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CONSISTENT MOVEMENT OF NATURAL PHENOMENA AS A MANIFESTATION OF A LOGICAL TIME PROGRESS

Summary. *This article is devoted to the scientific research on the essence and content of time progress in nature. The work is based on the fundamental thesis, according to which the temporal issues should always be considered in relation to spatial, this interaction has always been an important element in the study of the world. Analytically studied doctrinal variables in relation to the principal question of mutual comparison of such defining categories as time and being. For this reason, this assessment of the essence of this relationship in the process of formation was manifested in the so-called static and dynamic concepts of time. Particular attention is paid to mutual influence in these theories of events of the past, present and future, considering their mutual existence, condition and prediction. At the same time, the emphasis is made on the study of an interesting philosophical idea, according to which the formation, change, transformation and disappearance of material objects in time is only an illusion that arises as a result of a certain change in the state that occurs at the time of awareness of the motion of matter.*

Serious attention is devoted to the definition of the role of individual stages of human history, which in science acquired the names of time moduses: “Past”, “Modern”, “Future”. Through the prism of their objective change in the volume and moments that determine their boundaries, just also proposed to monitor and know the phenomena in time. To do this, it is necessary to work out a sustainable approach to the formation of the configuration of the central point of the timeline – “Now”, “Now”, because it is precisely this period, and a person can take part in them. Only in this way is possible to actively use the content of the main postulate, at which time determines not only the existence of certain physical phenomena, but also the existence of living entities. With turn, his perception is possible only through knowledge. The study of the doctrinal interpretation of the temporal term “Now” was carried out, a comparison of it with a moment, which is conceptually defined as a point of reference regarding the movement of certain events occurring in the space “to” and “after”.

Key words: *causal relationship, temporal determination, modernity.*

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ПОСЛІДОВНИЙ РУХ ПРИРОДНИХ ЯВИЩ ЯК ПРОЯВ ЗАКОНОМІРНОГО ЧАСОВОГО ПОСТУПУ

Анотація. *Стаття присвячена науковому дослідженню питання про сутність і зміст часового поступу у природі. Робота базується на основоположній тезі, за якою темпоральні питання завжди мусять розглядатися у взаємовідношенні із просторовим, ця взаємодія завжди була важливим елементом*

вивчення світу. Аналітично вивчені доктринальні різнобачення стосовно принципового питання про взаємне зіставлення таких визначальних категорій, як час і буття. Дана оцінка сутності цього взаємовідношення у процесі становлення, що проявилось в так званих статичній та динамічній концепціях часу. Особлива увага приділена взаємному впливу в даних теоріях подій минулого, нинішнього та майбутнього, розглянуте питання їхнього взаємного існування, зумовлення та передбачення. Акцент зроблено на дослідженні цікавої філософської ідеї, згідно з якою становлення, зміна, трансформація та зникнення матеріальних об'єктів у часі є лише ілюзією, яка виникає внаслідок певної зміни стану, що відбувається в момент усвідомлення руху матерії. Серйозна увага присвячена визначенню ролі окремих етапів людської історії, які в науці набули назв часових модусів: «минуле», «сучасне», «майбутнє». Крізь призму їхньої об'єктивної зміни за обсягом і моментами, що визначають їхні межі, якраз і пропонується вести спостереження та пізнання явищ у часі. Для цього необхідно напрацювати сталий підхід до формування конфігурації самого центрального пункту часової шкали – «нині», «зараз», адже саме в цей період відбуваються конкретні події, і людина може брати в них участь. Лише таким способом можливе активне використання змісту основного постулату, за яким час визначає не лише буття певних фізичних явищ, а й саме існування живих суб'єктів. У свою чергу, його сприйняття можливе лише через пізнання. Здійснено вивчення доктринального тлумачення темпорального поняття «зараз», проведено порівняння його з моментом, який концептуально визначається як точка відліку стосовно руху певних подій, що відбуваються у просторі «до» та «після».

