

**OBJECTS OF LANDSCAPE ARCHITECTURE
IN FORMATION OF CITY MORPHOLOGY**

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Abstract. The article describes urban development of Lviv in the historical context examining the place and the role of garden design objects and landscape architecture. The famous Austrian scientist and City Gardener of Lviv Arnold Röhring was involved in the development of urban space of Lviv at the turn of the 19th – 20th centuries, namely the Kilinski Park (the present Stryiskyi park), Hetmanski Valy, Zalizna Voda park, etc.

Key words: Lviv, A. Röhring, landscape architecture, urban space, city morphology

1. Introduction

A functionally unjustified use of valuable natural areas, an appropriate adaptation of landscape architecture to modern needs, a lack of comprehensive scientific architecture and organization of urban planning may, eventually, lead to the damage of the city historical environment and the loss of the initial appearance of the existing city facilities.

In the past the process of creation of any architectural object presupposed existence of a system. The system formed an image. It led to the consolidation of the city, the development of branch planning structure, etc. When creating a new environment, its authors were guided by various stylistic directions, subjective opinions about the meaning of gardens design and landscape architecture. In turn, it affected morphological features of the city.

In the 90's – 2000's the study of the city history intensified greatly. Its urban planning structure and urban life continued the tradition of the pre-war period. After reviewing descriptions and research materials made by many researchers of Lviv architecture, and considering the theme and direction of their research, we can divide these into two groups. The first group includes publications of urban nature, including publications about historical formation of Lviv. Such researchers have given their attention to this problem as: M. Bevza, Yu. Bohdanova, V. Vuytsyk, M. Habrel', Ye. Havrylova, S. Hoshovskiy, I. Dreksler, U. Ivanochko, M. Koval'chuk, Yu. Kryvoruchko, I. Krypyakevych, R. Lypka, S. Linda, R. Myh, R. Mohytych, H. Petryshyn, B. Posatsky, Ya. Purhlia, A. Rudnytskyi, M. Sepyalo, O. Stepaniv, T. Trehubova, B. Cherkes, O. Cherner, O. Shyshka, and others. The second group comprises combined works, which highlight formation of objects of landscape architecture and their role in the historical development of Lviv. This group also includes studies of individuals who created the the city's environment with great enthusiasm. Works by V. Kucheryavyyi, H. Petryshyn, T. Maksymiuk, V. Didyk, S. Tupis' and some others are dedicated to the investigation of these issues.

The purpose of the given article is to determine the place and the role of garden design objects and landscape architecture in the planning structure of Lviv. The City Gardener Arnold Röhring was the one who was involved in its developing it at the turn of the 19th – 20th centuries.

On the occasion of commemorating the glorious Gardener of Galicia Arnold Röhring an opportunity arose to return to his works, consider them in terms of connection between art and landscape architecture. All planted areas have always been an integral part in shaping the city's structure, its morphology. They are conditioned, to a great extent, by natural formation of the city, where morphology provides for the structure, planning functions, as well as their development and changes over time. "Landscape architecture is essentially urban development including natural means adapted to the increasing pressures" [1].

Since its foundation the morphology of Lviv was formed at the background of its natural frame, i.e., the valley space of the Poltva river basin surrounded by Castle Hill and Piskova Hill (or Hill of Lev), the Znesinnia ridge extending to Vynnyky Hills in the north and the north-east, and in the west by Sviatoyurska Hill and the Kortumivka area. The landscape dominants in the central part of the town were: the High Castle, also the Kalicha and Poznan Hills and Vronovska Hill (the Citadel). The south-west of the city of Lviv was framed by the elevated areas where the sources of the Poltva River begin, i.e., Snopkiv, Sofiivka and Zalizna Voda. These natural elements contributed to the uniqueness of the city in balancing its natural basis and urban structures. On this natural basis, objects of landscape architecture were formed, each of which played a role in the development of various urban functions in the area.

It should be noted that formation of garden design objects and landscape architecture should also be considered in conjunction with the overall urban development of the city, which is largely dependent on the political situation of the time and its socio-economic circumstances. Throughout the historical development of the urban network the afore-mentioned factors led to the heterogeneity of space with such features as: partition of areas, the presence of centers, proximity to various objects, highly developed means of communication and the functional content, etc. While studying architecture of the city of Lviv it is appropriate to consider its historical and morphological transformation influenced by formation of garden design objects and landscape architecture.

