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THE EXPERIENCE OF ORGANIZATION OF SPACES WITH FOUNTAINS IN THE SETTLEMENTS OF UKRAINE (PART 1)

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***Abstract:** Among the countries of Europe, Ukraine is marked by a fairly large number of the fountains, which are the pieces of the monumental art, cultural and historical heritage objects. The purpose of this publication: to summarize the experience of organizing spaces with fountains, to explore the development of fountains as artistic and aesthetic objects of urban and landscape architecture.*

The fountains are considered as an integral part of the historical and architectural heritage of the country's settlements, which is associated with outstanding historical events and the lives of famous people. Having traced the historical preconditions for the appearance of spaces with fountains, explored the circumstances that contributed to the development of sciences in Ukraine and the emergence of the first fountains as a synthesis of art and engineering, elements of a centralized water supply system of the settlement. Traced the influence of political, economic and ecological circumstances and the cultural needs of society for changes in the organization of spaces with fountains, where the buildings transformed their original functions from water distributors that meet drinking, household and religious needs into objects of improvement, artistic and aesthetic elements of urban architecture and pieces of garden art, artistic and aesthetic elements of landscape architecture, were studied.

This publication presents the first part of the study, which covers the period of XVIII - XIX centuries.

***Keywords:** fountains, urban spaces, experience of organization, urban architecture, landscape architecture, component of the historical and architectural heritage, cultural heritage of Ukraine.*

INTRODUCTION

Among the countries of Europe, Ukraine is marked by a fairly large number of the fountains, which are the pieces of the monumental art, cultural and historical heritage objects, artistic and aesthetic elements (objects) of urban and landscape architecture, and pieces of garden art. According to the Law of Ukraine «On improvement of settlements», as the objects of monumental art, monuments of cultural and historical heritage the fountains are the objects of settlement improvement system, and the use of specified objects is important for the country, and increase in number of such objects augments the national wealth [32]. According to the study by O.G. Tserkovna & A.O. Voronina [34], the results of which were presented at the XII All-Ukrainian Scientific Conference «The Modern Architectural Education. Conceptuality of architectural creativity»: by the number of objects and the scale of construction, the buildings are extensive material for scientific analysis. First of all, the fountains are of interest as objects associated with significant historical events and the lives of famous people.

Generalization of experience in organizing spaces with fountains and research of architectural development of the buildings in the settlements of the country is relevant in terms of establishing a holistic picture of events and deepening historical and architectural knowledge and will help in modeling the future, which largely depends on the ability to find the main thing, the underlying concept originally involved, its essential characteristics. The creators of settlements (urban planners, architects, engineers, designers, etc.) need fresh ideas and images to create new forms that can withstand transformations over time and have stability, reliability and durability.

ANALYSIS OF PREVIOUS STUDIES

The analysis of studies and publications, which examine the experience of organizing spaces with fountains and the development of buildings as artistic and aesthetic objects (elements) of urban and landscape architecture in the settlements of the country, makes it possible to conclude that previous studies were not intended to create «holistic picture» but concerned only individual objects. The factual monograph by the researcher P.A. Spyshnov deserves special attention for the study [29]. The author covers in detail the history of the formation of fountains on the examples of

the former Soviet Union and other countries. The study is fundamental, with detailed coverage of all stages of formation of the fountains in the urban spaces. Now, the study needs to be clarified and supplemented, as the mentioned paper dates back to the 50s of the last century.

The peculiarities of fountain formation during the introduction of centralized water supply networks in the settlements of the country are considered in the papers by O.M. Donik [5] and A.I. Krasnyuk and G.F. Kyazymov [21].

Among the pre-revolutionary publications, it is worth noting the description of the Kyiv water supply system dated 1910, which was prepared by the Technical Department of the City Public Administration [4].

The issues of stylistics and the features of the architectural and planning arrangement of the fountains in the garden architectonics and park architecture of Ukraine in particular are raised in the papers by M.M. Grysyuk [8], G.A. Kosarevsky [13-14], R.O. Kosarevska [15, 17-19], I.S. Kosenko et al. [20], V.Ya. Malanyuk [23], O.I. Khorosha [9] and L.S. Shevchenko [31].

We believe that outstanding parts of the general problem are the lack of a complete picture of the history of development of the spaces with fountains in the settlements of Ukraine, in particular, the specifics of architectural and planning organization of urban spaces with fountains, due to the typological features of the buildings.

PURPOSE

The purpose of this publication is to summarize the experience of organizing spaces with fountains in the settlements of the country, to study the development of fountains as artistic and aesthetic objects (elements) of urban and landscape architecture.

In the context of this purpose, the following tasks will be solved:

- To trace the historical preconditions for the appearance of spaces with fountains.
- To study the impact of political, economic and environmental circumstances and cultural needs of society for changes in the organization of spaces with fountains.
- To determine the functional-planning, architectural-compositional and stylistic features of the formation of fountains in spaces.
- To consider the symbolic and allegorical definitions of the buildings.
- To classify the fountains as a creative product

according to the image-idea, which the buildings integrate into the structure of the settlement, taking into account their perception in real urban space and time.

At different stages of study, both traditional general scientific methods (empirical: survey, comparison; theoretical: analysis, generalization, systematization) and special architectural methods (photofixation, description) will be applied. The comparative-historical, structural-compositional, architectural-typological, and architectural-stylistic methods made it possible to comprehensively and holistically solve the tasks.

RESULTS AND DISCUSSION

Before we delve into the history of the development of spaces with fountains in the settlements of Ukraine, let's go back to the past and remember: *water is life that gives life on earth*. Humans have evolved from water and live on water. Since the dawn of civilizations, water has been a major element of the rituals associated with birth, death, and purification [32].

