What is history? From the point of view of a physicist. Part I

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Abstract. A new definition of the system is given, a criticism of views on historical determinism is given.

The revolution

Materials on conflict management (for example, E. V. Burtovaya "Conflictology") and political technologies speak of the obvious determinism of society, although discussions about determinism in history or its absence have been going on for centuries. New discoveries in physics give new impetus to these discussions.

Prigogine states: "In 1986, Sir James Lighthill, who later became President of the International Union of Pure and Applied Mathematics, made an amazing statement: he apologized on behalf of his colleagues for the fact that" for three centuries the educated public was deceived by the apology of determinism based on the Newton's system, whereas it can be considered proven, at least since 1960, that this determinism is an erroneous position." [1].

Already in physics, a researcher is faced with the fact that the former Laplacian determinism does not work even in previously seemingly classical systems, like an ordinary pendulum or billiards. It turned out that there are ranges of parameter values when it is impossible to predict the behavior of the system. Obviously, all sciences, from chemistry to historical materialism, were forced to use the concept of determinism that developed precisely in physics. And this idea turned out to be critically inadequate. Although Marx sharply criticized the metaphysical (mechanistic, transformist) approach in science as crudely objectivist, the general understanding of determinism remained within the framework of the Newtonian approach.

"If we move the weight of the pendulum," Prigogine continues, "not far from its lowest position, then in the end it will return to its starting point — this is a point attractor. The chemical clock is a periodic attractor. Later, much more complex attractors (strange attractors) corresponding to a set of points were discovered. In a strange attractor, the system moves from one point to another in a deterministic manner, but the trajectory of movement eventually becomes so confused that it is impossible to predict the movement of the system as a whole - it is a mixture of stability and instability ... our environment, climate, ecology and ... our nervous system can be understood only in the light of the concepts described, taking into account both stability and instability. ... Recognition of instability is not surrender, on the contrary, it is an invitation to new experimental and theoretical research, taking into account the specific nature of this world. We just have to say goodbye to the idea that this world is our uncomplaining servant ... We must admit that we cannot completely control the world of unstable phenomena around us, just as we cannot completely control social processes (although the extrapolation of classical physics to society for a long time made us believe this)"[2].

Admitting "instability" is not a surrender of determinism. Because in the same way it is impossible to find out through which of the two holes in the screen the electron flew, if the aim of the experiment is an interference pattern. The electron is arranged differently, not as a particle, and the world is arranged differently, not in the same way as within the framework of the physicalist approach. "Causality," writes Lenin in his Philosophical Notebooks, "which we usually understand," is only a part of the universal connection."

For the overwhelming majority of physicists, qualitative transitions exist only as phase transitions, i.e. fit into the framework of the old Newtonian determinism, although already in quantum mechanics this type of determinism does not work. For most physicists, the chemical form of the motion of matter is reduced to a set of physical laws, living matter is not much different from inanimate matter, a person is not much different from an animal - simply by the degree of complexity. New discoveries in physics, breaking old ideas about determinism, have shaken the tradition of thinking of the physical community, it still considers qualitative transitions to be a kind of humanitarian and philological exercise. In the best case, they recognize the fact of the existence of qualitatively different objects, but, like Hawking, Feynman, Braginsky and others, explain this fact by divine intervention. Accordingly, physicists believe, someday the moment will come, and the Theorist will derive the quantum-fractal-stochastic equation of motion of human society.

But if in physics there are ranges of values of the parameters of a system where the prediction of its behavior is in principle impossible, one must try to understand what is the impossibility of using the known types of determinism in the description of social processes. Let's do this on the example of an unstable, unstable situation in society - a revolution. The classical formula "the upper classes cannot govern in the old way, the lower classes do not want to live in the old way" proceeds from the following provisions: 1) the presence of a crisis - for one reason or another (war, senile insanity of the leadership, external aggression, systemic reasons); 2) the impoverishment (or oppression in any form) of the masses above the usual, 3) the exceptional activity of the masses, 4) hegemony in this activity of the proletariat. The third point is special, it depends on a gigantic number of factors, including the level of education of the masses. Ernest Mandel devoted a whole book to these factors (alas, with a lot of significant gaps and errors) [3]. An important point in the theory of revolution is tactics. In 1917, it consisted in the recognition of the revolutionary character of the peasantry and the need for a political alliance between the working class and the peasantry. The most critical moment in the concept is the concept of the avant-garde and the presence of a "subjective condition" - with numerous reservations - of the ruling party.

Alas, since Lenin formulated this theory, practically nothing has been added to it. On the contrary, technical issues, the so-called "technologies", primarily related to the manipulation of mass consciousness, began to be passed off as a theory, starting with "Mein Kampf" and "Prison Notebooks" and ending with modern publications about "colored" pseudo-revolutions. SG Kara-Murza believes that Gramsci created a new theory of revolution, "urban", as opposed to Lenin's, "rural", while claiming that "Gramsci denied such mechanistic analogies that are attracted by historical materialism" [4]. In fact, Gramsci, in his Prison Notebooks, did not change anything in Lenin's concept of revolution. He only included a layer of the technical intelligentsia in the proletariat, and he placed this enlightened layer as the hegemon over the working class. Gramsci was not alone, but in this he did not invent anything new either.

