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CERTAIN PHILOSOPHICAL PROBLEMS OF THEORETICAL MEDICINE

- USSR -

by P. P. Bondarenko

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CERTAIN PHILOSOPHICAL PROBLEMS OF THEORETICAL MEDICINE

/Following is a translation of an article by P. P. Bondarenko in the Russian-language periodical Vestnik Ak. Med. Nauk SSSR (News of the Acad. of Med. Sciences of the USSR), Vol. XIV, No. 7, Moscow, 1959, pages 87-92./

Under the title given above the Institute of Experimental Medicine of the Academy of Medical Sciences of the USSR published a symposium of articles -- reports, which had been presented and discussed in a methodological seminar of the leading scientific workers of the institute, who have been creatively working out philosophical problems of medicine for many years.

The director of the institute, Prof. D. A. Biryukov, in his preface, notes that the significant achievements in the reorganization of the direction and content of the research of the institute are a result of the methodological work of this seminar. Indeed, here is a prime example of scientific workers -- specialists in various fields of theoretical medicine (physiology, biochemistry, pathology, morphology, microbiology, etc.) uniting to creatively resolve, on the basis of Marxist-Leninist philosophy, the most urgent philosophical problems of medicine and biology.

As a result of the research work of this seminar, a series of creative discussions were held at the institute on the monistic theory of medicine, advanced at one time by academician A. D. Speranskiy; on the cellular theory, on philosophical problems of the Pavlovian physiological doctrine, on a critique of the theory of resonance of Weis, on problems of the cellular pathology of Virkhov and other problems. A series of brochures and articles was published criticizing various reactionary theories, propagated in the medicine of bourgeois countries, on the philosophical problems of the Pavlovian doctrine. The symposium which is being reviewed here pertains to these publications.

The symposium consists of articles, which shed light on a number of important problems. In the articles of V. F. Serzhantov and I. V. Danilov the problem of matter and consciousness is discussed in connection with modern physiological doctrines concerning the functions of the central nervous system and the brain. Interest in this problem has increased recently in the West, where there has appeared an attempt by the idealists to undermine the basic materialistic thesis concerning the indissolubility of consciousness and the brain. On the pages of many foreign journals, devoted not only to problems of

philosophy, but also to physiology, psychology and neurology, the relationship between matter and consciousness is again being discussed; attempts are being made to make purely idealistic, dualistic conclusions based on new experimental data in the investigation of the functions of the brain.

Typical of this tendency is the dualistic concept, developed by Eccles, one of the outstanding students of Sherrington, who is well-known for his interesting works on the physiology of the nerve cell.

In his monograph "The Neurophysiological Basis of Consciousness" (1953) Eccles devoted a special section to the problem of matter and consciousness, in which he wrote, that many scientists and among them: Edington, Sherrington, Adrian and Clark, found in the dualism of matter and consciousness and their interaction the most acceptable initial hypothesis in the scientific approach to the problem of consciousness and the brain.

I. V. Danilov, criticizing Eccles' point of view, justly demonstrates that his basic error as a dualist consists in the fact that he recognizes three space-time systems: 1) the objective world; 2) man and his brain; 3) consciousness. By this approach consciousness is treated as a special independent substance, which Sherrington associated with the recognition of the presence of "the immortal soul." Materialism however recognizes only two space-time systems: 1) the objective world; 2) man and his brain, possessing the property of reflection, i.e., consciousness, which, as a property, is spatially inseparable from the brain. In recent years there have appeared attempts abroad to completely revise the Pavlovian doctrine concerning the higher nervous activity, to negate the role of the brain in the higher integration of perceptions, to localize the higher psychic functions, connected with consciousness, in the reticular formation of the brain. In 1953 at the International symposium in Canada, which was devoted to problems of brain mechanisms and consciousness, a number of scientists (Penfield, Frossar, etc.) advanced the point of view that the reticular formation of the brain is the principal integrator of the nerve processes of the central nervous system, and that there exists a special field on the higher integration of perceptions, localized in the neurons of the reticular formation of the brain. This concept completely contradicts the views of I. P. Pavlov, who believed that the brain works as a "whole," and that consciousness is the product of higher associative processes, which develop in the cerebral cortex, where the higher forms of analysis and synthesis occur, which provide the most delicate adjustment of the organism to the external environment. It should be said, that at that symposium the prominent neurophysiologists Leshli and Bremen considered the statement concerning the localization of consciousness in the central encephalitic region unfounded and were opposed to the concept concerning the leading role of the reticular formation of the brain in the integration of perceptions. In Danilov's article appears a critique of the erroneous

