

and "Design-engineering", which are one of the most important disciplines in training specialists in the field of design-engineering of the subject-spatial environment surrounding a person.

1.Smart glass. [Electronic resource]. - Access mode: <https://www.smartglassworld.net/> - Access date: 10/27/2020

2.Polymer dispersed liquid crystals. [Electronic resource]. - Access mode: <http://materiability.com/portfolio/polymer-dispersed-liquid-crystals/>. - Access date: 10/25/2020

BIOMYMICRY IN DESIGN

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Over millions of years, nature has created and consistently improved its creations, which allowed organisms and entire systems of organisms to develop adaptive characteristics that allow them to survive in a particular environment. Evolution has polished nature by developing certain features, mechanisms, patterns and strategies for survival.

Thanks to modern technology, it is possible to observe and analyze biological functions, structures and principles that have been discovered in nature by biologists, chemists, materials scientists, designers, architects, and engineers. Observing the function, then the mechanisms by which the function is carried out, creates a whole direction in industrial design [1]. This approach makes it possible to find original solutions for creating harmonious mass-produced products with high technical and mechanical characteristics necessary for solving a certain range of problems. Biomimicry is a new scientific direction, which is designed to draw technological and engineering ideas from nature [2].

Purpose – to consider the influence of biomimicry on the modern approach to the design of environmental objects.

Material and methods. To realize the goal of the study, the work used the analysis of scientific literature and the creative work of engineers and designers. The methods of systematization, analysis and generalization of data were used.

Findings and their discussion. Already in the early stages of development, primitive man paid attention to natural phenomena and imitated them. This experience of mimesis was expressed in the general syncretic approach of the entire primitive society. The syncretic nature of human consciousness was reflected in his artistic activity: the creation of tools, amulets and charms, household utensils. Thus, all the activities of primitive people are identified with everything that they saw and analyzed around them.

Today, a person, by virtue of his intellectual and technical resources, is able to revise the methods and methods of studying nature, which allows him to create wear-resistant, high-tech and ergonomic products. So, by the middle of

the century, the American scientist Otto Schmitt was developing a new concept, the concept of "biomimiteka", which later became known as "biomimicry".

At the present stage of development of design, biomimicry has become a valuable source of inspiration for the implementation of creative tasks. This area of science affects various aspects of design engineering: materials science, functional design, shaping and a general approach to systems design. It is a tool that contributes to a significant expansion of horizons, interaction with representatives of various disciplines to create unique inventions that can change the world.

Nature is an excellent starting point for a designer to develop a new object or improve the various characteristics of an existing object. For example, in the mid-1990s, the "lotus effect" was discovered, which was used to develop superhydrophobic surfaces that are not prone to wetting. The surface of the lotus leaf, as well as the wings of some insects, are covered with peculiar "thorns", a drop falling on such a surface cannot resist and begins to roll down, taking away dust and pollution [3]. According to this discovery, any surface can be endowed with similar properties by applying a suspension of rosette particles to it. Examples include water-repellent facade paints, hydrophobic coatings for glass in cars, waterproof clothing, etc.

The process of observing nature was non-linear, even before Otto Schmitt developed the concept of "biomimetics" British architect Joseph Paxton built his famous Crystal Palace in 1851 for the World's Fair in London (pic.1). The architect borrowed the openwork structure of the building from the leaves of a two-meter tropical lily, which is capable of supporting the weight of an adult, despite its insignificant thickness. The high strength of the plant was achieved by peculiar beams located on the lower surface of the leaf.

Another example is the "glass-cobwebs" (Ornilux) - the development of the German company Arnold Glass in cooperation with the Munich Institute of Ornithology, which created glass that reacts to UV rays and reflects a pattern resembling a spider web (pic.2). It is an indistinguishable pattern to human eyes, but birds are able to notice it, which will prevent them from colliding with glass. The inspiration for the developers was spiders that protect their nests from birds with the help of spider webs that reflect UV rays.



Picture 1 Crystal Palace



Picture 2 "Glass-cobwebs" (Ornilux)

Conclusion. As we learn more about natural mechanisms, we need to avoid gross simplifications in the analysis of certain structures. Simple copying is not always the right way to achieve the goal. It must be remembered that there is a certain percentage of failure of natural materials and mechanisms. For this reason, it is necessary not only to observe and simulate, but also to improve the obtained data, within the framework of modern scientific discoveries.

Today biomimicry is one of the most progressive and forward-thinking approaches in solving many engineering problems facing scientists, engineers, architects and designers around the world. As a result, in various areas of modern design of environments and objects, natural mechanisms, forms and phenomena are increasingly traced.

1. John A. Nychka How modern technology is inspired by the natural world [Электронный ресурс] / Режим доступа: <https://theconversation.com/how-modern-technology-is-inspired-by-the-natural-world-79629> Дата доступа: 27.10.2020.

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3. David Taylor Simply copying nature is no way to succeed at inventing – just ask Leonardo da Vinci [Электронный ресурс] / Режим доступа: <https://theconversation.com/simply-copying-nature-is-no-way-to-succeed-at-inventing-just-ask-leonardo-da-vinci-27403>- Дата доступа: 27.10.2020.

OBJECT OF APPLIED ART TODAY AND YESTERDAY

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Entering a new century, humanity is rethinking the guidelines of the accumulated experience. The cultivation of the world, its transformation, leads to the emergence of new traditions. The summation of the economic, political and social effects of the 20th century and their demonstration tries to show how, from within art, its reconceptualization took place. Things as an object of applied art reflect the life of both entire civilizations and an individual person, thereby filling space and time with meaning and materiality. It is relevant to consider the status of an object at all times, including within the framework of the cultural and social situation of the modern world.

This article examines the issues of the main trend and the problem of understanding things as an object of applied art.

Material and methods. The scientific research is based on the works of native and foreign scientists. The study used the following general scientific methods: cognition, analysis and synthesis, comparative analysis.

Findings and their discussion. At the beginning of the 20th century, applied art retains the concept of traditions as a necessary element in regulating the activities and relationships of people in society. Traditions play an important role in both the transfer of experience and the preservation of the identity of