In Ukraine, historically, the wells have been used in settlements to meet the drinking and household needs of the residents in water [34]. The experience of forming fountains as artistic and aesthetic objects of urban and landscape architecture in the settlements of the country testifies to the active use of water and water devices in urban spaces, private gardens and parks, and was independent of the time and territory. Initially, this was justified by the historical concepts, performance of the ritual rites and satisfaction of drinking and household needs of the inhabitants, later - by the philosophical concepts, cultural and aesthetic needs. In Ukraine, the first fountains appeared in the XVIII century, as the water distributors, elements of the water supply (WS) engineering system of the settlement.

Following a study conducted by S.V. Rogovsky et al. [28], after the division of Ukraine between Poland and Russia, according to the Treaty of Andrusovo (1667), Kyiv as a settlement loses its administrative significance, but thanks to the Magdeburg Law it continues to be an important trade and cultural center. The Left-Bank Ukraine Hetmans, especially I. Mazepa, understanding the importance and significance of Kyiv, provide significant financial assistance to the city. The construction of churches, monasteries, and roads was financed, and the Kyiv-Mohyla Academy was founded, which was opened in 1631 in a building

located near Alexander Square (now Contracts Square «*Kontraktova Ploshcha*»). The houses built with Hetman I. Mazepa's money in the Ukrainian Baroque style will later decorate the settlements of the left-bank Ukraine and Kyiv.

In those years, Contracts Square (*Kontraktova Ploshcha*) in Kyiv de facto became the link between the right-bank Ukraine, which is under Polish rule, and the left-bank Ukraine, which is under Russian rule. The Square, which used to be the center of Kyiv's trade, social and religious life, is also becoming a center of science in the Eastern Europe. The opening of the Kyiv-Mohyla Academy contributed to the development of science as a prerequisite to the appearance of the first fountains, which will be a synthesis of the art and engineering, elements of the first WS centralized systems.

According to the studies by M.G. Demchyshyn and O.M. Anatsky [3], in 1817, to meet the drinking and household needs of residents in the water there were 54 wells and two stone fountains in Kyiv - a fountain in Podil and a fountain, which is integrated into the monument to the Magdeburg law (Fig. 1), dedicated to Vladimir the Great.

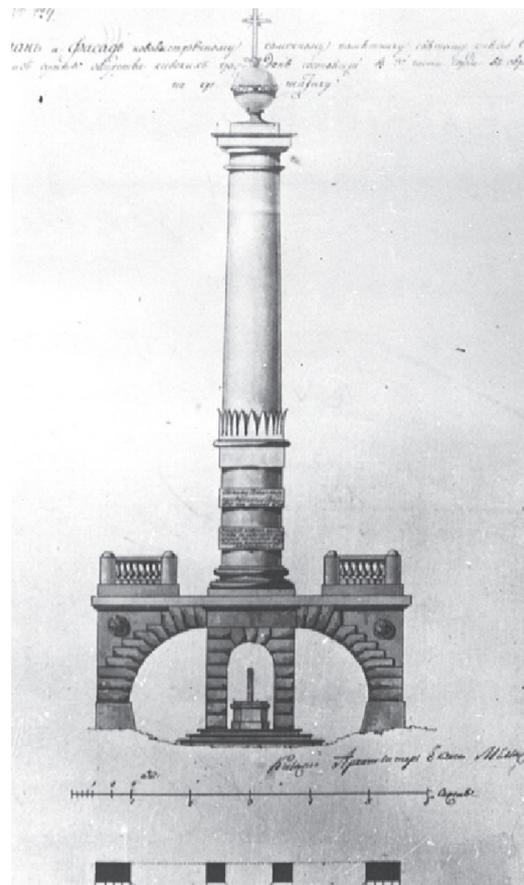


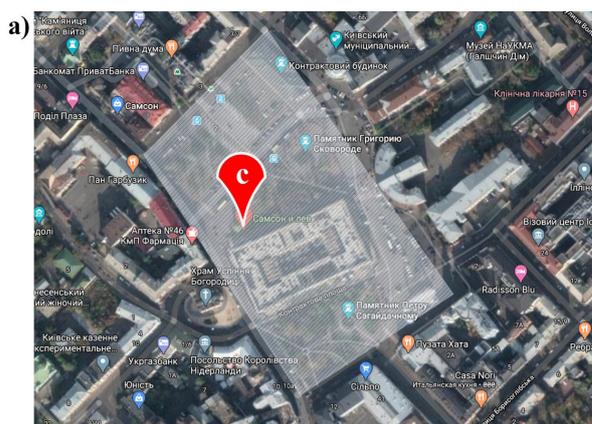
Fig. 1. Plan of the monument to Magdeburg Law and Vladimir the Great, author: architect A. Melensky, 1802 (photo from the study by M.A. Kadomska, 2009)

The monument is located on the banks of the Dnieper; the main styling of the monument is a pillar topped with a cross. On the monument, there are signs with the inscription: «Усердием киевского гражданства за утверждение прав древняя сея столицы Всероссийским императором Александром I. 1802 года, сентября 15 дня», «Святому Владимиру Просветителю России», architect A. Melensky (1802–1808). Both fountains were fed by high-quality water from the aquifer of Andriyivska Mountain. The water from the source was transported by gravity through the wooden pipes to a cistern (tank), a container that is designed to accumulate and regulate the water level, and from where it was supplied to the fountain. The volume of the tank provided:

- regulation of uneven water supply from the source;
- storage of intact water supply for firefighting;
- satisfaction of physical needs of the inhabitants of adjacent territories in water.

The fountain on Podil (Fig. 2 b), the place of the now famous fountain «Samson and the Lion» (Fig. 2 c and Fig. 3), was built by an architect, one of the founders of the Ukrainian Baroque I.G. Hryhorovych-Barsky, who received a professional education at the Kyiv-Mohyla Academy [25].

The construction of the first WS system in 1748, which transported water from the source to the fountain on Podil, and then to the fountain integrated into the monument to the Magdeburg Law, was the first independent work of the architect. The functions of the fountains were aimed at meeting the drinking, household and religious needs of the residents. The first fountain on Podil, which was built during the Baroque development of Eastern Ukraine, has not survived (Fig. 2 b). According to V.P. Shevchenko [30], at that time, according to the tradition of the European settlements, the fountain should be located on the square in front of the magistrate (Fig. 2 a, b and Fig. 3).



