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ON THE PROBLEM OF THE CRISIS OF SCIENTIFIC-AND-RATIONAL METHODOLOGY

The problems of effectiveness of scientific-and-rational methodology in the context of modern social and intellectual practices are considered in this paper. It is shown that a kind of methodological crisis that has emerged in connection with this fact can be solved not by separation and counterposition of scientific and non-scientific components in the content of the rational, but on the basis of revelation of the values of the integral forms of consciousness that characterize the integrity of human world outlook. Attention is drawn to the necessity of changing the strategy of organization and development of science in the contemporary global society.

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Comprehension of the essence and nature of the rational goes, mainly, in two directions. One of them is connected with the evaluation of the effectiveness of human actions and characterizes as rational those actions which allow achievement of the necessary aims and results with the least effort and time. The other direction of understanding of the rational is connected with some rules that ensure consistency and logic of thinking and are referred to the principles of the functioning of human intellect itself.

The approach to the understanding of the rational based on the idea of usefulness and necessity goes back to the ancient idea of “techne”, i.e. an artificial transformation (reproduction, modeling) of reality. Its synthesis with the idea of monotheism is the basis of the European tradition of rationality. This tradition determined the development of scientific and technical progress, business activity and management. Unfortunately, its contemporary evaluation from the point of view of, for example, ecological problems, the arms race, technical catastrophes, and dangerous technologies makes us in-

roduce some changes into the traditional understanding of the rational as effectiveness of expedient activity.

A more or less accurate description of these changes is impossible without due regard for classical and non-classical ideas of the rational that have been formed in philosophy. The classical rationality presupposes the necessity of the deepest understanding and reproduction of the natural arrangement of things in reality, i.e. a rationally organized world. The non-classical rationality is based on the possibility of a more accurate reproduction of conditions and structures of problematic situations in which man may happen to find himself in his interaction with the world. But the adequacy of a problematic situation cannot be complete without its connection to an adequate reproduction of the rationally organized natural being. This sense attempts to find a strict difference between classical rationality and different versions of the so-called non-classical rationality and can hardly lead to success.

Claims laid to the classical tradition of the rational are partially justified only because within the framework of this tradition the activity of the human ratio itself is probably underestimated. Therefore, the transfer of accent from the actualized being to the reality of human activity together with responsibility for inadmissibility or elimination of problematic situations is quite necessary and justified within the framework of non-classical approaches to the problems of the rational.

It is important that human activity and its aims, as well as subjective sensations of usefulness and effectiveness, should not contradict the objectivity of norms of the classical rationality. By the way, it is on this plane that all discussions about intentions and possibilities of *Homo sapiens* in the practice of social creation should be carried on.

The contemporary spiritual and cultural situation raises the problem of the role, meaning and purpose of the rational, very keenly. It is conditioned by a number of circumstances among which the most important are: firstly, the search for some universal rules that can ensure effectiveness of the practical interaction of people with the surrounding reality and, secondly, the desire to better understand the intellectual mechanisms used in search of these rules.

Comprehension of their actions in the surrounding world makes people pay more attention to the character of organization of their knowledge about this world. This is because this knowledge lies at the basis of the formation and realization of different programs of life activity of both man and society. The given factor conditions the strengthening of the role of cognition as a necessary precondition in the formation of rationalized norms of social life.

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The contemporary content of these norms is inseparable from the progress of science and scientific knowledge; this fact has influenced the perception and evaluation of the rational as mainly, the product of science, but not man. It may seem rather strange.

The epistemological element of the philosophical and methodological approaches to comprehension of the nature and essence of the rational has always been domineering.

The exception may be the unsuccessful attempts of natural sciences which have been formed by the beginning of the 17th century, to understand the universal rules of human reasoning as the result of comprehension of a purely empirical interaction with the world. In this case, intellectual and theoretical procedures were assigned a secondary role. However, ineffectiveness and even danger of the empirical strategy came to light rather soon because the “trial-and-error” method, which plays an important role in most empirical procedures of scientific cognition, is able to lead mankind to catastrophic results. In connection with that, the notion that real rationality can be revealed in science, i.e. in its theoretical and logical system of knowledge, has become even more popular.

