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CHRONICLE

Landscape construction at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine: from initial design concepts to the department's establishment

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Abstract

The article highlights the key stages in the development of landscape construction at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (NBG) – from the initial concepts of establishing an academic botanical garden and initial projects of the 1930s–1950s to the organization of the Department of Landscape Construction in 2001. In particular, the contribution of V.I. Lypskyi, O.V. Fomin, M.M. Gryshko, and L.I. Rubtsov to the development of the scientific and aesthetic principles for organizing the territory of the NBG is examined. The characteristics of design solutions aimed at integrating collection-based, decorative, educational-scientific, and recreational functions are described. Information regarding the formation and subsequent development of specific landscape displays, which have become integral components of the department's current structure, is presented. The continuity between the initial vision of the NBG's founders and the unit's contemporary activities in the fields of ornamental horticulture, landscape architecture, and the greening of urban areas is demonstrated.

Keywords: M.M. Gryshko National Botanical Garden of the NAS of Ukraine, Department of Landscape Construction, history, landscape architecture, ornamental horticulture, display areas, greening

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Introduction

The history of landscape architecture at the M.M. Gryshko National Botanical Garden (NBG) of the National Academy of Sciences of Ukraine is closely linked to the vision of its founders, the development of master plans for the site, and the advancement of scientific research in the fields of plant introduction, ornamental horticulture, and landscape architecture.

The idea of creating an academic botanical garden arose in 1918, coinciding with the founding of the Ukrainian Academy of Sciences. Academicians V.I. Lypskyi and O.V. Fomin made significant contributions to the development of the scientific foundations of the garden's organization, emphasizing the need to combine the scientific study of plants with the demonstration of their ornamental qualities and their practical application in landscape architecture. These principles were

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reflected in the NBG's designs from the 1930s to the 1950s and shaped the direction of its future development.

Over the following decades, collection and exhibition areas were established, landscape design techniques were developed, and decorative arrangements were created that combined scientific, educational, and aesthetic functions. Scientists and architects, notably M.M. Gryshko and L.I. Rubtsov, played an important role in this process.

A new phase of organizational development began in July 2001 with the creation of the Department of Green Construction, which was renamed the Department of Landscape Construction in 2006. Its activities continued the tradition of creating landscape exhibits at the NBG and expanded opportunities for researching and demonstrating modern approaches to ornamental horticulture and landscaping.

The aim of this paper is to trace the main stages in the development of landscape construction at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine, to highlight the role of early projects and leading scientists in shaping its landscape structure, and to describe the history of the Department of Landscape Construction and its main areas of activity.

Results and discussion

The M.M. Gryshko National Botanical Garden of the NAS of Ukraine was founded in September 1935. According to the architects' vision, the garden was to be part of a broader system of parks that, under the master plan for Kyiv's development, were to be located on the steep right bank of the Dnipro River, stretching from St. Andrew's Church to the Vydubychi Monastery. From 1935 to 1944, the botanical garden was a division of the Institute of Botany of the Academy of Sciences of the Ukrainian SSR (Chuvikina, 2018, 2022).

However, the very idea of creating an academic botanical garden arose in 1918 – at the same time as the establishment of the Ukrainian Academy of Sciences. Prominent botanists Volodymyr Lypskyi and Oleksandr Fomin developed scientific plans for the development of the botanical garden for the Ukrainian Academy of Sciences (Cherevchenko & Chuvikina, 2011).

"I would like to note that the artistic element must not be neglected here. In the plant kingdom, people have always sought, and continue to seek, beauty. Therefore, when creating a park, grouping plants, and arranging flower beds and gardens, it is desirable to preserve this artistic element", wrote V. Lipskyi (Lipskyi, 1927; Chuvikina et al., 2003). The future botanical garden, as O.V. Fomin repeatedly emphasized, should remain visually appealing not only in summer but also in winter and serve as a model for urban landscaping. In order to fulfill its broad objectives and serve as a true scientific and educational center, the botanical garden, according to O.V. Fomin, should be located outside the city limits and cover an area of at least 100 ha (Cherevchenko & Chuvikina, 2011; Chuvikina, 2022). The ideas of V.I. Lipsky and O.V. Fomin were incorporated into the NBG's subsequent design.

