

COGNITIVE POTENTIAL OF AESTHETICS OF SCIENCE IN ITS INTERDISCIPLINARY DIMENSION

The article deals with one of the main problems of awareness of the aesthetic-cognitive potential of the category of beauty in the scientific discourse in the context of the process of interdisciplinarity. The emphasis is on the ratio of personal (subjective) understanding of beauty as a certain objective category, a principle that determines scientific activity. Analyzing the problem of aesthetic beauty in the context of its relationship with scientific culture, it is difficult to verify that most scientists, striving to build their own theories, using the criterion of beauty, are somehow drawn into the aesthetic discourse of the modern era. But, taking into account the historical dynamics of criteria that allow us to clearly identify the boundary between beautiful and ugly, the concept of beauty in nature has changed throughout history, which could not but affect the development of scientific knowledge.

Keywords: aesthetics of science, interdisciplinarity, cognitivism, objectivity, value.

Actuality of the issue. The formation of postclassical science and its methodological basis implies not only the growth of the significance of the value aspects of cognitive activity, but also a fundamentally new understanding of nature and functions of scientific research. In this context, the perspective of the formation of a relatively independent branch of methodological knowledge, as aesthetics of science, which suggests a new understanding of the role of sensory in science, is more clearly outlined.

One of the fundamental problems of comprehension of the aesthetic potential of a category of fine in a scientific and theoretical debate is the correlation of the personal (subjective) understanding of beauty and beauty as a certain objective category, a principle that determines scientific activity. In fact, it is difficult to separate each other. In addition, the cultural experience of mankind directly indicates that it is almost impossible to conceptualize some objective laws of beauty.

Analyzing the aesthetic beauty problem in the context of its relationship with scientific culture, it is not difficult to ascertain that most scholars, while striving to build their own theories, using the criterion of beauty, have been attracted to the aesthetic discourse of contemporary epoch. But given the historical dynamics of criteria that allow us to draw a clear line between beautiful and ugly, the notion of beauty in nature varied from century to century, which could not but affect the development of scientific knowledge, especially its interdisciplinary tend. Being dynamic, the main values of culture, including beauty, can be filled with new content.

Despite the considerable "lagging" of this sphere of methodological discourse from comprehension, for example, the ethical issues of science, it develops at a rapid pace, reinforcing the previous experience gained in the process of studying the most diverse aspects of axiology, including the values of truth, its aesthetic components.

Actual scientific researches and issues analysis. The concept of aesthetics has been studied in numerous works, among them there should be mentioned those by M. Suarez, S. French, S. Downes, C. Elgin, A. Chakravarti, C. Ambrosio, A. Toon, D. Lopes, E. Panovsky, C. Peacocke and many others. In addition, there is a flourishing literature on factionalism that has tried to incorporate modern theories of literary fiction into accounts of representation in science.

Unresolved problem analysis. There is a need for studies on the role of aesthetics in scientific research. The undeniable achievements of the representatives of the aesthetic value theory and the modern philosophy of science, it is impossible not to notice that at present the aesthetic part of scientific culture remains poorly investigated. Today it can be argued that there is a crisis of aesthetics associated with the loss of clear landmarks: the vast majority of philosophers eliminate from the philosophy of science everything related to the phenomenon of art, from the position that aesthetics

uses values, that is, possesses anti-scientific qualities. From this position, this topic becomes significant in connection with the deployment of integration processes both in the field of its own scientific knowledge and culture in general, an important element of which was always science, even when it declared its value neutrality. It is this aspect that will be at the center of our attention.

Research objective settings. The investigation is aimed to find out the nature, place and significance of the phenomenon of beauty in science, for which the corresponding tasks are set: to analyze the historical milestones of understanding the relationship between scientific and artistic and aesthetic creativity; to uncover the heuristic role of the phenomenon of beauty in scientific activity; to show that the cognitive potential of the category of fine in scientific thinking is due to the correlation of the subjective understanding of beauty and the beauty of the objective characteristics of reality.

The **object** of research is the value sphere of scientific knowledge, its cognitive potential and the role and significance of beauty in the axioms of scientific culture in terms of interdisciplinary dimension.