Kara-Murza states: "The theory of the Gramsci revolution is being developed by many authors, even textbooks are written on its basis. These include, for example, J. Sharpe's book From Dictatorship to Democracy. Conceptual Foundations of Liberation ". It was published in 1993 and is a textbook for the activists of the "orange revolutions". The doctrine of controlling the consciousness of the masses and the ideology of exporting democracy underlying this text have clearly manifested themselves in the Georgian and Ukrainian events that have already taken place ... In the logic of Gramsci's teachings, the hegemony of socialist forces in the USSR and the countries of Eastern Europe was undermined in the 70-80s ... Mass "molecular" aggression into consciousness was carried on continuously and undermined the cultural core. "It is impossible to carry out and even prepare a revolution by learning phrases at demonstrations, phrases like" we love you "or methods of group resistance to the police - if there is no soil in the country, that is, there are no objective conditions. But the collapse of the system in the USSR is not a revolution. demonstrations and rallies, nor the procession of miners to the capital, could not have had much influence if the government, represented by the CPSU elite, as the most organized force, would not itself be interested in a coup - to legalize itself as a government by converting capital in the form of an administrative function into capital in the form of money.

As for the "orange" revolutions, the so-called "molecular aggression" is just an external expansion using the "fifth column", known since the time of the conquests of Tutankhamun or old Scotland. The powers-that-be always have more means for "molecular blurring" than the opposition. Therefore, no amount of "molecular aggression" from below can prepare a revolution. But it is possible to establish a farce if the "molecular aggression" is well paid from the outside. So, in 2004, in Ukraine, the US State Department paid Yushchenko's supporters $ 300 each, and Yanukovych paid the miners $ 40 each. Obviously, such an expansion cannot be called a revolution either, and its technologies can be used as a predictive method, which is a mechanistic approach, against which Prigozhin objects - together with Marx, Engels, Lenin.

What other approaches, besides Sharpe's textbooks, are there to the formation of a predictive apparatus in history? Maybe some kind of theory of uprisings, because revolution is one of the variants of uprising? Alas, there is no such theory. Although the name is there. For example, Bergflet's theory of uprisings. According to Bergflet, "there is no essential contradiction between the Marxist and the purely liberal understanding of production. Marx only considers the question of distribution differently than the capitalist economists, and the problem of production itself is not touched upon by either side. In this regard, Bergflet writes: "Marxist criticism of political economy remains a captive of capitalism, since it (like capitalism itself) is based on the assertion of the unlimited development of productive forces, both technical and scientific, as well as on the radical exploitation of natural resources, which logically follows from development of productive forces. It is precisely because of this fact that all systems that actually existed until recently, based on the teachings of Marx, did not represent any genuine alternative to capitalism. Their "socialism" was actually just a kind of "state capitalism"[5].

Bergflet correctly defines the social system in the USSR, but traditionally confuses Marxism and "A Short Course in the History of the AUCPb". It was from the point of view of Marx and Engels that the system in the USSR was state capitalism (see, for example, "Antiduring"). It was Marx who repeated Adam Smith when he spoke of the monotonous, stupefying, depersonalizing labor of the worker.

How does Bergflet himself understand production? "In isolating the fundamental principles of anti-economics, Bergflet refers to the concepts of Georges Bataille, his intellectual teacher. Bataille in his fundamental work "The Damned Part" formulated a completely new approach to the study of the problem of material production in human society and its initial motivations. Bergflet summarizes Bataille's ideas in the following words: "The fundamental discovery of Bataille is that all traditional societies exist by squandering surplus in ritual or festive procedures." That is, Bergflet and his teacher Bataille have a *feudal-slave-owning* understanding of production, and it makes no sense to take Bergflet's "teaching" seriously about insurrection as classless.

According to Bergflet's plan, "the uprising should be aimed against the most powerful force, radically hostile to the element of life. In the face of the enormous lethal potential of our era, the Rebellion should not be distracted by pseudo-problems such as the Marxist class struggle or the trade union struggle for cash. " Bergflet protests against technocracy, which destroys the surrounding nature, but does not notice what Marx saw: technocracy destroys human nature. For Bergflet's man is an abstraction, while the conveyor belt destroys the nature of a very specific class - the worker.

We find the "general theory of uprising" in the book of the conspiracy theorist Alexander Dugin. There is no theory in it, there is a remark that the origins of aggression are in the desire to expand one's capabilities at the expense of someone. In pursuit of the divine.

Dugin does not understand that for a socialist revolution as an act of aggression, the expansion of opportunities due to the bourgeoisie (redistribution) is of an auxiliary nature, its goal is to "shed the snake skin", the transformation of the working class from a class-for-itself into a class-for-other, disappearance of not only the bourgeoisie, but also the working class.

It is obvious that Dugin considers development only in an extensive plan, for him, as well as for physicists, there is no qualitative leap forward. In forecasting, Dugin's "theory", executed in a Nietzschean-existentialist spirit, cannot be used, for example, such a fundamental statement that "a hammer blow cannot kill, just as it cannot revive the clean morning air full of ozone." The statement precedes the statement that "These fields and trees do not really exist. They left long ago with the dogs torn to shreds. The dogs took them with them, into the funnel of eternity, turning the landscape inside out."

Bergflet and Dugin have something in common. They, like Gramsci, think in a liberal spirit, because for Dugin the most important thing is special people, the vanguard of the hegemon, a kind of "order of the sword" that Stalin dreamed of: "agents of the Inner Continent."