2. Basic Theory Part

The foundation of Lviv was due to its geographical location at the crossroads of trade routes. This fact defined Lviv as the royal capital city. It also determined its structure, typical for such cities, with a royal residence in the High Castle. The trade and craft positions at Castle Hill had an irregular structure, which included the Old Market area and churches and the cathedrals built at the time [2].

Unlike the old part of the city, the new city of the 14th – 15th centuries was built aside the old position towards the current Pidvalna Street and it had a regular planning center – Market Square. This downtown was surrounded by the city fortifications with external line ditches and shafts. This configuration of defensive walls, some of which have survived till our time, present the core of its characteristic originality and the possibility to look into the past and trace the changes in the shape of the city at the time.

A significant event in the development of the city was the dismantling of the city fortifications in the period of the Austrian governing in the late 70's of the 18th century. On the one hand, it opened the way for development of suburbs, on the other hand, it enabled to create a system of historic pedestrian walking promenades on the site of the outer line of fortifications. Thus, the lower downtown or Hetmanski Valy (Hetman's Ramparts, present Svobody Avenue) was formed. It consisted of two parallel streets with a walking alley between them, which was later extended along the Poltva River (now Shevchenko Avenue) [3].

From the east side, the upper Hubernatorski Valy were arranged in the area of the leveled ditches in the early 19th century. [4]. They stretched from the Bernardine Monastery garden to the Benedictine monastery Renaissance garden ensemble, which opened to the High Castle. Thus, it created a ring of historic squares – promenades that combined significant buildings, architectural ensembles and squares, the so-called first green city ring [5, p. 181]. Creation of promenades along the boulevards, as an organic component of the city's morphology, was analogous with the "plyanty" in Krakiv, Vienna Ring, Paris Boulevard under reconstruction by Osman.

If the insulating system of boulevards can be viewed as a result of the then prevailing architectural norms of formation of the city planning structure, the existing natural landscape complexes, unique to each city, became a basis for objects of landscape architecture.

The most significant natural landscape, dominant of Lviv, is High Castle, located on the highest hill of the city. It is a part of the pre-locational city. The surrounding areas of historic buildings preserved an authentic plan structure around Old Market Square and the Pidzamche area. The value of this landscape complex can be assessed in terms of formation of a three-dimensional space of the city, where the High Castle is a kind of symbol, and to which all lines of visual perception are opened from different parts of the city plan.

In the early 19th century, from the hill on which the ruins of the city castle stood, in dry weather periods clouds of dust and sand appeared, and in rainy period streams of sludge flowed down (“decline of water plowed ravines, accessible only to the cattle that grazed and took a sunbath”). Therefore it was decided to plant trees on the bare hill and found a park on the site of the castle fortifications. The avenues were planned as a continuation of gardens and promenades on the shafts. In 1820–1830-ies beautiful clean streets appeared, paved from the side of the walls of Hubernatorski Castle Hill [6].

The laid High Castle Park greatly enriched the panorama of the city, especially, when the ravine between Castle and Knyazhi Hills was filled and a mound was formed in honor of the 300th anniversary of the Lublin Union. There is speculation about the fact that A. Röhring participated in the laying of the park in the late 19th century, before that time another City gardener K. Bauer took part in its laying [7, p. 369].

In the eastern direction High Castle Hill through Lev’s Hill and the Park on Strilnytsya is connected with Znesinnia Hills, the site of an ancient settlement. The regional landscape park “Znesinnia”, laid in this place with the surrounding areas and the Kryvchytsi area, evidences traces of historical settlements [8]. Even to this day in this periphery area low-rise buildings with gardens remain.

Thus, “High Castle” and “Znesinnia” Hills, creating a solid green ridge, became natural boundaries that extended the Pidzamkovyi Lviv beyond the outer walls of the city center. Since the beginning of industrialization in the 19th century geographic features of these areas (namely, a flat space and a natural protection of the downtown – High Castle Hill), a relative cheapness of the land and a low status in terms of living quality made them the most convenient place for industrial construction [9]. After the laying of the railway in 1869 and construction of the railway station in this district of Lviv, the industrial value of these areas increased [7, p. 457–458].

With the moving of the city life on to Market Square, the old town centre of Princes times began to decline. However, due to the influence of the High Castle the district of Pidzamche managed to retain its identity. Its quarters were given the status of a particular territory in modern Lviv, and it stimulated its revival [10].