Kontraktova Square & fountain (formerly Alexandriiskaya), Kiev, Ukraine

Fountain „Felician” - now «Samson and the Lion», architect G. Grigorovich-Barsky, 1748



XVIII century

MULTIFUNCTIONAL URBAN SPACE (Square, other places of mass concentration of inhabitants)

Composition structure of the space: simplified, rich in contrast

Fountain, reservoir - water distributor, an element of the water supply engineering system of the settlement

Basic concept: preserving the memory of any historical event. The main goal according to the criteria of the life cycle (60 - 100 years):

- satisfaction of the physical and religious needs in water;
- storage of intact water supply.

The context of perception in space: still frame, assessment time: 5-13 sec; silhouette: unique; image - „Orientation” idea, connection of the physiological need for water with help by means of orientation. Based on historical (religious) traditions, implementation code: iconic, synthesis of art and engineering.



Fig. 2. Example of organizing space with a fountain (square)



Fig. 3. Fountain «Samson and the Lion», photo of 1886, album «Views of Kyiv», from the collection of the State Scientific Architectural and Construction Library named after V.G. Zabolotny, Kyiv, Ukraine

The building is called «Felician», in honor of the goddess Felicity (Blessed) and is made in the form of a sculpture - a goddess with a bowl in her hand, from which the water flows. The sculpture of the goddess was enclosed in the rotunda, which protected her from changing weather conditions (Fig. 2 b). The rotunda is crowned by a sculpture of the Apostle Andrew the First-Called with a cross in his hand, which, according to legend, foretold the glorious future of Kyiv [35]. At the beginning of the XIX century, instead of the lost sculpture of the goddess, a new wooden sculptural group «Samson and the Lion» was erected, which was restored at the end of the XX century (Fig. 2 c).

The practice of organizing multifunctional urban spaces (squares) with fountains, which are connected to the tank and intended for storage of fire-fighting water supply, is later used in many settlements of Ukraine (Lviv, Chernihiv, others). The structures are characterized by simplicity and lack of the need for constant maintenance during operation, in accordance with the criteria of the life cycle they are designed for a period equivalent to 60 - 100 years, while the main functions of the structure do not change over time.

With the development of capitalism in the second half of the XIX century, the social, economic and political structure of settlements of the country

changes, which affects the architectural and planning organization of the urban spaces. Population growth leads to increase in needs, an increase in the services provided, an increase in waste, and as a result, the ecological condition of the cities deteriorates.

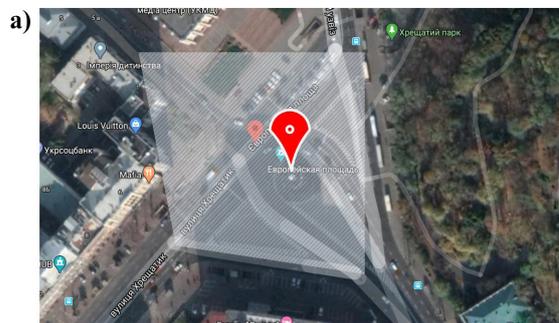
According to the studies by O.M. Donik [5], A.I. Krasyuk and G.F. Kyazymov [21], and in reliance on description of the Kyiv water supply system from 1910 [4], which was prepared by the Technical Department of the City Public Administration, we see that from about 1869 to 1915, thanks to the efforts of self-governing institutions and business initiatives, the development and organization of centralized WS engineering systems occurs in 33 settlements of the country. The disclosed factor contributes to the spread of fountains as water distributors, elements of the centralized WS engineering system in the settlements. The structures meet the water needs of the population and urban livestock and satisfy the cultural and aesthetic needs. Territorially, the fountains are organized at the intersections of streets, squares and in places of mass concentration of inhabitants (Fig. 4). To ensure the fastest spread of fountains, the attitude to structures changes, and structures are modified. The structures are created according to the developed prototype (model project). They are relatively easy to mount and move in the space. Similarly, when there are drawings (template) and knowledge of manufacturing technologies, if desired, a new production of structures is established in another settlement. A striking example of such structures are the cast-iron fountains by O. Termen (Fig. 4 b,c) [36].

The first structures were made and installed in Nizhny Novgorod (Russia), according to the notes on the fountain - in 1869 (Fig. 5), and designed by the architect O. Schile, who graduated from the Imperial Academy of Arts in St. Petersburg, and then advanced his education in Europe, in particular, in France. The second series of the fountains was cast at O. Termen Kyiv plant in 1899-1901 (Fig. 4 b and Fig. 6-7). The project was prepared by the order of the representatives of the Kyiv Water Supply Company to meet a purely utilitarian purpose. When designing the fountain, the French tradition of the time was followed. The structure has the features of the Empire style, the fountain shape is created by three bowls, which are installed one above the other. The water was pumped into the upper bowl, where under the action of gravity it fell into a larger, and then into a large bowl (structure catchment area). The smallest bowl in the structure refers to the larger bowl in terms of size as far as

the larger bowl refers to the size of the large bowl.

The base and the large bowl are decorated with lions' masks, from the mouths of which water streams fall. The conducted graphic analysis

demonstrated: the structure is based on the principle of the Golden Section, which improves the visual perception of the fountain and promotes a sense of beauty and harmony.



a) *European Square (formerly Royal)
Kiev, Ukraine*



b) *Fountain „Theremin”, Tsarskaya Square, architect
A. Schiele, 1899 - 1901*

*Fountain, "Nizhny Novgorod Fair",
architect A. Schiele, 1869
Nizhny Novgorod, Russia
(Photo from architect V.G. Krasnobaev, 2019)*

XIX century

MULTIFUNCTIONAL URBAN SPACE (Square, other places of mass concentration of inhabitants)

Composition structure of the space: simplified, rich in contrast

Fountain, reservoir - water distributor, an element of the water supply engineering system of the settlement

Basic concept: preserving the memory of any historical event. The main goal according to the criteria of the life cycle (60 - 100 years):

- satisfaction of the physical and religious needs in water;

- storage of intact water supply.

