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**PROFESSOR ANDRIY RUDNYTSKYI AND HIS IMPACT  
ON FORMING THE LVIV'S ARCHITECTURAL ENVIRONMENT  
OF THE SECOND HALF OF THE 20<sup>th</sup> CENTURY**

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**Abstract.** The article deals with Professor Andriy Rudnytsky's activity in the areas of architectural science, his creative work and education. The characteristic features of his personality are studied in the context of socio-cultural background. On the background of historical circumstances his influence on forming the Lviv's architectural environment as well as on preserving its historical development, on developing the architectural school in Lviv, and eventually – on the modern European status of Lviv is analyzed.

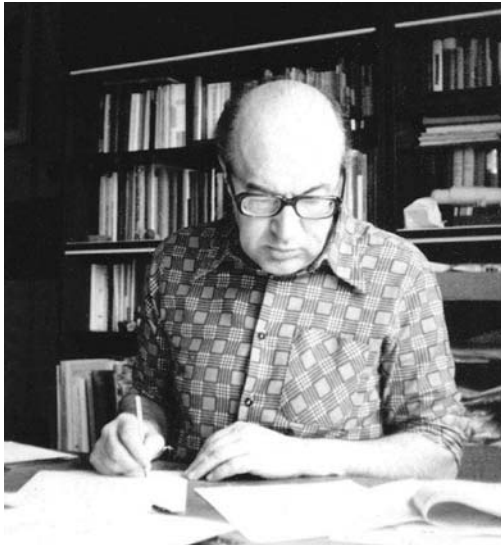
**Key words:** architecture, Lviv, Professor Andriy Rudnytskyi, urban environment, architectural school.

## **1. Introduction**

Professor Andriy Rudnytskyi (Fig. 1) was destined to become one of the key figures in forming the architectural environment of Lviv and the Lviv architectural school in the twentieth century. He was born in Lviv on December 4, 1928 to the family of a clerk – an employee of the Ukrainian institution *People's Trade*. Before the war, he studied at the Ukrainian primary school of Basilian Sisters, and then at the First Ukrainian Gymnasium in Leona Sapiehy Street, which is still there (now Stepana Bandery Street). In 1946, he entered the Lviv Polytechnic Institute (now Lviv Polytechnic National University) to major in architecture. In 1951, he graduated from the Institute with honors and obtained an Engineering Degree (Architecture). In 1951–1954, he was a postgraduate student under the supervision of Professor Ivan Bagenskyi. In 1955, he defended his PhD thesis at Lviv Polytechnic and was awarded a Candidate Degree in Architecture. Since 1954 he had worked as a lecturer at the Department of Architecture which was the main department of architectural specialty which belonged to the Faculty of Engineering and Construction of Lviv Polytechnic. In 1957, Andriy Rudnytskyi became an Associate Professor of the Department of Architecture, and in two years later he was awarded the academic title of an Associate Professor. In 1967–1971, he was the Head of the Department. In 1971, after the Faculty of Architecture was restored, he set up a new department, the Department of Urban Planning, and was in charge of it until 1982. In 1977–1991, for 15 years, he held the position of the Dean of the Faculty of Architecture at Lviv Polytechnic. In 1992, he initiated a new department, the Department of Reconstruction and Restoration of Architectural Complexes, which he headed until 2002.

In 1989, in Petersburg (former Leningrad) Andriy Rudnytsky defended his doctoral thesis *Architectural and Urban Aspects of the Issue of Urban Management* and obtained a Doctoral Degree in Architecture. In 1991, he was awarded the academic title of Professor. In February 1992, he was elected as a full member of the Ukrainian Academy of Architecture; in March 2002 – full member of the T. Shevchenko Scientific Society. In 2004, by the decree of the President of Ukraine, Professor Rudnytsky was awarded the honorary title of

“Honored Worker of National Education of Ukraine”. In November 2008, Andriy Rudnytskyi was awarded the title of “Honorary Professor of National University “Lviv Polytechnic”. He passed away on August 26, 2009, being a Professor at the Department of Urban Planning.



**Fig. 1.** Andriy Rudnytskyi working at home, 1969;  
photo from the authors' archive



**Fig. 2.** Viewing student's works, 1980s;  
photo from the authors' archive

The factual material of the biography of Andriy Rudnytskyi does not represent a complete list of the main stages of his development, just the most significant professional and scientific achievements. The name of this person is associated with the Lviv architectural school, which not only survived in the conditions of the totalitarian Soviet “equalization” but also managed to preserve its unique tradition. The architectural school of Lviv was the subject of scientific research in numerous studies. In the circles of architectural education of the 1960s–80s, it deserved the same respect as the architectural schools of the Baltic republics, Moscow, Leningrad, Kazan, and Tbilisi, which in the architectural field of the former USSR were considered to be generators of new and creative ideas. For example, in the article on results of the contest for the best diploma projects in the field of architecture, held in 1978 in the city of Tallinn, with the participation of 247 projects from 44 architectural institutions of the USSR, we find:

*The most significant success in this review was achieved by graduates from the Moscow and Leningrad institutes, institutes of Frunze, Tallinn, Vilnius, Riga, Samarkand, Lviv, Baku, Yerevan, Tbilisi.* (Belousov, 1978, p.5)

The purpose of this article is to study the influence of characteristics of a person on the development of vocational education and its qualitative features within the single university, and also it focuses on the formation of the city's architectural environment in a long perspective.

## 2. Basic Theory Part

It is known that a personality is predominantly formed back in the childhood while socializing with relatives and the surroundings.

*The history of a society is defined as a set of processes and events that have taken place for centuries and as a set of activities and actions of certain individuals, groups and specific families.* (Rudnytskyi, 2005, p. 7)

Both father and mother of Andriy Rudnytskyi were descendants of Greek Catholic priests (Rudnytska-Khudyk, 2008, p. 187–218). And although they had regular occupations, they continued to live according to the principles adopted in the families they came from. At the core of these principles there was a deep pro-Ukrainian, public, we would now say, and state mode of thinking. It means that the protection and promotion of Ukrainian interests and the Ukrainian community was their primary concern (Kachmar, 2006). Andriy Rudnytskyi wrote: *Historically, in Ukraine, and especially in its western part, it was Ukrainian priestly families that became the foundation, the main backbone of the formation of the Ukrainian elite* (Rudnytskyi, 2005, p. 7).

The priests were the main initiators of the *Prosvita* organization in Ukrainian villages, primary schools, folk libraries, theater clubs, trade co-operatives. All these factors contributed to the formation of conscious and financially independent Ukrainian peasantry. Their work for the society was caused by their own conscious desire and deep conviction that “if not me – who else?” They did not expect any personal financial benefits, but instead they donated their money, books, medicine for a good reason – everything their parishioners needed (Arsenytych, 2003, p. 10–21). Profound education, which Andriy Rudnytskyi managed to get in the Ukrainian gymnasium before the war, as well as communication with friends contributed much to this attitude to life.

Let us consider how the moral qualities gained by Andriy Rudnytskyi in his childhood influenced his life, and how it effected the process of development of Lviv architectural school.

First of all, it should be mentioned that in the post-war years at the Department of Architecture of Lviv Polytechnic there were two people whose survival at that time was rather an exception than a general rule, and the result of the incredible coincidence of various circumstances.

