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The Necessity of Phylosophyzing Science

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ABSTRACT:
The necessity of a long and difficult evolution of the whole world-perceiving complex in science, even of the very spiritual pillars of culture, leads to a rupture in the objectivity-subjectivity relation. And if this upheaval were even to the slightest degree partially overcome, philosophy and science – two of the ingredients of the cultural process – would realize the mutual conditioning of these concepts.
The inclusion of categories such as "value" and "purpose" in the structure of rationality challenges the resistance of dialecticians, because the firmly established ideals of scientists have many times more persuasiveness in the eyes of scientists than the hypothetical theses of speculative epistemology. For that reason, cardinal qualitative leaps in scientific knowledge need to revise and reform these ideals in order to become obvious and widely accepted.

KEYWORDS: Philosophy, Science, Methodology, Knowledge, Human Activity

INTRODUCTION

The present stage in the history of human society is characterized by the fact that culture is once again faced with a historical challenge – the problem of the prospects for modern civilization.
As a distinct and particular type of being, our civilization emerged in the European region in the 16th-17th centuries, beginning its continuous expansion across the planet. Alongside it, of course, there is an earlier type of civilizational development – traditional societies, which gradually under its pressure are either assimilated or succumb to a depersonalizing modernization. Contemporary civilization could be described as technogenic, given the decisive role of techno-technological progress in its development, leading to accelerated rates of social innovation. The foundation of its culture is a particular system of values that differs radically from the values of traditional cultures. This system was formed in the Renaissance, Reformation and Enlightenment eras. As the most significant qualitative components in the system of values of the technogenic society could be defined:

- The Understanding Of Man As Homo Faber, Confronted In Contradiction With Nature.
- The Understanding Of Human Activity As A Creative Process Aimed At The Transformation Of Objects And Their Subordination To Man.
- The Understanding Of Nature As An Inorganic World, Which Itself Constitutes A Lawfully Ordered Field Of Objects, Manifesting Themselves As Material And Resources For Transformative Activity.
- The Value Of The Active Sovereign Individual; The Value Of Innovation And Progress.
- The Value Of Scientific Rationality.

This system of vital meanings becomes a kind of genotype of technogenic civilization. Its progress is realized precisely based on this genotype, which provides the new tendencies of scientific and technical development – the medium of technogenic civilization (Stepine;1989). Modern science and human activity increasingly deal with more peculiarly assimilated objects, which represent complex historically

developing systems. These systems alter our conceptions of the world around us and require more particular strategies of human activity that now go beyond the confines of techno-culture's routine notions of creative activity as a kind of forced transformation of the world. Quite indicative of this is the fact that a kind of compilation with the world-pleasing images of traditional Eastern cultures, which in the previous stages of the development of technogenic culture were perceived as unscientific or contradictory to the values of Western civilization, is unexpectedly emerging here.

1. SCIENTIFIC KNOWLEDGE IN THE POSTINDUSTRIAL SOCIETY

The modern scientific picture of the world is no longer consistent with man's previous conceptions of nature. The latter is no longer perceived solely as an inorganic substrate, but as a global ecosystem – the Biosphere, which is exposed as a whole organism, imposing constraints related to the indiscriminate exploitation of nature. It becomes clear that strategies of human activity change as complex historically evolving systems are assimilated. The attitude of actively and violently transforming the world is no longer effective. These systems are open and characterized by synergistic parameters. The development of this kind of systems can be represented as a transition from one type of self-organization to another. Periodically passing through a bifurcation point, evolving systems master several possible lines of development at each such point. Sometimes even marginal or purely random effects, considered in parallel with certain relevant effects, can radically alter the developmental vector as well as lead to the emergence of new levels in the system's organization. With increasing external force and energy intervention, the system may respond by simply reproducing the same set of structures. But also, quite often this type of marginal impact is able to give rise to new structures and lead to the complication of the system.

The vitality of complex, historically evolving objects demonstrates the organic relationship that exists between moral imperatives, rational cognition, and purposive human activity. The latter manifests itself most eloquently in the modification of historically evolving objects, in which the human is perceived as a constitutive component. The biosphere and the ecosphere, in which the corresponding technologies and scientific cognitive mechanisms are implemented, are models of such types of systems (Shvyrev;1984).