The context of perception in space: still frame, assessment time: 5-13 sec; silhouette: unique; image - "Orientation" idea, connection of the physiological need for water with help by means of orientation. Based on historical (religious) traditions, implementation code: iconic, synthesis of art and engineering.



Fig. 4. Example of organizing space with fountains (squares)

The spaces where the buildings were installed from the beginning, have changed over time, some of the fountains have been dismantled, moved and modernized. At present, most of the structures have survived. They are recognized as monuments of cultural heritage, which had stood the test of time, they perfectly complemented and complement any urban space (Fig. 7). In accordance with the criteria of the life cycle, the fountains are formed for up to 60 - 100 years, characterized by simplicity, but require regular maintenance during operation; the main functions of the structures have been transformed over time according to the needs of the society.



Fig. 5. Fragment of a fountain, architect O. Shile, 1869
«Nizhny Novgorod Fair»,
Nizhny Novgorod, Russia (photo by architect V.G.
Krasnobaev, made at the request of the authors of
the study, 2019)



Fig. 6. Fountain of Termen, architect O. Shile, 1899. Tsar's Garden, postcard from the album «Views of Kyiv», collection of the State Scientific Architectural and Construction Library named after V.G. Zabolotny, Kyiv, Ukraine

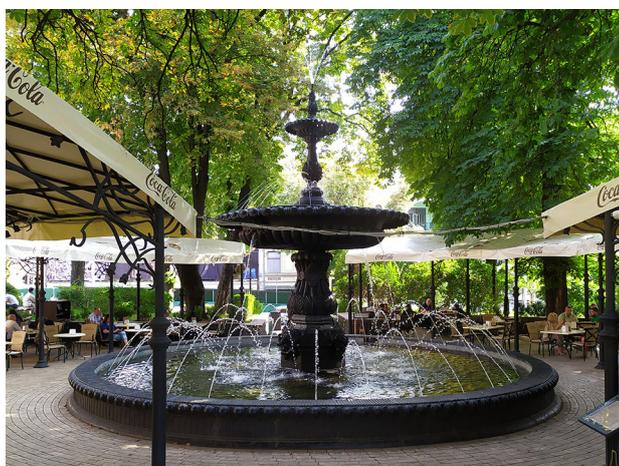


Fig. 7. Fountain of Termen, 2020, Yaroslaviv Val Street, 4, Kyiv, Ukraine (photo: O.G. Tserkovna)

In the middle of the XIX century, the problems of deterioration of the environment in settlements and increasing welfare of the urban population resulted in emergence of a new form of urban space, which, according to the study conducted by S.G. Buravchenko and K.O. Dzyuba [2], can be characterized by the scenarios of use as multifunctional universal public spaces (hereinafter referred to as the multifunctional urban spaces), i.e. the construction of parks and boulevards develops in the settlements of the country (Fig. 8). These factors contribute to the spread of fountains as artistic and aesthetic objects (elements) of urban and landscape architecture, which in turn increases the popularity of these spaces and improves the quality of their landscaping.

When organizing landscaping, a comprehensive approach was applied, which took into account the topographic conditions of the area, directions of the air flow, space characteristics

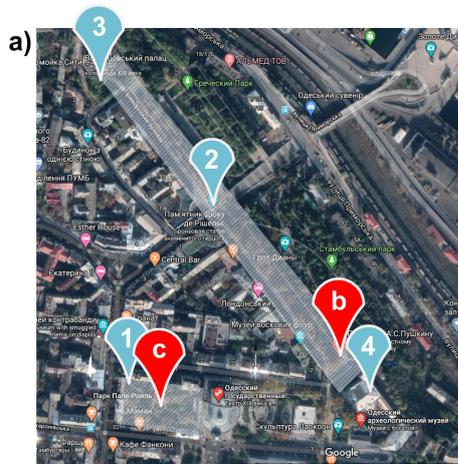
(density and number of stories of the buildings, height and shape of vegetation, material and color of surfaces, etc.), and all this was reflected in the local rules of development of certain settlement and calculated in each case individually for each situation, while being interconnected and integrated into a single system of the settlement. The interconnection of various factors in the organization of such a space is demonstrated in the study by O.G. Tserkovna [33]. Studying the architecture and content of the Palais Royal (Odessa) as a single complex object (now the square, which was organized by E.K. Vorontsova as a large yard with a garden, at the beginning of its existence - a parade ground, retail area; in 1841 - 1843, according to the project of architect G.I. Torricelli and under the guidance of C.O. Dalaqua, the Palais Royal merchants' rows were built), one arrives at the conclusion: the Palais Royal space (Fig. 8 a: 1 and Fig. 9) is designed for multilevel perception, in which the time, stylistic, symbolic and mythological layers are brought together [6-7, 11-12].

The stratum relevant to the topics of this study is the «Nymph» fountain (Fig. 8 c and Fig. 9). The initiator of the fountain was Duchess Ye.K. Vorontsova, one of the most educated women of her time, who is known for her charitable activities (for her charitable work, Ye.K. Vorontsova was awarded the Dame Lesser Cross Order of Saint Catherine in 1823 and Grand Cross Catherine's Ribbon 1850). The Duchess founded and managed the Odessa Women's Charitable Society for more than 20 years, financially helped and cared for the Odessa and Transcaucasian Institutes of Noble Girls, supported educational institutions and shelters for orphans, etc.). Admiring the talents of an extraordinary woman, O.S. Pushkin dedicated poems to her («Храни меня, мой талисман», «Талисман», «Ангел», «Желание славы», «Прощание», «Сожжённое письмо», others).