One of those exceptional coincidences is associated with Andriy Rudnytskyi. After the war, his family, due to a number of objective circumstances stayed in Lviv and did not emigrate like most of their relatives and friends. Preconditions and circumstances of the forced emigration of the Ukrainian elite are described in detail in the book by Lyudmila Kachmar (2006, p. 141–158). It was, in fact, a choice between life and death for themselves and their closest. In 1944, the Andriy Rudnytsky's family also moved to the west – to town Krynycza, and then to Vienna via Slovakia which was captured by uprisings. But, by chance, at the end of the war, they were in the Soviet occupation zone, and because of their father's severe illness, they decided to return to Lviv.

The second exception to the rule is connected with the name of Professor Ivan Bagenskyi. In 1945, with the arrival of the Soviet authorities in Lviv almost all academic staff of Lviv Polytechnic left for higher educational institutions in Krakow, Gliwice, Wroclaw and Gdańsk (Poplawski, 1992, p. 298). Yet, Professor Ivan Bagenskyi stayed to work at the Faculty of Architecture of Lviv Polytechnic. On the one hand, he had relatively more chances to work in the new Soviet conditions, since he used to live in Russia for some time and knew the Russian language and customs. On the other hand, he had some personal reasons. As a result, the pre-war Professor who knew well how to properly teach the art of architectural, went on teaching in his favourite city of Lviv.

These two non-standard personalities met each other in 1946. Andriy Rudnytskyi started to major in architecture at the Lviv Polytechnic Institute where he met Professor Ivan Bagenskyi, who at that time headed the Department of Architecture. Andriy became his favourite student, and later – a post-graduate student and a colleague. Andriy Rudnytskyi was a grateful person and a grateful student. And after the death of Professor Ivan Bagensky, he shared the best memories of him only in a positive manner. During the numerous journeys to Krakow or Vienna together with the author of this article, in long conversations and discussions about different attitudes to life, he never once critically spoke about Professor Bagenskyi. Although, as you know, there are no absolutely ideal people in the world, and Ivan Bagenskyi, obviously, was not an exception. However, Andriy Rudnytsky saw him as a bridge from the past to the present – the pre-war period, then the Soviet period and independent Ukraine, and always emphasized the importance of traditions for an architectural school. Only after with the gained experience of life one can appreciate the most precious quality of a human character – to be a grateful person. It is, unfortunately, not often the case which we can see in the relations between the follower and their teachers. In the course of interaction, Ivan Bagenskyi unintentionally spoke favourably about his colleagues, their rich pedagogical and creative experience, their vision of professional priorities, which Lviv architectural community experienced before the war. It was Andriy Rudnytskyi who could understand him most as he was sincerely in love with his hometown where he had his roots, and obtained although incomplete but pre-war classical gymnasium education thus being fluent in Polish and German. It was essentially a meeting of two survived passengers of a sunken cruise ship on an island. Everyone kept in his imagination the picture of that other, former life, and together they tried to save it, and maybe, to revive again in new realities.

It is precisely because of this coincidence that in the Soviet period, architectural education in Lviv Polytechnic was not started “from scratch” (as probably ideologists of communism dreamed of), but continued its pre-war traditions.

In architectural creative activities the ideological factor plays an important role. The environment affects people not only physically but also psychologically. Therefore, it is the role of architectural education that the ideas and philosophy of the architect, his understanding of the needs and comfort of future consumers are of great importance contrary to, for example, teaching exact engineering sciences. In Lviv, an attempt was taken to

apply the pre-war conception of architectural tasks into the Soviet context. That might be the reason why the projects of Lviv students differed considerably on the background of other Ukrainian universities, especially in the first post-war decades.

Under the professional and scientific supervision by Professor Ivan Bagenskyi, Andriy Rudnytskyi defended his Ph.D. thesis on the *Architecture of the Regional Agricultural Exhibition* and started his pedagogical activity. But his scientific and architectural interests were much wider than the thematic framework of the defended research. At that time, his presentations and publications were striking in their range. He was looking for topical issues that needed to be solved. He was guided by scientific passion, and not the consumer's needs. For example, in order to make the life of designers easier, he developed a new method to calculate insolation on premises using graphs; and in 1957–58, he published an articles on this topic (Rudnytsky, 1957). This task he considered was finished and he never returned to physics of construction any more. In further scientific publications, this method was named *Rudnytsky's method* and was highly applied in project practice. Dozens of years later, at a scientific conference, one of the young participants learned that the person presenting the speech was the same Rudnytskyi who developed graphs for calculating insolation, and was deeply impressed: he thought that the author had not been alive for a long and those graphs were “a swan song of his” and the result of all his life. It was a common thing for Prof. Rudnytsyi to develop a new method or approach, test it and apply, and then share it generously with his students, postgraduates and colleagues. He devoted his best years to studying the history of urban development in the lands of Galicia, prepared his doctoral thesis on the topic *Development of Urban Planning in the Territory of the Western Oblasts of the UkrSSR* consisting of three volumes. It was the result of his personal field research, travelling, local site trips, his analysis of bibliographic resources. But it turned out that such a historical, moreover Ukrainian, theme was ideologically inappropriate for Soviet realities, and the research was not allowed to defend. Then he redeveloped his research in another, at that time more relevant aspect – management of the urban environment. This field together with the problem of solution of transport system in the city were always a deep concern to him (Fig. 3, *b*). The monograph (Fig. 3, *c*) on the theme of his doctoral thesis *Management of the Urban Environment* (Rudnytskyi, 1985) obtained positive reviews of the contemporary architectural scientific elite and, in 1987, he was awarded a diploma from the Ministry of Education of the USSR. In 1988, the research was completed by the successful defense of the doctoral thesis at the Specialized Academic Board of the Leningrad Engineering and Construction Institute (which, by the way, is the successor to the famous Institute of Civil Engineering, which has trained many eminent architects for Ukraine) in Leningrad (modern St. Petersburg). When the scientific aspect of the research was being discussed, Andrei Rudnytsky was fully supported by the established scholars from different parts of the USSR – Leningrad, Moscow, Vilnius, Minsk, Tbilisi, and other cities. High and positive opinion of the scholar level of Andriy Rudnytskyi's works was often expressed by Professor Zoe Yargina, the scientific supervisor of the author of this article. In those days, she was a Head Deputy of the High Assessment Committee on Science of the USSR and had reasonable grounds to express it.



**Fig. 3.** From left to right: *Development of the Cities of the Western Oblasts of the Ukrainian SSR and their Socialist Reconstruction* (Rudnytskyi, 1971); *Transport in Urban Planning* (Rudnytskyi, 1976); the monograph *Management of the Urban Environment* (Rudnytskyi, 1985); photo by B. Cherkes

Andriy Rudnytskyi was a self-sufficient person, he tried to be independent in his actions, was solving problems as they were arising and was convinced that "What man has done man can do". When building his own small house, he was an electrician, a stove-maker, and a concrete worker. In the conditions of the total Soviet deficit, he himself made the first pieces of furniture for the housewarming party using plywood and the remains of some boards. Having learned by himself the way how smoke channels work, he laid three brick stoves that function till this day, and the foundation he made "how it is written in the book" (as he loved to repeat) appeared to be so strong that later, while a cable wire had to be laid, even a jackhammer couldn't "cope" with it. Andriy Rudnytskyi applied the same principle "take and do" in his professional activities as well.