Classes and strata

The Marxist theory was created in the second half of the XIX century.However, already at the beginning of the XX century, it became clear that the social structure of society was evolving somewhat differently than Marx had predicted. Instead of being simplified to two polar elements (bourgeois - proletarians), it became more complex and multi-layered. Political life has also become more complicated. The class model of its subjects began to look too general and simplified, although Marx also pointed out that within classes there are many independent groups (professional, regional) with their own interests that differ from those of the general class. In addition, class analysis explains the change in socio-economic formations, which does not happen every century, and Marx himself wrote that feudalism replaced slavery by no means through class struggle. It is difficult to interpret with

the help of class analysis the less global dynamics of political conflicts, the rapid change of political situations within the framework of local historical periods.

Marx discovers tendencies - but these tendencies are not obligatory, rigid.

Therefore, at the beginning of the XX century, American sociologist and political scientist Arthur Bentley proposed the concept of "interest group", which is still used in political and conflict analysis. This concept denotes the unification of people on the basis of a community of interests and actions in a specific political situation. They take on the functions of representing the interests of their members in interaction with political power and, accordingly, are involved in political conflicts. Among such interest groups, as a rule, business associations, trade unions, youth and veteran organizations, unions and societies of farmers, scientists, culture, religion, environmental, feminist and other movements and organizations. According to A. Bentley, the interaction of such groups and the state is the core of the political process. Moreover, even the state institutions themselves can be regarded as an official group of interests. Therefore, they should be considered the real subjects of political activity and conflicts in this area.

Ultimately, politics is a way of reconciling the interests of various social groups in conflict. In their dynamics today, two oppositely directed tendencies are noted. The first, more traditional, is expressed in the consolidation, aggregation of political interests by two or three leading political forces. Soberly assessing their real opportunities to break through to power, relatively small interest groups consider it good to support one of the powerful political groupings that have real power. In this case, a small political conflict is, as it were, absorbed, dissolves into a larger one, which in principle contributes to the stability and stability of the political system as a whole.

Another trend in the modern dynamics of political interests has the exact opposite meaning: it consists in the diversification of political interests, that is, in the growth of their diversity and the increase in points of intersection. This is explained both by the "loosening" of the former rigid social-class structure, and by the growth of "heterogeneity of the spheres of life" (R. Dahrendorf's term). The latter means that more and more people find themselves in situations where certain common interests in one of the spheres of life (for example, interest in preserving the environment) can coexist quite peacefully with the difference of interests in other spheres (for example, labor). People no longer consider themselves rigidly belonging to any specific socio-political group, but change their "orientation" depending on which of the many problems seems to them to be the most important today. All this, of course, complicates the overall picture of political conflicts and makes it multidimensional.

Thus, modern interest groups are quite justifiably recognized as real subjects of political conflicts. But formal political institutions (president, government, parliament) have no less reason to claim this role. Indeed, in addition to group interests, there are also national interests - ensuring sovereignty, security, law and order, the implementation of large-scale economic projects, etc. They cannot be decomposed into group components or, at least, are not completely reducible to them. In addition, government agencies, despite all their social and group engagement, still have to perform arbitration or mediation functions in resolving conflicts between competing groups. Indeed, even within the dominant groups, contradictions may arise (for our exporters, for example, a cheap ruble is beneficial, and for importers, on the contrary, an expensive one; both of them will not fail to lobby their interests in state structures). Moreover, contradictions and conflicts can arise within the state structures

themselves (a clash of the executive and legislative branches of government, for example). So, political institutions should also be recognized as full subjects of political conflicts.

It is argued that in the middle of the XX century, the dominant stratification order was based not on classes and private property in the sphere of production, but on the state and various organizational systems (corporate, professional, municipal, etc.). Accordingly, the nature of intergroup conflicts has changed: they have become smaller, but more diverse. The subjects of conflicts are more and more groups not only "social", that is, created on the basis of belonging to a social and professional category, but also target or initiative groups, that is, uniting people in accordance with a specific task that they solve (environmental, consumer, human rights). The unevenness of the social development of the modern world adds to the diversity of the fabric of intergroup conflicts: in some countries, conflicts of the traditional type, determined by class and even tribal structures, prevail; in others, more "advanced", new social movements set the tone.

In fact, all "target" conflicts "are imposed and are designed to channel class conflicts into a channel that is safe for the authorities. The theory of strata reduces the number of attributes of a social group, moreover, it throws out the most essential - the attitude towards the means of production.

Different determinism. Lack of revolution

The standard comparative method in the scientific community was not used in the most interesting place: a comparison of the revolutions of the late XIX and early XX centuries. The pioneer was the engineer of the Yaroslavl Engine-Building Plant N. N. Kovalev, who in 1986 led the first major legal strike in the history of the USSR against black Saturdays and Sundays, which did not end with repression. His brochure, published by samizdat in 1989, did not find a reader.

Let us compare the development of the understanding of determinism in the natural sciences with the understanding of determinism in history.