The «Nymph» fountain forms a round catchment area (Fig. 8 c and Fig. 9), in the center of the area there is a rock of crude stone, on top of the rock there is a bronze sculpture, which at that time depicted a girl under an umbrella (sculptor N. Stepanov). An ascending water stream (vertical stream) rose above the umbrella, which formed a «water curtain» when destroyed. The grand opening of the fountain (the second fountain at that time in the city, the first fountain in Odessa was opened on the square in front of the building of the Odessa Savior Transfiguration Cathedral) took place in 1873, after the launch of a centralized WS engineering system that transported water from the Dniester River. Suffering from vandalism, the

«Nymph» fountain has undergone many modifications, but to this day retains its functional-planning and architectural-compositional feature,

which makes it possible to get a general idea of the structure and interrelationship of the space with the fountain.



Palais Royal Garden and Primorsky Boulevard, Odessa, Ukraine

Fountain, monument to A.S. Pushkin, architect H. Vasiliev, sculptor J.A. Polonskaya, 1888 (photo: I. Sytnik, 2020)

XIX century

MULTIFUNCTIONAL UNIVERSAL PUBLIC SPACE (Boulevard, park or garden, square, other places of mass concentration of inhabitants)

Composition structure of space: complex, rhythmic

Fountain, monument - artistic and aesthetic object of urban architecture, the object of the settlement improvement system

The basic concept: storing the memory of any famous person.

The main goal according to the criteria of the life cycle (60 - 100 years): to ensure the popularization of space ("conditioning", creation of perceptual noise).

The context of perception in space: a circular detour with a possible entry into the form - the philosophical and spiritual need for water with interest and need in the course of reasoning. Based on cultural traditions, implementation code: mythological and poetic allegories, synthesis of arts and engineering.

volume, assessment time: up to 10 minutes, silhouette: unique; image - the "Interpretation" idea, a combination

Fountain "Nimfa", sculptor N. Stepanov, 1873



Fig. 8. Example of organizing spaces with a fountains (boulevard and garden)

The structure of the Palais Royal garden square (density and number of stories of the buildings, height and shape of vegetation) forms the atrium space, where the coefficient of sky view is reduced (increased closure of the horizon) and the natural ventilation of the space is limited. The «Nymph» fountain is the dominant of square of Palais Royal garden square [33], given the peculiarity of the composition and structure of the atrium space; during operation, the structure provides:

- mechanical movement of air flows;
- lowering the temperature and humidity of the air;
- reduction of heat load on vegetation and buildings located along the perimeter of the space;
- moistening of the upper layers of the soil;
- level of hydraulic noise, which contributes to the recreational activities of the visitors to the space.

The above restores the natural ventilation of the space and forms its positive climatic and acoustic characteristics.



Fig. 9. «Nymph» Fountain in the Palais Royal space, 2020, Katerynynska Str., 9, Odessa, Ukraine (photo by: I. Sytnik)

Let's explore the symbolic load of the artistic image of the structure. According to study by M. Protas [26], the Slavic and Greek nymphs «were prayed for happiness; sought answers of heavenly wisdom». The Greek and Slavic nymphs are chaste souls who have to languish for a while in the winter cold of matter until the Spring of Awakening comes and they blossom with divine beauty. Accordingly, the «nymph» is an idea, a symbol of the tree of the knowledge of good and evil. The symbolic definition of the «nymph» image indicates: the fountain is a structure that preserves the memory of Duchess Ye.K. Vorontsova. The above is confirmed by the words of a contemporary of the duchess, who is quoted in study by O. Ilchenko [10]: *«Она имела только одно служение — служение Богу, один долг — долг сердца и повиновалась одному голосу — голосу милосердия... Где стыдливая нищета конфузливо пряталась от глаз людских, — там отыскивал ее и являлся на помощь ей небесный ангел, называемый Елизавета Воронцова».*

Following the recommendations of L.P. Panov [24], in order to understand the systemacity of organization of urban spaces of that time, let's look at the situation more generally, from the standpoint of the formation of architectural ensembles with fountains. Let's analyze the architectural and planning organization of Prymorsky Boulevard (Odessa). Prymorsky Boulevard is one of the examples of urban space organization, where each element was adapted to the perception of parts and the whole, and which took into account: topographic conditions, air flow directions, characteristics of the urban situation (density and number of storeys of the structure, height and shape of vegetation, surface material and color, etc.). According to the studies by L.P. Latyshev and A.A. Latyshev [22], and N.M. Eksarev et al. [7], the architect F. Frapoli developed a proposal for the organization of the boulevard as a system of mutually flowing spaces. Later, architect F. Shawl et al., K. Potier further emphasized its aesthetic significance. In plan (Fig. 8), a wide boulevard is a regular rectangle, designed for pedestrian movement of visitors, which was located on a high plateau, above sea level. Architectural ensembles are erected from two ends of the rectangle: the Palace-residence of the Governor-General M.S. Vorontsov (Fig. 8 a: 3) with the classic Belvedere - a colonnade over the cliff and the Exchange Building (currently - the City Council Building), architect F. Boffo (Fig. 8 a: 4).

In front of the Exchange Building, the Birzhova Square (currently the Dumska Square) was organized (Fig. 10). Dominant of Dumska Square since 1889 is a fountain, a monument

to O.S. Pushkin (Fig. 8 b and Fig. 10), an object of monumental art, a monument of cultural and historical heritage.



Fig. 10. Dumska Square, 2020.
Odessa, Ukraine (photo by: I. Sytnyk)

The fountain, a monument, is a bronze bust of the poet, which is placed on a high square pedestal of granite; created by the architect H. Vasylyev and sculptor Zh.A. Polonsky; the pedestal is decorated by the architect Reutov, in consultation with academician Chyzhov; on the initiative of the public of Odessa. The inscription «А.С. Пушкину. Граждане Одессы» testifies to at whose expense the monument was created. The dates «1820 – 1824» on the band are the years of the poet's southern exile. The back side of the pedestal is decorated with the coat of arms of the city (Fig. 11), on the front side there is a stylized harp with three strings (Fig. 8 b). On the border facing the sea, the inscription was already erased by the time: *«Сооружен одесским Славянским обществом имени св. Кирила и Мефодия, Императорским новороссийским университетом, Одесской городской управой и Одесским обществом изящных искусств по проекту архитектора Х. Васильева».*