All unpleasant situations can be treated in different ways. One can grumble, complain about the whole world and get locked up in one's own insulted pride. Yet, there is another way: you can act by the principle "if something cannot be avoided, you must lead the process and direct it in the right way", and mobilize all available means to improve the situation. This second attitude is about Andriy Rudnytskyi's life position.

Significant results in professional activities are achieved by many people. But only some of them turn out to be the true support and drive for development of industry they work at in the long run. Motivation is mainly the most important factor here: either a person is guided by his personal interests and ambitions, or the goal is common welfare, a common cause.

Andriy Rudnytskyi spent most of his professional life holding high positions at different levels of management. He was the Head of the Department, the Dean of the Faculty, the Chairman of the Specialized Academic Board, the Head of the Lviv branch of the Union of Architects, the Head of the Architectural Section of the Shevchenko Scientific Society, he also headed various commissions, delegations, committees, scientific events, etc. But he only once or twice lost his temper – raised his voice to someone – and even not it has been mentioned as a kind of extraordinary event. He did not like to give orders, to use other people for reaching his goals. He tried to do everything himself, during his "free time", which was never left for himself, for the family. He did it because he cared for the result and knew that no one better than he would develop a curriculum or make a programme for a conference. Since he had great responsibility in making most to preserve the traditions of architectural education in Lviv, he wished to leave them to the descendants unchanged as he had managed to take them from Prof. Bagenskyi. Such careful attitude to the matter of his concern might have been caused by his family life principles. In recent decades, it turned out to be a gradual change in perceiving the civic responsibilities by the majority of the society. It was like different periods in mental treatment of the reality. The first one was the period when people who lived in pre-war Ukrainian conditions or Soviet ones had an unselfish attitude in their work for the society (Andriy Rudnytskyi, among others, belonged to that category). The second period was characterized by the economic conditions of the 80's and 90's when people were influenced by social changes, both economic and mental. At that time, many so called "patriots" tried by all means to move abroad, or, at least, send their children there and, by the force of circumstances, ceased to identify themselves with Ukraine. Thus, at the end of the 20th century, unpaid selfless work gradually lost its meaning. Distinctive and objectively determined process of shifting the main accents of motivation towards the personal financial interest has appeared in business fields.

Participants in various scientific events organized at the Faculty of Architecture under the supervision of Andriy Rudnytskyi always noted that everything worked smoothly, without any delays, emergencies and unpleasant surprises. The organization of the All-Union Review-Contest of Diploma Projects, which took place in Lviv in 1977, received unequivocal approval among the representatives of the architectural schools of the former USSR. This was a logical consequence of the long and thorough preparation. The status of events in no way affected the diligence and attention devoted to their preparations. The students-architects who graduated in 1980 still recollect with pleasure the cognitive pedestrian local lore tour of the Kremenets mountains, organized by Andriy Rudnytskyi (at that time Head of the Department of Urban Planning) and made together with him during their practical training on painting. Each day was well thought out beforehand, scheduled hour by hour, filled with interesting information. The practical training appeared to be intense and interesting, and impressions have survived for many decades.

Andriy Rudnytskyi was a very educated and intelligent person. Having received a high quality education in the gymnasium, in future, he was constantly eager to discover new phenomena. His favourite book which he always read before going to bed was an encyclopedia. Yet at high school he gained a good command of

languages as well as understanding of the peculiarities and traditions of the neighboring European countries culture – Poland, Austria, and Germany. Just right after Ukraine was proclaimed an independent state, he had the necessary knowledge and experience to find and establish friendly contacts between the Faculty of Architecture at Lviv Polytechnic and architectural schools of Krakow, Wroclaw, Vienna and other European cities. And again the role of a single person turned the seemingly insignificant course of events into a new period of development of architectural science in Lviv. Like Ivan Bagensky once did not fear to remain in Soviet Lviv to become a live bridge between the European past and the communist reality, so now Andriy Rudnytskyi, having obtained his education in times of the European pre-war Lviv and having no cultural or language barriers in communicating with the Poles, Austrians, Germans, renewed the contacts of Lviv with Europe and the World, which were artificially and tragically interrupted during the Soviet times. It was because of his initiative, by his well reasoned applications written in German to Vienna Technical University and due to his contacts with Professor Martin Kubelik, that a very successful bilateral cooperation between the architects of Lviv and Vienna Universities was launched. It has been continuing for more than twenty years, and has resulted in dozens of joint scientific and educational projects involving teachers and students of both universities (Cherkes, Linda, Kolomyeitsev, 2016). The contacts with a number of Polish universities including Krakow Polytechnic were similarly restored. He was in friendly relationships with many eminent Polish Professors in architecture. Among them we would like to mention well-known Warsaw-based urbanists Kazimierz Wejchert and Hanna Adamczewska-Wejchert, who came round to Lviv more than once, Professors Viktor Zinn, Stanisław Juchnowicz, Wojciech Buliński and many others. In the early 1990's, Poland was also freed from the communist past (although there have always been much closer contacts with European countries), and joint workshops held together with the Krakow Polytechnic were fruitful and significant for both Universities.

Andriy Rudnytskyi had his own opinion and his own idea of how architectural education in Lviv should be developed (Fig. 2). He considered the situation in terms of the future result – first of all, he took into account the objective reasons and the goal to be achieved while actively developing “logistics” of the local educational process. He never followed the instructions from the authorities without their critical analysis and an attempt to express his opinion with the reasonable explanation even if the attempt was unsuccessful one. The life principles that had been formed since his childhood in prewar Lviv are obviously traced in such an attitude to life. There, unlike for the Soviet people of those days, it was not so deadly dangerous to have one’s own opinion and defend it.

He showed such an attitude of principle not only in relation to architectural education, but also to all events related to the architectural life in Lviv. None of the reconstructions, destructions, new constructions that took place in the historic center of Lviv could skip his attention. He sent a large number of letters and appeals to the city and oblast authorities and took part in various panel discussions to prove his position logically developed on the basis of historical facts. The arguments were unlikely to be supported at that time. But, acting in accordance with Ivan Franko's instructions “chop this rock ...”, he helped the historical environment of Lviv to avoid some irreparable losses. In particular, the 19<sup>th</sup> century fence on the historical site of the Pototsky’s Palace in Kopernica street was saved, even though it was to be removed because of the construction of the new Palace of Arts nearby. Another piece of historical heritage of the city is a saved part of the city's defensive wall next to the Glynianska Tower which was on the city demolish list as well. During tense Soviet times, Andriy Rudnytskyi occupied a crucial role in developing a strategic framework which helped people of Lviv understand the immense architectural value of the city they live in, and thus it caused a huge interest to the problem of its investigation and preservation.

Under the project by Andriy Rudnytskyi in cooperation with Roman Lypka, Lviv Polytechnic teaching building No.1 (Fig. 4) which is located at the corner of S. Bandera and F. Karpinsky streets was constructed. In addition to its direct function – to solve the problem of the lack of premises (there is a large assembly hall, class rooms, students’ dining room), – the new building had to improve the design of the S. Bandera street development. This street is emotionally important – it goes from the main railway station to the center of Lviv. The architectural composition of its development makes the first impression on the visitors when they come to visit Lviv. Andriy Rudnytskyi knew Lviv very well, and he also perfectly knew the territory where the new building was to be built as it was next-door to the Ukrainian gymnasium where he used to study. The general tone of S. Bandery Street development was already provided by the design of the main building of Polytechnic. Julian Zakhariievich located it on a raised green area, at a distance from the street, as the architectural dominant

of the entire ensemble. Continuing this tradition, Andriy Rudnytskyi very successfully fitted his building into the historical ensemble of the street. In front of the new building, he designed a landscaped square, and the architecture of the building itself combines functionality with a concise but gracefully proportional architectural solution. It was not easy to do during an aggressive “struggle with excesses” in architecture: the construction of the teaching building No. 1 was completed in 1966. Professor Rudnytskyi was awarded the state prize for the developed project.