Without denying the achievements of science and, furthermore, understanding their value and importance, we should like to draw attention to some problems which arise in this connection. One of them can be formulated in the following way: why the progress of scientific knowledge and its practical applications are not always symmetrical to the degree of social wellbeing, and in many cases, may be evaluated as being irrational and leading to a number of problems, dangerous for man. It is enough to point to the global and ecological crisis; which, if one does not touch upon cultural and moral values of man, is the result of scientific, technical and technological activity.

One may suppose that these facts are side effects of the progress of science. It is well known, that science took its first steps basing itself on practical experience and further experimental support. The empirical character of the scientific idea did not then require a complex technology of experiment, thus, the idea was either proved and included in scientific turnover, or was not proved and was rejected. The logic of cognition was based on subjective-and-objective interactions, where the subjective level was determined by experience, knowledge and the interests of a researcher; the objects of scientific analysis were elements of nature, concrete and explicated within the framework of possibilities of a scientific experiment.

Swift growth of scientific knowledge, methods of its systematization and development on the basis of the inner logical non-contradiction have

formed a respective meta scientific methodology which has conditioned the possibility of unlimited self-sufficiency of theoretical conceptions. Hypothetic assumptions, including those which in fact, cannot be verified by practical experience and, consequently, cannot be controlled by the norms of social admissibility, turned out to be possible in the structure and logic of knowledge development.

This given tendency is revealed intensively in connection with the active progress of human cognition and penetration of science into the deepest structures of both micro and mega worlds. The habitual methodology of the subject-object relation, when objects are real elements of nature, is being transformed gradually and supplemented by a new character of relations, i.e. the subject-knowledge relations, where the object itself is replaced by different forms of theoretical knowledge. The complexity of the theoretical models that appear in this way requires a complex experimental proof. Modelling of an experiment with the use of simplification and admissibility elements cannot guarantee the objective truth of scientific knowledge, i.e. its social success. Besides, it not only keeps us away from cognition of the real world but is able to become the foundation of an artificial, synthetic one. To some degree, this artificial world is a stumbling-block today in the solution of the contradictory problems which are being accumulated gradually in the relations between natural reality and so-called "second" nature, created by human intellect.

The shortcomings of the scientifically rationalized model of the world are well known. It is quite clear today that the essence and content of the rational cannot be connected only with the field of scientific cognition, and analysis of them presupposes entrance into a wider social-cultural context. Man not only cognises the world but transforms it and lives his life in it and is contiguous to different norms of life which not always submit to scientific explanation. On the basis of such sensations of inadequacy of world perception, there appear different forms of irrational philosophy as well as critical evaluations of science among its direct representatives, who often speak about the impossibility of the revelation of some strict laws that could logically determine formation and functioning of the existing concrete disciplines. In this sense, the statement of the famous American mathematician M. Klein that the development of mathematics has always had an illogical character is significant. Such kinds of statements can be supplemented by critical notes of other philosophers and methodologists of science concerning science and scientific rationality, especially by post-positivists. On the whole, such statements come to the following:

1. Human life and activity are much wider and richer than their rationalized forms. There are extra-rational and even irrational moments in them which need other explications than science can give with its forms and criteria of rationality.
2. The nature of scientific discovery and scientific creativity, on the whole, cannot be connected only with the act of rationality, because often there are such phenomena in them as intuition, guess-work, “mad hypothesis,” the unconscious, etc.
3. Science and scientific activity are regulated not only by their own logic of development, but are mediated by the whole system of social-cultural practice, i.e. they in fact are not the absolute result of reason, however strange it may seem.

The history of science demonstrates a great number of examples when problematic situations in cognition cannot be solved by the concrete and historical norms of rational scientific knowledge, and hypotheses connected with them are rejected by the world community as absurd and irrational. However, with time a reevaluation of views in science took place, permitting the inclusion of “rejected” theories into its arsenal.

The above mentioned testifies to the fact that the rational cannot be explained only on the basis of permanency and stability of scientific knowledge which, as it is well known, is relative by nature. Very important are also different procedures of the social determination of knowledge and mechanisms of its functioning in society. Michel Foucault wrote: “Any society has its own order of the truth, i.e. it accentuates some definite types of discourse, which allow it to function as true discourse; there are mechanisms and procedures which separate true statements from false ones and define the modus in which some of them or others are admissible. There are preferred methods and procedures for finding the truth; there is some definite status for those truths which have been obtained as well as mechanisms to establish whether or not they are true” [4].