According to the studies by L. Artemenko [1], N. Eksarev et al [7], A.O. Kadurin [11-12], L.P. Latyshev and A.A. Latyshev [22], O.G. Tserkovna and A.O. Voronin [35], let's analyze the symbolic and allegorical message of the monument. The fountain, a monument to O.S. Pushkin, is an architectural analogue of a kind of poetry, a kind of a lyrical work such as martyrological lyrics. The martyrological lyric poetry is a poetic text dedicated to the memory of a deceased artist; in its genre type it is akin to epitaph. The composition of the fountain (poetic text) is constructed in the form of a monologue-appeal. Four stylized dolphins, located at the corners of the pedestal, drop the fans of the descending jets into four cast-iron round bowls like a iambic tetrameter in the poem by O.S. Pushkin *«Храни меня мой талисман»*, which was dedicated to Duchess Ye.K. Vorontsova and was written during the poet's stay in Odessa. Means

of expression of the allegory «*сладостно шумят таврические волны*», «*когда поднимет океан вокруг меня валы ревучи*», the dolphins with fans of descending streams, the allegory of «*души волшебное светило*» is a mascot, the image symbol of Ye.K. Vorontsova, which is reflected by a crystal glass pentagonal inverted red star, which was fixed at the base of the bust - the image of a harp with three strings, and the radiance of the star was enhanced by a light bulb. The harp with three strings is a story of how O.S. Pushkin and Ye.K. Vorontsova met at the first city theater, three strings are three years of their friendship in Odessa. The poet applies similar allegories in other poems that were dedicated to the duchess and written during the poet's stay in Odessa. The bowls symbolize spiritual enlightenment and knowledge, expiation and immortality for the young poet and the extraordinary woman.



Fig. 11. Fountain, a monument to O.S. Pushkin, 2021.
Dumska Square, Odessa, Ukraine
(photo by: Yu. Pliss)

Fountain, a monument is a cultural tradition that has been combined with the achievements of the scientific progress. The structure was created as a synthesis of urban planning, architecture, engineering of water surface formation (water architecture) and engineering of light, and the sculpture with a lyrical work – a poetry. It performs certain utilitarian functions (air conditioning, passive cooling and humidification of the space, reducing the heat load on buildings and vegetation, creating a «perceptual» noise), adjusting the necessary characteristics of urban space: climatic and acoustic. The synthesis of urban planning, architecture, water, light, sculpture and poetry separates the structure in the surrounding urban space and ensures the main task for which the structure is created: preserves the memory of an event that is associated with the lives of famous people. The main functions of the structure have

been partially transformed over time; the fountain is a brand - the object of attraction of tourist destinations, increases the importance of the space in the settlement structure. According to the criteria of the life cycle, the fountain, the monument is formed for a period that can be equated to 60-100 years.

In parallel with the development of centralized WS engineering systems of settlements, in Ukraine there is a development of the garden art. Thanks to the studies conducted by M.M. Grysyuk [8], G.A. Kosarevsky [13-14], R.O. Kosarevska [15-19], Kosenko et al. [20], V.Ya. Malanyuk [23], O.I. Khorosha [9] and L.S. Shevchenko [31], let's trace the emergence of fountains as works of the garden art.

According to a study by R.O. Kosarevska [19], the objects of the garden art, which were created in Ukraine in the second half of the XVIII-early XIX centuries, were monumental paintings, works of the garden art (Fig. 12 b,c and Fig. 12- 17).

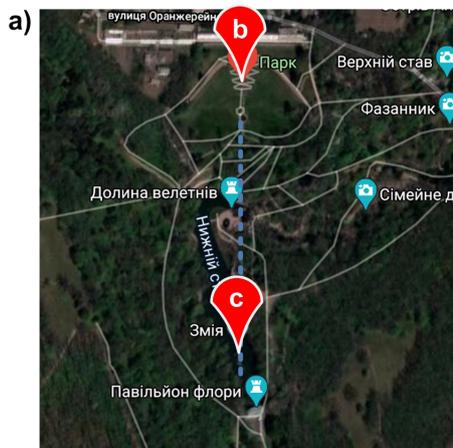
The composition idea was the basis of all measures to transform the landscape. The creators of the monumental paintings with extreme completeness reproduce the harmony of the natural landscape in the compositions, planning is solved with its maximum preservation, the architectural objects play a subordinate role in the overall composition, enhancing the natural properties and benefits of the landscape. Each architectural and landscape object (element) of the park ensemble was not only an integral part of a certain highly artistic picture of nature, but also a symbol that created its artistic image [8, 13-15, 17-19]. The garden art becomes a synthesis of painting, gardening, architecture, sculpture, poetry and music.

According to the studies by G.A. Kosarevsky [13-14]; R.O. Kosarevska [19] and I.S. Kosenko et al. [20], one can confidently say that the founder of the historical tradition of organizing the park ensemble as a monumental painting, a work of landscape art, and the author of the artistic image of the National Dendrological Park Ensemble «Sofiyivka», was Count S. Szczyński Potocki (1796) (Fig. 12 a). The original semiotic model of the park ensemble illustrated certain parts of Homer's Odyssey. The space of the ensemble invited visitors to go on a journey through «time», transforming into a spiritual and philosophical adventure. The adventure was an original combination of the historical facts of human civilization and the mythological world of the gods (personification of ideal power), where images of gods served as explanatory codes for the allegory of the text and

outlined the route of the «projected» scenario, which was built in strict rhythm and assessed by dozens of minutes [35].

The main compositional axis of the park ensemble is the natural bed of Kamyanka river. Along the river, owing to the organization of a

system of dams, four artificial reservoirs were created to accumulate and store the necessary water supply. Under the action of gravitation force, the water from reservoirs is transported by gravity by a centralized WS engineering system to the fountains due to the difference in levels (22 m).