**Fig. 4.** Lviv Polytechnic teaching building No.1 (Postcard from the authors' archive, 1971)

In the same 1966, a new master plan of Lviv city was approved. Its development was carried out in close cooperation with Andriy Rudnytskyi and Yaroslav Novakivsky, who in the 1960s–1970s, was the Head of Lviv branch of the “Dipromisto” Design Institute and a key figure in Lviv city construction processes. Subsequently, the patronage over the master plan was taken over by Zenoviy Pidlisnyi, a long-time director of the Lviv branch of the “Dipromisto” with whom Andriy Rudnytskyi was well acquainted. In the course of Andriy Rudnytskyi’s private and public discussions with leading Lviv urbanists on the vision of the city (Fig. 5), lots of his scientifically proved recommendations were taken into account while developing the new master plan of the city (B. Cherkes, 2016, p. 55). His position regarding the preservation of the historical heritage was of great significance, and, in particular, the fact of the ancient origin of the Lviv city center together with the Market Square was scientifically proven by him. His book *Development of the Cities of the Western Oblasts of the Ukrainian SSR and their Socialist Reconstruction* (Rudnytskyi, 1971), (Fig. 3, a) was written on the basis of a part of the research on Galicia historical cities (the first doctoral thesis by A. Rudnytskyi). It crucially influenced the way the Lviv’s urbanists realized the need to preserve the old planning and development of the historical center of Lviv. Thus, without any exaggeration, the fact that at present we have the historical center of Lviv without redevelopment, radical alterations and destruction of the old buildings is the great personal merit of Andriy Rudnytskyi. His active position and the support of his associates, in particular of Roman Lypka, the Assistant Professor, who was conducting research on separated structures of Lviv’s development, has led to the fact that today we have the historical city centre of Lviv on the UNESCO World Heritage List. Relating to this part of his activity, Andriy Rudnytskyi showed himself as the follower of not so much of Professor Ivan Bagenskyi, whose main interest was drawn to the architecture of objects, but as of Professor Ivan Dreksler, the well-known Lviv pre-war urbanist, the first Head of the Department of City Planning at Lviv Polytechnic. Professor Rudnytskyi knew his works and his ideas of Great Lviv very well, although in Soviet times it was little known about them.



**Fig. 5.** Andriy Rudnytskyi with leading architects of Lviv, 1980s  
(Photo from the authors' archive)

Andriy Rudnytskyi used his influence to improve the conditions for development of Lviv via the Association of Architects as well: since 1959 as its member, and in 1983-92 as the Head of its Lviv Branch. Andriy Rudnytskyi defined the role of the Association of Architects as following:

*Our creative organization embodies the collective experience and mind of architects. It has a professional responsibility for the living environment we create ... One can disagree with the collective opinion of the architects, but should take it into account. This, in its turn, makes us take a very responsible attitude to the decisions we make* (Rudnytskyi, 1987, p. 6).

He was a member of the Architectural Congresses, both Ukrainian and All-Union ones (Fig. 6), and he realized very well the influence of social activity on the architectural situation. In times of Soviet society, the implementation of collective decisions of the Association of Architects largely depended on what position regarding the architectural issues was taken by the city administration. At that time, different people worked in the governing bodies of Lviv. Some of them were intelligent and educated personalities who adequately perceived the arguments of the architects. Victor Secretarius was one of such people. Andriy Rudnytskyi established and kept good and productive relationship with him. Due to this, the reports with suggestions and recommendations by the Association of Architects were not lost in numerous offices, but were considered and, in many cases, fulfilled. Despite all the dark sides of Soviet reality in 1970s – 80s, for Lviv architecture it was a kind of “golden period”: not only new residential areas appeared but also a large amount of restoration works was carried out. In particular, the wall of the Bernardine Monastery was restored as well as other historical monasteries and churches; green areas of Lviv began experienced their new life with the beginning of reconstruction of historical Lviv parks. Among Andriy Rudnytskyi's manuscripts, a copy of the memorandum *On the priority tasks of green construction in Lviv* was found. It was signed by Vira Liaskovska, Head of the Student Design Bureau at Lviv Polytechnic Institute (SDB LPI); Andriy Rudnytskyi, Head of the Department of City Planning, Dean of the Architectural Department; Ihor Ohorodnyk, Deputy Head of the SDB LPI and Yaroslav Novakivsky, Head of the workshop of the Lviv branch of “Dipromisto”, an Honored Architect of the UkrSSR. The tasks which were put included decoration of the city by means of green architecture; development of conditions for an active recreation of children and adults in residential areas; construction of recreational objects of all-city significance; improvement of ecological situation in the city which included the protection of unique nature monuments. Each task was followed by a list of peculiar instructions needed for its implementation. In this memorandum, in particular, a proposal was

made to organize a new large urban park in the southern part of the Vynnyky forest. Pedestrian and bicycle accessibility, the proximity of natural and historical tourist spots, location on the Main European Watershed, which has a great potential for attracting tourists, were the arguments in its favour.



**Fig. 6.** Andriy Rudnytskyi (in the first row, in the middle)  
at the All-Union Architectural Congress. Moscow, 1987  
(Photo from the authors' archive)

Andriy Rudnytskyi always placed central importance to the condition of nature in the city. In his monograph he wrote:

*Managing the city in terms of its ecology includes two tasks. The first one is to ensure normal functioning of the environmental complexes of natural elements within the controlled area. The second task is to educate people to be able to find a contact with the natural environment in their everyday lives and thus to enrich their personalities* (Rudnytskyi, 1985, p. 79).

His attitude towards the management of the urban environment, in fact, was based on two principles: on the one hand, nature is an integral part of urbanism; and on the other, it is the integral part of historical heritage on the basis of which one can develop further urban structures. Only by putting together these two principles, the city has the potential to develop itself as a social and cultural center and avoid its transformation into a mere production object.

The tense multilateral social and scientific work, productive involvement into the events around the architectural environment of Lviv (Fig. 7) did not influence Andriy Rudnytskyi's great pedagogical potential. He had the gift to talk about the most complicated topics in plain and understandable language, to find accurate examples and comparisons, to summarize the information and to highlight the most important things. Andriy Rudnytskyi always illustrated his lectures with his own drawings using a chalk and a blackboard. He greatly respected Professor Viktor Zinn's teaching methods and believed that information is best perceived when it is illustrated by one's own drawings. Andriy Rudnytskyi planned to write textbooks and course books on city reconstruction, history of urban planning, and methods for the comprehensive reconstruction of old urban parks. But, his work in educational and methodical field was unfortunately postponed for various reasons, and the time given to Professor Rudnytskyi to stay with us was too short.

