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CHRONICLE

Memory through landscape: how wartime findings of Leonid Ivanovych Rubtsov became the basis for Mountain Garden creation at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine

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Abstract

This paper examines the impact of personal wartime experience on the development of creative thinking and professional approaches in landscape architecture. Using the example of Leonid Ivanovych Rubtsov, an outstanding specialist in mountain plants and the founder of the Mountain Garden at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine, this study analyzes the role of visual materials collected by him during the World War II. Postcards, photographs, and illustrations found among ruins became significant visual sources influencing compositional and spatial decisions in the formation of the garden's exposition. The content of this collection, its significance for the scientific understanding of natural high-mountain landscapes, and its impact on practical design stages are examined. The study demonstrates how personal memories, historical contexts, and scientific activity were embodied in the creation of a landscape space that today also performs memorial and cultural functions.

Keywords: mountain garden, Leonid Ivanovych Rubtsov, landscape architecture, visual materials, cultural memory, high-mountain landscapes, botanical expositions

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Introduction

Landscape architecture integrates scientific knowledge, artistic vision, and the personal experience of the designer. Global practice provides numerous examples in which biographical and psychological factors shape an author's sensitivity to natural motifs and influence compositional priorities and stylistic choices (Nassauer, 1995; Spirn, 1998; Meyer, 2008). In recent decades, research into the role of personal history in shaping landscape thinking has

attracted increasing attention (Hunt, 2016; Stuart-Smith, 2020).

In the twentieth century, the World War II became a turning point for many scholars and artists, defining new creative and ideological strategies. Leonid Ivanovych Rubtsov, who later became a renowned botanist and landscape architect, volunteered for the front in 1941 and took part in military operations until January 1945. While living among ruins, he began collecting postcards, photographs, and illustrations of natural subjects found there. This collection, gathered under wartime

conditions, later became an important factor in his professional formation (Rubtsova & Chuvikina, 2021).

These materials contributed to the development of his long-term interest in mountain plants and natural alpine landscapes – directions that became central to his subsequent scientific and design work (Rubtsova, 2012, 2016).

In the 1970s, when creation of the Mountain Garden at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine began, this visual collection became the basis for its compositional concept. Its imagery influenced both relief formation and the selection of stone and vegetation (Rubtsova & Romanets, 2016; Rubtsova et al., 2019).

The aim of this study is a comprehensive analysis of the role of Leonid Ivanovych Rubtsov's visual collection in shaping his professional style and the spatial concept of the Mountain Garden, as well as identifying the connection between personal experience, scientific thinking, and landscape modelling.

Material and methods

The primary material consists of Leonid Ivanovych Rubtsov's personal visual collection, which includes photographs, postcards, and printed illustrations gathered during the World War II in 1941–1945. These materials originate from frontline territories and destroyed settlements where Leonid Ivanovych Rubtsov stayed during military operations. The second group of sources comprises design documentation, working materials, and publications from the 1950s–1970s, which reference the influence of these visual images on his landscape decisions (Rubtsova, 2012; Rubtsova & Chuvikina, 2021).

The methodological basis relies on interdisciplinary approaches combining historical-biographical analysis, methods of landscape architecture, and reconstruction of creative processes. Such complex approaches are widely used in studies exploring the relationship between personal experience and professional creativity (Spirn, 1998; Hunt, 2016; Stuart-Smith, 2020).

A comparative analysis was conducted between the image of the Mountain Garden and classical concepts of rock gardens and

high-mountain gardens in international practice (Körner, 2003; Pignatti & Pignatti, 2014).

Results and discussion

The visual collection as a factor in forming of Leonid Ivanovych Rubtsov's creative thinking

An analysis of Leonid Ivanovych Rubtsov's collection (Fig. 1) reveals that it is largely focused on images of natural landscapes – particularly mountain regions, rock formations, stony ecosystems, and alpine vegetation.