The next phase of urban net is due to the development of suburbs, some of which (Krakiv and Galician suburbs) were areas densely populated. The areas from the south-western side were mostly occupied by manors and estates of wealthy burghers. On those territories the oldest city park in Ukraine [11], the present Ivan Franko park, was laid in the 16th century with a green island area over 11 hectares protruding into in the urban structure. In general, its appearance was associated with formation of garden design and landscape art in Lviv [12]. Like most parks of that period in Europe, it was initially created on private lands, and later on, transferred to the city by the Venetian Consul Antonio Masari [7, p. 115]. This urban garden later acquired public functions that determined its destination, that of a modern-wide park area between the former Sejm (Province Parliament), and the today’s University named after Ivan Franko. The main alley of the park continues Sichovi Striltsi Street and is partly used for transit pedestrian traffic.

The Ivan Franko park, bordering the Sviatoyurska (St. George) Hill and the Citadel, forms part of the green ring in the south-west part of the city center. The top of the park is connected with the ensemble of Sviaty Yuriy (St. George) Cathedral, built in the monastery garden in the then prevalent Baroque style. A cascade of terraces with retaining walls formed a natural pedestal for the majestic silhouette of the cathedral. The structure of the cathedral with a garden was planned by the famous Lviv architect B. Meretyn [15, p. 160]. It opened from the inside the visual communications with the High Castle and views of the historic city. The cathedral on St. George's Hill became a meaningful spatial reference in the city panorama.

Citadel Hill, called Kalicha Hill in the 15th century and Shembek Hill in the 18th century, served as one of the natural landmarks of the city. The steep slopes of the hills made it difficult to access, which led to it being used for military purposes. In the early 19th century when the Citadel was taken over by the Voronovskiy family, there were plans to create a park, that had not been implemented [7, p. 231]. In the past the Citadel vicinity to the city caused the laying of steep streets, paths and slopes, some of which led to the establishment of the Ossolinskyy library at the intersection of Stefanyk and Copernic Streets, while the others led to the Pelchynskyy pool, formed in the marshy territory at the southern foot of the hill near Pelchynska Road (now Vitovskyy Street).

The multi-faceted structure of green spaces, i.e., parks, gardens, green lanes along streets was common in all areas of the spanning urban net. This coincided with the rise of landscape art and an interest in botany, which contributed to the creation of arboretums and botanical gardens. Their foundation is associated with the name of Austrian scientist Arnold Röhring, who planned to found an arboretum marginal urban school, nowadays, the Forestry University Botanical Garden in Kyrylo and Methodiy Street [5, p. 180–193].

The second half and the end of the 19 century witnessed a further development of Lviv territory and objects of landscape architecture. A. Röhring's activities in this period made a tremendous leap in solving landscape architecture of the city. They were carried out both as rehabilitation and reconstruction of the existing facilities of landscape architecture and as creation of the new ones. Arnold Röhring joined Karl Bauer in such projects as: the reconstruction plan of the park at the foot of the High Castle, the works concerning Hetman's Valy, the improvement of the main Lviv avenue composition with trees and flower beds. The activities of Röhring extended to creating smaller pieces of landscape architecture, namely, T. Vyshnovskyy park (former Executions Mount (now Zolota Street) and the small park near the St. Yuriy (St. George) Square [5, p. 181].

The Stryiskyy park occupies a special place in the formation of green spaces of the city, the most famous and the most important work of landscape architecture of A. Röhring's authorship. All began with the laying of the park in 1887, with the plan of laying of the lower parterre with the monument to Jan Kilinski, which appeared on the central lawn slopes in the background of the forest park and the lake. The Stryiskyy valley with the spring, on which the park was formed as part of the natural frame shaped by geoplastics of relief, divided the park into two parts: the plateau of the upper terraces and a spacious valley bottom. The upper terrace was designed for the Universal Exhibition of the National Chamber of Commerce and exhibition pavilions; it was a public space as opposed to romantic compositions of the bottom part of the park. A. Röhring's skills manifested themselves not only in the planning of one of the best parks, but also in the nature of the surrounding buildings. The main front gate led to the street with an interesting architectural solution surrounded by mansions. A. Röhring laid the gardens of the mansion buildings area, adjacent to the upper terrace of the park. Thus, the so-called "buffer zone" was created as if to underline the beauty of the composition of the park. The upper terrace of the park passed gently into the Sofiiivka gardens (present Yaroslavenko, Dubrovskyy, Svetsitskyy Streets). An active building of the park began in the mid-19th century, when the architect Florian Onderka laid a public park and the architects Saltzman and Schmidt built several villas, not preserved today [7, p. 720].