Research results presentation. Orientation of the category of beauty goes far beyond the competence of aesthetics as an applied discipline in the structure of philosophical knowledge. Beauty, without exaggeration, is an ideological principle that determines the cultural progress of humanity as a whole.

Despite such an extremely broad education of the problem of beauty in philosophical discourse, the semantic potential of this very important category is still not comprehensively disclosed. This is due to the fact that the study of the phenomenon of beauty relates primarily to the personal dimensions of human existence, which in the structure of philosophy and methodology of science was traditionally considered secondary, since according to the ideals of rationality, formed in positivism, everything is directly related to the person, the subject (values, aesthetic sensations, taste, etc.), was considered a factor that hinders its own scientific knowledge, designed to discover the truth.

In the course of the reevaluation of the category of truths, the emphasis in scientific and philosophical quest for the late 20th century is significantly shifted towards the subject of knowledge, resulting in the formation of an ideal of a holistic model of scientific knowledge, which necessarily involves in its structure valuable, including interdisciplinary aesthetic components, such as simplicity of a theory, its symmetry, clarity, and simplicity. Scientific publications devoted to comprehension of the nature of scientific knowledge, science as a cultural phenomenon, methodology of scientific discovery, etc., indicate the formation of a new interdisciplinary methodological approach, exploiting the concept of the axioms of science, scientific culture, etc.

The problem of the essence and importance of beauty in the axioms of scientific culture is extremely controversial and generates many problems. On the one hand, it is not unconvicted that there is a personal level of aesthetic perception and a subjective assessment of the beauty of a particular scientist. On the other hand, the category of beauty has a general and objective interdisciplinary significance.

A well-known Swedish physicist, Nobel Prize winner, Professor Hannes Alfvén expressed the view that the activities of the scientist-physicist practically does not differ from the work of the artist. Both the scientist and the artist singled out something essential from the chaos of sensuality and represent it in the most concentrated and elegant form. An artist, a poet, a sculptor, a composer, as well as a scientist, sets one goal, i.e., to convey the experience of experiencing beauty to the public, isolating from the stream of everyday life something really worth attention. And each of them has its own peculiar means of achieving this goal: for an artist, it is a color, a proportion; for a poet, it is an image; and for a physicist, it is a formula. Although the names of great theoretical scholars are well known, not everyone imagines how they work. Part of their work resembles the artist's activities. Just as an artist expresses his thoughts and feelings in paints, the sculptor does it in clay, a musician - in sounds, and a professional from the art of science uses formulas and laws that, like any enriched reflection of the world around us, have the degree of beauty. The highest praise that a theorist can earn, showing the just derived formula, is the cry of his colleague: "How beautiful it is!" [1]. This points to the inextricable unity between scientific and artistic creation.

A vivid example of this unity can be the Renaissance. Artists, writers, architects, sculptors of this period reverently treated the harmony and beauty of the world, and the most effective way of reproducing the diversity of sensory experience was added in science (optics, mathematics, anatomy). Science is not by chance turned out to be the focus of Renaissance artists, because it is art, in particular painting, that they believe in, they are closely connected with the sphere of cognitive activity. Leonardo da Vinci, for example, believes that painting is a science and a legitimate daughter of nature, because it is generated by nature. According to the genius, the difference between painting and science is based on the fact that it reproduces the visible world, the colors and the shapes of objects, whereas science tends to comprehend the internal state of objects, while ignoring the qualitative characteristics associated with aesthetic pleasure from contemplation of reality.

It is practically impossible to accurately establish a reference point for the constitution of common notions, however, that nature is created according to the criteria of beauty. Connections between science and art are occasionally advocated, but without openly questioning how they are justified in epistemological terms and what the gain of doing so is [5, 86]. The idea that the world is beautiful is bound to lead our thinking to the recognition of the presence of an active, intelligent and omnipotent creator. It is evident that the ancient Greeks intuitively understood the constructive potency of a category of numbers that seemed to streamline chaos, structuring and hierarchizing it. An orderly and harmonious universe (Cosmos) acquires meaning only through the category of beauty, because beauty is a harmony. However, for the Greeks, the physical world was not perfect itself, directly and absolutely. Given the fact that the everyday realities proved the opposite, the world of nature was not considered entirely beautiful. In life necessarily there are ugliness, chaos, accident, injustice, etc. So the justification of beauty as a cosmogonic principle becomes problematic.

