Arborsculpture theme park

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Abstract. The high, uncontrolled, pace of urban development in the modern world inevitably leads to a decrease in the quality, representativeness and eco-sustainability of the recreational territories of populated areas. Renovation of the urbanized landscape is required, based on the preservation of the existing natural-territorial complexes of the city and on the principles of increasing the ecological and aesthetic characteristics of the natural-landscape elements of common areas. One of the possible ways to solve this problem can be the organization of systems of recreational and theme parks of the city. Given the prospects for the development of art of arbor sculpture, the theme park, which includes various architectural and art objects from tree and shrub species, would become one of the visited recreational spaces of the city, as well as contribute to the improvement of the ecological situation in the city and laid the foundations of an ecological worldview as an important component of culture human environment. The article discusses the US Arborsculpture Theme Park; Arborsculpture park in Australia, and in China, design features and principles for organizing Arborsculpture theme parks were defined. The results of the study can be applied in the formation of the Arborsculpture theme park in Russia.

1. Introduction
Recently, the thematization of parks has become a trend in the organization of landscape recreational complexes [quot.: 1]. The theme park is an artificially created landscape and recreational facility, all of whose structural elements are united by a common theme. The original concept is the main advantage of the theme park. The most significant scientific works on the organization of thematic gardens and parks are presented by the following scientists: D.A. Gorbunova and M.N. Marchenko [1], E.E. Kuzmina [2], O.A. Spiridonova [3], Yu.I. Shvabauer and K.Yu. Bogatyreva [4], V.P. Shevelev and L.V. Morozova [5] and others. “Despite the fact that the activity on the construction of theme parks has intensified throughout the world, Russia is significantly behind in this area compared to the USA, Japan and European countries” [cit. by: 2].

Theme parks should be not only aesthetically designed and original in their content, but also increase the level of culture and spirituality of their visitors. In this regard, the projects of theme parks of Arborsculpture are of great interest, which are positioned not only as a place of recreation and rehabilitation, but also as cultural, educational, environmental and strategic centers.

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relaxation with familiarizing the population with a more careful, responsible attitude to gardening elements through competitive events to form various architectural and artistic forms of their woody plants under the direction of arbor sculptors; 2. Organization of the recreational environment aimed at strengthening the interaction of man and nature. Arborsculpture park for Russia is a new type of park that is original and able to satisfy a person’s need for a close relationship with the natural elements of the environment. 3. Development of local tourism with the attraction of both Russian and foreign visitors and the solution of social issues in the region - the provision of jobs, promoting the development of small and medium-sized businesses in the region, etc.

In the forecast of the development of tourist destinations made by the World Tourism Organization (UNWTO) and presented in the study “Tourism: 2020 Vision”, thematic tourism (including visits to theme parks) was included in the list of the most promising destinations and types of tourism of the 21st century [4].

Rest in such parks, combining entertaining and cognitive elements, covers a wide range of visitors and meets the needs of a modern person, being an extremely promising direction in tourism [6].

Arborsculpture is the art of forming architectural and artistic objects from tree-shrub species adapted for humane growth correction. Objects of Arborsculpture in the urban landscape are most often represented by decorative sculpture and/or small architectural forms (landscape gardening furniture), urban structures. The traditions of using Arborsculpture in parks and gardens are known in the works of the following scientists, arbor sculptors: E. Golan [7], Block H.F. [8], R. Reames [9], P. Cook and B. Northey [10], K. Kirsch [11], B. Gale [12], T. Link [13], J. Ask [14], M. Kalberer [15], Christopher Cattle [16], and others.

Study objectives: to consider the experience of organizing Arborsculpture theme parks and formulate the principles for designing this type of park. The novelty of the study lies in the new concept of organizing theme parks based on objects of arbor sculpture.

2. Theory
Consider existing theme parks in the USA, Australia, and China.

2.1. Arborsculpture Theme Park in the USA by Axel Erlandson (1884–1964)
Axel Erlandson experimented for two years on the basis of two plane trees and in 1919 formed a wood sculpture. Continuing the experiments, A. Erlandson in 1947 "grows" California's Tree Circus Park in Scot Valley, which consists of more than seventy objects of arbor sculpture. The most famous plant experiments of A. Erlandson are “basket tree”, “two-legged tree”, etc. (Figure 1). After 1964, the task of preserving the Tree Circus park was transferred to Michael Bonfante, who transplanted arboresculptures in Gilroy (California), renaming the park as Bonfante gardens, after which the park was named Park Gilroy. In the theme park, in addition to the zone with arbor sculptural objects, a family picnic zone, playgrounds with attractions, games and entertainment are organized, in addition, weekly excursions in the park are conducted with practical exercises on methods and techniques for growing forms of arbor sculptures [17, 18].

![Figure 1. Arborsculpture Theme Park in the USA by A. Erlandson.](image)

2.2. Arborsculpture Theme Park in Australia by Peter Cook and Becky Northey
They call their experiments on trees “the art of controlling the shape of growing trees” (“Pooktre”). Most often, they use cherry plum and gray balan gray (another name is “phyllanthus emblica”) to form arbor sculptural objects. Some ideas from Peter Cook and Becky Northey trees are used as small architectural forms of the park: landscape gardening furniture or sculpture (Figure 2) [10,18]. A distinctive feature of their sculptural compositions is the "growing" of gardening elements in a form resembling people [19]. Arborsculpture objects in the format of small architectural forms can be used for their intended purpose (for example, garden furniture - for short rest, Figure 2) only with a certain set of growth and strength characteristics of the plant.