Even the pre-war design specified that one of the objectives of the new botanical garden was to teach visitors the techniques of ornamental gardening. As can be seen in architect Ivan Dovhalyuk's design, published in 1937, the layout of the botanical garden was very interesting, with a picturesque arrangement of paths and the design of the sections featuring architectural elements and sculptures (Figs. 1 & 2). The plan was to create a separate section to showcase plants suitable for use in green construction: 1) collections of herbaceous flowering and ornamental plants; 2) beautifully flowering and ornamental foliage shrubs; 3) a collection of roses; 4) trees with ornamental crown shapes or colors; 5) examples of hedges made from various plant species; 6) ornamental aquatic plants; 7) succulents; 8) ornamental forms of conifers; 9) lawns with diverse species composition. All plants in this area were planned to be arranged in the form of an artistically designed park covering an area of 6.13 ha. According to the project vision, the new academic botanical garden was to serve not only as a scientific base for the Institute of Botany but also to disseminate botanical knowledge to the general public and serve as a wonderful recreational spot for Kyiv residents and visitors (Dovgalyuk, 1937; Modilevskyi, 1938; Chuvikina, 2018, 2022).

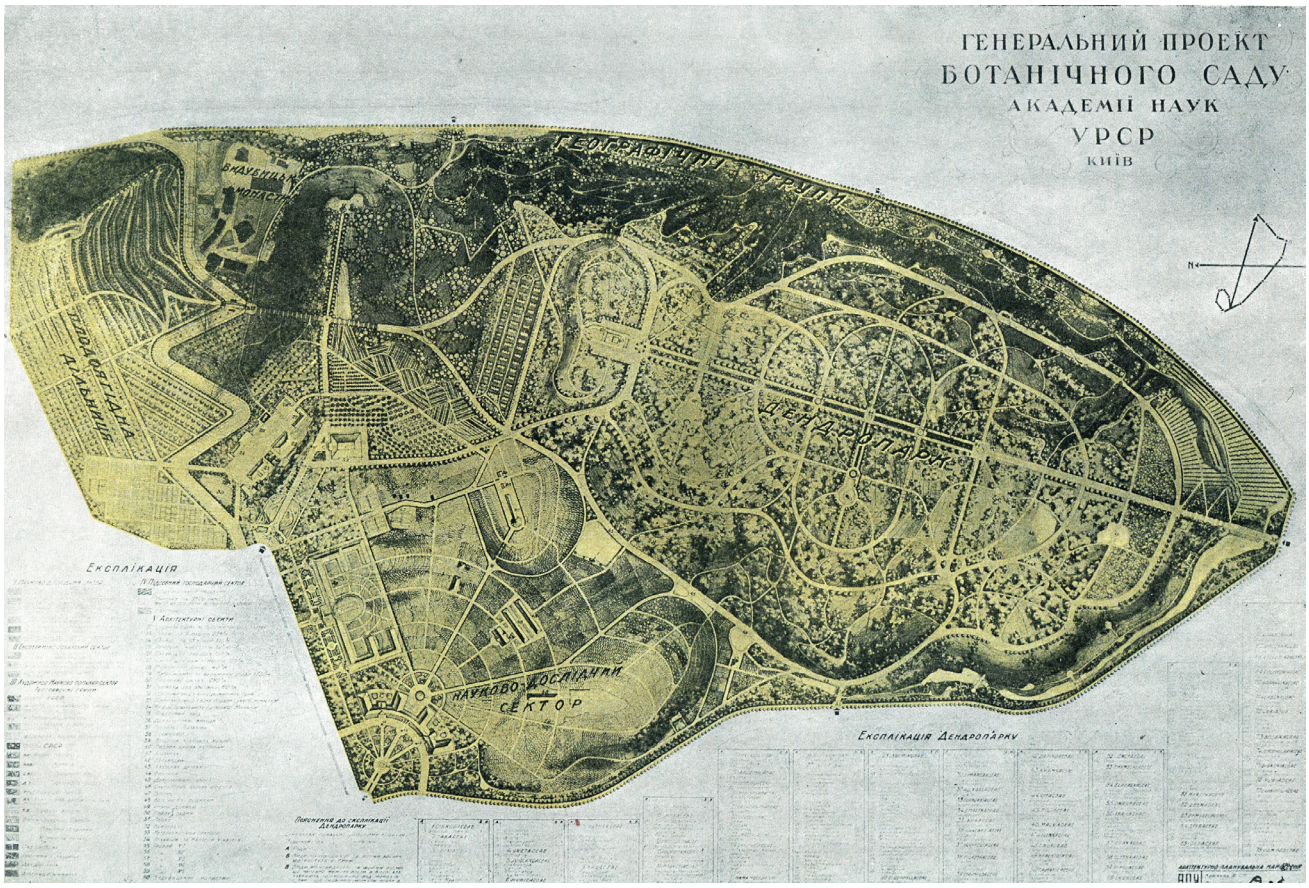


Figure 1. Design for the Botanical Garden of the Academy of Sciences of the Ukrainian SSR. Architect – Ivan Dovgalyuk (Dovgalyuk, 1937).