The real flourishing of the area occurred in the late XIXth century during the establishment of the Stryiskyy park, when A. Röhring used the natural landscape of Sofiiivka Hill to create gardens, villas and manors. The Sofiiivka gardens, adjacent to the areas in the tributaries of Soroky and Zalizna Voda springs, were a favorite vacation spot for citizen's walks. This is where the Mayor of the city instructed the outstanding City Gardener A. Röhring to create a park. A. Röhring designed the park plans from the 80's of the 19th century until the last days of his life (1913). It should be noted that the "Zalizna Voda" park in the status of the city park dates from 1905. A. Röhring tried to preserve the natural landscape of forests in the undulating places the terrain. Walking bypass alleys were laid with a thematic change of plant groups. The upper plateau with the lower walkway was linked by a transit alley along the waterfall, destroyed after World War II. Two sources provided water to the Kaminskyy pool at the bottom of the park from the side of the present Stus Street.

According to A. Röhring's plan, the Jordan Park was designed on the upper terrace, named after the Polish doctor Henryk Jordan. A. Röhring started the laying of the park for games, amusement, sports facilities, patriotic education of children and youth in Krakiv [7, p. 720].

"Zalizna Voda" park was not completed, which resulted in its many subsequent conversions together with the development of areas around it. Therefore, this park is a prime example of landscape object in the formation of the district, called the "Novyi Lviv" ("New Lviv"). The establishment of the area began in 1910, when the architects F. Kassler and A. Ostem planned a station of villas with gardens in rectangular form with a circular area symbolizing the sun in the center from which 6 streets-beams were spread. It echoed with the ideas of the Howard city garden, developed by the outstanding Lviv architects Levynskyi and Yu. Zahariyevych, embodying this idea in the planning of the Kastelivka area [13].

Revitalization of work on the development of the area began with construction of 2–3 storey houses in the style of functionalism in the 30's of the 20th century under the guidance of the architect Tadeusz Wrobel. At the same time, in the 60-ies of the last century, in the place of the Kaminskyi pool, a city recreational pool and a recreation complex were laid, i.e., the sports complex "Dynamo".

In the post-war period in the Novyi Lviv area an active construction of typical 5-storey buildings began, the so-called "Khrushchev" buildings. In the pre-war period in the 30's of the Xth century, this area was reserved for construction of villas. However, in the Soviet times, the area was cut through with a diagonal Litvinenko Street. The growth of industry in Ukraine had not bypassed this area: the former bicycle factory was rebuilt to the "Polaron" factory for production of military equipment. The park had not undergone any significant changes and was used mainly for a rest on the grass. Nowadays, construction of the "New Lviv" continues with the simultaneous reconstruction of the park. A special attention is paid to transit traffic along Stus Street near the Snopkivskyi park. The residential streets, adjacent to the park, still retain traces of the old mansion buildings. The main street of the "New Lviv" is connected with P. Myrnyi Street and Chervona Kalina Avenue which is the main street of the Sykhiv residential area. The "Zalizna Voda" park became part of a continuous green strip in the southern and south-eastern part of the city along with the Stryiskyi park, Sofiiivka and Snopkivski Hills.

Formation of green areas in the eastern part of the city was due to the history of formation of this territory. In ancient times it was densely built and underwent a notable development from 1789 with the laying of the way from the suburbs towards the Galician clay. This path became the main artery of the Lychakiv suburb, which comprised two- and three-storey buildings and public facilities. A further development dynamic of the area led to the construction of a tram line that provided a link to the top of the Lychakiv center which entered the composition of the city. Along with the Lychakiv cemetery and the Tsetnerivka park in 1892 A. Röhring laid the Lychakiv Park. In the inter-war period a memorial to those who died in World War I was erected. Later on, after World War II, in the upper part of the park, war burials were made, the so-called "Hill of Glory".

The Lychakiv park is connected to the Botanical Garden of Lviv University, adjacent to the park in the Pogulyanka area of 100.33 hectares. This green neighborhood dates back to the XVIIth century, when the Lviv Mayor Altmayer leased fields, settled farmers-tenants and established an apiary. This sparsely populated peripheral area is actively being built, which will ensure the future of its multifunctional use.