A significant portion of the images depicts mountain scenery, correlating with Rubtsov's later specialization in alpine and subalpine plant species. His numerous field expeditions and scientific publications from the 1950s–1980s confirm the continuity of this interest (Rubtsova, 2012, 2016; Rubtsova et al., 2019).

For Leonid Ivanovych Rubtsov, this collection became his first 'visual herbarium', which offered early insights into principles of natural landscapes within mountain relief and combination of rocks and vegetation. Thus, the collection had a dual impact: scientific (it contributed to the development of his interest in mountain botany) and artistic (it shaped his aesthetic perception of natural motifs). These motifs later formed the compositional basis of the Mountain Garden.

Early sketches and concepts: images that moved from paper into space

Early sketches from the 1970s (Figs. 2 & 3) clearly reflect the iconographic influence of the cards collection realized through the asymmetry of rock groups, presence of local 'peaks' structuring the space and undulating relief lines typical for alpine meadows. Leonid Ivanovych Rubtsov translated visual images into landscape models, adapting them to real conditions of working with soil, rock, and plant communities.

Relief construction as a key stage in garden creation

One of the most challenging tasks was the formation of an artificial relief reminiscent of natural mountain landscapes (Figs. 4 & 5). The relief had to correspond to the artistic



Figure 1. Example of photographs and postcards gathered by Leonid Ivanovich Rubtsov during the World War II.

concept. At the same time it should provide suitable conditions for plant growth and create diverse microclimatic niches.

The relief-forming works of the Mountain Garden became a unique engineering and landscape experiment for their time, combining geomorphological models, plant functional ecology, and artistic principles of creating natural landscapes. Under the guidance of Leonid Ivanovich Rubtsov, a set of measures was implemented that went far beyond traditional landscaping.

Before the work began, a detailed study was carried out on the properties of the existing soil, the directions of atmospheric water runoff, and the natural irregularities of the terrain. Based on field observations and modelling, key relief lines were identified, along which artificial massifs, terraces, ledges, and slopes with different exposures were later formed.

In modelling mountain landscapes, the orientation of slopes and access to sunlight were crucial. Therefore, two types of

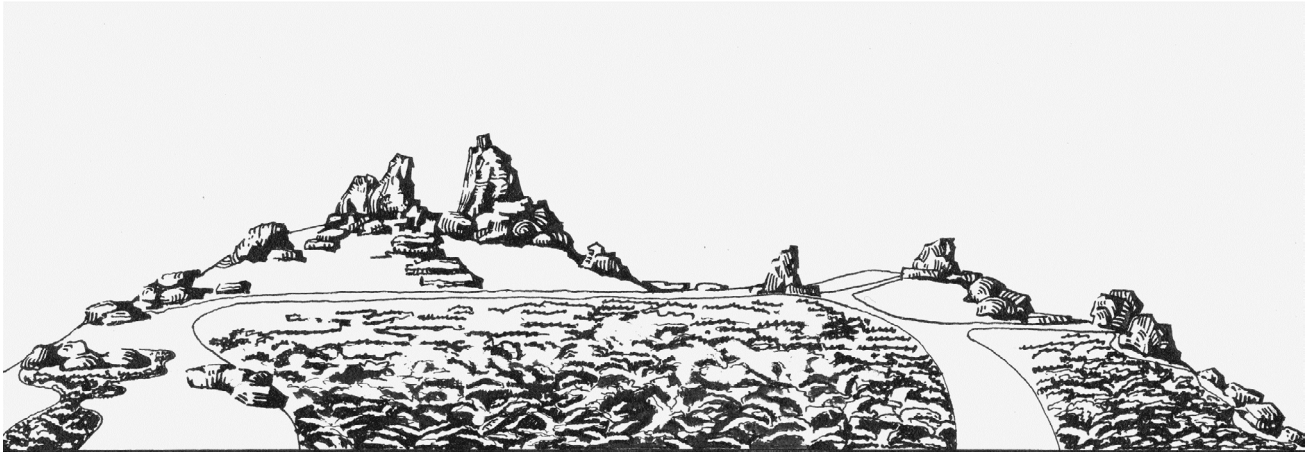


Figure 2. Sketch of rock groups prepared by Leonid Ivanovych Rubtsov.