Today, the opposite question is relevant: not why revolutions occur (we do not consider theories of the origin of social conflicts due to magnetic storms or original sin), but why they do not occur. In [6], well-known historical examples of the passivity of the masses with a sharp increase in oppression in various countries are given: "The British deliberately ruined the Indian textile industry of a competitor of British textile workers. As a result, in 1769-70, famine broke out in the main center of Indian cotton production in Bengal, which took away a third of the population - 7 million people, and according to other estimates, all 10 ... In the 80s - 90s, the tragedy in Bengal repeated itself and died out of hunger already half of the population - 10 million people Since the beginning of the nineteenth century, as the power of the British spread throughout India, mass famine has become commonplace in the country. According to British official data in British India, 1800-25 1 million people died of hunger, in 1825-50 - 400 thousand, in 1850-75 - 5 million people, in 1875-1900 - 26 million people ... not counting small local episodes or the "holy Islamic war" of the Indian Wahhabis (started in 1823), ... the first serious act of resistance from ... the Indian population was the uprising of the Faraisites in Bengal in 1823, 60 years after the start of the mass famine. ... the Indians dying of hunger were not at all Buddhists, who fundamentally denied violence, but followers of Hinduism and Islam - militant (in comparison with Christianity) beliefs. ... However, since 1838, uprisings in India began to flare up regularly, in 1857 the famous uprising of the sepoys began, which turned into a national one"(p. 33).

Another example: "The first massive artificial famine was organized in Ireland by the British in the XVI century. It was the result of the tactics of ousting the indigenous population from the lands belonging to them, which was carried out in the form of military operations: the British destroyed crops, stole livestock, robbed property, burned buildings, physically exterminated those who did not know (or could not) escape to the forests and mountains. ... The extermination of the Irish by starvation lasted two decades before the first major rebellion broke out ... of the northern clans led by Shan O'Neill (1559-67). True, since that time, the uprisings in Ireland followed one after another, and in the XVII century a nationwide Irish uprising (1641-52) even broke out, which essentially turned into a national liberation war, which almost ended in victory (by August 1649, when in Cromwell's troops landed in Ireland, the British held in their hands only Dublin and Londonderry). In the XIX century, history repeated itself. After the suppression of the Irish uprising in 1798 .... the British authorities imposed ... high duties on the export of Irish woolen goods to England and abroad and thus destroyed the most dynamically developing branch of Irish industry. ... Workers from ruined factories turned into super-cheap labor ... In 1845, the disease of the potato (the staple food ... of the Irish population) caused famine in the country ... in 1846 the "grain laws" were abolished in England, which caused a sharp drop in the price of bread and prompted ... landlords in Ireland to drive out peasants from the land and reorientation of the country's agriculture from agriculture to pasture animal husbandry. The famine took on the character of a national tragedy. Over the course of several years, over 1 million people died of starvation in Ireland ... An attempt at an uprising led by the "Irish Confederation" in July 1848 failed. Scattered disturbances in the spring and summer of 1848 in Ireland were easily suppressed. The predominant reaction of the Irish was not resistance, but flight ... "(p. 37).

Here, in parentheses, one can note the fatalistic, dialectical attitudes of various political leftists: "The bourgeois revolution in England was objectively progressive ..." Or: "Thanks to Hiroshima and Nagasaki, mankind avoided a global nuclear war ..." Or: "US expansion in Yugoslavia, Libya, Iraq, etc. - a manifestation of objective globalization, "and so on. So, if the starving Irish destroyed Cromwell, they would have acted from the position of backward production? Regression is an inalienable and in particulars (which may later turn out to be decisive) moment of progress, progress is not complete without blood. But the cutlets must be separated from the flies, progress is not identical with regression, the bombing of Hiroshima or Belgrade is a crime.

(An interesting remark from Engels: "I understand that capitalism develops the productive forces, displacing the non-competitive (i.e., not only by force, but also by the price or quality of the goods, B. I.), ... but I don’t want to participate in this".)

The flip side of crude objectivism is the idea of society as a mechanical system. Namely: in order to change anything in society, it is assumed that an organized force is needed. Further, the wrong conclusion is drawn from the correct premise: this organization must be a party. Self-organization is replaced by the party, the activity of the lower classes, including in the economy - by voting for the organization. It is understood that this organization has the ability, by pressing some levers, to manage society. Let us even assume that the party is trying to go not ten steps forward, but one step away from the practice of the labor movement. But one way or another - only the party generalizes, but this is not given to the workers. In this case, there is no question of any consciousness. Obviously, the class-party relationship cannot be maintained the same as it was in 1917.

Third example: "According to various estimates, in the process of the conquest of America ... from 90 to 120 million people were exterminated ... with the conquest of America and the establishment, for example, in the Spanish possessions of a stable colonial regime, the genocide of the Indians did not stop. It just took on a different form of classical exploitation ... In Peru ... 100% of the workforce was killed in mercury mines, 80 out of every 100 workers in silver ... It is believed that over 8 million Indians died in the mines of Peru during the colonial period. ... At the beginning of the conquest of Peru, up to 10 million Indians lived on the territory of the viceroyalty, and according to the census of the 90s of XVIII century, there were no more than 600 thousand in them ... Of course ... it was a process stretched out in time and territorially, and the behavior of the Indians is by no means fatal humility. But it is still obvious that the scale of the resistance of the Indians as a whole did not correspond to the scale of the genocide against them"(p. 39).

Eduardo Galeano wrote about this back in 1971 - in the book "Opened Veins of Latin America". An estimate using the Verhulst equation turns out to be 15 million destroyed using the official data on the initial number of Indians and 103 million using data on the real number.