Thus, objects of landscape architecture, developed by masters of landscape architecture, among which the most prominent figure was A. Röhring, laid a stable system of green areas morphology. They are an integral part of the city, formed in the pre-war period.

The current system of green areas, which determined the face of the city, was continued at a later stage of development after World War II. At that time, notable changes in the natural environment occurred as a result of human activities. Sometimes, the terrain changed in open spaces, the hydrographic network altered as well, numerous ponds and straits and most of the sources disappeared. A new concept of urban fabric affecting objects of landscape architecture was formed. It was reflected in the restructuring of old Lviv parks according to new requirements and the creation of new parks, wide and specialized one, as well as public gardens and green areas.

The Ivan Franko park (the former Kosciushko Park) underwent changes. In it, in the 50's of the 20th century, features, atypical of parks, such as: a cinema, a restaurant, children's rides, stands for selling the beer

began to make its appearance. This park continues losing features of landscape art monuments still today. The avenues are being turned to transit zones.

Among other reconstruction objects worth mentioning is the Stryiskyi Park, including its upper terrace, on which the Lviv Polytechnic sports complex, housing the Academy of Arts, and the "Lviv" cinema are located. From the side of the Ivan Franko Street, a new Chamber of Commerce, hotels, restaurants, and banks have appeared. The High Castle park and the Citadel have also changed.

High rates of house construction in the late 50's–80's were accompanied by the increase of trees planting. The urban greening plan adopted by the Council of Ministers of the USSR contributed to it. By this method the People's House in the B. Khmelnytsky National Park of Culture and Rest was arranged. The Snopkivskyi park together with the stadium of Ukraine, Vuletski Hills, a student park, Horikhovyi Grove were organised in the same way.

The project of detailed planning of the complex city recreational zone was made in the 70's of the previous century, which included the High Castle area, the Shevchenko (Kaiserwald) park and the former Znesinnia park. That project was the basis for creating a museum of folk architecture (Skansen), the so-called Shevchenko Grove [7, p. 720].

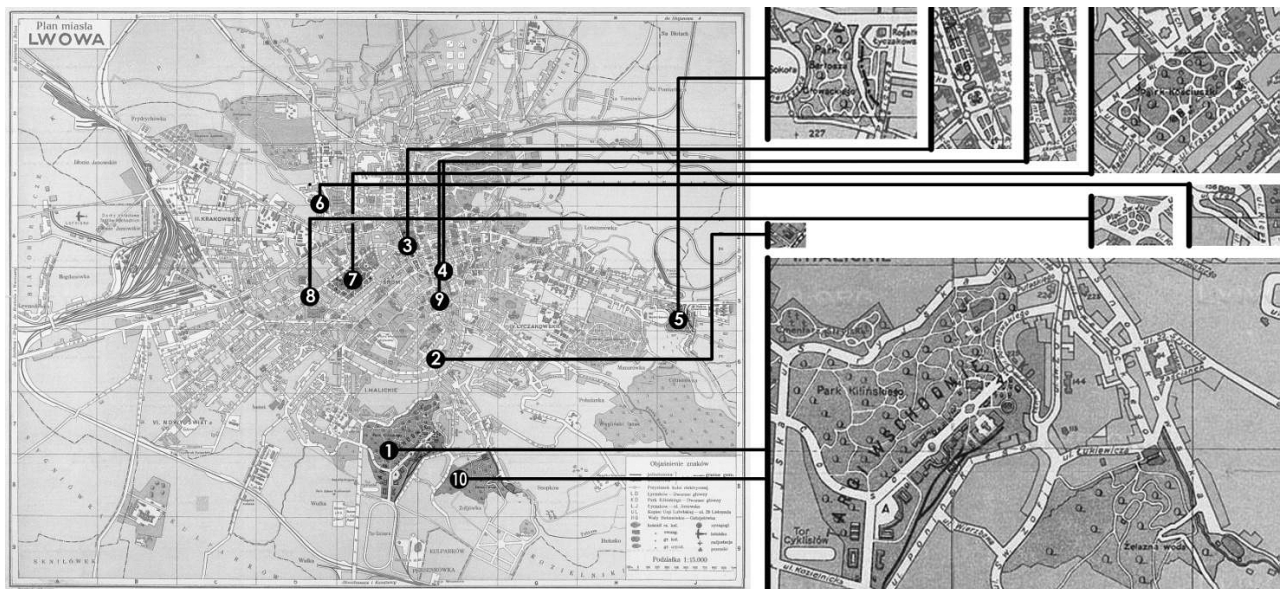


Fig. 1. Objects developed by Arnold Röhring on the city map of 1920 (based on map "Plan miasta Lwowa" 1922 p. [15], [16]):