Ключові слова: причинно-наслідковий зв'язок, темпоральна детермінація, сучасність.

The question of time and duration of certain legally significant acts occupies an extremely important place in legal science. It is one of the main topics of scientific reflection, because it is with the temporal dimensions of different essences and the content of legal phenomena, the very nature of the directed rights of social relations depends essentially. The above topic is very relevant, this is due to the fact that the time refers to the list of fundamental general categories

that have a defining, forming methodological significance for a real understanding of existing in the universe of interconnections.

The whole philosophical direction in the scientific study of various phenomena of nature was historically based on the principle of denial of time to study one or another party of being (Askol'dov, 1922, p. 80). In particular, it was inherent in the first natural philosophies of the ancient world that tried to arrange the elements of knowledge of the entity. The logic of motion elimination and time from the sphere of knowledge of truth was as follows. Any material object is in constant motion in the spatial-temporal continuum. Such a movement has a consequence of certain changes in the appearance and physical properties of this object. However, for the knowledge of the subject in his movement, a rather complex scientific toolkit, which researchers have not yet owned. Therefore, it is quite justified for the object of the object be removed from the time course, localizing in space (the so-called metaphysical method of knowledge).

The same approach to denying the value of time is characteristic of an idealistic theory, which postures time exclusively as an imaginary category, as an ideal rejects almost all attributes of reality, including time, causality, etc. In other studies, the denial of time is not so straightforward, it mainly reduces to a critical reduction of the role and in general the existence of the central point of the timeline – “Now”, “now”. In particular, L.M. Lopatin, developing the thesis contained in the so-called Aristotle paradox of time, indicated that all the reality of time lies in his unreality: there is no past, the future is not yet, the entire movement of time takes place on a certain real moment of present. There is only an elusive moment of present, the momentum that does not have duration and reality (Lopatin, 1891, p. 299–300). M.A. Berdyev also points to insignificance and incompatible small content of the present, which along with the terrain of time for the past, the modern and future indicates the absence of real time (Berdyev, 1990, p. 406). A similar theory of his time was criticized. And the main points in this were those theses that time determines not only the existence of certain physical phenomena, but also the existence of living entities, and its perception is possible only through knowledge.

In the natural sciences, there were a lively discussion of this issue. We also have to note scientific variables in relation to the principal

question of mutual comparison of such defining categories as time and being. Individual views on the essence of this relationship in the process of formation were manifested in the so-called static and dynamic concepts of time. At the first of them, the events of the past, present and future existing and specifically in a certain sense at the same time. At the same time, the formation, change, transformation and disappearance of material objects is only an illusion that arises as a result of a certain change in the state that occurs at the time of awareness. In other words, according to a static time model, all the moments of the past, present and future have always existed and will exist. And although it seems that moments associated with specific events are one after another, and the event that has been lost forever, then only the representation of a person who is formed and processed by its consciousness. Each event in a continuous flow of time is determined and objectively exists independently of others as a frame made of a movie created and mounted in progress, but provided to view the viewer only at the requested moment.

The main point of discussion unfolded on this occasion was also an assessment of such temporal categories as “now”, “now”, “now”. As a rule, it is the phenomena that we qualify as occurring now, give us a time comparison with others. That is, “now” we usually take a time frame regarding certain events. At the same time, if we consider “now” as a certain point in time, which varies with others quite quickly in the established sequence, then we can always find events that can be skilled from the standpoint as “to” and “after”. *Le Moment Oh Je Parle Est Deja Loin de Moi*. (Even the moment I say something is already far from me). At the same time, during such a temporal movement, the concept of “now”, and therefore, to a certain extent, and “to” and “after” will not coincide each time. According to the classic expression of D. Uitrou, “Now” is considered as a moving knife blade, it is not fixed in a certain place, but covers all places at the same time (Uitrou, 1964, p. 227). Therefore, in the literature at a certain stage was a very popular thesis about the time as a sequence of “now” that follow one another.