Being sincerely worried about the state of Ukrainian science, Andriy Rudnytskyi actively supported the initiative of the renewal of the Taras Shevchenko Scientific Society (ShSS) in Lviv. At the first meeting of the initiative group which was chaired by the Academician Oleh Romaniv, a list of scientific sections of the society

was determined, and no section of architecture was found there. Andriy Rudnytskyi's response was instant – as the Dean of the Faculty of Architecture, a member of the Board of Architects' Association and at that time the the only one Doctor in Architecture in Lviv, he made a reasoned proposition to the initiative group of scientists – to form a Section of Urban planning and Architecture within the framework of the ShSS. Its task was to combine research in all spheres where the living environment of a person is formed. As a result, the Section of Urban Planning and Architecture has worked in the structure of ShSS for nearly three decade, now it is headed by Professor Yuri Dyba.



**Fig. 7.** At the project discussion in SDB LPI, 1970s  
(Photo from the authors' archive)



**Fig. 8.** Congratulations at the 80<sup>th</sup> anniversary, 2008  
(Photo from the authors' archive)

Andriy Rudnitskyi realized that in the new realities of market economy and high competition among architectural educational institutions, the Lviv architectural school should have a reliable resource of local professionals with high qualification. He thus spent a lot of efforts and energy to achieve this goal and in 1998, the Specialized Academic Board under the number K 35.052.11 with the specialty No. 18.00.01 *Theory of Architecture, Restoration of Architectural Monuments* (Petryshyn, 2005) was opened at the Faculty of Architecture. This substantially intensified the scientific work at the Faculty, stimulated postgraduate studies, and after the first defenses, a stable process of increasing the number of works defended for a Candidate and Doctor Degree by the teaching staff of the modern Institute of Architecture has started. Andriy Rudnytskyi himself was a scientific supervisor for many thesis. The range of their subjects was wide – from the reconstruction of historic cities, towns and architectural complexes to industrial zones and typologies of buildings. And as a scientific supervisor and Chairman of the Specialized Academic Board, Professor Rudnytskyi was highly a demanding and principled person when it concerned the quality of the scientific investigation. Of course, some might have been not very happy with it. But such an attitude was effecient – the works defended at the Lviv Specialized Board were associated with high quality and were never questioned.

In 1997–99, when Ukraine has already been an independent state, Andriy Rudnytskyi together with the architects Professor Mykola Bevz, Associate Professors Yuriy Dubyk and some others designed and implemented a museum-memorial complex *The family house of His Beatitude Patriarch and Cardinal Joseph Slipyi in the village of Zasdryst in Ternopil region*, which is a significant project, special by its emotional content. Built next to Joseph Slipyi's house, the museum building includes a memorial chapel, exhibition rooms, a conference hall and premises for the monastery branch. The architectural complex was awarded the first degree diploma at the contest for the best object built in Ukraine in 1999. It has proved to play a very important role for the revival of the significance and intellectual meaning of the Greek Catholic Church in Ukrainian society. At the time when the museum was under construction, Andriy Rudnytskyi carried out another important public mission – he was the Head of the Representation of the Society of Ukrainian Catholics *Saint Sofia*

(headquarters are in the United States) in Ukraine. At that time, Dr. Romana Navrotska who used to know Patriarch Slipyi personally was the Head of the World Society. She was a person of great soul, intelligent and with sound mind, and being full of desire to work for Ukraine. Within the framework of this Society, a number of projects aimed at consolidating international cooperation between the Ukrainians of Ukraine and the Diaspora were implemented. As a result of such cooperation, in the first economically difficult years of independence, the teachers of the Faculty of Architecture, and among them the authors of this article, were able to have a study tour to Rome for the first time, and with their own eyes to see the ancient monuments that were previously only watched in book illustrations. These journeys and workshops provided an opportunity for Lviv architects to establish their first international contacts, which have now turned into an active cooperation with European architectural schools.

Andriy Rudnytskyi positively accepted new technologies and new opportunities the computer provided architects with. The possibility to work with a personal computer turned up in his life when he was 70. It is not a secret that many of our contemporaries at this, and even at a younger age, think that they are not able to work on a computer. But having appreciated the undoubted advantages and opportunities that the computer provides, Professor Rudnytsky just started to work on it. He understood that only in such a way he would be able to communicate “on an equal footing” with a rapidly changing world. To master the new equipment was probably somewhat easier for Andriy Rudnytskyi as for many years he used a typewriter very skillfully, and never tried to reassign this work to someone else.

Already at the end of his life, being a Professor at the Department of Town Planning (Fig. 8), Andriy Rudnytskyi continued to care about the future of architectural education in Lviv Polytechnic (although he could quietly rest on the laurels of his previous achievements). In his letter into the future he wrote:

*Lviv Polytechnic should be more and more independent authoritative unit that is counted in a global dimension ... Conditio sine qua non: the results of achievements of the Universty in each field should not be worse than those in higher educational institutions of other countries... You cannot go to Europe without having your own thought on a problem. Traditionally, not everything in our educational process was worse than it is now accepted in Europe.* To sum up this brief analysis on the remarkable aspects of Andriy Rudnytsky's personality, which was rich in humanism and creative ideas, we give his own vision of the profession: “... first of all, the architect must be a citizen, feel his personal responsibility for the fate of people who will live in the cities, houses and apartments they create” (Rudnytskyi, 1987, p. 6).

## Conclusions

There is no doubt that one person, whatever smart and talented he/she was, cannot provide a successful functioning of an entire regional architectural school on its own. But one person is able to unite colleagues, to prove them the rightness of his/her principled position, to educate new generations of specialists armed with the understanding of their responsibility for the society, respect for the historical environment, and natural landscapes. One person can effectively act not by physical force, but by the force of logical argument, persuasion, explanation of his/her rightness, and finally, by the personal example of his/her own daily life. One person can influence the process in personal communication, or at a space and time distance – via his/her publications. Andriy Rudnytskyi completely used all the instruments of influence available to him in his time in order to preserve for future generations the best architectural achievements of the previous periods in the historical environment of Lviv and other Galician cities. And after he passed away, he continues to talk to us by means of his printed words – from a single page to his numerous books and articles. Therefore, after analyzing various areas of Professor Andriy Rudnytsky's professional and social work, we can argue that without his efforts not only Lviv architectural school, but also the whole Lviv city would never have such a respect and popularity it has been enjoying at present.