1. Kilinski Park (now Stryiskyi Park); 2. Arboretum edge of the Forest School (Arboretum National Forestry University);
3. Karl-Ludwig-Strasse, Hetmanska Str., Hetmański Valy (Svobody Avenue); 4. Halytska Square (1890–1893);
5. Lychakiv Park; 6. Visnovskogo Park around the "Hory Strat"; 7. Lower Jesuit Park (Ivan Franko park);
8. St. George's square (1897); 9. Square around the monument to Kornel Ujejski (1902) and nonlinear Akademicka street (Shevchenko Boulevard) (1906); 10. "Zalizna Voda" Park (1905)



a

b

c

Fig. 2. Objects developed by Arnold Röhring: a – Halytska Square and Valova Street [17];

b – Downtown Lviv, Karl Ludwig Street, Hetmanski Ramparts (Svobody Avenue) [18];

c – St. George Church, St. Yura Square, green area, Palace of Metropolitans [19]

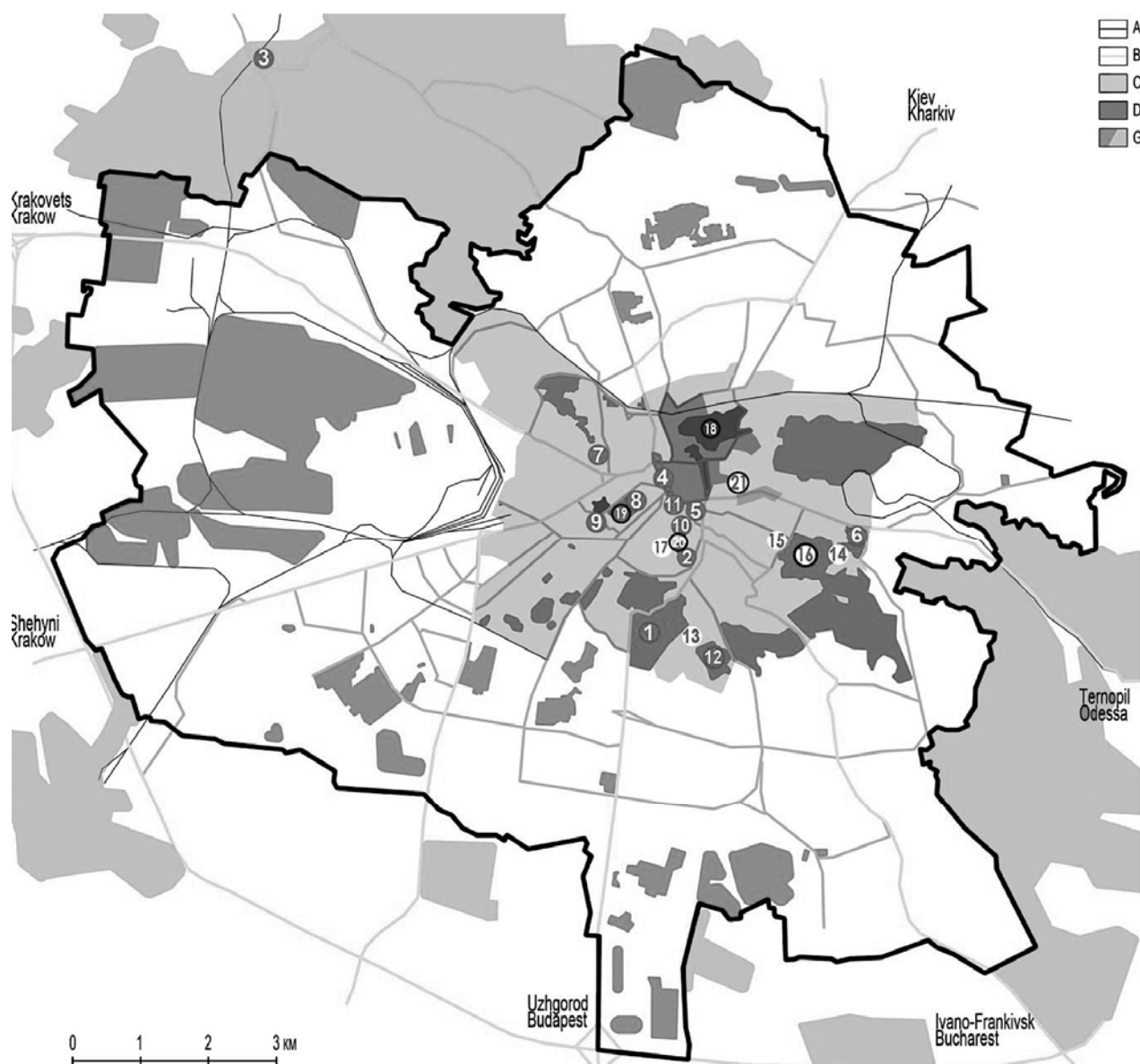


Fig. 3. Objects by Arnold Röhring on the city map of the beginning of the 21 century (based [16], [22]):

- A – administrative city limits; B – main streets; C – historical area of the city (2001); D – Historic Centre (the area included in the UNESCO World Heritage Site); G – green area. Kilinski Park (1877–1894, Strytskyi Park, 47,61 ha); 2. Arboretum edge of the Forest School (1880) (Arboretum National Forestry University, 0,81 ha); 3. Recreation Park in Bryukhovychi (about 1887); 4. Hetmanski Valy (Svobody Avenue) (1888–1890); 5. Halytska Square (1890–1893); 6. Lychakiv Park (1892; 8,4 ha); 7. Visnovski Park (1895, covering 2,8 hectares), around the “Hory Strat”; 8. Lower Jesuit Park parterre terrace; 9. St. George’s square (1897); 10. Square around the monument to Kornel Ujejski (1902) and nonlinear Academic Street (Shevchenko Avenue) (1906); 