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BIONIC IDEAS IN ARCHITECTURAL ENVIRONMENT AND LANDSCAPE DESIGN

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ABSTRACT

The usage of bionics in the field of architectural environment and landscape design is illuminated in this article. It is also mentioned about bio-art, eco-art and giving natural forms to plants in landscape design. Spring exhibits of "Floriada-2012" were replaced by summer, then autumn exhibits. The exhibition featured five main themes: "education and innovation", "green technology", "recreation and health", "meeting of cultures", "ecology" [3]. At the festival, we participated together with the students of Samarkand State Architectural and Civil Engineering Institute, who studied in the direction of landscape design. The atmosphere of this event left a bright impression on us and other visiting guests.

KEYWORDS: *Landscape, Bionics, Architecture, Nature, Topiary, Design, Environment.*

INTRODUCTION

Gained with new tools of knowledge and technology, modern architects and designers are entering the world of "secrets" of living nature, interested in the principles of consistency, movement and interaction of its components, as well as the connection of function and form, durability and reliability. They are interested in the continuity of the environment and space, the harmony of its laws. Precisely, on the basis of the use of the laws of living nature, mobile architecture is born, new plastics and aesthetics are emerging.

Architects put together all knowledge of nature and society, time and space of human activity and draw certain conclusions about the construction of future life on our planet, characteristic of architecture, which is its material basis.

As one of such searches and vital observations, a new direction – Bionics-appeared in science. Its task is to improve the architecture and create new advanced architectural devices, objects, based on the study of structures, processes and laws in biological objects. Bionics allows us to penetrate into places where no one has yet entered and hope that no one will see what they have not seen yet.

It includes the small architectural forms, the elements of the multi-dimensional architecture - urban and landscape: streets, roads, landscaping and equipment of squares, alleys and in general the zones on the territory of voluminous architectural objects are also included in this account. As a rule, although these elements are interpreted as "small architecture", the coverage is very wide; their nomenclature includes, starting with drinking fountains and benches, all objects ranging from closed rooms, playgrounds and complexes, entrance gates or pavilions.

All these elements, make up a certain part of the "intermediate zone" of the open city environment and the closed architectural object serve strictly utilitar or decorative purposes, and at the same time, they are the compositional details of the environment, serve as a connecting element, in a wide understanding and comparison of the harmony of man and the environment.

Experimental small architectural forms which were built by using innovative technologies allow designers to evaluate the reliability and robustness capabilities of the devices they create, from which it will be possible to apply the methods used for large buildings.

For the development of the idea of creating a bionic space in the architectural environment and landscape design, professor of the department "Design", sculptor M.R. Borodina is carrying out remarkable work in the conditions of Uzbekistan. Specific art objects and installations of Borodina are installed in many parks and alleys of the republic such as: a special coffee shop for children, umbrellas named "Clouds" (2010) in the Aktash District of Tashkent region, wonderful stained-glass composition called "Wave and Drop", a fountain named "Flower", installation "Vsplesk" (Splash), decorative fountains which were created with the help of bionic forms in the park of "Victory" in Tashkent opened on the occasion of the 75th anniversary of the victory in the Second World War were author's amazing works.

Doctor of architectural Sciences, professor A.S. Uralov in his book "Landscape Architecture" writes in details about the landscape devices associated with the small architectural forms: "One of the main requirements for landscape installations related to the forms of the miraculous architecture is to achieve harmony of this territory with the forms of green vegetation, relief and landscape compositions. They should not bring inconsistency to the environment on the contrary, should fully respond to the architectural landscape composition stylistics" [1].

Small architectural forms can also be reflected in the form of optional architectural forms such as the entrance of the gates, pavilions (foothills), rotunda, galleries, gazebo, fountains or bridges, decorative sculptures, night lamps, fences, seats and other views.

So, the actual issue in the architectural environment and landscape design is the creation of small bionic forms is one of our main goals and objectives in the future.

From May 3 to May 5, 2019 in the city of Tashkent was held festival "Landscape open-2019". Landscape designers demonstrated decorative compositions, applied art and eco-art objects along the Central Street. At the festival, we participated together with the students of Samarkand State

Architectural and Civil Engineering Institute, who studied in the direction of landscape design. The atmosphere of this event left a bright impression on us and other visiting guests. This international event, which took place for the first time in the history of Tashkent, was also organized with a festival of flowers, topiary art, gabion art, performances of poets and artists, a parade of brides, bio and eco-art objects demonstrated by specialists, and most importantly, a festival designed to serve the development of landscape industry in our country.

One of the main projects of the Festival work plan was to hold a creative competition between the students of Tashkent and Samarkand State Architectural and Civil Engineering Institutes whom were given to create the concept of Landscape Design in different regions of Tashkent and the results were announced there.

In general, in the works of Landscape Designers of our republic, florists, students studying in this field were observed decorative landscape elements using colorful compositions, topiary art and bioforms.

Having new technology will conquer the imagination of scientists, designers and artists, paving the way for the realization of new ideas and principles of revolutionary design. This is done by reducing the evasion of the difference between the design of the computer model and the material implementation of it. For example, emerging 3D printing allows us to think of a physical space as a pixel, to realize any objects that are not in terms of materials, but, more precisely, or invisible. As a result, we realize that the profession is not limited to skills and tools, but it is also possible to develop through imagination and computer code.

International visions of gardening, which take place on a regular basis, clearly reflect the current trends of Landscape Design in different countries of the world. The exhibition "Floriada – 2012", held in Venlo (Netherlands), is one of the most significant and large-scale events that attracted more than 2 million visitors [2].

This exhibition was held in April-October 2012, in which more than 100 participants from 40 countries took part and demonstrated their art in 66 hectares of open space. Spring exhibits of "Floriada-2012" were replaced by summer, then autumn exhibits. The exhibition featured five main themes: "education and innovation", "green technology", "recreation and health", "meeting of cultures", "ecology" [3]. In the Netherlands Floriada is held every 10 years, and with the help of innovative technologies different ideas of designing of gardens were made.

Technological development and urbanization is the beginning of the ecological crisis and increasingly contributes to the disruption of human relations with nature. Therefore, ecology, the theme of conservation and reproduction of Natural Resources, biosenoses, the organization of comfortable rest for a person, healing gardens are the main directions for the creation of gardens and art objects presented in Floriada-2012. This is the creation of ecological-style gardens, which are considered a way of communicating with nature, satisfying the human need, eliminating stress and tension, leaving the pace of rapid development of life and providing rest.

This means that achieving ecological civilization is a long - term and resolute goal in the social development of mankind, and we must come to the conclusion that before the creation of such a society, humanity must go through a long-lasting historical path and define the following extremely important tasks:

First, to restore the human role in the ecosystem of the Earth and to reconsider human activities from the point of view of complex management of the ecosystem;

Secondly, the search for new ways in which people conduct their actions, activities in order to preserve and protect ecology, the environment;

Third, to ensure the participation of representatives of all spheres of society, including economic, cultural, political, religious, environmental and other spheres in the work on the creation of ecological civilization.

Achieving ecological civilization is at the level of human possibilities, but it requires a radical change in the worldview and cooperation between all participants of humanity. Our native land Uzbekistan with its paradise-like nature and moderate climatic conditions are able to create environmentally friendly gardens that meet the requirements of all seasons of the year.

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