The beauty of the world "at the will of the same architect, not revealed openly, but hidden behind the veil of secrecy, decipher which, perhaps, should be wisest.

European science as the successor to the culture of Hellas, of course, has preserved the features of cosmocentrism, but there are some contradictions. On the one hand, the scientific culture of the 20th century is based mainly on the principles of authenticity and plausibility. The beauty of the universe as the source principle of interdisciplinary knowledge is not given decisive value. On the other hand, science as a phenomenon of culture and the product of personality activity of the subject never leaves the field of aesthetics. The aesthetic taste harmoniously woven into the axioms of scientific culture makes the scientist act and act in accordance with the canons of beauty.

The most vivid expression was expressed by prominent scientists-naturalists. P. Dear writes that A. Einstein considered the essential quality of the fundamental equations inherent in their beauty. He "firstly expressed this idea and more than anyone else, emphasized the importance of the beauty of the basic equations ... This principle was extremely successful. Especially fruitful he was in the hands of A. Einstein. One just needs to believe that God created this world exactly. He challenged us to find mathematics based on physics. We must, of course, understand that the problem has not yet been solved and that all the shortcomings and failures of modern theory are due to its imperfection. We must investigate this imperfection and try to get rid of it" [1, 112].

It is logical to assume that the essence and significance of beauty in contemporary interdisciplinary culture, which was formed during the 20th century, from the formulation of the special theory of relativity and the formation of quantum-relativistic mechanics, is compatible with the potentials of beauty that ancient Greek thinkers have invested in it. And although the historical distance between contemporary science and ancient Greek wisdom is significant, cosmocentrism becomes a common denominator for both these cultural periods, which should be interpreted not as a methodological feature or principle, but as a world-view benchmark.

The aesthetic taste and the ability to notice the beautiful, feel harmony, etc. becomes for the modern scientist the lighthouse, with which you can navigate the ocean of available knowledge of the universe and its nature, of man and society, of literature and art. In spite of the clarity and spread of this metaphor claiming worldview status, since it takes into account the ontological, methodological, axiological, cultural, and personal potentials of modern interdisciplinarity, we are

forced to state a number of problematic positions that have not yet been comprehended in the philosophy and methodology of science.

For modern science, beauty and truth, as well as for the Greeks, appear in inseparable unity, but the difficulties associated with the subjective nature of aesthetic taste are still not overcome in the scientific and methodological discourse. Everyone who is on the path of science certainly faces the problem of the ratio of personally painted beautiful and objectively significant beauty embodied in nature.

However, in the sphere of science, not only the conventional understanding of truth is used, but also objective. "I'm upset every time," writes S. Downes "when I hear the phrase" There are no comrades in terms of colors and tastes. "Quite the opposite - you are surprised at how many people appreciate the same beauty. And what is so characteristic: those who do not belong to this majority, are usually not unanimous in their assessments. This is the proof of the objectivity of the notion of beauty" [2, 420].

It is clear from all that the problem of beauty is perceived not only within the narrow semantic field of aesthetics, the category of beauty is included in the methodological self-consciousness of interdisciplinary science, which is frankly recognized by the scientists themselves. This indicates an inextricable link between the personal level of perception and the objective world that is studied in physics.

Due to the quest for beauty, the desire to learn the world to achieve complete harmony with it is actualized. And this in turn is an incentive for scientific activity. "Aspiring to the satisfaction that gives us the experience of the beautiful, that is, satisfying the needs of knowledge, competence and saving forces, a person forms his works according to the laws of beauty and in this activity becomes more harmonious, more perfect and spiritually richer" [3, 404].