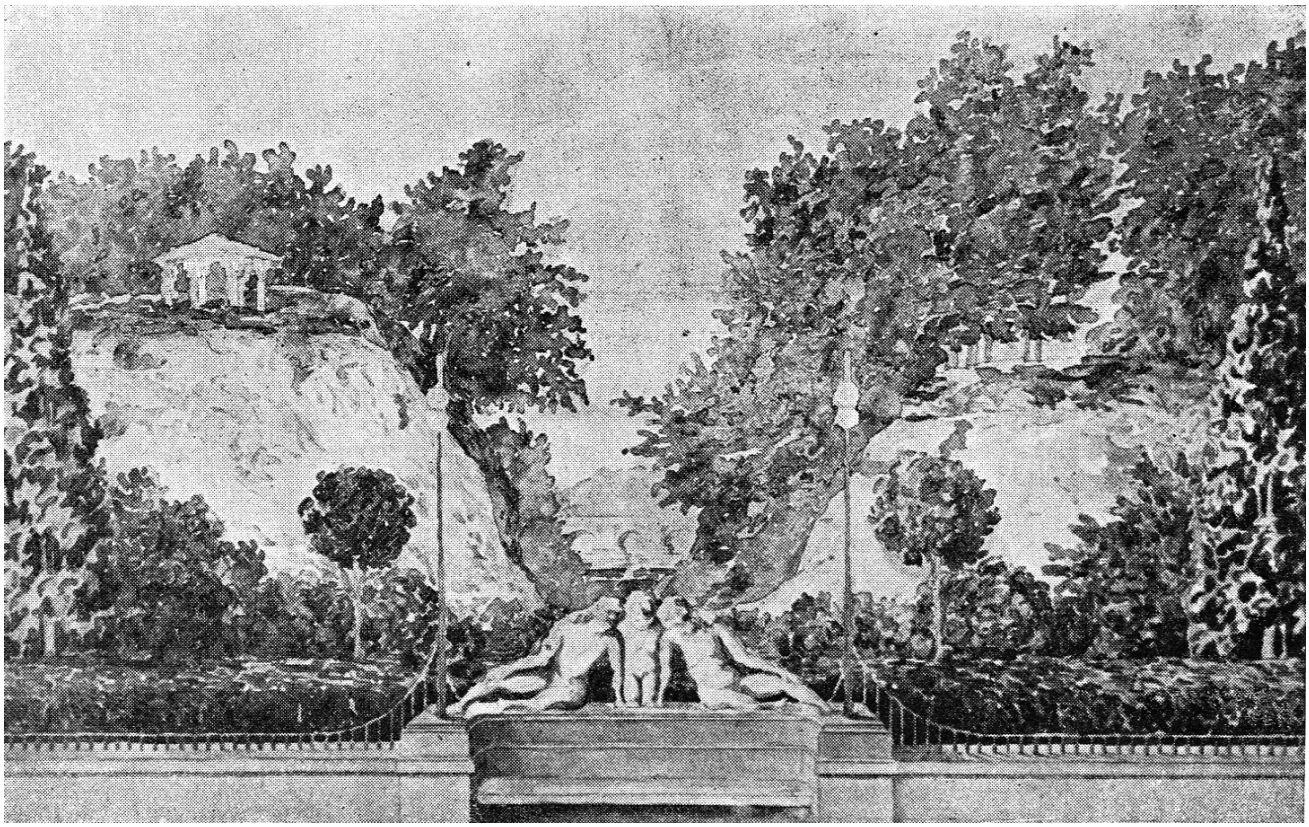


Figure 2. Architectural design of one of the plots. Architect – Ivan Dovgalyuk (Dovgalyuk, 1937).