Figure 3. Initial project of the Mountain Garden valley at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine prepared by Leonid Ivanovych Rubtsov.

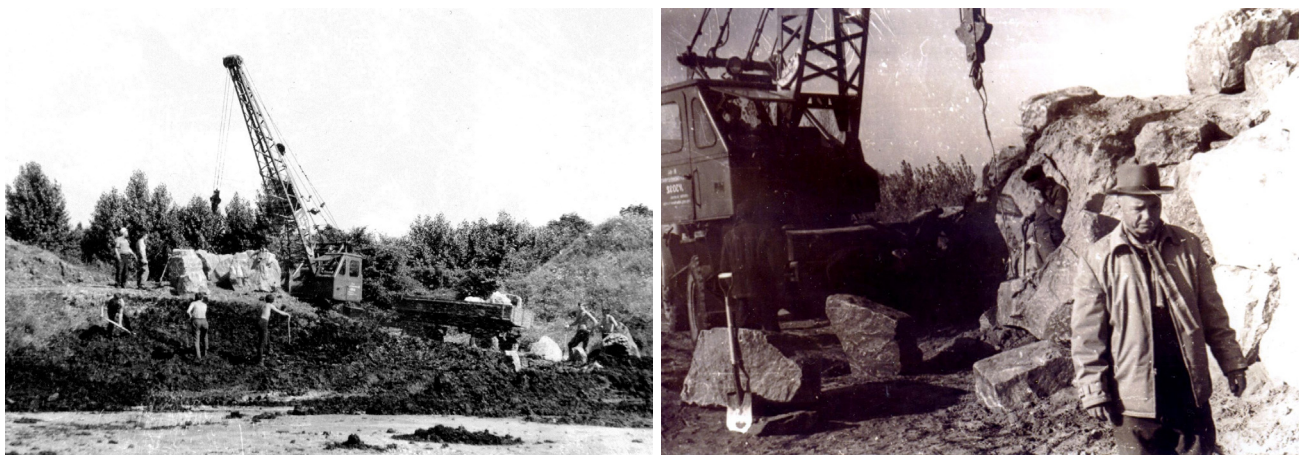


Figure 4. Construction of the artificial relief under the supervision of Leonid Ivanovych Rubtsov (1970s).



Figure 5. Finished mountain landscape of the Mountain Garden at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine in 1970s.

exposures were created: warm (oriented to the south and southwest, with drier and more insolated areas) and cold (facing north and northeast, with higher moisture levels and snow persisting longer in winter). In some places, artificial shading was produced using large vertical boulders that acted as natural screens.

The relief of the Mountain Garden was designed so that each group of stones served not only a decorative but also a functional purpose. In this way, a number of micro-biotopes were created, including outcrops with well-heated slabs, pocket niches for cushion-forming plants, and stone shelves that ensured drainage and aeration. These micro-niches made it possible to cultivate species with contrasting ecological requirements from alpine primroses to steppe xerophytes.

Thus, the Mountain Garden became an experimental site where, for the first time

in Ukraine, climatic and geomorphological models of various mountain ecosystems were comprehensively recreated.

Stone as the main constructive element

In the Mountain Garden, stone became not only the constructive basis of the relief but also a key element through which Leonid Ivanovych Rubtsov recreated natural models of mountain landscapes. Unlike the decorative techniques typical of mid-20th-century rockeries and alpine gardens, in this exposition stone acquired the significance of a structural component that defined the character of the micro-relief, the growth conditions for plants, and the artistic integrity of the space.

According to Leonid Ivanovych Rubtsov's concept, reproducing the natural character of a mountain environment required a careful selection of material based on several parameters:

- *Size and mass of boulders.* A variety of stone fractions were used – from massive boulders that formed peaks and silhouette accents to medium and small stones used to create screes and transitions.
- *Surface texture.* The preference was given to stone with natural roughness and fissuring, as such surfaces better retain fine soil particles and create additional conditions for plant anchoring.
- *Color and characteristic inclusions.* Color selection helped avoid artificiality and ensured harmonious integration with vegetation. Stones of various shades (e.g., grey, brown, light yellow) were used to model the natural contrasts of different mountain systems.