Figure 2. Australia Theme Park Peter Cook and Becky Northey Arbore Sculptures.

2.3. Arborsculpture Theme Park in China by Wang Guand
Wang Guangde from Binzhou, Shandong Province, China, for 10 years honing his mastery of Arborsculpture to form architectural and artistic forms from woody plants (Figure 3) [20]. Symbolism is present in the composition of Wang Guande's Arborsculpture -, its exhibits resemble traditional Chinese coins of prosperity and other symbols characteristic of Chinese traditions.

Figure 3. Arborsculpture Theme Park in China by Wang Guant.

Based on the analysis of arbor sculptures theme parks, it should be noted that such parks are very relevant and visited. Most of the arbor sculptural objects are represented by sculptural compositions and small architectural forms. The location of arbor sculptural objects is most often regular, along pedestrian paths, the distance between which allows one to not obscure and not impede the growth of neighboring woody plants, and also contributes to an accessible approach to the arbor sculptural object for both participants in the environment - for a harmonious, perception, acquaintance with art, and an arbor sculptor for possible correlations of the shape of the Arborsculpture as it grows. The forms of arbor sculptures are so unique that, with the growth of tree and shrub species, they can change and be perceived differently during the season, or after a certain time.

3. Findings
The following principles of designing the theme parks of Arborsculpture were identified:

1. Preservation and creation of favorable conditions for the growth of woody plants. It is necessary to take into account the environmental conditions of the park territory in order to select the
type of woody plants that are adaptive for the formation of various architectural and artistic forms from them, i.e. first of all, one needs to choose local tree species directly growing on the territory of the country in which one plans to create an Arborsculpture park, and plant plants depending on the preferences for insolation, humidity, for example: sun-loving plants in well insulated areas, shade-tolerant plants - vice versa - in low insolation zones, etc. In addition, it is necessary to use humane methods and techniques for forming objects of arbor sculpture, create favorable conditions for plant growth, use mineral fertilizers to feed plants and warm trees in the cold season, and also protect arbor sculptural objects from vandalism (for example, by installing fences).

2. Variations and layouts of forms of arbor sculptural objects. Objects of Arborsculpture can be represented as decorative sculptures, small architectural forms, as well as urban structures. When designing, it is important to observe the principle of co-scale, compositional integrity, stylistic unity of all objects in the park. Most often, sculptural compositions are used as wood exhibits, because their formation is shorter (from 4 to 10 years), compared with objects of small architectural forms (formation takes from 5 to 15 years, less often up to 40 years) and/or urban structures of woody plants (cultivation may be more than 40 years). Examples of urban structures are footbridges made of rubber ficus in the Indian state of Meghalaya [15]. However, in order to determine what forms of arbor sculptural objects will be grown in the park, it is necessary to take into account the style of the park and its subject-spatial content, growing tree and shrub species in the recreation area, the density of their plantings, plant allelopathy, and also check if there are enough calculated areas for placement of arbor sculptural objects, and determine the method of growing forms - or directly in the place where the plants grow (i.e., a constant obsession arborskulptury formation), or in specialized nurseries for plants with subsequent transfer to the park.

3. Improving environmental literacy of the population. It is recommended that eco-contests on modeling architectural and art forms from woody plants be conducted at Arborsculpture parks under the guidance of industry experts: arbor sculptors, landscape designers, etc. Modeling arbor sculptural forms is a long-term project aimed at creating a close relationship between man and nature, the formation of arbor sculptural objects can take on average 4 to 10-15 years (less often up to 40 years), so the formation process itself can be tied to certain dates, the most favorable period for growing the mold is the spring and summer periods. This event will contribute to the acquaintance with the art of Arborsculpture and will lay the foundations for the ecological education of citizens. After one’s own “cultivation” of an Arborsculpture object in parks, between society and Arborsculpture there is a close relationship, attachment, which will subsequently allow the young generation to cultivate a caring attitude towards gardening elements in the younger generation [21]. It is possible to organize an avenue of graduates, or a family tree in the format of an arbor sculpture. In addition, it is possible to create field mini-expeditions in the park aimed at developing research skills for observing the natural environment. In the framework of classes, interdisciplinary knowledge of students is activated, aimed at research and analysis of the data obtained.

4. The dynamism of the environment while improving the quality and representativeness of landscapes. In the theme parks, Arborsculpture can immerse themselves in man-made art, the objects of which are woody plants, and they, as they grow and give shape, change their appearance, and thereby can transform the space, change it, create a dynamic environment, unique and inimitable.

4. Conclusion
Arborsculpture park is a promising eco-sustainable direction in landscape design, contributing to the sustainable development and improvement of the visual and aesthetic environment of landscapes, the development of environmental literacy of the population. Parks of this type are regarded as original, single recreational areas where one can get in touch with works of art of arbor sculpture, become a participant and/or spectator of growing architectural and art forms from woody plants, learn about the amazing properties of nature, and even form one's own tree, grow and develop together with it, observe the change in growth and plant forms, learn to love and appreciate nature, interact with it, protect it.
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