In 1944, a new phase in the construction of the NBG began: the garden was separated from the Institute of Botany and established as an independent research institution. The distinguished scientist and academician Mykola Mykolayovych Gryshko was appointed director. The newly appointed director of the botanical garden was tasked with expanding and developing the initial garden construction project. The area set aside for the garden was increased to nearly 200 ha. In light of this, as well as new tasks at the Institute of Botany of the Academy of Sciences of the Ukrainian SSR, a new master plan for construction was developed under the leadership of M.M. Gryshko and O.V. Vlasov, an academician of architecture of the USSR (Figs. 3 & 4). This design featured more detailed planning and a much greater number of decorative elements (ponds, fountains, and sculptures). Scientists from the Institute of Botany and the botanical garden participated in developing the scientific component of the project.

As early as 1944, under the leadership of M.M. Gryshko, the basic concepts were developed and the main objectives were formulated for the botanical garden as a center for scientific research on the theory and practice of plant introduction, the development of issues related to green construction, ornamental horticulture and floriculture, and the breeding of new crop varieties for Ukraine (Fig. 5). The botanical garden was to become not only the center of Ukraine's botanical gardens but also one of the largest botanical gardens in the USSR and the world in terms of land area, the composition of its plant collections, and the scope and depth of its scientific work. The botanical garden was to address issues of landscape architecture, the assortment of ornamental and flowering plants, and their introduction and breeding. The botanical garden was to become a national repository for species and varieties of woody and herbaceous plants of the world's wild flora, with the aim of reproducing them and applying them in various sectors of the national economy. In addition, the botanical garden was to conduct extensive scientific and educational work, disseminating knowledge among the public about the evolution of the plant world, general botany, and ornamental horticulture. The botanical garden was also to provide scientific and methodological guidance for the work of botanical gardens and state nature reserves in Ukraine based on the Academy of Sciences of the Ukrainian SSR. These tasks are virtually identical to those currently carried out by the recent NBG (Chuvikina, 2018, 2022).

Academician Mykola Mykolayovych Gryshko wrote that the botanical garden should be "the Central Republican Reserve of species and cultivars". Through exchanges with botanical gardens and other scientific institutions around the world, as well as through special expeditions, the collection of plant treasures should grow steadily. He emphasized that the systematic propagation and thorough study of the plant collections would make it possible to successfully address theoretical and applied issues related to the introduction and breeding of forest, fruit, ornamental, industrial, forage, and food plants new to Ukraine, introduce new plants into various sectors of the national economy, and enrich the republic's plant resources. He believed that the botanical garden should become a model of landscape architecture, in which the richness and diversity of the plant world should be revealed through decorative design (Gryshko & Sokolovskyi, 1951).

Promoting public awareness of ornamental floriculture, horticulture, and green construction has always been a priority for the NBG. Academician Mykola Mykolayovych Gryshko repeatedly emphasized that a botanical garden must not only demonstrate the diversity and richness of the plant world and showcase the ornamental potential of plants, but it must also teach how to use them in landscape architecture, and the botanical garden itself must serve as a model of landscape architecture (Gryshko, 1949; Chuvikina, 2018).

According to the 1944–1945 project (authors: M.M. Gryshko and G.O. Stepunin), the geographical sections were to feature not only the mandatory groupings of natural flora typical of the respective zones (forests, steppes, meadows, etc.), but also examples of ornamental gardens with architectural structures: in the European section – a Baroque-style villa with a French formal garden, a model of an English landscape park, orchards, and vineyards of European varieties; in the Asian section – Chinese and Japanese gardens with bridges,



Figure 3. One of the design proposals for the botanical garden from the early 1950s.