National Dendrological park, author: Graf S. Shensky Pototsky, 1796

XVIII – XIX century

RECREATIONAL SPACE (Park or garden)

Composition structure of the space: complex, multilevel

Fountain, monumental painting - artistic and aesthetic object of landscape architecture, an element of a park or garden complex

Basic concept: «restoration» in the memory of any known historical event or event in the life of a famous person.

The main goal according to the criteria of the life cycle (60 - 100 years): to ensure the promotion of space.

The context of perception in space: panoramic, with step-by-step immersion in the form - volume, assessment time: up to 10 minutes; silhouette: dynamic; image - «Intuition» idea, a combination of a set of feelings (interest, need for spiritual and philosophical adventure, return to the nature). Based on cultural traditions, implementation code: allegories (mythical and poetic), synthesis of arts and engineering.



„Semistream” Fountain

„Snake” Fountain

Fig. 12. Example of organizing space with a fountain (dendrological park)

One such fountain is the «Semistream» fountain (Fig. 12 b). The structure is created on the plot of the ancient Greek tragedy «Seven against Thebes» (Greek: *ἑπτὰ ἐπὶ Θήβας*) and is dedicated to the fratricidal war between the sons of Oedipus (king of Thebes) Eteocles and Polyneices. Seven ascending streams in the structure symbolize the seven killed heroes who went on a campaign against Thebes. The peculiarity of the architectural and planning organization of the park space where the fountain is located is similar to the organization of the space of the ancient theater, on the stage of which the plot unfolds through “time and space”.

The «Snake» fountain (Fig. 12 c and Fig. 13) is located in a natural reservoir of the park ensemble. The shape of the structure is created by a bronze sculpture, which is located above the water surface, made in the form of a snake rolled into a «ring», the water architecture is formed by a

water stream, an ascending stream that rises from the open mouth of the snake by about 15 m. In the course of operation, the structure provides water aeration which improves the living condition of the reservoir.

The organization of the WS engineering system of the park ensemble, stone and rock objects and landscape plantings was carried out under the direction of the military engineer L. Metzel and garden master Oliva. Each fountain is created as an independent work, which plays a subordinate role in the overall composition of the park ensemble. According to the criteria of the life cycle, the structures are formed for an “indefinite” period, and the main functions of the structures do not change over time. The fountains requiring regular maintenance are characterized by ease of operation.

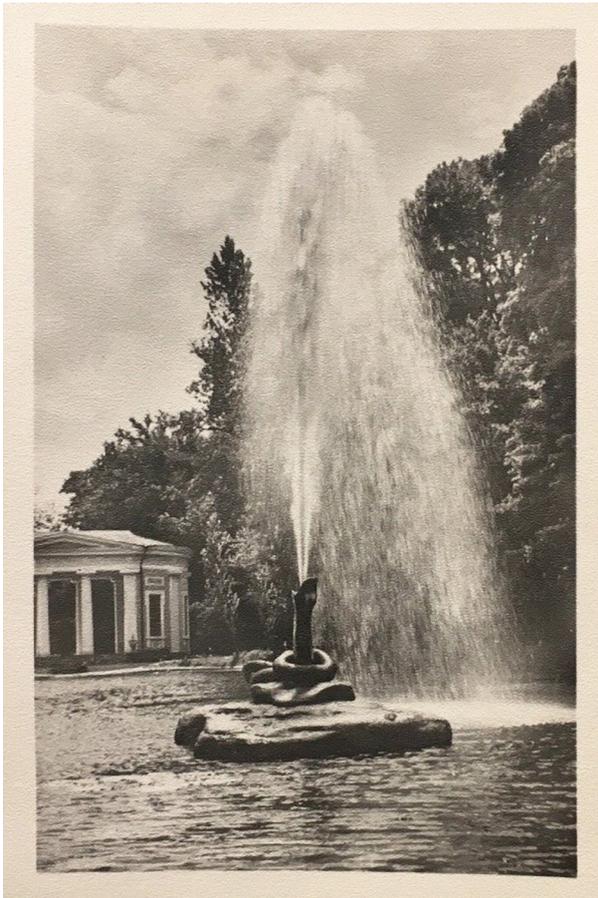


Fig. 13. «Snake» fountain, Dendrological park «Sofiyivka», Uman. Ukraine (Postcard published by Ukrreklamfilm, 1962)

The water bodies were an important formation component in the organization of spaces in homestead parks and in the organization of palace and park complexes of Kyiv, Poltava, Galicia, Kharkiv, Vinnytsia, Odessa and others. Organization of spaces in homestead parks and palace and park complexes in the XVIII-XIX centuries was based on examples of world-famous works of architecture, and today occupies a prominent place in the list of cultural heritage of Ukraine.

The functional combination of the architectural environment of the homestead or palace with the space of the park was planned by the owner both for convenience and sophistication, and for pleasure and creative rest. Panoramic perception of space was designed for months and years, interest in space was based on "unpredictability, diversity, dependence of images on the season". To perform this task, the park facade of the main building of the homestead or palace was deployed to the water surface (Fig. 14-15).

The degree of interconnection of the reservoirs and the architectural complex of the homestead or palace was based on the compositional

unity of the main components: the main building, natural and artificial reservoirs, park (garden), farmery, ancillary, and religious structures, which were combined by visual and functional connections. When placing the fountain, the directions of air flow were taken into account in order to ensure the external cooling of the homestead or palace building.



Fig. 14. Fountain in front of Building No. 4, Sanatorium named after V.P. Chkalov, 2020 (former homestead of the governor of Odessa, patron, founder of the School of Gardeners G.G. Marazli), architect V.F. Gonsiorovsky, 1880. Frantsuzky Boulevard, 85, Odessa, Ukraine (photo by: O.G. Tserkovna)



Fig. 15. Fountain in front of the building of the former country residence of Count de Richelieu, Count Chiron, Duke de Fronsac, 1810. Dyukovsky Park, 2021, Rozkydaylivska street, 56, Odessa, Ukraine (photo by: O.G. Tserkovna)

According to V.Ya. Malanyuk [23], O.I. Khorosha [9] and L.S. Shevchenko [31], the are typical for the organization of spaces in homestead parks, and in the organization of palace and park complexes (Fig. 16-17):

- natural and artificial reservoirs with a large surface area of water, which aesthetically saturate the space, reflecting in the mirror surface the beauty of coastal landscapes;
- horizontal water flows with low flow velocity to emphasize the tortuosity of the landforms.



