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## **The image of science: The unity of philosophy, methodology and the history of science**

THE WELL-KNOWN APHORISM OF Imre Lakatos — «history of science without philosophy of science is blind, and that philosophy of science without history of science is empty» — reflects a modern tendency concerned with revolution in methodology.

The comprehension of transformations, shifts, displacements occurring to all the areas of modern culture and society are considered to be connected to a situation or a condition of Postmodern.

It's stating in increasing frequency that:

- 1) the world rolls in the information but thirsts for knowledge;
- 2) the MASS MEDIA are the main factory of designing and replicating socially, culturally and aesthetically significant images that inevitably result in pressure upon humanitarian knowledge;
- 3) the monetary principle has replaced the industrial one, i.e. working on a model has given the place to copying. The present day situation is that not the process of comprehension of new cultural experience (it's always the slow process implied long-reading – understanding – musing) is important, but speed of perception and reaction when plagiaristic reception ways of “new” knowledge begin to prevail;
- 4) occultism is being reanimated in religio-philosophical sphere when taste for a substantiation of idea disappears;
- 5) the terms of classical cognitive experience have changed;
- 6) modern person exists with absent human dimension in hyperspace. Therefore, his consciousness is not capable to supervise a huge decentralized communicative network that conducts to a mismatch between individual and social, decenter and desubjectivity. Subjectivity is no more primary, and represents function of forms of life and language;
- 7) the present-day science is not capable to construct an integral world model because of private, plural truths;
- 8) imperfection of the education system is authoritative ways of dialogue during training are not corresponding to modern representations about the nature and problems of mind;
- 9) simulation becomes total (it is embodied not only in virtual information technologies, but also is shown in interpersonal relations, art, politics, science); this allows us to speak about illusoriness and instability of social being.

Nowadays dynamical and directed information influencing on individual consciousness leads to substitution of the real world by the world of information phantoms which appreciably begin to structure a habitual and incontestable reality of everyday routine.

The distinction between the real and imagined world is being erased.

Importance of an event or an act is no longer defined by real consequences but opinions and perception dominating in MEDIA-space. Substitution of objective criterion of the true by utility and the efficiency leading to comfort is being made imperceptibly. It in a new fashion aggravates and poses, a problem of the status of knowledge and individual experience of knowledge in modern culture.

Outflow of social emotions from fundamental science and disappointment in values of classic cognitive experience have resulted in commercialization of science.

It has an effect for changing strategy of cognitive process: interest to detection and comprehension of the new phenomena is lost; there are institutionally impossible quantum leaps in development of

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human idea since orientation is being established not on discover of new knowledge but only on specification of an old one.

In many cases, variation of the social status of science and scientific knowledge was caused by difficulties and contradictions in the very science. There are:

1) the experts, working even within a framework of the same discipline, differently perceive a researched reality, hence, they have various images of knowledge; 2) the concept «mosaic object» is in increasing frequency used in language of scientific community; 3) the representation of that due to a science people expand their knowledge of the world is being demythologized; 4) there is growth of the distance between professional-theoretical style of thinking and “common sense” in basis of which the daily life experience lays.

It's also inevitable circumstance that the language form of representation of knowledge as a result of its translation (perception and assimilation) derivates a wide spectrum of possible interpretations. That is connected with individual completion an image of knowledge through creation (mostly implicit) own system of connotations. It conducts to the following consequences: 1) the demarcation (usually uncertain) between areas of “science” and “non science” is getting more washed away; 2) some “phantom” concepts emerge; such images of knowledge, though being not verified, are widely replicated by Mass-Media due to the fact of its exotic and sensational nature.

In view of the aforesaid, the problem of identification of scientific knowledge, demarcation it from pseudo-knowledge or non-standard knowledge (nonscientific, unscientific, parascientific, pseudoscientific, astrologic, occultistic etc.) becomes aggravated. It occurs, as a rule, at the crisis moments of evolution of science.

Postmodern- oriented authors try to show new “other-scientific” world-representing model of the description not so much the world as many ways of dialogue with the world.

Thus, we have to acknowledge the purposes, values of life, science, education and sense of the philosophical cause have changed.