This approach made the landscape appear not constructed but naturally formed. When placing the stones, several principal factors were considered. Among them, orientation of boulders in space was crucial. Vertically placed stones formed silhouette lines, while horizontal ones created terraces and shelves. Also interaction of masses (stones were grouped into natural conglomerates, avoiding symmetrical arrangements) and embedding of stones into the soil (boulders were sunk a third or even half of their height to create the impression of a natural bedrock outcrop) required special attention. Such technique resulted in a sense of monolithicity and structural stability.

Thanks to the thoughtful selection and placement of stones, a visual effect of naturalness was achieved, in which plants appear not to be simply planted, but to have emerged on their own in natural niches. Hence, the stones became the basis for emphasizing the color and form diversity of plants, creating a natural rhythm within the compositions, and transitioning between different phytogeographical zones within the exposition.

In this way, Leonid Ivanovych Rubtsov achieved a unique synthesis of geological and botanical approaches, in which stone not only supports the relief but also shapes the ecological and artistic logic of the entire garden.

From wartime images to real elements of the Mountain Garden

A detailed analysis made it possible to identify a number of direct correspondences between certain groups of images and the natural objects of the Mountain Garden of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine.

A significant portion of the images in the collection depicts fragments of mountain slopes with natural ledges, cornices, and eroded rocky structures. In the Mountain Garden, these motifs are embodied in the form of rocky complexes – an approach also characteristic of classical European alpine gardens. This collection also shows various types of mountain rock and textures. In his projects, Rubtsov consistently sought to convey precisely the natural diversity of stone, which corresponds to the principles of modern alpine gardening. The plants depicted in the illustrations became the foundational planting groups in the Mountain Garden. This approach corresponded well to classical models for selecting plants for alpine gardens.

The imagery from postcards and photographs became the basis for creating specific elements of the garden:

- *Rock groups (Fig. 6).* Large boulders were selected to create “natural” cracks, ledges, and outcrops. This made it possible to form various ecological niches: from sunny dry areas to shaded ravines.
- *Scree slopes and stone streams (Fig. 7).* Small stones were arranged in a way that reproduced the natural processes of rockfall.
- *Compositional ‘peaks’ (Fig. 8).* Local peaks were formed from several large boulders and became focal points along the route.

Vegetation as an instrument for relief enhancement

Leonid Ivanovych Rubtsov rejected the decorative approaches to plant selection and application in landscape spaces that were typical of Soviet rock gardens in the mid-20th century (bright solitary accents, formal groups, use of garden cultivars). Instead, he chose an ecologically grounded model in which vegetation served as a continuation of the relief and as a natural



Figure 6. Rock groups in the Mountain Garden of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (1970s).



Figure 7. Scree slopes and stone streams in the Mountain Garden of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (1970s).



Figure 8. Compositional 'peaks' in the Mountain Garden of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (1970s).

component of the artificially created geomorphological structures.

The core principle was that each plant composition had not only an aesthetic but also a landscape-ecological function, reproducing natural models of mountain plant communities. This ensured the stability of the exposition, the naturalness of its appearance, and its scientific credibility.

Several key ecological zones were created in the Mountain Garden, each modelling specific types of alpine and subalpine landscapes:

- *Scree slopes.* Plant species were selected based on their ability to anchor themselves among shifting stones, withstand sharp temperature fluctuations, and tolerate high insolation. Plants representing the genera *Sedum* L., *Saxifraga* Tourn. ex L., and *Arabis* L. were planted here; they stabilized loose stone material and formed the first consolidation communities.
- *Mountain meadows.* These areas had moderate moisture, good sunlight, and a substantial layer of fine soil between stone fragments. Representatives of the genera *Dianthus* L., *Leontopodium* R.Br. ex Cass., *Primula* L., and *Pulsatilla* Mill. were used to provide seasonal flowering dynamics and to create the characteristic appearance of alpine meadows.
- *Gorges and shaded microhabitats.* In artificial gorges, the air was cooler and the humidity higher. These conditions allowed the introduction of species typical of shaded high-mountain habitats such as *Gentiana* Tourn. ex L. and *Soldanella* L.
- *Plateaus and levelled terraces.* Here, low-growing cushion-forming species and communities were placed, characteristic of environments with limited moisture and strong winds: *Androsace* L., *Silene acaulis* (L.) Jacq., *Alyssum* L., and other species capable of holding the soil and forming dense micro-cushions.

Thus, each zone functioned as a micro-model of a natural alpine biotope. It was essential that the vegetation was not simply

“planted” next to the stones but emerged organically from their structure. Leonid Ivanovych Rubtsov sought to ensure that the plants rooted themselves in natural cavities between the stones, emphasized the forms and textures of the boulders, and covered the joints between stone layers. Thanks to this ecologically oriented approach, plant communities were created that were as close to natural ones as possible. This provided several advantages, including minimal further maintenance efforts, as the plants were adapted to conditions close to their natural habitats. The plants were also high resilience to weather fluctuations, while the communities were able to self-regulate because dispersed plants stabilized the soil, and formed new micro-niches.

In Leonid Ivanovych Rubtsov’s concept, vegetation enhanced the relief not only structurally but also temporally. Seasonal changes (early spring primroses, summer flowering, the autumn colors of fruits, and the winter structure of cushion forms) created the dynamic character typical of natural mountain landscapes (Figs. 9 & 10). This seasonality became an important part of the artistic image of the Mountain Garden.

Personal experience as a factor in landscape thinking

The study demonstrates that the influence of personal experiences on landscape design has not only a biographical but also a conceptual dimension. A similar approach to understanding the interaction between inner experience and landscape creativity is supported by contemporary authors who emphasize the importance of psychological and cultural factors in design decisions (Spirn, 1998; Hunt, 2016; Stuart-Smith, 2020).

In Leonid Ivanovych Rubtsov’s case, the visual impressions accumulated during the war became the foundation for his subsequent scientific interest in mountain ecosystems, which manifested itself in his publications, expedition work, and teaching activities (Rubtsova & Romanets, 2016). The formation of the Mountain Garden took place during the mature period of his career, and it was here that the synthesis of wartime memories, scientific knowledge, and professional mastery was most fully realized.



Figure 9. Leonid Ivanovych Rubtsov in the Mountain Garden nursery at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine.

The Mountain Garden in the European context

The results obtained demonstrate that Mountain Garden fits organically into the broader European tradition of creating nature-like mountain landscapes. Similar design motifs can be observed in the Rock Garden of the Prague Botanical Garden, where relief modelling, the use of stone masses, and an emphasis on alpine flora are actively applied (Spirn, 1998; Meyer, 2008).

Thus, Leonid Ivanovych Rubtsov's work should be viewed not only as a unique national phenomenon but also within a wider European context, where naturalness, structural expressiveness, and respect for the landscape constitute the fundamental principles of garden design.

Cultural and memorial function

The Mountain Garden created by Leonid Ivanovych Rubtsov extends far beyond the boundaries of a traditional botanical exhibition. Its spatial and compositional structure, together with its historical context, forms a unique type of memorial landscape in

which nature acts as a bearer of memory and a means of interpreting the past. The memorial character of the garden is expressed on several levels: psychological, cultural-historical, symbolic, and educational.

The Mountain Garden belongs to those landscapes that evoke a sense of inner balance and safety due to the naturalness of their forms and rhythms. Stable stone structures, smooth relief lines, the absence of sharp contrasts, and the harmonious combination of stone and vegetation create a contemplative environment in which visitors intuitively slow their pace and enter a state of emotional equilibrium. This effect is especially pronounced in viewing platforms that open panoramic vistas of the garden and micro-niches with cushion-forming plants that create a sense of intimacy. Thus, the Mountain Garden functions as a landscape space for psychological restoration.