Fig. 16. Fragment of an artificial reservoir, Dyukovsky Park, 2020 (former country residence of Count de Richelieu), Rozkydaylivska Street, 56, Odessa, Ukraine (photo by: O.G. Tserkovna)

Arranged interaction of the reservoirs and horizontal water flows contributed to the natural return of water to the aquifers of the parks and eliminated the drying of the upper soil layers during the hot period of the year. There are two main trends in the location of reservoirs relative to the main composition elements of the complexes: on the main composition axis; on the secondary composition axis. The effect of a calm water mirror was enhanced by specific elements such as peninsulas and islands, which were a kind of composition accents and expanded the aesthetic and decorative qualities of the park environment (Fig. 17). Having traced the emergence of spaces with fountains in the settlements of the country, where the structures were the water distributors, elements of centralized water supply of settlements from the beginning and then spread as objects of improvement, artistic and aesthetic elements of urban architecture and pieces of garden art, aesthetic elements of landscape architecture, let's break.

Continuation of the study will follow. In the second part of the study we will move to the XX century, the era of the global socio-political cataclysms, revolutionary discoveries in science and technology, active invasion of a huge array of the latest information in human consciousness and a huge number of historical events that affect settlements, including the development of fountains in space.



August, 2020



August, 2021

Fig. 17. Fragment of an artificial reservoir with a peninsula, Dyukovsky Park, 2021 (former country residence of Count de Richelieu), Rozkydaylivska Street, 56, Odessa, Ukraine (photo by: O.G. Tserkovna)

CONCLUSION

Having combined the results of the conducted study with the previous ones, we can draw preliminary conclusions: in Ukraine, historically, there is a tradition of forming fountains in space as a synthesis of arts and engineering, the result of creative work of leading builders, architects, sculptors and engineers. The initiators of the organization of spaces with fountains are outstanding people (patrons) of their time, i.e. the structures are the result of interaction between the bearers of linguistic, cultural and spiritual traditions of the Ukrainian people. The main task of fountains is to separate space from many others by some means or another; most fountains preserve the memory of any historical event or event that is related to the lives of famous people.

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АНОТАЦІЯ

Церковна О.Г., Вороніна А.О. Досвід організації просторів з фонтанами у населених пунктах України (Частина 1). Серед країн Європи — Україна відзначається досить великою кількістю фонтанів, які є об'єктами монументального мистецтва, пам'ятками культурної та історичної спадщини. Мета даної публікації: узагальнити досвід організації просторів з фонтанами, дослідити розвиток фонтанів як художньо-естетичних об'єктів міської і ландшафтної архітектури. Фонтани розглядаються як невід'ємна складова історико-архітектурної спадщини населених пунктів країни, що пов'язана з видатними історичними подіями та життям відомих людей. Простеживши історичні передумови появи просторів з фонтанами, розглянуті обставини, які сприяли розвитку наук на Україні і появі перших фонтанів — як синтезу мистецтва і інженерії, елементів централізованої системи водопостачання населеного пункту.

Досліджено вплив політичних, економічних і екологічних обставин і культурних потреб суспільства на зміни в організації просторів з фонтанами, де споруди — з розподільників води, які задовольняли питні, побутові та релігійні потреби — змінив початкові функції, трансформуються у об'єкти благоустрою, художньо-естетичні елементи міської архітектури і твори садово-паркового мистецтва, художньо-естетичні елементи ландшафтної архітектури.

У даній публікації представлена перша частина дослідження, яка охоплює період XVIII - XIX ст.

Ключові слова: фонтани, міські простори, досвід організації, міська архітектура, ландшафтна архітектура, складова історико-архітектурної спадщини, культурна спадщина України

ВІДОМОСТІ ПРО АВТОРІВ:

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Сфера наукових інтересів: сталий розвиток населених пунктів у часі (сценарії туристичних потоків, екологічний менеджмент просторів, психологічне оздоровлення відвідувачів територій); принципи архітектурно-планувальної організації міських просторів з фонтанами.

АННОТАЦИЯ

Церковная О.Г., Воронина А.А. Опыт организации пространств с фонтанами в населенных пунктах Украины (Часть 1). Среди стран Европы — Украина отличается достаточно большим количеством фонтанов, которые являются объектами монументального искусства, памятниками культурного и исторического наследия. Цель данной публикации: обобщить опыт организации пространств с фонтанами, исследовать развитие фонтанов как художественно-эстетических объектов городской и ландшафтной архитектуры. Фонтаны рассматриваются как неотъемлемая составляющая историко-архитектурного наследия населенных пунктов страны, которая связана со значительными событиями и жизнью выдающихся людей.

Проследив исторические предпосылки появления пространств с фонтанами, рассмотрены обстоятельства, которые способствовали развитию наук на Украине и появлению первых фонтанов — как синтеза искусства и инженерии, элементов централизованной системы водоснабжения населенного пункта. Исследовано влияние политических, экономических и экологических обстоятельств и культурных потребностей общества на изменения в организации пространств с фонтанами, где сооружения — от распределителей воды, которые удовлетворяли питьевые, бытовые и религиозные потребности — изменив первоначальные функции, трансформируются в объекты благоустройства, художественно-эстетические элементы городской архитектуры и произведения садово-паркового искусства, художественно-эстетические элементы ландшафтной архитектуры. В данной публикации представлена первая часть исследования, которая охватывает период XVIII - XIX вв.

Ключевые слова: фонтаны, городские пространства, опыт организации, городская архитектура, ландшафтная архитектура, составляющая историко-архитектурного наследия, культурное наследие Украины.

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Сфера наукових досліджень та наукові інтереси: проектування міського середовища; формування та організація міських просторів.

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