The principled impossibility of defining precisely the future trajectories of evolving systems at bifurcation points poses the problem of choice to the acting subject every time. The fact of not falling into trajectories that are catastrophic for humans is of priority when trying to avoid unfavorable scenarios for system development. Not only the knowledge of possible scenarios, but also the values and moral postulates that protect us from a kind of chaotic agency could serve as a guide for this.

In such an integration of truth and the mechanism for achieving it in the process of mastering the complexities of evolving systems, references and analogies to the traditions of ancient Eastern cultures or to such cognitive schemes that a priori disavow logical categorization for scientific knowledge could also arise. The rational attainment of the world under these “non-Western” paradigms never separates natural truth from cognitive heuristics, nor is it ever subservient to authority. In the Chinese language, there is a character for the term “Dao” that serves to denote truthfulness, morality, and the human way of life simultaneously. In this regard, we could argue that, in creating his heliocentric hypothesis, Copernicus hardly thought about what would happen to Aristotle's authority.

By the latter, we do not at all mean to suggest that the salvation of humanity depends on the restoration of world-perceiving ideas necessarily peculiar to traditional cultures or on adherence to random and superficial dilettante theories. Traditional cultures are characterized by their own worship of nature. Here man as such dissolves into it, and the uniqueness of his individuality remains in the background. In

technogenic culture, the opposite is true: the cult of the individual (authority) comes first, and nature is understood as the material for transformative act. The vector of human activity in our culture is extroverted and directed towards the transformation of the object. In Eastern cultures, cognitive intentions are directed inwards – towards the education and self-limitation of the individual and even towards a certain suppression of creative individuality. This suggests that it is not enough to simply invent an algorithm that compiles the Eastern ideal with the Western ideal. It is a question of their skillful cohesion into something third, which would guarantee a new strategy for knowing and interacting with being, thereby ensuring the development of the individual in man (without the influential shadow of authority), as well as his social openness and the possibility of expanding the field of intersubjective communicativity. From the latter, one should necessarily draw the conclusion that in the bowels of modern technogenic civilization – at the highest stage of its scientific and technological development – a new understanding of nature and being is being formed, which in turn opens the way to a synthesis of different cultural traditions and creates the preconditions for a new cycle of civilizational development.

If the post-industrial society, about which there is so much noise today, is called upon to find a way out of the global crises, it is one that is to develop not merely as a rear-guard of technogenic civilization, but rather as the initial stage of a qualitatively new worldview. The whole of world philosophy, in every variety and at every stage of its development, is proving insufficiently prepared and adaptable to the rapid changes of its time. This insufficiency is expressed not in the lack of conceptual perceptions and schemes, but in the dogmatism of the world-perceiving cognitive process in its total availability. It is therefore quite often necessary to look for points of reference sometimes even quite far in the past in order to make the new ("heretical") world-perceiving mechanisms seem stranger, more acceptable and, above all, closer to the generally accepted "authoritative" truths. In our opinion, this is the reason why philosophical knowledge is quite tendentiously rejected as "unsuitable" by the representatives of the so-called "fundamental sciences".

The merit of the technogenic society lies in the skillful separation of scientific from non-scientific knowledge. Philosophical reflection, however, is pushed into the perimeter of casual and non-scientific knowledge by those who need it most, whether they are aware of it or not. We have already seen how the qualitative leap in empirical sciences could only take place, and is only possible, on a reflexively conscious level. The breakthrough in dogma – for this is the only way in which the barren cognitive model could be destroyed – is made at the level of deductive abstraction and almost never by following inductive intentions, for the latter would find it quite difficult to cope with the task of describing a theory that could claim to be apodictic. Where else but here would philosophical reflection be most relevant. There is no other field of human agency where qualitative speculativeness at the level of abstraction can be so emblematically demonstrated. Philosophical reflection alone, however, cannot provide that "paradigmatic" consistency and certainty in being that scientists otherwise attempt to determine through the rigorous scientific cognitive form of thinking. This fact is especially contested these days, since it goes without saying that human cognition cannot be confined to the realm of empirical science. The study of "knowledge before and beyond the limits of science", as we have tried to show, seems no less interesting than the traditional and even sometimes banal philosophical-methodological studies. And science as such has no fixed boundaries. Attempts to draw a demarcation line between science and non-science almost always fail methodologically (Holton;1990). As we have already seen, the difficulty here is not that philosophers dealing with scientific issues are not sufficiently inventive or insightful, but the conviction that research falls into a vicious circle: to define the limits of scientific rationality requires criteria that

cannot be constituted before those limits are crossed. Perhaps the entire history of philosophizing science so far can be defined as a series of attempts to break this circle, although it is much better not to fall into it at all by seeking alternative ways of exploring the cognitive process for this purpose.