Analyzing the nature of power and its relation to knowledge, N. Avtonomova comes to a more categorical conclusion. “There is no pure knowledge,” she writes, “because knowledge is based on the groundwork of power relations, but, on the other hand, there is no pure negative repressive power: mechanisms of power are always positive and productive, in particular they themselves engender this or that reality, this or that type of knowledge. Knowledge can never be interested in something; sometimes it is evil but it is always power. Power engenders knowledge, and knowledge is power” [1].

M. Foucault presents a considerably pessimistic picture of social adaptation of the truth as a scientifically rationalized form of knowledge. His

theory may be perceived as a kind of mystification of scientific cognition, a substitution of cognition with apparent “will for knowledge”, which in fact, is nothing more than the intention to present “will for power” under the guise of scientific truth. M. Foucault writes: “The historical analysis of this vicious will for knowledge is based on injustice (that there is no right, even in the act of cognition, to the truth or foundation of the truth) and that the very instinct for knowledge is pernicious (sometimes even ruinous for mankind’s happiness). The will for knowledge is incapable of comprehending the universal truth even in the widely disseminated form which it has nowadays: man is not destined to dominate nature serenely and confidently. On the contrary, nature constantly increases risk, engenders dangers everywhere and its growth is not connected with the establishment and strengthening of a free subject; it is nature that enslaves man with its instinctive violence” [5].

Nevertheless, absolution of the idea of divergence of scientific rationality with its much wider explications is methodologically erroneous and even dangerous because it destabilizes the normative foundations of social and individual orientations. Science is a product of human culture, people’s demand for the provision of a reasonable organization of life. Science differs from other forms of consciousness by its objective argumentation, the revelation of regular relations, and by its demonstrative and non contradictory character. Man’s rationality cannot only base itself on these principles, whatever may be understood by the concept of rationality. Naturally, the possibilities of science have limits, and recognition of this fact must be an indication of rational consciousness. “The more the proposed aim coincides with the norms of thinking characteristic of the existing knowledge,” S. Gusev writes, “the more rational it seems to the respective culture. In its turn, the rationality of a new fragment of knowledge produced by science is evaluated in accordance with the degree of its correspondence to the existing social aims. Thus, the choice of problems and aims by both society and separate scientific groups is influenced not only by the ideals and norms of theoretical consciousness, but also by the notions of usefulness of the results either supposed or searched for, and it exceeds the bounds of the competency of science itself” [3].

There are spheres of human activity and relations that cannot be expressed by scientific norms, for instance the spheres of morality, cultural-and-ethical traditions, religion etc. Indeed, how can we define firmness or weakness of character, fidelity, honesty, goodness, evil, justice, etc. from a scientific point of view. Nowadays, the upbringing of man is understood as the process of self-cognition, as control over the “passion of the soul” on the basis

of reason. However, one of the authors of this program, Spinoza, understood that reason is helpless before affects. Nietzsche continues his teaching and states that control over man is carried out in the form of a play of affects. People's behavior is determined not by concepts, but by the struggle when one force limits another. Hence, the development of culture, according to Nietzsche, is not the production of ideas and knowledge, but the will for power. The main capital of culture is people capable of both sensations and actions, people having a sense of responsibility for both the past and the present and people capable of accepting their destiny and carrying out the will for power [6].

Such thoughts, alien to scientific values, are to some extent neutralized by the peculiarities of understanding of that same power by different scientists. For example, M. Foucault understands it as power of scientific discourses over man's consciousness. The discursive character of knowledge and the mechanism of its transformation into an instrument of power is considered by Foucault on the basis of his specific interpretations of fundamental notions of structuralism and post-structuralism according to which it is impossible even to imagine any possibility of consciousness without discourse. On the other hand, if language preconditions thinking and those forms which it acquires in it, i.e. the so-called "thinking forms", then the scientific knowledge that engenders them simultaneously form "the field of consciousness", constantly extending it by its development and, the most important thing for Foucault, exercising its function of control over man's consciousness.

Statements of both pro and con scientifically rationalized forms of human thinking can be continued, but they can hardly lead to the essence of understanding of the rational and the definition of its perspectives. A kind of methodological crisis that has emerged in connection with it can be solved not by separation and counter position of scientific and non-scientific components in the content of the rational, but on the basis of the revelation of values of the integral forms of consciousness which characterize the integrity of man's world outlook.