views of Eccles, Penfield and other neurophysiologists, who are mistaken in their dualistic stand, or in local psychomorphologism and who are studying the materialistic doctrine of Pavlov. However we are inclined to reproach the author for the fact that, in analyzing such an important problem he completely ignores the criticisms of other opponents of the doctrine of Pavlov such as the modern Freudians, who are also intensely opposed to materialistic views in the doctrine concerning consciousness and the brain from the standpoint of Freud's idealistic concept and who wrongly exploit for their own purposes recent data on the functions of the reticular formation of the brain. More serious critical comments are provoked by the article of V. F. Serzhantov "The Basic Aspects of the Problem of Matter and Consciousness and Their Connection With Physiology," in which the author starting from the right positions, proceeds to a number of confused formulations, which serve to lead the reader away from the Marxist position in understanding the gnosiological problem of the relationship between matter and consciousness. The classicists of Marxism-Leninism frequently emphasized in their works the idea that the absolute opposition between matter and consciousness occurs only in the gnosiology of determining the two opposed camps in philosophy -- materialism and idealism. Therefore they took exception to the identification of matter and consciousness. In Serzhantov's article, however, there are formulations, in which the author is confused on the position of vulgar materialism, when he states that consciousness is material, physical. Engels, as is well known, criticized the vulgar materialists of the XIX century (Bruchner and others) for the fact that they identified matter and consciousness and vulgarly approached the solution of the problem of the relationship of matter and consciousness. Lenin criticized I. Ditsgen for these errors. Another defect in Serzhantov's article is the fact that it contains no clear treatment of the tasks of physiology, psychology and philosophy in the solution of the problem of matter and consciousness. Physiology studies the nerve-brain mechanisms of the property of reflection in the brain (i.e., consciousness). It uses only physiological categories in its descriptions. In studying the intimate mechanisms of the processes of reflection in the brain, physiology is still not able to reveal all the specifics of consciousness. To its aid in this matter comes psychology, which investigates, on the basis of knowledge of the physiological mechanisms, the psychic processes from their form and content, taking into consideration the complete personality of man, working in a social environment. Philosophy as a science works out the gnosiological problem, consisting of two sides: 1) the problem of the primary nature of matter and the secondary nature of consciousness; 2) the problem of the perceptivity of the objective world. In broad terms, this constitutes the content of the theory of perception. In the symposium, the article by D. N. Menitsky deserves attention; it is devoted to the urgent problem of the role of kibernetics in the study of physiological

processes. This problem was animatedly discussed on the pages of the journal "Problems of Philosophy" (articles by P. K. Anokhin, Yu. P. Frolov, etc.). The needs of modern technology and production gave birth to kibernetics. It expanded into a science of the control of phenomena having a reciprocal relation. The author indicates that kibernetics began to find application in the study of biological and physiological phenomena. In this article some problems of the information theory, automatic regulation and operation with models applicable to physiological research are analyzed. The principle of operation with models in the study of physiological functions of an organism was repeatedly used in the history of physiology. Biomechanical analogies was widely used, for example in the physiology of the XVII and XVIII centuries. It stands to reason that the use of the method of analogies and operation with models between the organism and the mechanism may lead to mechanistic errors, which are expressed in the complete identification of qualitatively different phenomena like biology and mechanics. Also in the use of methods of kibernetics in biology and medicine there is a good possibility of an occurrence of such errors. However, as Menitskiy correctly writes, rational kibernetics does not at all identify such concepts, as "man," "animal," "machine," but strives only to explain some general schemes and principles of the functioning of individual systems, often designated by general terms. Dialectical materialism teaches that, while each science studies a separate area or form of the movement of matter, the world which is investigated represents a material unity, in which qualitatively different forms of movement of matter are converted into each other, and the simpler forms are preserved in the higher and more complex forms, although in a "reduced" form. In biology therefore the use of methods of physics, chemistry and mathematics is necessary and correct. However biological phenomena have their own specific laws which the biological sciences study by their own methods. Therefore some methods of physics, chemistry or kibernetics are unable to reveal the essence of vital (biological and physiological) processes, which are carried out in the organism. But the use of methods of physics, chemistry, kibernetics permits the study of delicate, intimate life processes and the establishment of common systems with other phenomena of nature.