The postindustrial society develops new strategy of social evolution, that inevitably will result in changing the status of science, philosophy, education. By this time there are some points of growth of the new knowledge, new values.

The scientific knowledge does not cover itself all the knowledge which consists of everyday knowledge; intuitive knowledge received as a result of life experience; mystical basing on meditative conditions of consciousness; knowledge associated with artistic-based understanding of the world.

Critical and comparative epistemology just should reveal the basis of various phenomena of knowledge, analyze their opportunities and make an examination of these phenomena pretending to a role of knowledge.

In this connection the problem of the image of knowledge retain a great urgency. The image of knowledge means the cumulative education including the moments of the seeming as well as erroneous knowledge. The image of knowledge develops not only in a science, but also in our daily life. It means representation about the knowledge, including not only scientific component but also daily-practical. The image of knowledge fixes an interlacing of knowledge and that only seems to be but can be speculative metaphysics; or the false claim on clairvoyance; or judgements and imaginations about what oversteps the scope of opportunities of human knowledge.

The problem of the image of knowledge also emerges when somebody tries to give precise and unambiguous definition of what the “knowledge” is, but meets difficulties caused by, firstly, the fact that this concept is one of the most general; secondly, existing variety of various kinds of knowledge which is difficult to unify.

The very scientific knowledge, as is well known, is the pattern of standard knowledge. The specificity of science is it bases on objective knowledge which can be verified, render and kept. Playing possible models of the description of the world, the science aspires to reception of true knowledge. This is a self-value of science. The aspiration to the true and interdiction on plagiarism provides growth of scientific knowledge.

However, just non-standard knowledge has been getting a special value lately. Non-standard knowledge it is the knowledge that functions out of cognitive contexts where the acquired knowledge is no longer used directly for creation of new knowledge. As a result, the problem of the image of knowledge appears. While the knowledge begins to function as a basis of practical action the concept

of “validity” is substituted by concept of “efficiency”. But it is not the same, as even a mistake can function rather effectively in practical contexts.

Knowledge in applied and fundamental sciences differs in the form of representation. The knowledge in applied sciences is determined by other parameters and represented as it is complicating and, in some cases, excluding its further using for getting a new knowledge.

The question of what image of knowledge in our actions and acts, in the life we should direct our attention to is getting a special importance.

Transfer this problem into a perspective of philosophical comprehension is connected with the analysis of ways of the organization of knowledge about the world, specifying programs of existence of society at various stages, or with understanding of essence and nature of the rational.

In the 20<sup>th</sup> century, as a result of historical-scientific and historical-cultural researches it was found out that the concept “rational” is wider than the concept “logical”.

Today the nature of the “rational” cannot be associated with only area of epistemology.

Besides, it is a turning-point now when the science begins to work with human-measured objects (information technologies, biotechnologies), and it demands development of new strategy of explication of research results, involve ethical regulatives that conducts to occurrence of new type of rationality (postnonclassical) though does not reject other types of rationality (classical and nonclassical).

The new understanding of rationality should include moral and aesthetic characteristics. It is possible that there can be situations of divergence between scientifically understood “intelligence” (rationality) and requirements, for example, of moral.

Expansion of concept of rationality in a new fashion puts a question about rationality of a personal choice, behaviour and acting; a question concerning the personal responsibility of the researcher for forming new norms and types of rationality.

New images of knowledge, taking into account their plurality and heterogeneity, will be developed on the verge of various types of knowledge not only as a result of producing and replicating of new information complexes. The rationality of these complexes is determined exclusively by the ways of the organization of the very complexes. It also includes: 1) the representation about the expediency to estimate the rationality of activity, purposes, consequences; 2) the contents of the “background” knowledge making a so-called layer of tacit (implicit) knowledge: it is deep representations about the world, estimations of understanding, rationality of the knowledge used in designing and description of the reality.