"The European Middle Ages," the author further writes, "in general was a period of not sporadic, but constant famine. ... But if you read the Russian chronicles, then the same thing there ... According to A. Ya. Shevelenko's calculations, in Europe in the Middle Ages "hunger strikes happened on average every 6 years and often led to catastrophic consequences." In Russia, where the climate is harsher ... happened every 3 years until the XX century. ... In Italy, the XIV century was a century of crop failures, associated with hunger and an extraordinary increase in social oppression, ... burdened by the plague. From 1300 to 1450, the population of Italy decreased from 11 million to 8 million. Life expectancy has declined over the course of a century from 40 to 20 years. ... We ... can count serious acts of resistance on one hand ... the uprising led by Dolcino in 1304-7, the Cola di Rienzo uprising in 1347, the clothmakers uprising in Perugia in 1371, the chompi uprising in 1378, the Tukin uprising in 1386-87. … If we turn to the era of slavery, then the picture there is even more bleak."(P. 40).

The helots' obedience to Sparta is similar to the behavior of their Messenian neighbors. However, the Messenians, like the Hindus, rebelled only a century after the seizure in the VIII part of Messenia by Sparta and the compulsion to give 1/2 of the harvest (the 2nd Messenian War). 120 thousand Egyptian fellahs resignedly died during the construction of the Suez Canal, etc.

Revolution is a type of social conflict. A similar "revolutionary situation" is needed for social conflict. It could be argued that a certain level of development of the productive forces is required for the development of a conflict, which the Indians or Indians did not have.

However, the closure of factories in Russia in 1992, mass layoffs, and a double jump in mortality did not cause any resistance from workers.

On the other hand, accelerated and violent collectivization since 1928, famine in the Urals, Transcaucasia and other regions of the USSR in 1932-1933, together with dispossession of the middle peasants, instantly provoked tens of thousands of peasant uprisings.

It is noted in [6] that the statement "increased oppression leads to an intensification of social struggle" is not even grossly sociological, but simply has nothing to do with science. It is clear that in modern Russia the price press does not connect, but separates people. Let us add that Lenin's formula for revolution does not work either: the

upper classes cannot, the lower classes do not want, plus a sharp deterioration in the position of the masses above the usual. The author is looking for the reasons for passivity in the psychology of the philistine, the philistine, in egoism, which, of course, does not add anything to the laws of history. Of course, each and every generation has a choice, because we are dealing with a human society. However, in the examples set forth in [6], something quite different can be traced: ultimately, uprisings do occur, and the period of their "preparation" - to be precise - self-organization depends, rather, not on the accidental birth of a leader or a leading group, but on technical means communication, uniting production base and other objective factors.

The exalted appeal in [6] to weapons and "subjective efforts" ("... the country has no new leaders and new ideas that could inspire people to fight ... new ideologies are not developed in a couple of years") is traditional for Moscow the public. It leaves aside the practice of the masses themselves (social creativity) both in protests and in the development of an ideology that can arise only from this very practice of the masses, but is not invented by any leader or group of theoreticians. Such a "romantic" approach is an insurmountable wall in front of many researchers.

But in [6] there is a serious confusion: in the case of the Indians and Indians, there is no increase in oppression, there is an invasion of the enemy forces, far superior in technology. Cases of famine or plague are a completely different area, but even here there is no personalized increase in oppression, it is pointless to raise an uprising against the virus or crop failure.

Today there is a necessary process of mastering the mass of property relations from scratch (for more details see [7]), it is impossible to skip it, as they tried to do after 1917 by legal abolition of private property. Not to mention the fact that today not only an armed uprising, but also an all-Russian strike is unattainable for the workers, although there were plenty of subjective efforts. At the same time, despite all sorts of explanations, their classification and some practical conclusions, the question remains of which factors should be considered the main ones at a given point in space-time, which are insignificant, how social dynamics occurs under the influence of these factors and what is meant by social dynamics.

For example, the replacement of historical dynamics by class struggle, which at one time turned out to be extremely productive, means not only the exclusion of relatively independent ethnic dynamics from the integral process, but the reduction of the general to the particular. Evolution is declared a vegetation period, a preparatory period, development is made in strict dependence on the so-called historical necessity ("Darwin needed Darwin was born"). A criticism of this reduction will be developed below. On the other hand, deliberate inattention to the struggle of classes is only an attempt to pass off wishful thinking. Ethnicity has now been supplanted by class, for example, it is difficult to call the events in Nagorno-Karabakh, Yugoslavia or Chechnya national conflicts, these conflicts are not caused by national oppression, the leaders of national groups play the role of puppets in the hands of the United States and its satellites.

However, the use of classical Marxist schemes runs up against the rudimentary nature of the historical method. History as a science, in the words of Mark Blok, is too young, its logic is less developed than the logic of natural sciences or literature. Although Marx (and modern researchers) drew a semblance of theory even from illustrations (for example, "The 18th Brumaire of Louis Bonaparte," which strikingly anticipated the events of 1991 and 1993, as if confirming the method of analogies).

The transfer in the spirit of Freud (i.e. the spread of the ideas of psychiatry to sociology) of the methods of the natural sciences into history also does not determine the historical-mathematical equation, that is, its own, independent logic of history. Although the connection between natural science methodology and social dynamics is obvious, and they interpenetrate (Marx writes that in the future the science of man will include the natural sciences just like the natural sciences, human studies, it will be a single science).