One of the main peculiarities of modern social development lies in the fact that the scientific factor of social innovations is domineering in modern culture, and determines considerably the realization of other conditions of social-cultural dynamics. It is science that nowadays establishes aims and forms priorities of the development of different spheres of social life and deals with the systematization and evaluation of methods to achieve them. It seems that such scientific functions will retain their importance in future, because the basic component in the theoretical reconstructions of the so

called post-industrial society are notions of the specific status of information and knowledge, the role and place of science in the development of socium in general.

By the way, the industrial epoch that seems rather vulnerable in many respects from the point of view of humanistic values, is considerably indebted to science, therefore, science and scientific rationality in general, together with the criticism of industrialism, get into the category of the discarded phenomena. It should be emphasized that facts of the unsuccessful use of scientific knowledge in the interests of production exclusively, the attempts of exploitation of imperatives of science for political and ideological aims and the construction of extensive methodologies based on irreproachability and completeness of scientific argumentations are justly referred to the negative aspects of industrial society.

While rejecting the principles of industrialism we should not reject science itself, but only attempts to use it, as a method for the complete solution of many problems, including social problems. One of the greatest and most urgent tasks of philosophy is to assert the idea of utter impossibility of a complete explanation. As K. Popper justly noted, every explanation can be later changed at the expense of laws of a higher universality. There can be no explanation that does not need any further explanation, because self-description of the essence is impossible [7].

Karl Popper, by the way, very convincingly showed the role of scientific knowledge in the system of man's sensations and relations with the world. According to his teaching, the interaction between his three well known worlds is carried out through man's intellect. The states of the second world, i.e. the mental world of beliefs, purposes and predisposition, love and hatred, pleasure and pain function as some systems for body control, and the products of the "third world", in particular, our scientific theories, function as some systems for mind control. The contemporary crisis in the value foundations of the scientific-and-rational methodology seems to be determined by a dissonance in the relations between the worlds described by K. Popper. It seems that the epistemological component of "mind control" must be supplemented by the wider system of spiritual and cultural values of both society and man's individual world. The contemporary tendencies of humanization of social activity, including scientific activity, are aimed at the achievement of this goal. It is not by chance that the problems of ethics of science, the personal responsibility of a scientist for a reasonable production of new knowledge and the possibility of its safe functioning in society, get into the field of vision of public opinion. Contemporary scientific activity is no longer an autonomous process of knowledge production, the

rationality of which is determined exclusively by its inner organization, but becomes such a form of human activity within which the rationality of aims is evaluated along with the rationality of actions.

Within the framework of the most popular approach to the understanding of the rational, rationality of human actions is characterized by the degree of correspondence of the aims to the real possibilities and methods used to achieve them. Depending on the degree of harmony between these two components, activity may be considered either effective or ineffective, the effectiveness being the form of evaluation of its rationality. The function of science finds its expression in the search for criteria of the exact evaluation of existing possibilities and the most effective methods for their realization. At the same time, the obtained result is considered to be rational only when it corresponds to the utmost degree to both the aim and the actions undertaken for its achievement. In this case it is very important to establish the degree of the mentioned correspondence with the help of different scientific procedures.

Thus, it is obvious that the epistemological component plays a very important, if not decisive, role in the definition of the rational because, as S. Gusev notes, “the organization of both knowledge about the world and people’s influence on it is, necessarily, connected with the conscious formulation of the rules of collective activity; this fact presupposes both a high degree of intelligibility of the used knowledge and a guarantee that it will be understood in a similar way by different members of society. Therefore, the intelligibility and similar understanding determine the general form of human rationality” [3].

Attitude to science, to evaluation of knowledge and to the value of knowledge in general and of theoretical knowledge in particular changes in the epoch of transition to post-industrial development. If the industrial society is based on the technology of machinery, the post-industrial one is based on the technology of intellect.

A famous American sociologist, one of the founders of the conception of post-industrial world, Daniel Bell, noted that capital and labor are the main structural elements of industrial socium, while information and knowledge are the basis of post-industrial society. The author clearly separated the role and meaning of knowledge from the role and meaning of information. According to him, information can be the main production resource of post-industrial society, but knowledge remains the inner source of its progress [2].