The latter does not at all mean that it is easy to find such. It is quite possible, in denying "demarcationism", to fall into the other extreme – to set limits to scientific knowledge by falling into direct dependence on extra-scientific factors that have to be related to the cultural context. The strategy of such an anti-demarcationism seems quite appealing: instead of exploring insurmountable barriers, it is more appropriate to move towards identifying them with membranes whose property is selective permeability and whose function is conjunctive rather than separating science from other kinds of spiritual and practical human activity. How, however, can this strategy be implemented without falling into primitive relativism? Debunking the myth of Universal Method and Unified Rationality, Paul Feyerabend calls for a "methodological anarchism", justifying this by the need to stop the spiritual degeneration of freedom. "The idea of a rigid method or a rigid theory of rationality rests on an excessively naive conception of man and his social environment. If one considers the vast amount of historical material, and ignoring the drive to "purify" it in favor of our baser instincts and aspirations for intellectual safety (to the highest degree of clarity, accuracy, "objectivity", "truthfulness", it becomes clear that there is only one principle that can be defended in any circumstance and at any stage of human development – "anything goes" (Feyerabend:1986, pp. 158 -159)

2. EPISTEMOLOGICAL VERSUS RELATIVISTIC ANARCHISM IN SCIENCE

"Methodological anarchism" is not simply an antidogmatism directed against attempts to establish – by means of some absolute principles – sacred and inviolable limits of reason. Rather, it is an attempt to ignore anthropology and philosophy, which adhere to Cartesian positions according to which the possibility of truth, acquired in man's cognitive and practical activity, is guaranteed by the Absolute, and therefore the idea of Method or Rationality cannot be relativized. The "non-naive" anthropology tries to translate this relation from the areal with the grounds of being into the sphere of human creativity, and to open peculiar perspectives to ironic reflection. It is on this ground that relativism feels quite confident, combining its characteristic instrumentarium with the idea of boundless freedom inherent in human subjectivity.

As the complete opposite of Feyerabend's tendencies towards epistemological anarchism and Berdyaev's personalistic one, Husserl sees in relativistic tendencies the symptoms of a "crisis of European science", which is a consequence of the cultural and historical crisis of the European part of humanity.

"As the belief in absolute reason, which gives meaning to existence, collapses, so does the belief in the meaning of history, in the meaning of humanity and its freedom, understood as man's ability to give rational meaning to his individual and common human existence." (Husserl;1992, p.41) In Husserl, unlike Feyerabend and Berdyaev, we witness a completely different meaning invested in the concept of "freedom". Husserl founds freedom on "rational sense" and the belief in absolute reason, without which the existence of the individual and of the human species in general is rendered meaningless. By the anarchists, the relation is reversed: Feyerabend regards freedom as a kind of Ersatz of the Absolute, while Berdyaev remains with the tragic dialectic of the Absolute and Freedom, which leads to eschatologism (Berdyaev;1993).

The development of science in the twentieth century proved the vulnerability of "natural objectivism". It is the natural sciences, and physics in particular, that have dealt the greatest blow. The study of the

microworld with its quantum regularities shows that "in the realm of experience, which is situated far beyond the limits of empiricism, the ordering of sense perceptions according to the model of the "thing-in-itself" or even their qualification as "objects" can no longer be carried out, and that defining this by simple reasoning we come to the conclusion that atoms are no longer things or objects". (Heisenberg;1980, pp. 105-106) Objects in the physics of the microworld are conceived as "essentially constitutive parts" of the situation of observation, possessing a high explicit value related to the physical analysis of phenomena (Heisenberg;1980, p.106) Commenting on these statements, Anatoly Akhutine writes: "Every fundamental concept is not merely formed, but contains within itself (as such) the very method of its formation. What in classical science can be referred to gnoseology or to problems related to the methods of knowledge, it is necessary to somehow incorporate into the logic of the subject itself. Or we must give up this metaphysical image altogether. The objectivity of scientific knowledge will not suffer at all if we cease to think objectively, even if we reconcile mathematical theory with experimental interpretation. In other words, it is not the object itself that disappears, but only the metaphysical habit of thinking objectively" (Akhutine;1980, pp. 261-262).