11. Ordered landscape composition Mariacka Square (Pl. Mickiewicz); 12. Park “Zalizna Voda” (1905). *The possible relationship A. Röhringa*; 13. Technical garden (National Botanical Garden); 14. Park Sofiiivka (1893); 15. Park of infectious clinic on Pekarska Street 54 (1910–1914) and park on Pekarska Street 52; 16. Reconstruction at the Lviv cemetery (K. Bauer turned the cemetery in a park [21]); 17. Attempts to lay the Citadel Park. *Implemented Projects by Karl Bauer* [21]; 18. Vysokyi Zamok Park (Lviv Castle Hill Park) – took direct part A. Röhring; 19. Ivan Franko Park (formerly, Jesuit Gardens); 20. The first botanical garden; 21. City shooting gallery

In the latest city master plan developed for the period until 2025 an expansion of the system of landscape and recreational areas is expected, by creating new parks. They lag far behind as compared to the pace of housing construction. An urgent problem is the improvement of parks in Sykhiv, Zboyischa on Vyhovskyi and Volodymyr Velykyi Streets, the Avenue of the 700th anniversary of Lviv, and many others.

Because of the unresolved problem, the objects of landscape architecture experience more and more pressure. In the present political and economic situation we can only talk about prospects of development of objects of landscape architecture, considering the social structure of society, its way of life. The trend is that objects of landscape architecture, different in size and features, should be located closely to resident areas, creating a hierarchical structure, similar to that of active spaces for public life in some residential areas. The issue raised provides a wide field for research and study.