In this case, researchers clearly distinguish the concept of “present”. “Now”, “modern”, on the one hand, and “now”, “now” on the other. This time is a certain temporal stability of the process. Present is always associated with perception with some real event

at this time, and the duration of this event determines the parameters, the size of the present. In each particular range of events, such a definition will have certain features. Therefore, the different duration of this is one of the characteristic features of the manifestation of the specifics of time. Say, U. James believed that the real “current” that we can see does not exceed 12 sec., and its content is constantly changing: the phenomena are moved from the rear end to the front, consistently changing its time coefficient from “yet not” to “already” (Dzhems, 1991, p. 181). Another investigators determined the duration of the real present within 0,7–1,1 seconds. Consequently, the modernity of the material object that we observe is the time interval during which it holds certainty its characteristics.

According to the classical theory in the universe there is a single common to different systems, which in each specific moment is covered by human consciousness as an instantaneous state of “now”. Kaleidoscopically changing each other, such moments in their totality include a certain, sometimes a fairly long period of time, which is determining the present. Thus, from this point of view, the course of time is nothing to others, as an imaginary construction of our consciousness, which united the specific moments of “Now” in the illusory category of “now”. Instead, the relativistic concept advocates the thesis according to which each physical events system corresponds to its personal present in which it really exists. The term “now” within the framework of this system is characterized by only one moment, it is that the consciousness of the researcher is directed. Thus, “now” is a manifestation of the subjective coverage of a specific moment of modern, which manifests itself in a certain act of mental activity. While the concept of “now” can be considered as an objective speaker of the differences between the past and future states of the object. So, for a person, the current time coincides with the duration of her life, and the length of “now”, as a slight and variable in time, depends on the properties of mental perception (Molchanov, 1977, p. 167–168).

Actually, a different approach to postulating the modern and determining its interconnection with the past and future predetermined the emergence of two different concepts regarding the evaluation and value of time in motion of matter. One of them, which was called static, defines the events of the past, modern and future as

real existing, and the relationship between them should be evaluated exclusively from the positions of “earlier”, “later”, “simultaneously”. So, according to the supporters of this model, human consciousness in certain moments of their activities can meet different years of existence of the phenomenon. The information obtained as a result of the knowledge of these phenomena information is transformed and realized as “now”. As shown by Blessed Augustine, the past and future may only exist as present. Therefore, there are only three forms of time: the current past, the present current and present future. Thus, the perception of the differences and individual features of the past or future, in principle, can be described by means of tools used in the study of the interaction of actually existing objects in various spatial points: a meeting in spatial-time coordinates is a phenomenon that once had a place. Will it happen, it is intellectually evaluated as a present time, instead the termination of an object’s awareness means its retirement from this temporal category. In order to achieve the order of time, adequate reproduction of the essence of the concept of time within this concept, its representatives offered to neglect the objectivity of the concept of “now”, as it is not an element of the physical event, but only a reflection in the minds of the conceptual perception of a certain process, which takes place. Thus, it is advisable to make time ordering in the context of the ratio “earlier” and “later” direction, washing an instant and illusory “now” and its subjective awareness of the observer (Gryunbaum, 1969, p. 384).

Some different simulates the ratio between events in the spatial-temporal continuum dynamic time concept. According to its provisions in space there is a certain temporal order of events, their sequence can qualify as a time course. It is precisely as the first manifestation of this concept to consider the well-known expression of Heraclitus “all flows, everything changes”. This course has a defined orientation from the past to the future. At the same time, although “modern” and is a certain point in relation to others in the time of events, their local location in relation to this point is constantly changing: future events permanently pass to the category of current (in fact, only they are present events – really exist), and then the latter transformed in the past. Consequently, figuratively speaking, modern is the limit that separates the current state