Ignoring metaphysical habits is characteristic of "non-classical" scientific rationality which undertakes to investigate the object's relation to the means, operations and methods of cognitive activity. It is not the elimination but the explication of these means that becomes the condition for the truth of knowledge. Explication itself should not become the end of rationality, for even it could not insure us against skeptical conclusions. In our view, the link connecting the subjective and the objective in knowledge is much more fundamental. Contemplating nature, science sees in it its own architectonics. Scientific knowledge includes within itself a program of conditions, amenable to verification and reproduction, under which the conflict of its subject matter takes place. This program, and the construction of the subject in accordance with it, should reveal the subject's own nature, not the arbitrary design of the researcher.

Here the question inevitably arises: is there synchronization in these two requirements? This is precisely what Einstein was aiming at when he proposed to introduce criteria of "internal perfection" and "external justification" in any scientific theory, i.e. coherence and heuristics of the mathematical apparatus, which in turn not only allows the explanation of the experimental data, but also guides the experiment itself, increasing the "empirical content" of the theoretical constructs. The criterion of internal perfection, complemented by that of external justification, turns, in the words of Boris Kuznetsov (Kuznetsov;1972), the theory of relativity into a theory of reality. The grounds of this Einsteinian aspiration are rooted in the very facticity of science and its successes. But for the theoretical resolution of the question related to the possibility of synchronic validity of the two requirements (a problematic reminiscent of Kant's theses in the "Critique of Pure Reason"), a new cognitive attitude is needed, for which the objectivity of knowledge is by no means identified with "non-subjectivity".

This, in our view, is the point of Husserl's phenomenology. It can be understood as an attempt to "rationalize" human cognitive possibilities at the expense of broadening and deepening the rationalistic arsenal; it implies "the rejection of any determinism between contemplation and thinking, intuition and discourse, launched by "classical rationality" as a way of knowing "essences"." (Svasyan;1987, p.169).

From all that has been said so far, it is clear that the need for a radical methodological philosophizing of science (originally conceived by Husserl) turns out to be in some ways not even sufficiently demanded. Contemporary science is entering a "post-neoclassical" (Stepine;1992, p.217) period in the development of its rationality. It is characterized by the correlation of knowledge not only to the means of cognition, but also to the value-purpose structures of human activity. Philosophers who situate the principle of this

human activity at the center of scientific knowledge reveal and extend its content to a much greater extent than their predecessors and opponents. This enriches the cognitive process and brings new impulses of development to it. In parallel, reformers in science must arm themselves with determination and consistency, factors that have not always been inherent in them. It is a question of the fact that human activity cannot be consistently pursued if the structure of the act itself is seen in contradiction to its social and collective characteristics. And such correlates as the value and purpose of the knowing subject are themselves inherently social characteristics. Therefore, if contemporary "post-neoclassical" science incorporates these characteristics into the structure of its rationality, then by this act it inevitably arrives at the spiritual archetypes of European culture that precede its introjection into scientific-technological civilization.

CONCLUSION

In certain historical periods the ideal of objectivity of knowledge has been perceived as autonomous from subjective tendencies. Strong influences in the formation of this ideal are both awe of the authorities in knowledge and religious notions of the wickedness of human nature, fallen under the power of affects and wandering in the ways of truth from which the free but sinful will leads it away. Man's nature is seen not only as the vehicle of the Cartesian lumen naturale, but also as an entity capable of extinguishing the natural light of reason. It is for this reason that the thinkers of the New Age have long and painfully sought guarantees that this light will not only not be extinguished, but will shine all the brighter, dispelling the darkness of ignorance. The necessity of a long and difficult evolution of the whole world-perceiving complex in science, even of the very spiritual pillars of culture, leads to a rupture in the objectivity-subjectivity relation. And if this upheaval were even to the slightest degree partially overcome, philosophy and science – two of the ingredients of the cultural process – would realize the mutual conditioning of these concepts. After the German classical thinkers, philosophy quite often even declares this mutual conditioning. The realization of these declarations, however, almost always encounters serious difficulties. The inclusion of categories such as "value" and "purpose" in the structure of rationality challenges the resistance of even the boldest dialecticians. And this is understandable, for firmly established ideals of scientists have many times more persuasiveness in the eyes of scientists than the hypothetical theses of speculative epistemology. This is why the cardinal qualitative leaps in scientific knowledge itself and in scientific creativity as such that we have already described are necessary – for the need to revise and reform these ideals to become obvious and apodictic.

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