The memorial character of the garden is grounded in the fact that it was created on the basis of Leonid Ivanovych Rubtsov's personal wartime experience. The visual materials he collected among the ruins during the World



Figure 10. Plants of natural high-mountain zones in the Mountain Garden nursery at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (1970s).

War II became not only artistic inspiration but also the emotional foundation of the exposition. For this reason, the garden serves as a space for reflecting on history, where memory is conveyed not through monuments but through natural forms.

The Mountain Garden can be viewed as a symbolic space that embodies the philosophy of overcoming destruction through creation. Its establishment became not only a scientific but also a personal response by Rubtsov to the traumatic experience of war. Through this, the garden becomes a landscape foundation for renewal.

The Mountain Garden also functions as an open laboratory and educational platform. It provides opportunities for studying the ecology and phenological features of mountain plants in semi-natural conditions and analysing

processes of species adaptation to the urban environment. It also introduces students and schoolchildren to the basics of landscape modelling. By combining scientific, artistic, and memorial principles, the garden serves as an important platform for environmental education, where natural processes are explained through practical experience.

Under contemporary conditions, the Mountain Garden acquires additional significance as a space that contributes also to preserving national natural and cultural heritage and fostering environmental awareness among visitors. The Mountain Garden support the principles of sustainable development by demonstrating the ecosystemic interaction of stone, plants, and climatic factors.

Conclusions

The study of Leonid Ivanovych Rubtsov's visual collection makes it possible to trace the close connection between the scientist's individual experience, his emotional memory, and his professional development as a landscape architecture specialist. The materials he gathered during the World War II became not only personal testimony to what he had lived through but also an important source in shaping his aesthetic and scientific orientations. Similar mechanisms of interaction between biography and creative practice have been described by contemporary researchers who emphasize the role of inner experience in the process of landscape thinking.

Analysis of the physical elements of the Mountain Garden at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine and their comparison with images from the archival collection revealed distinct compositional parallels. The relief solutions, stonework, plant selection, and the natural stylistics of the garden correspond to the images that took shape in Rubtsov's imagination during the war years and were preserved in his collection. This integration of personal visual experience with professional practice aligns with broader European approaches to the creation of nature-like mountain landscapes.

The Mountain Garden in Kyiv emerges not only as a scientific object but also as a cultural and historical structure that unites the memory of war, an individual creative trajectory, and the development of landscape architecture in Ukraine. The uniqueness of this garden lies in its ability to harmonize historical experience with natural motifs.

The results obtained highlight the importance of personal history in shaping landscape concepts and point to the need for further interdisciplinary research that integrates biographical analysis, cultural ecology, and contemporary methods of landscape design.

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Пам'ять крізь ландшафт: як воєнні знахідки Леоніда Івановича Рубцова стали основою для створення Гірського саду Національного ботанічного саду імені М.М. Гришка НАН України

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У статті розглянуто вплив особистого воєнного досвіду на становлення творчого мислення та професійних підходів у ландшафтній архітектурі. На прикладі Леоніда Івановича Рубцова, видатного фахівця з гірських рослин та засновника Гірського саду Національного ботанічного саду імені М.М. Гришка НАН України, проаналізовано роль візуальних матеріалів, зібраних ним у роки Другої світової війни. Листівки, фотографії та ілюстрації, знайдені серед руїн, стали важливими образотворчими джерелами, що вплинули на композиційні та просторові рішення під час формування експозиції. Розглянуто зміст цієї колекції, її значення для наукового розуміння природних високогірних ландшафтів та її вплив на практичні етапи проектування. Показано, як особисті спогади, історичні контексти та наукова діяльність втілилися у створенні ландшафтного простору, який сьогодні виконує також меморіальну і культурну функції.

Ключові слова: гірський сад, Леонід Іванович Рубцов, ландшафтна архітектура, візуальні матеріали, культурна пам'ять, високогірні ландшафти, ботанічні експозиції