The tacit knowledge has an inevitable impact in the experience of reconstruction of the History of Science. The history of science consists in search of regularity in development of knowledge in its connection with the history of development of society. We should take into consideration the existence of two-dimensional level of knowledge. Any knowledge assumes subject’s self-consciousness but extends further its reflection. Focus of cognitive process is permanently intentional and defined by our substantial need in opening up the world. The main role in acquiring knowledge of the world is played by background of consciousness or, in the terms of Polanyi, by tacit knowledge. The latter, is being transmitted by scientists from generation to generation through the process of training and communication, cannot be verbalized. The process of reflection of scientific knowledge means the reference to implicit knowledge, attempt of its verbalization. The problem of implicit knowledge is not so obvious. Wittgenstein claimed that the limits of our language means the limits of our world. In reconstruction of it should be dissected all the premises of knowledge. But they are much wider as it can be suggested. Being unrecognized, concealed, ostensive, mismatched (with salience varying) knowledge is not able to be verified. The consistency of historical facts is always defined as being subjective. The question is what methodology should we use to make the cumulative knowledge being described in our native language. The more knowledge is tacit, the more plural system of reconstruction of the history of science we receive. Thus there is a pluralist epistemology acknowledging that no single reference system is capable of establishing the single history of science.

Philosophy will help to correct strategy of reception and representation of knowledge in the very science (modern physics, biology, social sciences) by translation of schemes of vision, by paradigmatic transfer from one area to another. It’s an inevitable fact, there will be other strategies of understanding of the world, there will be also their application on values of traditional cultures. Philosophy will find

similarities and distinctions between any possible images of the world, will act in those zones where a scientific argument is complicated, reflection and creative research are necessary.

The problem of the image of knowledge has one more important sense connected to subject interpretation of present knowledge. Modern person should learn to live in «information society», standing its intense discrepancy, transforming information in present knowledge. Modern culture tends to be plural, kaleidoscopic; losing a metaphysical vertical, it becomes a *rhizome*. New experience of a person will be developed, during accumulating of knowledge, as a certain integrity, the ideal — the image of knowledge — which will help to overcome split, decentralized, multivariate subjectivity to restore identity, completeness and integrity of the life. The new image of knowledge as integrity no longer homogeneous but contradictory will help to proceed to new quality of consciousness; to find new subjectivity surpass present life; to choose own vital strategy and to accumulate experience as doing.

Nowadays experience is beforehand mediated by its visual double and, therefore, it gets mostly media-alooof character

New experience of perception was prepared by postmodernist processing praxis of already existing codes and styles, taken root in culture, by quite formal ways: “mirror” or “labyrinth” construction of a material, citing, irony, a parody, plagiarism, pastiche. At the same time the term “pastiche” (ital.: Pasticcio – paste, mess; an opera made of fragments of other operas, a mix, the potpourri; in painting – stylization, daub) we understand widely. It isn’t only the program aesthetic category of postmodernism realized in the play source, at the moment of parodying and irony of the out-of-date (or not original, not true etc.), but without proposing preferable alternative to the parody. «Pastiche» reflects new multilayered, multivariate social cultural reality formed in result of «deleting borders” and “origin of new territories». There were serious changes in the angle of visual perception. It’s frequently being spoken about formation superficial, fragmentary, or so-called «filmloop consciousnesses» recently. Both the bent for a picture or comics (consecutive assembly of pictures), imperceptibly imbued modern consciousness, and the functioning of consciousness in a mode of show put compatibility of perception with traditional forms and genre stereotypes of the fine arts under doubt. The idea of expanded, thoughtful seeing is blocked by a habit of accelerated one. In this kaleidoscopic boiler, in this “soup” of modern culture the new moral substance, new intellectuality appear.

The projects, using digital technology of the image for creation of very capacious images that can’t be identified as primitive, raise hopes.

Certainly, it is necessary to project these shifts onto a system of modern education as education is a training model of science in the European culture. During the process of formation of new intelligence, in our opinion, the using of the media world — computer simulation — can be (and already is) rather perspective not only in the transfer of information but, the main thing, in the sense-making and producing new cultural praxis. Today the virtual worlds of computer simulation allow to imitate various (not perceived sensually) levels of the reality for cognitive purposes, to reproduce stereotypes of thinking, conceptual circuits, senses, symbols, methodologies. Process of knowledge ceases being only a reflection of the reality for becoming creative, it becomes a version of inventor activity.