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Богдан Черкес, Ірина Діда

### ПРОФЕСОР АНДРІЙ РУДНИЦЬКИЙ І ЙОГО ВПЛИВ НА ФОРМУВАННЯ АРХІТЕКТУРНОГО СЕРЕДОВИЩА ЛЬВОВА ДРУГОЇ ПОЛОВИНИ ХХ ст.

**Анотація.** Стаття присвячена дослідженню впливу особистісних характеристик на напрям розвитку і якісні особливості фахової архітектурної освіти в окремому університеті, а також вивченню впливу особи на формування архітектурного середовища міста в довгостроковій перспективі. В такому аспекті проаналізовано діяльність доктора архітектури, професора Андрія Рудницького, що працював у Львівській політехніці з 1951 р., в різний час завідував трьома кафедрами, дві з яких було створено за його ініціативи, був деканом Архітектурного факультету, Головою львівської організації САУ, та мав ряд інших професійних обов'язків. Досліджено методiku його роботи в сферах архітектурної науки, творчості і освіти, визначено характерні риси особистості в контексті суспільно-культурних передумов та історичних обставин, вивчено вплив його професійної та громадянської позиції на формування архітектурного середовища Львова, збереження історичної міської забудови, на розвиток львівської архітектурної школи, і у підсумку – на сучасний європейський статус Львова в складі всесвітньої спадщини ЮНЕСКО. Зокрема, виявлено значення для збереження традицій львівської архітектурної освіти факту навчання Андрія Рудницького у професора Івана Багеньського, представника довоєнної архітектурної школи; обґрунтовано вплив, який мала позиція Андрія Рудницького стосовно питань охорони історичної спадщини, його науково доведені висновки про давньоруське походження регулярного львівського середмістя, пропагування ідеї міських пішохідних просторів, та ін., – на усвідомлення громадськістю і керівництвом міста необхідності збереження львівського історичного центру. Досліджено роль особистості і тезаурусу Андрія Рудницького у формуванні міжнародних контактів львівської архітектурної школи з провідними університетами Європи. Дослідження підтверджує наявність великого потенціалу впливу особистості на напрям розвитку і якість професійної освіти в архітектурній сфері.

**Ключові слова:** архітектура, Львів, професор Андрій Рудницький, міське середовище, архітектурна школа.

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**ANDRIY RUDNYTSKYI AS  
A UKRAINIAN SCHOLAR AND URBANIST**

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**Abstract.** The formation of the scientific work by Andriy Rudnytskyi, the founder of the Ukrainian Lviv Urban School in the second half of the 20<sup>th</sup> century, is considered. His scientific work related to the issues of urban ensembles formation and street-transport system in the cities of Western Ukraine, to the development of the Lviv's central part planning from the Middle Ages to the beginning of the 21<sup>st</sup> century as well as to the development of methodology for managing urban environment parameters is outlined. The results of scientific research presented in the monographs *Transport in Urban Planning* (1976), *Urban Management* (1985), and in numerous articles published during the 1960s–2000s are provided.

**Key words:** urban researches, urban environment, historical city ensembles, city transport system.

## **1. Introduction**

Urban research in Lviv was initiated by Ignatius Dreksler (1887–1930), the first Head of the Department of Urbanistics at Lviv Polytechnic at the beginning of the 20<sup>th</sup> century. The topics of his research were broad. They involved issues of regional development, territory planning, building up of towns and cities, justification of Lviv's territorial development, etc. Urbanistics of Lviv and the region during the 1930s was studied by Stanislav Filippovsky (1883–1964) and Tadey Vrubel (1896–1974), who worked at Lviv Polytechnic, when Lviv was part of Poland before the Second World War (Posatskyy and Hanets, 2013).

The World War II changed the geopolitical situation in Eastern Europe, and Western Ukraine became the part of the Soviet Union, and Lviv was a Soviet city. Lviv Polytechnic changed dramatically: in 1945–1946, Polish teachers and students of the Faculty of Architecture moved to Poland. Under these conditions the only preserved Department of Architectural Design was attached to the Faculty of Engineering and Construction led by Professor Ivan (Jan) Bagenskyi, the single Polish scholar and architectural educator who stayed in Lviv after 1945.

Ivan (Jan) Bagensky proposed to Andriy Rudnytskyi, who graduated from Lviv Polytechnic with honors in 1951, to do a postgraduate course and in this way to fill in the scientific vacuum in the field of architecture and town planning, which was formed at that time in Lviv and the region of Western Ukraine. In 1955, under the scientific supervision of Professor Ivan (Yan) Bagensky A. Rudnytskyi defended his Ph.D. thesis *Architecture of a Regional Agricultural Exhibition* with the major “Urban Planning” (Vitajemo z juvilejem! 1998). At that time such topics were relevant to the development of all regional centres of Ukraine (within the Soviet Union), where such exhibitions were designed and built occupying large areas in the cities.

After completing all the career stages (from a lecturer to a professor) at Lviv Polytechnic, A. Rudnytskyi devoted his scientific activity to general and regional aspects of urban studies by projecting and exploring new directions, forming a scientific outlook of several generations of Lviv researchers in the field of architecture. It should be noted that in 1950s–1960s, he was the only scientist in Lviv in the field of architecture and urban planning, therefore, of course, he was engaged in a wide range of issues relevant to the city and the region. It was the time of the post-war reconstruction, accelerated industrialization and urbanization of Western Ukraine region. The cities of Lviv, Lutsk, Ivano-Frankivsk, Rivne, Ternopil were growing rapidly, and new towns of

Chervonograd, Novovolynsk, Novoyavorivsk, Novy Rozdil were emerging. In these and other towns and cities, large industrial zones and new residential areas of multi-storey buildings were developed, the cultural landscape of Western Ukraine region was changing.

## 2. Basic Theory Part

During the 1960s, in his scientific research Andriy Rudnytskyi reflected the topical problems of urban development in West Ukrainian region; he also worked closely with the chief architect of the Lviv region Andriy Shulyar studying issues of the street transport system, formation of urban ensembles, insolation of residential development, improvement and greenery of residential areas in the cities of Western Ukraine region. The results of the research are set out in numerous articles published in 1959-1965 in the journals *Residential Construction, Construction and Architecture*, and others.

Common features and characteristics of developing regional centres of the region as well as the formation of urban ensembles during the postwar decade were revealed in the studies of the cities of Lviv, Ternopil, Rivne (Shuliar and Rudnytskyi, 1959; Rudnytskyi, 1964). Professor Rudnytskyi researched and described general features and specific town-planning differences of these cities during the post-war construction and reconstruction processes. Investigating the already complicated problem of organizing street-transport network in the developed cities of Western oblasts of Ukraine, A. Rudnytskyi and A. Shular offered principal schemes of organizing traffic in the reconstructed cities with dense buildings blocks. At the same time, the transport situation in the historical centre of Lviv City was studied in detail, and based on theoretical generalizations practical recommendations to organize transport and pedestrian traffic were formulated (Rudnytskyi and Shuliar, 1964; Rudnytskyi, 1965).

The subject of the study was connected with the preparation of materials for the master plan of Lviv in 1966. A. Rudnytskyi considered transport problems to be inherent part of spatial problems of the city, emphasizing that “while solving engineering problems, one should not forget that public transport lines should be considered as the main axis of perceiving architectural image of our cities” (Rudnytskyi, 1965, p. 10). It should be noted that a number of those days principled recommendations have not lost their significance today, which can be proved, for example, by the implementation of the circular traffic movement scheme at the crossroads of the streets of Horodotska and Shevchenko in Lviv in 2014.