Criticism of the method

It is obvious that the general pattern, which would seem to be visible from a number of examples, can be questioned and requires clarification. The fact is that in [6] the time frame is not limited by anything, therefore, if the degrees of influence on the masses are comparable, then the state of the masses and the conditions in which they were found are significantly different, and in general the events turn out to be incomparable. (In general terms, on the one hand, we have no right to talk about the nature of the protest, having a short period of time at hand, and on the other hand, to transfer macroscopic regularities to a microscale.)

The Hegelian interjection "history repeats itself twice" or Marx's addition "the second time in the form of a farce" is confirmed by events in Russia, the USSR is a vivid example of the cyclical nature of social development with repetitions of the features of feudalism (A.B. Razlatsky, 1975) and the Asian mode of production. However, the idea of cyclicity comes from the scheme of dialectical development from opposition to synthesis, then to the denial of the synthesized, i.e. to the return on a different level of what was removed in the process of synthesis. First, the sides of the future contradiction are distinguished, then their opposite arises, then its aggravation to a contradiction. In this diagram, it is not clear what is the source of the movement from discrimination to opposition and further to contradiction. Also a contradiction? (F.F.Vyakkerev, 1966).

Dialectical determinism assumes that if there is a contradiction in the system (which drives history), then its mechanics - the divergence of sides into opposites and further synthesis - makes it possible to predict. If the system disintegrates in the course of removing the contradiction, then, Hegel writes, there were no forces in the system that kept the opposing sides in unity. Moreover, at what point in time decay or synthesis will occur, it is not known, forecasting in this case is impossible.

B. Porshnev, L. Gumilev, A. Fomenko and G. Nosovsky tried to comprehend the temporal scales of history. (Let us cut off in advance the direction of searches in the spirit of Kozyrev, see, for example, a number of works in [8], trying to reduce physical time to biological processes or to find a special biological time.) If A. Fomenko, despite many mistakes and outrage on linguistics, raised the question of the reliability of chronology (it turns out that astronomical data do not confirm historical data; secondly, if history was rewritten in the twentieth century, then it was previously distorted by the authorities), if Porshnev pointed to the acceleration of history, then Gumilev discovered the structure of history, described by fractals, which describe other forms of motion of matter. (The phenomenology of ethnic dynamics with an assessment of the maximum life span of an ethnos is, of course, important, but the introduced concept of passionarity is akin to the phantoms of caloric or phlogiston). The point is that when the historical scale is reduced, the forecast may change to the exact opposite. For example, a wind direction factor that is not taken into account on a larger scale can change the outcome of the battle (the wind helps the commander to hear the enemy's approach, the troops deploy and repel the attack).

Nechaevism stood aloof both from the social democratic trend and from other social movements. In The Possessed, Dostoevsky clearly distorted the history of the strike at the Neva paper mill (Plekhanov writes about it in a completely different way), but it was nechaevism that manifested itself in the future as a general feature of the Stalinist regime (see M. A. Bakunin's letter to S. G. Nechaev June 2, 1870, where he actually agrees with Nechaev regarding the management of society by a narrow group, [9]). Becquerel accidentally puts photographic plates in his pocket with radioactive samples, resulting in Hiroshima and Nagasaki, not without the help of the Einstein-Hilbert theory. Obviously, no class struggle would have led to such a result in science.

The situation can be compared not with the lack of model parameters, say, in the theory of catastrophes (such as a fold, where the "parameter" of the photographic plate slowly changes), but rather with supercritical instability: a weak disturbance breaks away from the roughness of the pipe, a vortex, which is maintained due to the type of vortex by the main current, since it is so arranged, the vortex grows and soon becomes the main current itself. Lydia Ginzburg believed that Stalinism was precisely this type of disaster: "Even a child, playing with matches, can burn a city if the city is wooden."

Is this true? Was it possible to avoid totalitarianism by replacing the superstructure with a democratic one, as representatives of the Trotskyist trends think? For example, blood flows through our veins at a speed exceeding the critical one, but turbulence does not arise precisely because of the absence of roughness. However, what scale should the historical roughness be? Is it possible to take into account all their types when gradually refining the search scale?

On the contrary, a larger shot allows you to detect patterns and make predictions that are not visible when trying to take into account absolutely all factors. That is, with a large number of events, it becomes possible to track something in between, just as in thermodynamics we are doomed to ignorance of the trajectories of all particles, but due to their large number, we can determine some average characteristics of the system and find a connection between them.

Obviously, the larger plan already implies generalization. The circle has closed: in order to deduce a pattern, we need to determine the time scale, but to do this, we need to know it. For physics, this situation is standard when it comes to choosing not a scale, but a number of factors: at some step it is necessary to interrupt the reasoning, to limit the problem, and the limitation looks less fair than the objection to it. So, Newton, unlike Giordano Bruno, broke the chain of reasoning, presenting space-time as independent of material bodies, but got a working theory. As far as the choice of scale is concerned, reductionist-finalist concepts are preserved in physics in this respect. In particular, it is assumed that the same laws apply in the models of the early Universe as in the modern world. It is allowed to change the world constants, but the types of connections remain unchanged, the Friedman model is projected onto the era of inflation.

