Vital Annex: International Journal of Novel Research in Advanced Sciences (IJNRAS)
Volume: 02 Issue: 06 | 2023 ISSN: 2751-756X
http://innosci.org

Analysis of Theories on the Origin of the Concept Vitagenicity

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Annotation: Historical and logical analysis of the methodology of vitalism does not give us a direct opportunity to identify the range of phenomena described by the term "vitagenicity". Despite the collapse of vitalism, one of the main questions remained unresolved. This is the question of the essence of the living and the closely related question of the genesis of life, posed and not fully resolved by the vitalists. Continuing the search for an answer to this question in connection with our study, let us turn to the analysis of the crisis of vitalism.

Keywords: vitalism, vitality, analysis, theory, theory of vitagenicy.

INTRODUCTION

Vitality in its genetic origin is a biological concept. Its appearance is associated with the philosophical current of vitalism, which described the essence of life in biological objects. The emergence of vitalism as a concept is due to the struggle of two directions, which occupies a significant place in the history of biology: mechanism and vitalism [1]. As noted by the famous biologist-materialist of the XIX century. E. Haeckel, the most prominent minds of the 17th-18th centuries were involved in it. [2]. The development of biological knowledge in this period was carried out on the basis of metaphysical methodology, which is closely related to the sciences of the physical and mathematical cycle and received comprehension and justification in the philosophy of modern times. On this basis, in biology, like other natural sciences of this period, not only a peculiar way of experimental knowledge - an analytical experiment, but also a certain way of thinking - as a means of theoretical knowledge, is born. As a result of the penetration of the mechanistic way of thinking into biology, the concept of mechanism is formed in it as an attempt to theoretically explain the essence of the living from materialistic positions. Ideas arise about the organism-machine, according to which all its vital functions can be described as the sum of the actions of individual links. Examples of such an explanation include Descartes' teaching on the reflex arc, the teaching of J. Borelli on the work of the musculoskeletal system in humans and animals, as well as the work of J. Silvius, J. Dubois, F. Paracelsus, J. B. van Helmont and others. biologists [3].

MATERIALS, METHODS AND DISCUSSION

Characteristic of these schools were attempts to explain life phenomena, using purely the laws of mechanics and chemistry. But since the explanation by representatives of these schools of biological phenomena on the basis of mechanical causal patterns was associated with the actual denial of the existence of specific laws of the living, these attempts did not fully achieve their goal - to reveal the essence of the living. Ultimately, they included living phenomena in the same system of regularities as inorganic phenomena.

At the same time, such ideas contradicted a large number of facts accumulated by that time by biology, which testified to the qualitative originality of living things. Numerous analytical studies of living organisms, including widely developed anatomical studies, have shown that when the body is

divided into parts, individual organs lose the specific properties of the living, knowledge of the parts does not give knowledge of the essence of the whole. Therefore, as E. Haeckel wrote, “the efforts of the mind to find a natural-mechanical explanation of life phenomena could not find general application and did not receive due appreciation: during the 18th century they were forgotten, while theological vitalism was developing more and more” [4].

A number of biologists turn to the idea of some "life force" that gives the parts in their totality the quality of life. Having recognized the existence of such, it is easy to explain why, when the organism was dismembered, its specificity “vanished”, its essential qualities disappeared. However, in understanding the nature of the "life force", its adherents were divided into supporters of materialistic and idealistic interpretations. The latter were actually vitalists. Vitalists interpreted the concept of "life force" as an idealistic essence, a derivative of animistic ideas about the specifics of the living, common in the time of Aristotle, and in modern times developed by G. Stahl.

Aristotle, trying to resolve the issue of the essence of the living, wrote in his treatise “On the Soul”: “... it is necessary to recognize the soul as an essence, a kind of form of a natural body, potentially endowed with life. Essence is the fulfillment (entelechy), so the soul is the completion of such a body” [5]. "Soul" within animism acts as a means of explaining the basic properties of the organism. An example of this is the teaching of G. Stahl. The historian of science J. Needham wrote about the German naturalist: “He put forward the root cause of the vitalistic order and, combining all the variants of the “Archaeans” into one concept of the “guiding soul”, sought to prove that all facts can be perfectly explained on this basis” [5]. “Soul”, as a reason “explaining” a given phenomenon or property, corresponded to the type of reasons that Aristotle called “final” [5]. By analogy with human activity, which presupposes the setting of goals by a person, animists considered the “soul” to be a goal-setting principle. At the same time, "life force" was understood as a necessary attribute of the soul, its operating principle.