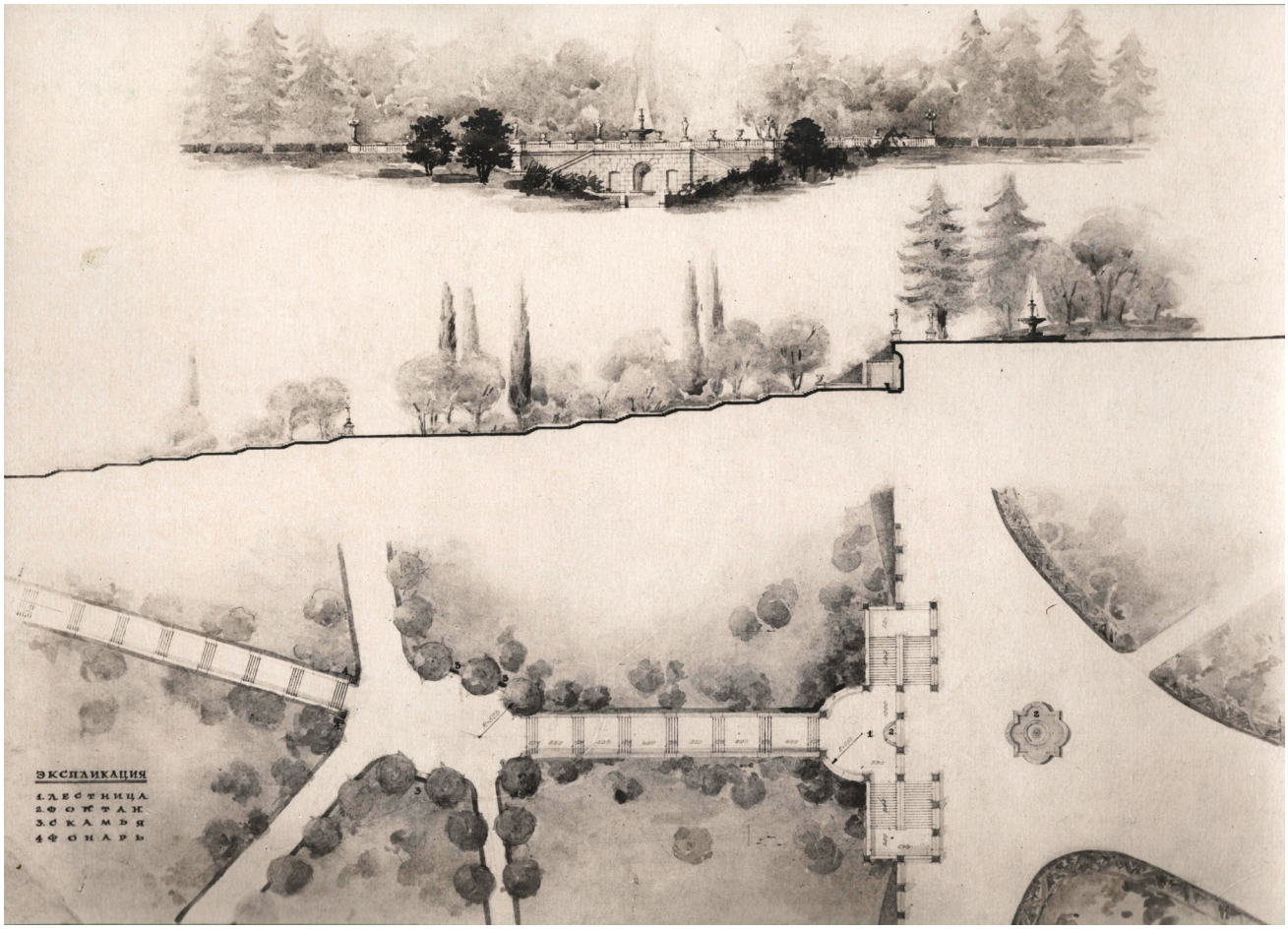


Figure 4. The design of the staircase on the side facing the Vydubychi Monastery, based on a design from the early 1950s.



Figure 5. Mykola Mykolayovych Gryshko and garden staff, 1950s.

waterfalls, pagodas, and so on. There were even plans to create a museum of green architecture, where graphic materials from famous botanical gardens and parks were to be preserved. In various sections of the botanical garden, they intended to erect numerous monuments to prominent biologists and various sculptures, as well as construct ponds and fountains (Chuvikina, 2018, 2022). Unfortunately, not everything that was conceived in the 1940s and 1950s was successfully brought to life.

In parallel with the construction work, the garden's collections continued to be expanded with new plant species, forms, and varieties, and theoretical aspects of plant introduction and acclimatization were studied.

The garden was intended to serve as a model of landscape architecture. Several generations of scientists at the NBG have successfully worked and continue to work toward these goals. As early as the 1950s, the botanical garden began creating sections with interesting flower bed designs (Figs. 6 & 7).

Dr. Leonid Ivanovich Rubtsov, Doctor of Biological Sciences and professor, did an extraordinary amount to ensure that the botanical garden became a landmark of landscape architecture, rather than simply a collection of plants. Under his leadership, an arboretum was established alongside with a garden of lilacs, a collection of birches and conifers, and much more, all widely known far beyond the borders of Kyiv. Rubtsov's scientific monographs and reference books are indispensable guides for specialists in the fields of dendrology, landscape architecture, and ornamental horticulture (Rubtsova & Chuvikina, 2021). Some of the areas he created (e.g., "Mountain Garden" and "Bosquets" near the main entrance) or those established under his leadership (e.g., the "Climbing Plants Area") are currently maintained by the Department of Landscape Construction (Figs. 8 & 9).