In the article of Menitskiy, an attempt is made to demonstrate the perceptive value of methods of kibernetics in the study of some physiological processes of the organism and therefore it stimulates deserved interest on the part of the reader.

In the long comprehensive article of Prof. S. A. Neyfakh the problem of protein in biology and medicine is thoroughly discussed. This problem was also discussed in the pages of journals in connection with the attempt of a number of authors to revise Engels' formula, that life, as a specific form of movement of matter, is tied to protein, as the basic substratum of living matter. At first the author makes a

short historical statement about the way in which scientific information on the biological role of proteins developed; he then presents the modern ideas on the structure of protein, of individual protein substances, the specific properties which they have acquired during the process of evolution, on the role of proteins and metabolism and the life functions of the cells. The essay ends with a detailed presentation of the modern status of the problem of the synthesis of protein, an analysis of the methods and means used for the study of proteins (method of marked atoms, etc.).

In the concluding chapter the author analyzes the problem of the concepts of "live protein," and "live molecule," criticizing the point of view of some authors, who appear to rely on the obsolete views of Engels on proteins as the basic substratum of life and continue to consider proteins the structural basis of life. The author thinks that modern research on proteins leads to the conclusion that they are none other than individual chemical substances and are not themselves bearers of life, i.e., are not living. Only in a complex combination with other no less important substances (nucleinic acids, hormones, etc.) do they lead to the formation of protoplasm, a living substance, which possesses the properties of life. Prof. Neyfakh rejects the arguments of the supporters of the idea of live protein, who assert that viruses are living beings, inasmuch as they propagate, possess a specific antigen structure and are capable of variability. He thinks that viruses are not capable of independent existence outside of a host; outside of a living organism they do not propagate and do not find the necessary medium for this. Viruses do not possess the necessary enzymes for the carrying out of biosynthesis; they do not have independent metabolism; they do not possess properties of self-propagation and, therefore are not living creatures. However the author still must recognize that Engels' formula that "life is a form of existence of protein substances" is still the leading one in biology and has played a positive role in the study of structural elements of the living being, among which protein is still the chief component, determining in combination with nucleinic acids, enzymes and other substances the specific life properties of the organism.

The study of protein on a wide scale brings biology close to the molecular level of knowledge, on which it will be able to discover many intimate and minute processes of life, about which I. P. Pavlov dreamed, and will be able to lead to the highest synthesis in the knowledge of the biological structures of the living as a qualitatively higher form of organization and movement of matter.

In the symposium also includes Prof. P. H. Veselkin's article, which discusses the interesting methodological problem of causality and etiology. Proceeding from the Leninist position that a denial of the principle of causality inevitably leads scientists into an idealistic swamp, the author criticizes Fervorn and other representatives of so-called conditionalism, which, even at the present time, is the

dominant trend in foreign theoretical medicine. Denying objective causality, conditionalism states that even the very principle of causality is unscientific, obsolete. Knowledge, according to the conditionalists must reject the metaphysical concept of causality and must confine itself to a description and analysis of the conditions alone (conditio) according to the selection of the most perceptive subject. Such an approach leads to the denial of etiology in the study of diseases and leads the researcher toward subjectivism and relativism. By following this course, the conditionalists thoroughly distort the knowledge of objective principle and can resort to any sort of falsification, as, for example, the German pathoanatomist Lyubarsh, a conditionalist, who in his own day in the interests of fascism, asserted that autopsies performed on the corpses of communists, who had been killed by fascists, confirmed their "biological defectiveness."