Many modern scientists come to a conclusion that structures and pictures opening as a result of research can be described only in language of mythology (!) since usual language (abstract and discrete) is not capable to express a continuity and integrity of the processes proceeding in the world.

Here is one of fundamental problems: the language that is capable to describe adequately the reality to cognize. Science is in the state of alternative between the accuracy of the description (due to elimination of uncertainty, excluding metaphors, images) and completeness (achievable due to metaphorical language) in its theoretical constructions.

So, theoretical descriptions are strict but fragmentary; and verbal, on the contrary, are full but not strict.

The information differs from knowledge. The information can acquaint with the reality for accustoming to the outward things. Forms of the world are various, and, in its turn, the information can be various. There are forms visible, perceptible, and there are others: words of language, ways of behaviour, customs, legends, histories and etc.

How can we convey results of the internal cogitative construction by the external means?

The information rather effectively can interfere with harmonious work of intelligence and emotions, not initiating but, on the contrary, suppressing thinking, making impossible construction of the picture, the image of knowledge of the world.

To make accessible the essential information it is possible, for example, by the special organized information dossier. The dossier can be consisted of nominal references to the information fragments that discover important aspects of a word.

The possibility of descriptions the situations of occurrence of such type of knowledge can be given, completely unexpectedly, by high-level connections. So the mutually connected system of materials arises. The system of the information appears as the image where external and separate becomes internal and interconnected; the vision of contradiction and the way of its synthesis to a complete picture arise. At the same time words of explanation are caused by the arisen internal vision.

Various information pairs turn unity of the thesis and the antithesis; the consciousness of it opens an opportunity of synthesis. It is a quantum leap when work includes the soul, the quantity of the external information transform into quality of an internal picture (Image). The isolated turns to the whole thus reducing the information necessary for keeping of the image. The cognitive situation becomes more observable, easier. Necessity to remember great number of words disappears as vision of the senses derivates it (words) every time anew.

Philosophical texts are attempts to put in a words ... inexpressible.

The arising structure of the information partly reminds the Chinese system of comments to canonical texts with the only difference that comments to connections are written independently.

Creation of information dossier and occurrence of the connections, based on its creation, of more sophisticated character, their considering are the step on the road to creation of the image of the information-cognitive environment allowing everyone to doubt, find new argument, build a three-dimensional world model. Dossier- forms are the ways of accumulation of intelligence of different people.

There is Plato's text, Bachtin's one, there are texts of the creed and so forth. These statements can be placed as a bookmark with the names. Names of bookmarks are not accidental and transfer the noticed connections. The interconnected system of the references arises. It allows to look at texts of bookmarks not in isolation from a context but in environment of other words and non-words existing alongside and able to be interesting and useful.

It cannot be made on a paper data carrier but correspond with opportunities of present-day technologies of transfer and processing of the digital information.

The information arranged so is potentially capable to induce to construction of the image of knowledge, and, hence, it has cognitive value. It is offered to make independent conclusions and explanations to the person.

The understanding of the communicative paradigm as a modern one, the recognition of existence of network interactions of knowledge derivates a new situation of aligning of methodology. Philosophical work consists in co-ordination of methods. The reconstruction of the panorama of the historic scientific researches will not so much raise the qualification of objectivity as result in more exact understanding of borders of method, correct understanding of the thinker and productivity of his methodology, will give vent to new search systems.

The controversy between Kuhn and Lakatos was not ended in methodological Feyerabend's anarchism but has pointed the problem. Each methodological concept interprets, estimates and connects historic facts in its own way creating various «histories of science». Alongside with Lakatos' method of rational reconstruction there are rational reconstruction of inductivism, conventionalism, falsificationism. There is no unanimity in sources of understanding both of essence of science and stages of its evolution. Philosophical, methodological and historical preferences of the very scientist are viewed in the image of science of the new and the newest time. The history of science consists not only of "noble" disciplines have received an exclusive position in the positivistic hierarchy of sciences. By efforts of Foucault the research attention isn't focused on "topmost" disciplines any more but on those areas of knowledge which are less deductive and are likely to be subjected to imagination; raise questions unusual for science allowing to name them marginal; and undermine understanding of science as being histories of «truthful discourses».