Another section, the "Ornamental Succulent Hill", was established in the early 1960s by Dr. Svitlana Mykolayivna Prykhodko, and is now



Figure 6. Flowering parterre in front of the Old Domed Greenhouse, 1950s.

also a part of the Landscape Architecture Department (Fig. 10). The Landscape Construction Department also maintains other areas created in the late 1940s and 1950s, i.e., "Parterre," "Flower Hill", and "Rose Garden".

In 1972, the State Committee for Nature Conservation under the Council of Ministers of the Ukrainian SSR declared the Central Republican Botanical Garden of the Academy of Sciences of the Ukrainian SSR (now the NBG) a natural monument of republican significance, and in 1992, the NBG was designated as a nature reserve of national significance, protected as a national treasure.

In July 2001, the Department of Green Construction was established, making it the Botanical Garden's newest department. In 2006, the department was renamed the Department of Landscape Construction. The department oversees many exhibition areas, which are located primarily in the central part of the garden.

In 2011, the "Seasons" exhibit was opened as part of the department; it currently features an exhibition of ornamental tree species and successfully demonstrates various landscaping techniques. In the same year, the NBG began creating ethnobotanical sections, which, in



Figure 7. *Cerastium biebersteinii* on the flower hill, 1955.



Figure 8. Leonid Ivanovich Rubtsov near the *Carpinus betulus* hedges at the main entrance, 1959.



Figure 9. Start of construction on the section of climbing plants (project designer M.I. Orlov, supervisor L.I. Rubtsov). Leonid Ivanovich Rubtsov stands on the right holding the project plans, 1958.



Figure 10. A display of ornamental succulent hill, 1960s.

addition to plant arrangements, feature small architectural elements (e.g., "Tibetan Nature and Culture", the "Korean Garden", "Traditional Indonesian Garden", and "Japanese Gardens" sections). All of these sections are part of the recent Department of Landscape Construction.

Conclusions

The history of landscape design at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine reflects the consistent development of the ideas laid out in the earliest designs for the academic botanical garden. The combination of scientific work on plant introduction, the demonstration of their ornamental qualities, educational activities, and the creation of exemplary garden and park designs became one of the guiding principles for the organization of its grounds.

The crucial role belonged to V.I. Lipskyi and O.V. Fomin, who laid the groundwork for the creation of the NBG, M.M. Gryshko, who headed the postwar construction plans and L.I. Rubtsov, who made a significant contribution to the design of landscape compositions and the development of garden and park art. The exhibition areas, created during various periods, have become an important component of the NBG's spatial structure and retain their historical, scientific, and practical value.

The establishment in 2001 of the Department of Green Construction (recent Department of Landscape Construction) marked a significant milestone in the organizational development of this activity. Today, the department ensures the preservation and maintenance of a number of historically established exhibits, participates in the creation of new thematic areas, and demonstrates various techniques for using ornamental plants in landscape design.

Thus, the activities of the Department of Landscape Construction continue the traditions established throughout the history of the NBG, while simultaneously developing them in line with the contemporary challenges of ornamental horticulture, landscape architecture, and the greening of urban areas.

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Ландшафтне будівництво в Національному ботанічному саду імені М.М. Гришка НАН України: від ідей перших проєктів до заснування відділу

Наталія Чувікіна

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У статті висвітлено основні етапи становлення ландшафтного будівництва в Національному ботанічному саду імені М.М. Гришка НАН України (НБС) – від перших задумів створення академічного ботанічного саду та проєктів 1930–1950-х років до організації відділу ландшафтного будівництва у 2001 р. Зокрема, розглянуто внесок В.І. Липського, О.В. Фоміна, М.М. Гришка та Л.І. Рубцова у формування наукових і художніх принципів організації території НБС. Охарактеризовано особливості проєктних рішень, спрямованих на поєднання колекційної, декоративної, науково-просвітницької та рекреаційної функцій. Наведено відомості про формування окремих ландшафтних експозицій, що стали складовими сучасної структури відділу, та про його подальший розвиток. Показано спадкоємність між початковими задумами засновників НБС й сучасними напрямами діяльності підрозділу у сфері декоративного садівництва, ландшафтної архітектури та озеленення урбанізованих територій.

Ключові слова: Національний ботанічний сад імені М.М. Гришка НАН України, відділ ландшафтного будівництва, історія, ландшафтна архітектура, декоративне садівництво, експозиційні ділянки, озеленення