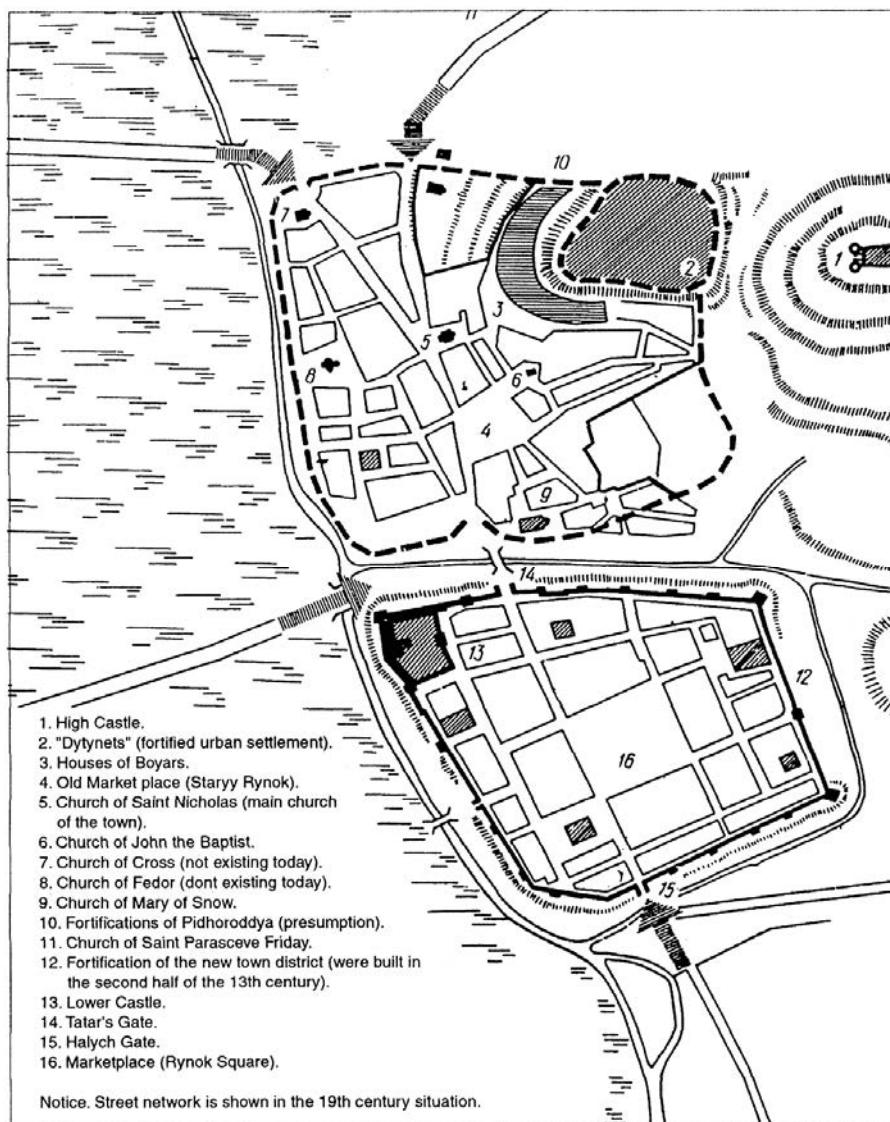
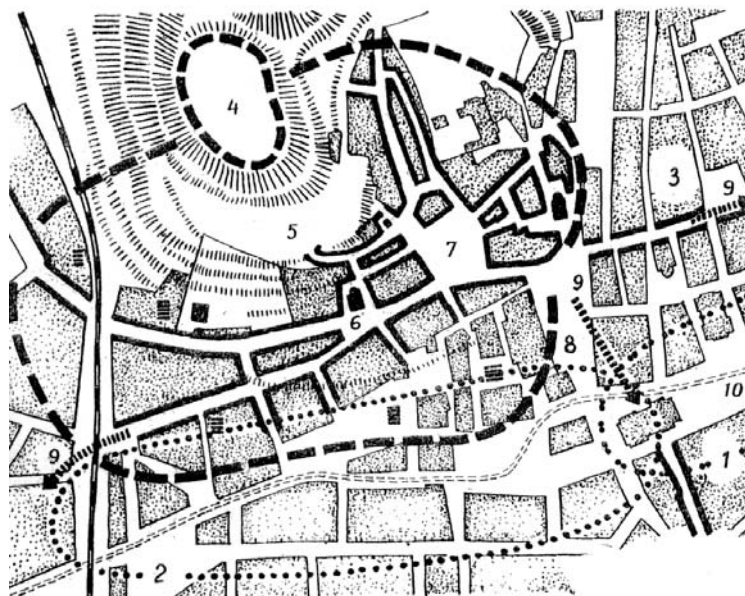
A prominent place in the scientific activity of A. Rudnytskyi during the 1960s belongs to the study of urban planning aspects of historical areas development issues in a modern city ensemble. After all, Western Ukraine is a region where numerous historical city ensembles have been preserved and architectural monuments in historical and artistic terms are connected with the European cultural heritage.

A. Rudnytskyi was the first to propose in 1966 Western Ukraine cities classification by the degree of preservation of their historical ensembles and their modern use. Three characteristic types of town-planning situations were singled out: I – historical area of a city has preserved its planning structure and ensembles of development; a) a historical complex is one of the elements of the city ensemble; b) a historical complex dominates in the city's space. II – a historical area of a city has preserved its planning structure and some architectural monuments; a) a historical area is the main public centre of the city, b) a historical area does not perform public functions, the modern centre is located elsewhere, c) a historical planning structure covers most of the city territory (Rudnytskyi, 1966).

The study of a large amount of archival and literary sources as well as nature surveys of the area provided the basis for A. Rudnytskyi to make up in 1966 a rather detailed scheme of planning the city centre of Lviv in the 13<sup>th</sup>–14<sup>th</sup> centuries. That was the first publication in the process of studying the beginning of the city territorial development during the Galician-Volhyn kingdom which provided a clear idea of the landscape features, street tracing, location of the major structures in relation to the urban development situation in the second half of the 20<sup>th</sup> century (Fig. 1). Almost twenty years later, Prof. Rudnytskyi returned to the topic of the Lviv's central part formation in the last quarter of the 13<sup>th</sup>–14<sup>th</sup> centuries. In 1984, he put forward the hypothesis about almost simultaneous existence of two city centres in the neighboring territories: the primary – located between the central part of the ancient city and the Poltva river with a network of irregular quarters around the market square (now the Old Market Square) and the secondary – located to the south, also near the Poltva river, on the flat area with a network of regular neighborhoods around the present-day Market Square (Istoriija Lvova. red. Sekretarjuk. 1984). It should mention that further archaeological excavations in general confirmed this hypothesis (Fig. 2).

**Fig. 1.** Lviv city center in the 12<sup>th</sup>–14<sup>th</sup> century on the background of planning of the central city area in the 20<sup>th</sup> century

Legends: 1 – central city area formed in the 19<sup>th</sup>–20<sup>th</sup> century; 2 – area of the modern new part of the public city center; 3 – medieval urban nucleus (14<sup>th</sup>–15<sup>th</sup> century); 4 – Dytynets (city fort) of the 12<sup>th</sup>–13<sup>th</sup> century; 5 – housing development site of the 12<sup>th</sup>–13<sup>th</sup> century; 6 – main city temple; 7 – central square; 8 – market place near the city gates; 9 – major routes of the 12<sup>th</sup>–13<sup>th</sup> century; 10 – Poltva River (Rudnytskyi A., 1966)



**Fig. 2.** Central part of Lviv in the end of the 13<sup>th</sup>–14<sup>th</sup> centuries (Istoriija Lvova, 1984)

During the 1960s, when doing the project for the formation of the historical nucleus of Lviv (1969) and the detailed planning of the central part of Lviv (1970) Andriy Rudnytskyi was collaborating with Roman Mykh, Lviv's chief architect, and Yaroslav Novakivskyi, the Head of the planning workshop of the Lviv branch of the "Dipromist". According to R. Mykh, "This was the first attempt to comprehend the centre of Lviv in the context of all its urban and social problems ... The main concept of the detailed planning project was to make a shift from a mono-centric to a polycentric system of the city centre ... Apart from the nucleus of the centre behind the Opera House planned by the general development plan, three additional centres were considered: at the intersection of Lychakivska and Pasichna streets, near the intersection of Horodotska and Bandery streets, in Stryiska Street near Stryisky Park." (Arhitektura Lvova:chas i styli. XIII–XXI st. red. Birjuliov. 2008, p. 612). Formation of the polycentric structure of the city centre has still been only partly implemented and remains relevant to urban development of Lviv City at the beginning of the 21<sup>st</sup> century as well. In the detailed planning project, they also justified the necessity to organize a separate zone of cultural heritage protection in the city centre, which was taken into account in 1975 when creating a historical-architectural reserve of 120 hectares in area.

