

Treatise on Time

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“What is time?”

People have been asking this question for a long time.

Is time an objective reality (1) or is it our subjective perception (2) – these are the two main points latently contained in the question of time.

Two philosophical lines are connected with these moments in the question of time. Firstly, it is the line of materialism, dialectical materialism, to consider time as an objective reality. Secondly, it is the line of idealism in philosophy and the mysticism, esotericism, various illusions in relation to time, the teaching of Kabbalah, any other anti-materialistic fantasies that are adjacent to it, to consider time as anything but an objective reality.

Separately, there are views that consider time to be non-existent in reality, but this should also be attributed to the second line with idealism at the head.

The practice of human life, human existence, latently leads us to the awareness of time as a natural phenomenon. This intuitive awareness turns out to be correct and true.

Time and space are two categories in our consciousness that are closely and inextricably interconnected. We, people, have long intuitively and latently perceived events and processes that take place in nature as occurring in space and time. We, people, for the most part, still consider both time and space to be objective (objectively existing) factors that do not depend on our consciousness. As for time, our intuition does not fail us. Time is

truly the most important essence of nature on a par with matter. But in relation to space, our intuition fails us.

< Space > Space as such, as some natural entity in nature does not exist. But time as a natural entity does exist and its existence is closely connected with the movement of matter, material bodies. There are material bodies in the Universe and in nature. Moreover, the Universe is the largest material object of nature. The assumption of the existence of space in nature requires, for example, resolving the question of the place of space in nature and in the Universe. But if there is nature and the Universe (as receptacles of all things and objects, bodies and objects), then space is simply superfluous here. After all, nature is simple and economical.

< Vacuum > In addition, there is a vacuum in nature. All material bodies and objects are surrounded by a vacuum, “immersed” in a vacuum, “exist” in a vacuum. Vacuum is a unique environment that exists everywhere in nature, in the Universe. Vacuum is an environment invisible to the eye. But vacuum is an objective (objectively existing in nature) reality. Vacuum does not hinder the existence and movement of material bodies in any way. Vacuum does not screen material bodies in any way. We can say that all material bodies, objects, and subjects exist and move in a vacuum environment.

< Matter > Matter is the primary basis, the primary essence, the origin and the first cause of everything and everyone in nature. Matter is a unique (and universal) and the only substance of nature. All natural bodies are material bodies, i.e. bodies based on the matter of nature. A concrete representation of the matter of nature is the content of elementary particles (EP). It is well known that all material bodies consist of atoms, and atoms consist of elementary particles (protons, electrons, neutrons). The content of EP is the “pure” concrete matter of nature. And this representation of matter takes place in the form of a quantum of matter. We can say it differently: behind this representation there is a quantum of matter.

A quantum of matter is a minimal portion of matter. And this minimal portion of matter is in a state of constant internal pulsation, internal movement of matter. We can say that this minimal portion of matter generates, forms a material object, a quantum of matter.

< Quantum of matter > In this regard, we can say that the matter of nature is primary, and the material object is secondary. But we must understand, and we do understand, that in reality, in nature, all this is an inseparable, organic unity, this unity of a minimal amount of matter, its pulsating behavior, character (pulsation, movement) and its form in the form of a material body. And the name of all this is quantum of matter (EUM). Quantum of matter (EUM) is pure concrete matter of nature. Quantum of matter (EUM) is a minimal amount of matter of nature. Quantum of matter (EUM) is not frozen, petrified (like magma, like asphalt, like concrete) material solidity. Quantum of matter (EUM) is material flesh pulsating in the rhythm and tempo of nature. Quantum of matter (EUM) is an inseparable organic intercourse of form and content. Form and content in a quantum of matter do not oppose each other (as in all other material bodies), but exist in an inseparable organic unity, in coition. Form and content in a quantum of matter do not oppose each other. Form and content in a quantum of matter represent one inseparable whole. This is the coition of form and content into one entity (matter, quantum of matter, quantum of matter pulsating in the rhythm and tempo of nature). At the same time, in all other material bodies, form and content oppose each other and constitute a single whole, but do not merge in coition into one entity. And in a quantum of matter (EUM) pulsating in the rhythm and tempo of nature, matter and its primary fundamental movement, pulsation (internal movement of matter) are merged together.

< Pulsation of quantum of matter > Pulsation of quantum of matter occurs in the rhythm and tempo of nature. Pulsation of quantum of matter is a strictly periodic, harmonic process. This process is represented by a sequence of elementary beats (cycles) of pulsation. Pulsation of quantum of matter in the rhythm and tempo of nature implies the frequency of this pulsation process. And the

concept of frequency is the opposite concept of time. These are mutually inverse concepts. In the form of formulas, this connection of concepts can be clearly (for our understanding and perception) presented as follows:

$$\mathbf{frequency = 1/time, frequency*time=1, time=1/frequency . (1)}$$

In these formulas, the unit (**1**) appears. What does this unit (**1**) mean?