Due to the successes of anatomy in the XVIII century. it became impossible to speak of the "soul" as a specific part of the organism. As Descartes stated, “the tendency to think that the soul is the beginning of everything depended to a large extent on unfamiliarity with mechanics and anatomy” [6]. "Life force", previously understood as an attribute of the soul, began to be used as the main factor explaining the specifics of life phenomena. For the vitalists, the "life force" was the cause of the harmony of vital phenomena acting outside the laws of mechanics, physics, and chemistry.

Thus, vitalism in its general form is defined as such a direction in biology, which, focusing on the difference between living and non-living, postulated the existence of some special non-material principle - "life force", - expressing the specifics of the living and manifesting itself at the level of a holistic education [7] .

If, from the point of view of the mechanist, the scientific explanation of a phenomenon meant, first of all, finding the cause in the previous mechanical or physico-chemical processes, then, from the point of view of the vitalists, the explanation of the specifics of life meant the discovery of the purpose underlying the activity of the “life force”, that, “ for the sake of what” a given property appeared or a given phenomenon occurred. The legitimacy of this method of explanation was substantiated by the vitalists by the facts of organic expediency, i.e., teleology as a doctrine of purpose and expediency [8].

At the same time, the development of experimental research in biology contributed to the accumulation of a large number of facts that are subject to causal explanation from the standpoint of physical and chemical laws and thereby strengthen the materialistic position in biology. Under these conditions, the inconsistency of the basic principles of vitalism with specific scientific data was realized especially clearly. “The main blows,” wrote K. A. Timiryazev, “were inflicted on vitalism

by the discovery of osmotic phenomena, the success of synthesis in organic chemistry, the doctrine of the conservation of energy as applied to organisms, the discovery of chemical (soluble) enzymes that underlie the action of the so-called organized (living) enzymes, etc. Generally speaking, the entire actual progress of physiology (animals and plants) was one continuous defeat of vitalism" [91]. As a result, supporters of the mechanistic method of explanation in the first half of the 19th century. it turned out to be the majority of biologists, while vitalism ceased to play any significant role in scientific knowledge.

From the end of the 19th to the beginning of the 20th century, the formation of the concept of neovitalism began in biology. The formation of neovitalist views is associated with a number of names, but the teaching of the famous German embryologist G. Driesch was of decisive importance. This is due to a number of factors. Of considerable importance was the place occupied by G. Driesch in experimental biology. Being one of the prominent representatives of the science of embryology that was developing at that time, he had a significant influence on those who highly appreciated his contribution to this branch of knowledge. On the other hand, Driesch's neovitalist teaching differed from others similar to him in its systematic nature, breadth of coverage of the problems under consideration, and the philosophical nature of the justification. All this was the reason for the influence of the teachings of G. Driesch not only on a certain circle of his contemporaries, but also on a number of schools and trends in biology that subsequently emerged.

The studies of regeneration processes carried out by G. Driesch allowed him to talk about the special, vital, nature of the living, the "autonomy" of the principles of the organization of a living being in relation to mechanical devices [10].

The ideas and views of G. Driesch had a formative effect on the methodology of vitalism. Three principles play a decisive role in the system of methodology of neovitalism [11], denoted as:

- the principle of ideal shaping;
- the principle of double determination of life phenomena;
- principle of psychologism.

The first principle consists in recognizing matter as a passive substratum of life phenomena and in requiring the introduction of an "additional" non-material factor that introduces the specifics of the living into unorganized matter.

The non-material factor, introduced by neovitalists as a necessary element of understanding the essence of life, was called by representatives of various schools of neovitalism in different ways: "entelechy" (G. Driesch, A. Mittash, A. Wenzl, I. Gredt, I. Schwertschlager, I. Geyser and others .), "dominant" (I. Reinke), "monad" (N. Bugaev, K. Joad), "field" (J. Smute, A. Meyer-Abich. S. Alexander, O. Feyerabend, K. L Morgan, R. Voltairec, J. Bergier and others), "finality" (L. de Nuits, L. Keuno, L. Bounur and others) [12].