Obviously, "beauty" has a general significance for scientific culture, and it is one of the most important elements of the axioms of science. "The driving force in science", as one of the researchers of the nature of scientific knowledge S. Downes notes, "should not be the desire to make a revolution, succeed, but natural curiosity and the ability to surprise and rejoice at any small success and, most importantly, a sense of the beauty of science" [3]. Hence, of course, the problem arises of substantiating the actual scientific value of the category of "fine" in the theoretical and interdisciplinary discourses of the present. If the category of "beautiful" becomes the object of scientific research, then any knowledge obtained in the course of such research should correspond to the ideals and norms of modern science.

The beautiful is associated in the human mind with positive emotions, and the positive experience, becoming a property of memory, becomes regulative further activities of the human individual. A person has a desire to experience this feeling again and again. The object, falling in the field of view of the subject of knowledge, for the first time automatically causes a person a certain emotional attitude to it, this is the foundation of any knowledge. Going further, we can say that due to the aesthetic experience the subject, so to speak, draws the outside world into his emotional field. By building from these objects your own picture of the world, a person harmonizes it, makes a beautiful one. In case if a certain thing causes a person at once or a negative attitude, it "does not fit" into the picture of the world, which is considered harmonious and beautiful.

However, the person intuitively feels the imperfection of the personal image of the world, therefore, always strives to supplement it with new knowledge. However, one should not identify the desire for beauty with the accumulation of knowledge. The experience of beauty occurs when the personal image of the world undergoes certain metamorphosis. In the first case, new knowledge does not always affect the whole picture of the world, while in the second, where there is an unexpected and magic, the picture of the world acquires new aesthetic shades.

Having determined the feeling of beauty in human consciousness as a positive emotion, we still did not achieve the desired goal. The general scientific status of the concept of "beauty" cannot be reduced only to emotions, because it is contrary to the ideals and norms of modern science.

It is not difficult to conclude that beauty (in the form of positive emotions) and ugliness (as negative emotions) are the root causes of the formation of scientific culture as a culture of knowledge of the universe. Only positive emotions, beauty and novelty are the only way that scientific creativity can move, since the scientist is subject to the same stimuli and reactions. At the same time, these processes (the desire for beauty and disgust, avoiding the ugly) are actualized far beyond the limits of conscious choice, that is, the assessment of beauty and the aesthetic taste itself are purely intuitive, even instinctive. "Many of our emotions, both positive and negative, arise at the unconscious level of higher human nervous activity. The subconscious is able to realize an estimate of changing the likelihood of meeting needs. But the subconscious itself cannot detect, extract from the object something new that will provide a positive emotion of pleasure from the perception of beauty. The discovery of beauty is a function of superconscious [5].

Conclusion. Trying to investigate the scientific value of the notion of "beauty" and the emotional experience associated with it, we came to the conclusion of the intuitive nature of the beautiful. In general, in attempts to outline the cognitive limits of the competence of the aesthetic experience of beauty in modern interdisciplinary scientific culture, we have determined that the presence of aesthetic taste in a scientist who involuntarily becomes an adherent of this culture is a prerequisite for his successful activity. This is primarily due to the fact that only a person who believes in the beauty of the universe, its harmony and perfection, has the ability to know the truth. Otherwise scientific activity will simply be an overloading burden for a person. Thus, the beauty in science and the aesthetic taste of the scientist are the main features of contemporary interdisciplinary scientific culture.

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Когнітивний потенціал естетики науки у її міждисциплінарному вимірі

У статті досліджується одна з фундаментальних проблем осмислення естетико-когнітивного потенціалу категорії прекрасного в науково-теоретичному дискурсі в контексті процесу міждисциплінарності. Акцентується кореляція особистісного (суб'єктивного) розуміння прекрасного та краси як певної об'єктивної категорії, принципу, що визначає наукову діяльність. Аналізуючи естетичну проблему краси в контексті її взаємовідношення з науковою культурою, не важко пересвідчитися, що більшість учених, прагнучи вибудувати свої власні теорії, використовуючи критерій краси, були так або інакше залучені в естетичний дискурс сучасної їм епохи. Але зважаючи на історичну динаміку критеріїв, які дозволяють провести чітку межу між прекрасним і потворним, уявлення про красу в природі змінювалися впродовж історії, що не могло не позначитись і на розвитку наукового знання.

Ключові слова: естетика науки, міждисциплінарність, когнітивістика, об'єктивність, цінність.

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