of the object from its causes and consequences: only in the modern possible events (that is, those who have recently been related to the category of future), acquire reality. Next, this reality caused by past reasons, itself goes into the past. It is not difficult to notice that the dynamic model is quite well consistent with the basic principles of Newtonian classical mechanics, while static – still more requires the toolkit of the theory of relativity. However, this, of course, rather conditional distinction, many scientists emphasize the relationship between these concepts, moreover, prove that one model is derived from another. The difference in the views is that the model is ascending. Thus, the supporter of the static theory of knowledge of B. Russell is convinced that the temporal categories of the past, modern and future, which are determined by the temporary relationships of the subject and the object, it would be fair to reduce the pre-study relationship (formerly-later), since the latter reflect interactions between two objects (Russell, 1915, p. 212). Scientists who advocated a dynamic time concept, on the contrary, believed that the concept of “to or before”, “after or later” should be reduced to each object or event of objective characteristics of the past, modern and future.

According to the widespread in philosophy, the time is defined as the duration and sequence of certain processes. Indeed, the duration and sequence clearly characterize the time as a manifestation of the material movement, which, in the end, we are able to observe empirically and fix. Immanuel Kant called these temporal characteristics of “time modes” (Kant, 1965, p. 101). Duration reflects the physical dimensions of a particular phenomenon in time, it reflects the stability of a certain material system. It is this characteristic, as a duration of the event, is one of individualizing features that allows you to separate it from others. The second characteristic of time – the sequence reflects the orderliness of phenomena, embodying the qualitative side of the investigated form of motion of matter. In other words, this is a sequence of existence of things and events: if phenomena change each other, we can say about their sequence, as well as to place them behind the school “earlier” – “later”. Separate researchers as another factor who is imminent inherent in time, indicate its movement as a change in general, which includes the emergence of a new, process of development, a substantive change – formation (Askin, 1966, p. 75).

In science, it is quite serious attention to such a temporal issue as the simultaneity of events occurring in different places. According to the classic Newton's theory, when two events have the same point in absolute time, they are simultaneously regardless of the nature of the relationship between them. Actually, the question was to build a model of instant interaction between different real events. In the end, events were considered simultaneous in space as well as in the event that the relationship between them occurs with a certain fixed speed, which can be a corrective element. The establishment of a mechanism of such interaction actually led to the knowledge of time as an absolute independent of something external, which in principle could be described within a classical idea of absolute time.

Another position on the issue of simultaneity is the general theory of relativity. The arrangement of events occurring at different points of space is possible only with the establishment of a single time for them, that is, in the case of synchronization of reference systems. When finding an observer at a point A, it can determine the time of the event, observing the simultaneous event of the position of the clock arrows. The time evaluation of events occurring at the point in, an observer is possible, which is located and has the same clock. However, we can not abstract without certain assumptions in time events at points A and B. We have installed only a-time and at time, and not a common time for these two points, which can be determined only by synchronizing clocks (Ehjnshitejn, 1965, p. 9). So there is a need to link two points. According to the embodiment proposed by P. Bridgman, this may be the movement of synchronized at one point of clocks on the same trajectory. Based on the unequal speed of such clocks, the difference between the impressions of each of them is calculated in relation to a certain "reference" clock (Bridgman, 1962, p. 55). This approach, in our opinion, could be used to establish a sequence of phenomena in time in the study of matter within the classical concept, when the transport of the clock does not affect the speed of their course, as well as at low objects and distances between them. However, this proposal did not find general support, especially among the supporters of the relativistic concept, since, according to their conviction, the clock synchronization requirement at different points of space is nothing else, as an installation of absolute time, which in turn means the possibility of determining the physical nature of time

regardless of any. which material relations and measurement procedures (Molchanov, 1977, p. 154). Another way of synchronizing the reference systems proposed by scientists is the use of a signal, for example, light, which is the fastest. Thus, taking into account the duration of light movement from one object to another, its reflection and return, we can simulate the simultaneity of events in space. However, even such simultaneity will not yet be absolute in view of the difference in time in various accounting systems: two events observed as simultaneous coordinate systems are already not perceived by such when considering them, which moves relative to the first (Ehjshtejn, 1965, p. 13).