The second principle assumes, in accordance with the teachings of G. Driesch, the addition of causality with teleology. Neovitalists develop the idea of the living as a two-level system: the lowest level corresponds to the physical and chemical substrate, the essence of which is revealed by causal patterns; on the physicochemical basis, the highest level is created - the biological one with its inherent specific properties, described by teleological laws.

The essence of the third principle of psychologism is the recognition of the substantiality of the mental, independent of matter [12]. In the methodology of neovitalism, this principle plays a dual role, and its content can be revealed in two aspects - "ontological" and "epistemological". The first aspect of the principle regulates the characterization of the essence of a biological object, the second

- the process of its cognition. Both aspects are present in various teachings of neovitalists in various proportions. So, in the teachings of G. Driesch, as in a number of his followers, the second (epistemological) aspect is clearly expressed, and in the teachings, for example, of R. Francais and many modern neovitalists, the emphasis is on the first (ontological) aspect. In a number of teachings, both aspects are equally clear (RS Lilly, A. Wenzl, I. Haas, O. Feyerabend, and others). But in general, the principle of psychologism is characterized by the following trend: its epistemological aspect is present in all the teachings of neovitalists, and the importance of the ontological one is gradually increasing (from Driesch to modern neovitalists).

In the process of further development of biology, the philosophy of vitalism was rejected, and it was replaced by dialectical materialism. However, as academician V. I. Vernadsky wrote: “One hundred years have passed since the collapse of the vitalistic ideas that at one time dominated the scientific work of biologists, but nothing positive has been put in their place. One of the main reasons for this is that the phenomenon of life is posed in biology not in its full manifestation. The phenomenon of life in its scope cannot be solved scientifically, proceeding only from a living organism, from a natural body, which the biologist actually deals with, without a preliminary precise logical - and not philosophical - analysis of the concepts of life and a living organism without separating it from its environment, without the same analysis of its position in the biosphere” [13].

The historical and logical analysis of the methodology of vitalism, therefore, does not give us an immediate opportunity to identify the range of phenomena described by the term "vitagenicity". Despite the collapse of vitalism, one of the main questions remained unresolved. This is the question of the essence of the living and the closely related question of the genesis of life, posed and not fully resolved by the vitalists. Continuing the search for an answer to this question in connection with our research, let us turn to the analysis of the crisis of vitalism made by V. I. Vernadsky.

CONCLUSION

Summing up the original searches of the vitalists, V. I. Vernadsky substantiates the collapse of vitalism, at the same time defining a new way to substantiate the essence of the living. In particular, he writes:

1. There are no scientifically accurate data proving the existence in living things of special vital forces that are peculiar only to living things. Even as a scientific hypothesis (and then only with regard to the individuals who make up living matter), these ideas that once dominated science are almost anachronistic in our time.

2. Other ideas that explain the essence of life and the difference between living organisms and the inert bodies of nature in the form of a special vital energy, entelechy, monads, vital impulse (élan vitale), etc., arising from time to time, are essentially figurative expressions vital forces, ephemeral creations of the mind, never leading in the past to any scientifically important discovery or generalization.

3. In the middle of the XIX century. the "vital forces" finally disappeared in the scientific biological work of the doctor and naturalist. They could not be replaced for this purpose by their ideological epigones, indicated in paragraph 2. Rejecting all these natural-philosophical explanations, the vast majority of naturalist-biologists embarked on the path of studying living nature, ignoring its living nature, as nature materially and energetically indistinguishable from inert...

4. It can now be seen that, after all, as a result of world work, almost a century old, the biologist has not received a single indication that would allow him now, in 1938, to assert that he is closer to clarifying the problem than in 1838. He, in fact, raised the philosophical question of the vital forces

and their analogues, but used to solve it only the scientific experiments and observations available to him. But since he proceeded not from a scientific, but from a philosophical hypothesis, he, thanks to the incorrectness of this hypothesis, placed his scientific experiments and observations in conditions the least favorable for a solution. For all attention in this case was directed not to the search for the difference between the living and the inert, but to the search for similarities, according to the initial philosophical premise.

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