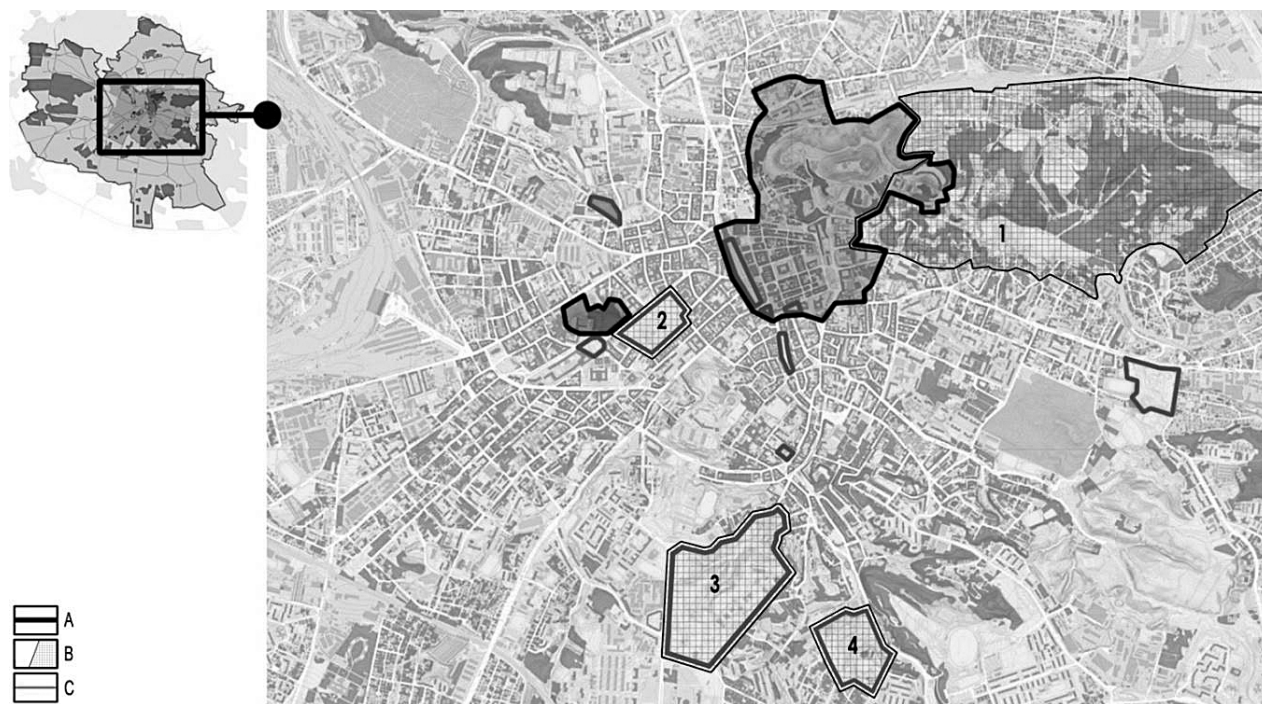


Fig. 4. The fragment of the historically formed central part of the city:
localization of objects by A. Röhring:

- A – the Ensemble of the Historic Centre (the area included in the UNESCO World Heritage Site);
- B – border and territory of the nature protected area in Lviv [22]
- (1 – regional landscape park “Znesinnia”; 2 – the monument of landscape art of national importance Ivan Franko Park – the oldest and one of the central parks of the city;
- 3 – the monument of landscape art of national importance Stryiskyyi Park; 4 – a monument of landscape art local importance “Zalizna Voda” Park);
- C – border of area A. Röhring’s objects

3. Conclusions

On the basis of the material it can be stated that historically morphological transformation of the urban net occurred in close relation with urban structures and objects of landscape architecture. The presence of such objects, depending on environmental conditions, led to a powerful pressure on certain areas, thereby, causing differentiation of urban areas.

Also, new facilities and landscape architecture have been formed. They are being integrated into systems, locks, lanes. In the morphological structure of Lviv, a green diameter from the northwest to the southeast is observed, consisting of city inner parks moving to Bryukhovyttskyi and Vynnykivskyi parks. There are new parks forming a green ring around the central, middle and peripheral areas wedging into the urban net, creating a sector model zone that corresponds to the radial-ring structure of the city.

The growth of the landscape and of the recreational area system is expected in the future through the development of suburbs, rich in the fauna and flora and water sources. Thus, underground facilities such as parking lots, storage places and underground passages, a new structure of the landscape and recreational areas are being extensively developed.

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**ОБ'ЄКТИ ЛАНДШАФТНОЇ АРХІТЕКТУРИ
У ФОРМУВАННІ МОРФОЛОГІЇ МІСТА**

***Анотація.** У статті описано містобудівний розвиток Львова в історичному контексті, місце і роль об'єктів садово-паркового мистецтва та ландшафтної архітектури, до розроблення яких був залучений відомий інспектор міських плантацій Львова на зламі XIX–XX століть Арнольд Рерінг, а саме парк Кілінського (тепер Стрийський), Гетьманські вали (тепер проспект Свободи), парк Залізна Вода та ін.*

***Ключові слова:** Львів, А. Рерінг, ландшафтна архітектура, морфологія міста.*