There is another form of reductionism, which runs like a red thread both throughout physics and throughout society. If the moon falls from above, we are looking for a button with the inscription "destroyer of moons". In physics, nobody knows what a charge is. This is a button that must be pressed to explain a limited number of phenomena (electrodynamics is not meant, but, for example, hypercharge or color). It is only known that mass is a qualitatively different button in comparison with a charge, since it can be split, there is no unit mass, and, therefore, the equations with mass cannot be made dimensionless, in contrast to electrodynamics, where it is

possible to measure the charge in the charges of an electron, and the speed - at the speeds of light. There is no button in thermal phenomena either. A charged electron can interact as a unit with a vacuum. You can enter a test charge or mass. But, just as it is impossible to write down the law of conservation of thermal energy (the first law of thermodynamics) in differential form or to connect it through the Hamiltonian formalism with the homogeneity of time or symmetries of space, so it is impossible to represent the heat charge. Caloric does not exist, no hidden parameters or summation of energies will give a qualitative difference between a thermodynamic system and a mechanical one, for example, irreversibility of processes.

According to the definitions given by R. von Bertalanffy (1973), a system is a complex of interacting components, or: a set of elements that are in certain relationships with each other and with the environment. In the standard definition, a system is a set of elements in relationships and connections with each other, which forms a certain integrity, unity.

The definition of F.I.Peregudov and F.P. Tarasenko also adds little: a system is a set of interrelated elements, isolated from the environment and interacting with it as a whole.

In these definitions, the system remains undefined, because these definitions include, except for some elementary particles, literally everything in the Universe, starting with baryons and ending with stellar superclusters. Consequently, the so-called systems approach, systems analysis based on these definitions are meaningless verbiage.

To a certain extent, this approach is brought to life by the development of electronics, endowing electronic circuits, in particular robots, with human qualities - a kind of religion that brings the best qualities of a person outside of a person and places these qualities in heaven. Electronic systems are important for the observer, but from the point of view of the development of the Universe they are not systems, their structures are not distinguished. As we remember, Aristotle, in the spirit of teleology and rain, attributed the goal to moisten the soil for the harvest.

The main drawback of systems theory is an attempt to combine heterogeneous spheres that are described by different sciences, while the understanding by specialists in the field of systems analysis that there is a system in physics, chemistry, biology, especially in a society divided into classes, is completely absent, not let alone the fact that these sciences themselves are still far from united.

It would seem that synergetics describes physical, chemical, and biological processes, however, like the theory of probability, it describes only one side of the phenomena. Synergetics distinguishes self-organizing processes, the theory of probability operates with many of the same repetitive events. At the same time, in understanding systems, it is necessary to highlight their functional side - but not in the utilitarian-subjective sense, not for the observer. Substance - system № 1, decaying system, water cycle in nature - a process in a conserved system, № 2, coacervate - developing from simple to complex system, type № 3.

Let's give a new definition: a system is understood as a set of objects that has a SIGNIFICANT quality that is absent in a single one outside the given system (for example, a structure in the sense of G. Birkhoff) in a manifested form, which determines a specific type of functioning.

It is clear that the quality of statistics is inherent in the singular, but it manifests itself only in the system. However, this quality is different from the mass-charge quality. In the system of electrons (or their qualities, for example,

spins), it is not a new "electronic" quality that manifests itself, but only the same statistical nature manifests itself. (In experiments of the early 80s, it was proved that Bell's inequality does not hold, therefore, hidden parameters do not exist, although disputes over inequality and the search for hidden parameters continue to this day, if only because of the Einstein-Podolsky-Rosen paradox, therefore, not manifested qualities cannot be hidden parameters.)

And yet, in physics, until now, in many cases, it was decided to repeat the experiment, which in history is present in a very controversial version, only as a comparison of different countries in similar conditions or as a repetition of the same schemes of mass suggestion, which, by the way, often leads to opposite results. (As for the Universe as a whole, which is also unrepeatable, unique, the method of research is the extrapolation of the quotient into the whole, corrected by astronomical data.) But repeatability does not mean anything yet. Analysts at Kommersant-Daily are fond of plotting and evaluating the correlation coefficients R within the framework of regression analysis, even when it comes to detecting some connection between the electorates of various politicians using the R coefficient. Is it legal?

Consider the samples: the sizes of audiences and the average sizes of the ears of students in the classrooms. The machine will plot the dependence and, if R is close to one, it can be assumed that there is a connection. However, R can be randomly close to unity, with a sufficiently large number of experiments the machine will show R close to zero. By itself, the Kolmogorov version of the theory of probability assumes the existence of a stable frequency with an infinite number of experiments. But another example: NMR spectra are taken in the laboratory. A shift in the spectra was found. It can be seen that the more flies in the room, the greater the shift. With a large number of experiments, the machine will show that there is a physical connection between the number of flies and the magnitude of the shifts, the correlation coefficient is close to unity. Although there is no correlation, there is a correlation between the number of flies and the temperature in the room and between the increase in temperature and the malfunctioning of the device.

In the sense of the methodology of science, it is interesting to cite as an example the experiments of S. E. Shnol, carried out over thirty years. Initially, a connection was found between colonies of bacteria, separated by an impenetrable partition, one colony was inoculated with the disease, the second showed signs of the same disease. Then the colonies were smashed - one in Pushchino, the other in Kiev. Then the experiment was repeated with chemical systems. Then with radioactive samples. If the Geiger counters were turned on simultaneously, then the deviations from the Gaussian energy distribution of electrons in Pushchino and Kiev coincided. True, not at all seasons. Attempts by Eidus (Institute of Biophysics in Pushchino) to find a connection with the location of stars or any global atmospheric and geological factors ended in failure.