A huge number of things in space are kept in a single time wave, so that our “now” coincides with “now” of all things in the general horizon of simultaneous. At the same time, the postulates on the incomplete moments that were in the theory of relativity, do not abolish that this is not the same “now”. Just in connection with the change in the conditions it is late, you will bloom. However, the Einstein concept of simultaneity has weaknesses. First, the main system-forming factors, including in relation to the speed limit at the rate of light, are not derived, and posted, secondly, the installation of simultaneity depends on the arbitrariness of the researcher, which chooses the coordinate system. As it should be considered, the ordering of events in space and time within the relativistic concept (which in this issue is not bad in agreement with a static model) occurs within the four-dimensional spatial-temporal coordinate system. If we consider the time axis – t , then, unlike spatial coordinates, matter always moves just ahead along it. And this posts one of the main properties of time – its irreversibility. The manifestation of irreversibility of time in the current era is considered, in particular, deduction of time orientation from the date of birth of Christ: the history pops up from her to the terrible court. The question of the direction of time has long been interested in philosophers, scientists who were engaged in special sciences. The fact that the time is one-directional and irreversible is taken by virtually all researchers. However, some of them characterize the one-sided direction of time as an imminent rice of its own nature (Whitrow, 1962, p. 319–332), others, on the contrary, bring it out of the theory of causality, because it is the causality as a genetic relation, which is realized in the process of influencing one

phenomenon to another, which takes a certain time, includes one-directional time orientation from the cause to the consequence, from the previous to the next. And the causality itself is known to have an irreversible character.

Unlike other properties of time, which or simply postulated, or their manifestation occurs due to a subjective mental perception of the consciousness of the observer, the irreversibility of time can be established not only by theoretical buildings, but also as a result of the empirical substantiation of this provision. After all, if we take into account that the motion of matter in time is the sequence of its existence, then we can apply such an objective physical criterion as an analysis of changes in certain properties of this matter. These processes that occur with objects over time we can observe. And all our scientific and life experience testifies to the irreversibility of most phenomena and processes that occur in nature. In particular, according to the laws of thermodynamics and electrodynamics, the principles of irreversibility of the spread of electromagnetic radiation, the growth of entropy (in fact, based on this empirically derived principle, in fact, the efforts are unfulfilled in constructing the eternal engine of the second kind) actually make it impossible to run the processes in the opposite direction (Molchanov, 1977, p. 168). In the end, the life of a person during which she receives his ideas about time and exercises his empirical observations, also an irreversible process. The results of human activity, society are irreversible. Thus, the unidirection of time is actually a manifestation of irreversibility of material processes.

Summing up the above, we can say that time is the form of coordination of changes in objects and their condition, and the change of phenomena is the essence of time. However, the separate events of being can periodically repeat, matter can acquire a preliminary state during its irreversible movement in time. This cyclicity can not be qualified as a manifestation of the symmetry of time, its movement in the reverse direction. Simply in the process of alternating change in phenomena, they are consistently changing, in certain subsequent periods can be repeated. If such repetitions occur repeatedly and the time interval between them are steel, you can speak about the time rhythm of the existence of an object in its movement. Currently, cyclic processes, for example, in the functioning of the human

body (in physiology, biochemistry, neurology, etc.), are investigated in one way or another), including in connection with seasonal or daily changes in the environment. Consequently, the rhythm reproduces the repeatability of material processes, provides relative stability and stability of manifestations of nature. But then, it does not testify to the possibility of reverse movement in the temporal plane. The rule of irreversibility of time is derived through actual statements and empirical studies, such a fundamental principle must receive a clear nominal justification. It is desirable that this is done at the level of the universal or physical law by scientific formulation.

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