

The principle of contradiction in modern science

A new result of the intensive work of methodology and philosophy of science team focused in Philosophy and Rights Institute of Science Academy of Kazakh SSR in Alma-Ata (including Zh.Abdildin, M.S.Sabitov, A.N.Nysanbayev, M.I.Bakanidze) presented in the form of two books devoted to nature study and role of the principles, formulated as important elements of theory of science developed within the frame of dialectic materialism.

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Section I. Dialectical logic about the nature of dialectical contradiction in cognition (Zh.M.Abdildin). Section II. A role of contradiction principle in interpretation of quantum mechanics (M.S.Sabitov). Introduction of quantum mechanics as a contradictory process. Collateral subordination of quantum mechanics as an expression of internal contradictions of the subject area; Foreign assessment of the works of academician Zh.M.Abdildin in statistics resources of quantum mechanics. Section III. The role of dialectical contradiction in the development process of mathematical science (A.N.Nysanbayev). The problem of the main contradiction in mathematics; Contradiction of objective and subjective; Logical and semantic paradoxes; Contradiction between theoretical and applied mathematics; Contradiction of the form and content, Hegel's theory, criticism of formalism and positivism; Contradiction of discrete and continuous, Development of number concept; Contradiction of the finite and the infinite, three crises of mathematics; Contradiction of relative and absolute, conformity principle; confrontation principle and contradiction principle. Section IV. Contradiction principle in Biology (G.A.Yugay, G.V.Tasmaganbetov, V.M.Leonov): Logical-epistemological foundations of integrity paradox in biology cognition; Analysis of epistemological role contradiction principle in physiology of higher nervous activity; the ambiguity of biological organization. Section V. The role of contradiction category in the analysis of psychological thinking theory.

Specificity principle in modern science

Section I. Hegel's understanding of specificity principle (Zh.M.Abdildin, T.Kh.Ryskaliyev). Section II. Dialectical-materialistic analysis of specificity principle of scientific cognition (Zh.M.Abdildin). Section III. Specificity problem in quantum mechanics (M.S.Sabitov): historical analysis of introduction of quantum mechanics; particular characteristics of subject area of quantum mechanics, reductionism criticism; complementarity and specificity principles; subordination of quantum mechanics concepts. Section IV. Analysis of methodological function of specificity principle in mathematical cognition (A.N.Nysanbayev): Analysis of appearance form and role of specificity principle in development of mathematics; Criticism of methodological specificity principle in the process of creation of foundations and developments of mathematics.

Section 5. A role of specificity principle in formation of theoretical knowledge in geology (A.A.Ivakin): logical conditions of appearance of specific concepts in geology. Immersion of geological thought into abstraction and transfer from abstract to concrete. Section VI. Cognitive function of specificity principle in analysis of philosophical foundations of physical geography (N.K.Mukitanov): Genesis of the basic concepts of physical geography; External concreteness of geographical substance; Geographical substance as the unity of diverse forms of appearance of geographical reality. Section VII. Methodological role of specificity principle in definition of psychology subject (M.I.Bakanidze).

Both books are included in the research program aimed at study of relationship of science with Marxist theory of cognition, clarification and concretization of the thesis about increase of methodological role of dialectics in more advanced sciences. Therefore, the genesis of these principles, their understanding in Marxist philosophy and logic content are considered in it, the attempts to analyze their meanings in various fields of modern science, such as mathematics, biology, psychology, geology and physical geography are taken.

Apparently, it should be noted that there are two different ways to consider a starting point of research in the field of methodology and logic of scientific cognition in the Soviet literature. Some authors proceed directly from dialectics – study of methodological problems of science.

Most books in most of their sections are written by difficult language; in the sense of simplicity and generality of reasoning. The reader will find developed elements of foundations of Marxist philosophy, illustrated by quotes, also often disproportionately meagre extent of the provisions that deserve in-depth reasoning and explanation in the works.