Explaining the gnosiological roots of conditionalism, which was very prevalent in the medicine of the 1920's and 30's, Prof. Veselkin correctly points out that it was engendered by the limitations of the old metaphysical materialism, which considered the principle of mechanical causality (monocausality) of prime importance. Mechanical absolute determinism itself, as Engels explained, cannot overcome idealism and voluntarism, but is instead converted into its opposite -- fatalism. Causality, according to Lenin, is only one of the particles of world continuity, and the whole range of aspects and relationships is not covered by it.

Turning to problems of etiology and causality in the study of pathological phenomena, Prof. Veselkin notes a number of difficulties encountered by the researcher in determining cause-effect relationships in pathology. He cites a number of examples where the relationships of cause and effect (for example, the cause and the disease caused by it) are complex, and cannot be immediately perceived. In other cases they directly follow one another. Often in pathology it is impossible to attribute the cause of the disease to any one phenomenon and it is necessary to consider a whole chain of cause-effect relationships, in which the cause and effect are constantly interchanging (for example, a burn and the chain of successive pathological processes caused by it). The author, in a series of examples, indicates that for the manifestation of any cause there must be determinate conditions under which it acts. For example, for tuberculosis, tubercular mycrobacteria must be present in the organism. But the development of tuberculosis as a disease, is connected with a combination of many different conditions (in particular social conditions, living conditions, etc.), only in the presence of which is the disease manifested. This complexity of relationships, which take shape between cause and effect in pathology, according to the author, demands a clear distinction between the concepts "sickness" and "pathological process." A pathological process is a series of disturbances in the functioning of

the organism, which only in the course of its development leads to disease. Thus, for example, sclerosis as a pathological process may arise early, but sclerosis of the brain may sometimes develop into a disease only after many years.

Not going into further exposition of the content of the article, it should be stated that a number of principles which are developed in it (for example, the definition of the concepts "sickness," "conditions," etc.) are controversial.

In the article by G. N. Chistovich "The Problem of Dialectical-Materialistic and Metaphysical Thought in Microbiology" a number of questions in microbiology are considered, which cannot successfully be worked out on the basis of the metaphysical method. The author cites a series of examples, where incorrect conclusions and generalizations are drawn on the basis of a metaphysical approach to the understanding of such problems, as the variability of microorganisms, their classification, questions of infection, immunity, chemotherapy and antibiotics. The author shows how, by ignoring the dialectical-materialistic method in research he was led in due course into a number of errors in generalizing the results. The author writes that only by consistent application of materialistic dialectics in research is it possible to avoid these errors. The three last articles, published in the symposium (by A. V. Rikkl', N. D. Litvinova, and B. G. Avetikyan), shed light on several questions concerning the way in which I. P. Pavlov and K. A. Timiryazev formed their world outlook on the basis of new archive documents and historical materials. They unquestionably are a valuable addition to the available biographical literature about these great scientists.

An analysis of the contents of the symposium, under review, indicates that the Institute of Experimental Medicine of the Academy of Medical Sciences of the USSR has made a valuable contribution, in publishing the works of the participants of the methodological seminar, where an experiment in resolving some philosophical problems of theoretical medicine on the basis of dialectical materialism was carried out. Although all the articles do not treat the problems with equal depth, they will all play a useful role in the study of philosophical problems in medicine, in our ideological struggle against antagonistic trends, in science, and in the philosophical training of scientific cadres.

It is regrettable that the circulation of the publication (2,000 copies) is too small to satisfy the wide demand of our scientific workers and doctors, who manifest a great interest in philosophical problems in medicine. Let us hope that this is not the last philosophical work of the Institute of Experimental Medicine which has set a precedent worthy of imitation.

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