The above stated can hardly be disputed. The point is only the content of the term “knowledge”. If the problem is reduced to the usual results of

cognitive activity and their pragmatically ambitious application in the transformation and construction of reality, to bringing it in correspondence with the cognised essence and to forming anthrop-egoistic programs of social development etc., then, unavoidably, we come across the traditional problems, the so-called technical (technogenic, technological) rationality, peculiar to the industrial epoch which is critically regarded nowadays. The traditional rationality, G. Tulchinskiy writes, in fact, denies harmony and measure and causes necrosis of living organisms by suggesting abstract schemes that require a compulsory introduction to be realized, engendering the problems of morality metaphysics, which brought mankind into collision with them in the 20th century. The “technical” rationality either rejects the category of responsibility as being irrational (along with the ideas of conscience, guilt, repentance, shame, etc.) or understands it as responsibility for the realization of the rational (effective) idea. This type of rationality leads to self-sufficiency of separate spheres of mind application, for instance, in science it leads to extremes of scientism, in art to formalistic aesthetics, in technology to the absurdness of technical progress for the sake of technical progress and in policy to manifestations of Machiavellism. The consequence of absolutization of such rationality is immorality, negative aspects of scientific and technical progress, anti-scientism and totalitarianism. Absolutization of the tradition of “technical” or “technological” rationality leads to extremes of abstract rationalism that can result in imposture of petty tyranny of mind and violence.

The crisis of the world, which is being disintegrated into separate, unattached spheres, is, in many respects, the consequence of the unlimited expansion of “technical rationality” [8].

Therefore, the contemporary intellectual situation in society must be characterized not only by the quantitative or even qualitative phenomena of the functioning knowledge but also by the degree of its subjective explication including the questions of humanism, the practice of moral life and moral and ethical norms. All these qualities belong to the spiritual and cultural foundations of man who participates in the production of knowledge, possesses it and is responsible for the consequences of its application. It turns out, that from the point of view of gnoseology and culturology rationality is conditioned by man’s individual qualities. Abstract rationalism in the form of an exclusively one-sided orientation to the objective value of knowledge and effectiveness of its usage, to achievement of the aim, preferably, by the easiest possible way, to the idea of a certain general expediency denies (up to annihilation) individuality, deprives knowledge of its subjective specificity and makes it impersonal.

The contemporary intellectual situation is influenced not only by contradictions in the foundations of knowledge itself, i.e. by its so-called impersonalization and social adaptation within the framework of abstract rational forms, but also by the processes of universalization and globalization of society, which are very important in the real communicative practice of people and countries.

Keeping in mind perspective forms of knowledge and its direct bearers, we can admit that nowadays we, in fact, come across the situation when intellect oversteps the limits of national and cultural determination and influence. This phenomenon cannot but influence both the traditional schemes of interaction of science with society and the intellectual and spiritual enrichment of the latter.

In the conditions of the contemporary globalization development, it is possible to single out a few aspects concerning the most vivid tendencies of intellectual dynamics:

1. The contemporary intellect acquires an extra-national and extra-state character, i.e. it is accumulated in those places where financial capital is accumulated.
2. In its turn, capital is concentrated in those countries where payment for human intellect is adequate to its real value.
3. And, finally, concrete regional presence and realization of intellect are conditioned by its effective organization and the degree of necessity of it.

It is impossible to dispute the international character of science, its international status, the principle of universality and specific laws of development. Unquestionably, this is true. However, one cannot but notice the tendency of a slow weakening of the relation between an intellectual resource and regional and national strategies and programs of development. Despite the fact that this or that state (society) in a similar situation can, in a literal sense, retain its intellectual potential, it nevertheless, cannot but notice in the content of this potential the loss of the most important features of the national and cultural identification that condition the motive and results in the cognition of man, of his self-organization and involvement in the rational and creative programs of social reconstruction.

To some degree, this thesis is correlative to the inauspicious prognoses concerning the situation when against the background of the rapidly changing world, an ever-decreasing number of countries are able to save their intellectual capital sufficient enough for a complex analysis and prognostications of not only global, but also concrete, regional changes. It means that the strategy of organization and development of modern science needs a closer look from the side of both national and international projects.

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