Borodkin et al. – M.: RAS Institute of World History, 2001. – 315 p.

217 Zinevich Yu.A. On Synergy and not only // Filossofskiye nauki. – 2003 – No. 5. – P.150.

218 Gubin V.B. Synergy – Astrology Support? //Filossofskiye nauki. – 2003. – No. 7. – P.143-152.

219 Lotman Yu.M. Clio at the Crossroads // In book: Lotman Yu.M. Izbranniye statyi. [Selected Articles.] (in Russian) – Tallinn, 1992-1993. – Vol.1. – 466 p.

220 Knyazeva Ye.N., Kurdyumov S.P. Synergy: Fundamentals of the Non-Linear Thinking // Obshchestvennyye nauki i sovremennost. – 1993. – No. 2. – P.38-51.

221 Malinetskiy G.G. Non-Linear Dynamics and “Historical Mechanics” // Obshchestvennyye nauki i sovremennost. – 1997.– No. 2. – P.99-111.

222 Galiyev V.Z. On the Issue of Periodization of the History of Kazakhstan // Mysl’. – 1995. – No. 6 – P.84-86.

223 Kentbekov S.K. Modern Historiography Kazakhstan: Problems of Periodization of the Pre-Soviet History of Kazakhstan// Issues of Source Studies, Historiography and Methods of Teaching the History of Kazakhstan: Collection of Scientific Papers. – Karaganda: KarSU, 1997. – 134 p.

224 Kozybay tegi M.K. Parents Telling Stories and History // Izvestiya NAN RK: Scientific Sciences Series, – 1993. – No. 1. – P.4-5.

225 Ismagulov O. Ethnogenesis of the Kazakhs: their Close and Distant Ancestors // Mysl’. – 1995. – No. 11. – 64-68.

226 Istoriya Kazahstana i Central'noj Azii [History of Kazakhstan and Central Asia] (in Russian) /Abusseitova M.Kh. et al. – Almaty: Bilim, 2001. – 620 p.

227 Istoriya Kazahstana (s drevnejshih vremen do nashih dnej) [History of Kazakhstan (from Ancient Time till Present Days)] (in Russian) : In 5 vol. /M.Kh. Assylbekov, K.S. Aldazhumanov, K.M. Baypakov, O.I. Ismagulov, M.K. Kozybayev (chief editor), A.K. Koshanov, M.A. Kul-Mukhkhammed, B.Ye. Kumekov, K.N. Nurpeissov, Yu.I. Romanov, K.A. Sagadiyev. – Almaty: Atamura, 1997. – Vol. 2 . – 624 p.

228 Shirin Akiner. Formirovanie kazahskogo samosoznaniya. Ot plemeni k nacional'nomu gosudarstvu. [Formation of the Kazakh Identity. From the Tribe to the Nation State.] (in Russian) – Almaty: Gylym, 1998. – 136 p.

229 Zhakin M.S. The Functional Significance of the Principle of Kinship and Kindred Structures in the Ethnosystem of the Nomadic Civilization of the Kazakhs (based on the materials of the XVIII-XIX centuries): Author's Abstract ... Candidate of Historical Sciences 9.12.01. – Almaty: Institute of History and Ethnology named after Ch. Valikhanov, 2001. – 30 p.

230 Istoriya Kazahstana (s drevnejshih vremen do nashih dnej) [History of Kazakhstan (from Ancient Time till Present Days)] (in Russian) : In 5 vol. /M.Kh. Assylbekov, K.S. Aldazhumanov, K.M. Baypakov, O.I. Ismagulov, M.K. Kozybayev (chief editor), A.K. Koshanov, M.A. Kul-Mukhkhammed, B.Ye. Kumekov, K.N. Nurpeissov, Yu.I. Romanov, K.A. Sagadiyev. – Almaty: Atamura, 2000 – Vol 3 . – 768 p.

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Tel. 8 (701) 71 358 71
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