It is clear that **1** is also some time, it is a certain unit of time, it is a unit of time of nature, it is a natural unit of nature (NUT). It is a larger unit of time than “**time**“ in our formulas.

Frequency is a dimensionless quantity, it is the ratio of two “time” quantities: a unit of time (**1**) or a natural unit nature (NUT) and time, represented by the term “**time**“, in the formulas given above. It is clear and completely understandable and transparent that with an objective approach to solving the issues and problems of the foundations of nature and the universe, the term “**frequency**“ must be followed by a natural (universal) constant value (constant). This must be a unique (and universal) constant. Within the framework of the “Theory of Nature” [1] (my book, 2021), this constant has been found, defined and its numerical value has been established. It has been given its own name “UCN” (unique constant of nature). Its value has been calculated, it is as follows:

$$\mathbf{UCN = 1.210\ 256 \cdot 10^{44} .}$$

This expression can be written in one line like this:

$$\mathbf{UCN=1.210\ 256*10 \wedge\{ 44\} .}$$

The unique constant of nature (UCN) is a very large value, but not infinite.

This unique constant of nature represents (must represent!), embodies, first of all, the frequency of nature (the Universe). It is this frequency that initially sets and determines the rhythm and tempo of nature (the Universe). The existence of nature (the Universe) is inextricably and organically linked with this frequency. With this frequency, all changes in nature occur on the

Planck scale of existence, at the level of the foundations of the universe, the foundations of nature. With this same frequency, the pulsation of the quantum of matter (EUM) occurs. The unit of the process of pulsation of the quantum matter (EUM) is the pulsation beat (cycle). The duration of one single beat (cycle) of a quantum of matter is expressed by the time duration of the parameter “**time**”, presented in formulas (1). This duration is expressed through the unique constant of nature (UCN) and the natural unit of time (NUT) as follows:

$$\text{UCN} = \text{NUT}/\mathbf{time}, \text{UCN}*\mathbf{time} = \text{NUT}, \mathbf{time} = \text{NUT}/ \text{UCN} . \quad (2)$$

Considering the numerical equalities:

$$\text{NUT}=1, \text{UCN} = 1.210\ 256 \cdot 10^{44},$$

represent these equalities (identities) as the value of the quantity “**time**” in numerical form:

$$\mathbf{time} = 1/\text{UCN} = \text{UCN}^{-1} = 8.262\ 718 \cdot 10^{-45}.$$

This is the numerical value of the parameter “**time**” in relation to the natural unit of time (NUT) and taking into account the unique constant of nature (the Universe) UCN.

During this period of time (“**time**”) one cycle of pulsation (oscillation, internal movement) of the quantum of matter (EUM) occurs. A completely natural and reasonable, logical conclusion suggests itself that this “**time**” is a minimal time interval in the nature. This is a quantum of time (EUT) of nature .

Thus, the duration of one pulsation cycle of a quantum of matter (EUM) is equal to one quantum of time (EUT). Elementary logic tells us that the time of nature (“**time**” or quantum of time (EUT)) must be measured by the matter of nature, by the quantum of matter (EUM).

The implementation of the mechanism of pulsation of a quantum of matter in the rhythm and tempo of nature (presented above) is such that in each beat (cycle) of pulsation of a quantum of matter (EUM) there is an inseparable organic unity of three moments. These are the three moments: the existence of matter, the quantum

of matter (EUM), the existence of the motion of matter, the pulsation (internal motion) of the quantum of matter (EUM) and the existence of time (“**time**”), the temporal duration of one beat of the pulsation of the quantum of matter (EUM), equal to one quantum of time (EUT).

We can and have every right to speak in this regard about the triune organically inseparable, inseparable essence of nature “**matter - movement – time**”. And in this trinity the substance (active principle) is the matter of nature, the quantum of matter (EUM). This is a quantum of matter (EUM) pulsating in the rhythm and tempo of nature or with the frequency of nature (the Universe). This pulsation is a strictly periodic harmonic process in nature. One beat (cycle) of the pulsation of a quantum of matter (EUM) is carried out in a time (“**time**”) equal to one quantum of time (EUT). All quanta of the matter of nature pulsate strictly synchronously in a single rhythm and tempo of nature.

Another important, fundamental, global conclusion suggests itself: the time of nature, the quantum of time (EUT) is measured by the quantum of matter (EUM): **EUT=EUM**. By this, the time of nature is, as it were, identified with the matter of nature. But this is a relative identity, for the time of nature and the matter of nature are two most important, fundamental entities of nature. But at the same time, these are two essentially different objective entities of nature. The identity of these entities at the level of quantum quantities **EUT=EUM** symbolizes and embodies the fact that these entities are always organically inseparably linked in nature. Their quantitative values are equal. These natural entities do not exist separately from each other and from movement (pulsation). Matter exists only in movement. Movement separately from matter does not exist. And matter without movement also does not exist. Movement is the most important attribute of matter. And time is the form of existence of moving (pulsating) matter.

Sincerely

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References

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