The existence of a Gaussian and other distributions, as Shnoll himself explains, means the existence of a special connection between objects (some researchers believe that this is a non-physical connection, and statistical physics, therefore, is not physics at all). It follows from the above experiments that there is another connection, which is not described by the apparatus of the theory of probability.

It is possible that Shnol, through many experiments, discovered space-time inhomogeneities in various positions of the Earth in the Solar System, since the theory of probability reflects the symmetry of space, but this is a different matter.

Such a connection is not exclusive: for example, causally unrelated electrons in the Einstein-Podolsky-Rosen experiment turn out to be dependent on each other. The most general formulation was given by Lenin in the Philosophical Notebooks: "The causal connection, which we usually understand, is only a part of the universal connection." (The reversal of time, the hypothesis of which is considered by some researchers, actually retains the type of the causal structure of the world). The lack of the necessary repeatability arising from the causal structure makes it impossible to formulate the concept of "experiment" not only in biology, but even in pharmacology. Timofeev-Ressovsky said about the same: "Nature cannot be an automaton with a single formula, where a person has nothing to do," about the same Goethe: "In life, it is about life, and not about some of its goals."

Thus, natural sciences indicate that attempts to formalize historical determinism in mathematical form are incorrect.

Laplace's determinism in society

The impossibility of reducing biology and history (Akchurin, seeking in mathematical models suitable for describing biological systems, Bonifatius Kedrov, covering chemistry with quantum mechanics, etc.) or attempts to use the methodology of biology in history led to the revival of sensationalist ideas. A kind of intuitive determinism in the spirit of Bergson reappears, where the phenomenon is understood by ideation (Husserl), or meditation, a process inherent in the teacher (mahatma). An exceptionally strong objection to rational knowledge from the standpoint of materialist dialectics can be found in K. A. Svasyan [15]. Such phenomena as the psyche, the state of a person, partly expressed in art, through which history is manifested, can be comprehended, as Bakhtin believed, only in communication, therefore, in cognition of subjective reality, one cannot in principle do without a teacher.

Alas, predictions based on idealistic ideas, as a rule, do not come true, a vivid example is Spengler's prophecies. The forecasting of the leading economists, Galbraith or Friedrich Hayek, does not justify itself either. The various facts about the ability to predict during sleep are realistic, but they are not history. "Predictions" of Nostradamus, Blavatsky, or modern soothsayers like Paul Globa, invented by the journalists of Edgar Cayce's or Vanga's prophecies in actual fact - media falsifications - in comparison with the impressionist Marxist (phenomenological, based on the logic of communist movements) prophecy, revolutionary Trotsky, who in 1938 predicted the collapse of the USSR.

A number of economic problems can be formulated in the old statistical paradigm, for example, as optimization of the preparation and transportation of concrete in a probabilistic description of the process [10]. Today, models of this type, as well as the theory of catastrophes, are successfully applied in local problems of stock exchange games. Previously, the English school of statistical methods dominated in economics (Pearson, Fisher; see also [11]. Today, there are known attempts at computer analysis of options for the development of the industry (Leontiev, USA) and the territorial economic complex (A. Raskopin, G. Kashevarova, Perm). Unfortunately, in their models there is only a certain zoological mechanism of self-development of production, without taking into account social dynamics, and A. Raskopin considers his models not as an obligatory formula for the life of an urban planning complex, but only as a tool for determining a number of options, and understands that the

elimination of social dynamics is The criticism of the method is given, for example, in the works of B.G. Ploshko [12], S.M. Sargsyan, G.B. Yuzbashyan [13], B.G. Mirkin [14] and a number of other authors.

Sargsyan and Yuzbashyan note: "Before the implementation of the interregional optimization of the country's development model, it is impossible to determine the closing costs for each type of product for each region. on the bottom ... "(" Identification and formation of options for the dynamic development of the inter-sectoral complex in the national economy "," Integer formulation of the model of optimal territorial planning for the development of the economy of the region, divided into districts "). That is, we have the same picture: for the formation of a model, a limitation is necessary, but for a limitation, a model must be assumed. Try to build a model of the dynamics of the country's economy without the dynamics of the intra-regional one, but the intra-regional dynamics is understandable only if the dynamics of the whole are known. We return to the fact that we do not know the essential factors of historical development.

On the other hand, "the interpretation of the mathematical concept of sampling, writes Mirkin, as a collection of randomly selected objects, is not always obvious and accurate." The point is that "the random mechanism must be modeled by the researcher himself" (p. 217). Mirkin gives an example of an incorrect forecast of the results of the presidential elections in the United States before the war: the opinion poll was conducted using the telephone book, so the event could not be accidental. The fact that the event is not accidental can only be verified after the experiment. Let the sample be random, but testing statistical hypotheses about socio-economic observations in canonical terms of confidence significance levels in many cases does not make any sense (the example of flies, B.I.) ... all the same, the question of the dependence of signs is decided by a willful way.

The key to understanding is not an increase in the number of experiments, but culture, defined as the possession of a physical projection of the logic of nature. Only a necessary connection, a tendency, makes sense. Understanding this, which, in our opinion, is absent from the developers of evolutionary computer models, allows us to approach a more specific formulation of the problem of determinism in history.