The material accumulated over a decade formed the basis of the textbook, in fact, by its content and form of presentation it is a small monograph *Development of the Cities of Western Oblasts of the Ukrainian SSR and Their Socialist Reconstruction*, which was published in 1971. Despite a small volume, the publication for the first time systematized and analysed the classification of the urban ensembles reconstruction process as well as of city centres in Western Ukraine during the 1945–1960s against the backdrop of their long-term historical development.

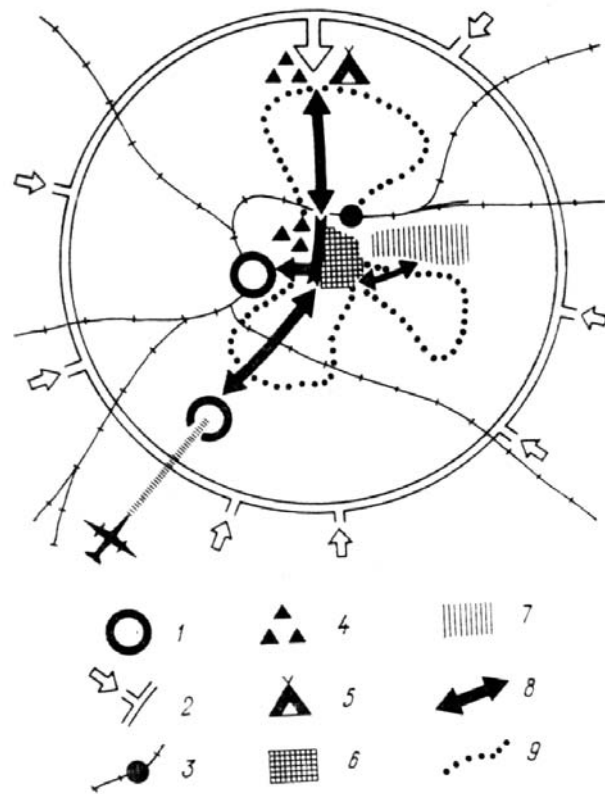
A. Rudnytskyi proposes to distinguish four main urban development patterns and considers them on the specific examples: 1) fundamental reconstruction of an urban built up area. (Ternopil); 2) development of the central ensemble of a city at the expense of free territories development (Lutsk); 3) new structure of a city ensemble in an old built-up area (Rivne); 4) cities with a preserved compact city-planning structure (Lviv, Chernivtsi, Ivano-Frankivsk) (Rudnytskyi, 1971). The publication also deals with the development of a system of public service of residential areas, industrial construction, planning of greening and supplying cities with water. Writing about the directions of transport system development in the cities of Western Ukraine, the author emphasizes the need to form pedestrian zones in the historical centres of the cities.

In 1960s, in Western Ukraine, accelerated urbanization was underway due to the development of industry, primarily in the regional centres – Lviv, Lutsk, Ivano-Frankivsk, Rivne, Ternopil, Chernivtsi, and Uzhgorod. Territories of the cities were growing considerably and complex issues concerning organization of transport links between industrial and residential areas of the cities, community centres and mass recreation areas were arisen. It caused a need to develop a theoretical generalization of transport problems in the cities and methodological approaches to their solution. Studying rich factual material about domestic and foreign practices and its theoretical comprehension as well as determining methodological approaches laid the foundation for the monograph *Transport in City Planning* published in 1976. The author chooses to systematically consider the main requirements for planning cities and designing their elements, based on the conditions of providing necessary level of transport service for the population. Particular attention is paid to presenting criteria for the objective assessment of the efficiency of solutions to city transport service (Rudnytskyi, 1976).

Saving time for the city inhabitants through rational organization of transport connections was the main criterion of the author. The monograph describes methods of determining economic efficiency of planning decisions in the field of transport systems and evaluating architectural and compositional significance of urban areas, depending on their location in relation to transport routes.

The material of the monograph is presented in seven sections: 1. Designing urban transport networks; 2. Urban public transport; 3. Organization of pedestrian traffic; 4. Freight and special transport; 5. Car transport; 6. Outward transportation in cities and settlement systems; 7. Transport movement and architectural ensemble. The text material is accompanied by clear pattern-models reflecting both general theoretical positions (network of intercity high-speed passenger transport, classification of urban communications, pedestrians contact with transport, ways of solving the problem of changes in urban public transport, provision of transport for tourists in the conditions of a large city, organization of transport service for a public centre of a middle-sized city, etc.), and specific architectural and planning situations (protection from transport noise, mutual arrangement of pedestrian and transport communications in a residential area, etc.) (Fig. 3).

**Fig. 3.** Transport service of tourists' journeys in a big city.  
Legends: 1 – tourist arrival points (railway station and airport); 2 – automobile tourist arrival routes; 3 – suburban railway station; 4 – tourist hotels; 5 – camping for motoring tourists; 6 – pedestrian area in the city center; 7 – skansen; 8 – typical connection routes for tourists; 9 – sightseeing routes. (Rudnytskyi, 1976)



A. Rudnytskyi's monograph systematically and comprehensively examines the methodical approaches to the design of urban transport systems, taking into account planning-and-architectural and compositional criteria, the latter being specially emphasized, which at that time was new in the theory of designing urban transport systems in our country. At the same time, the author did not try to describe individual examples and solutions, but outlined the methodological principles for solving transport problems.

When the activity of the Faculty of Architecture in Lviv Polytechnic was resumed in 1971, the scientific bulletin *Architecture and Town Planning* was launched. In the articles published there, A. Rudnytskyi formulated the main directions of forecasting the development of urban systems and the preconditions for their integrated management. The author proposed the clear methodology for studying complex urban systems from two points of view: "from the person" and "from the environment" (Rudnytskyi, 1975; Rudnytskyi, 1977). Professor Rudnytskyi, one of the first in Ukrainian urban science, emphasized the need for a comprehensive understanding and study of all aspects of human life environment, from natural environment to characteristics of a human person and patterns of his/her behaviour.

Working actively in architectural science Andriy Rudnytskyi never forgot about training young scientists for Lviv Polytechnic. His first postgraduate students who successfully defended their Ph.D. thesis on the problems of developing the cities of Western Ukraine region were B. Posatskyy (1972) and A. Ilgunas (1974). In his research, B. Posatskyy scientifically grounded the directions of reconstructing small and medium-sized cities of Western Ukraine region, depending on the landscape and compositional characteristics of the area as well as on urban territory and how the settlement planning and settlement development have been preserved (Posatskyy, 1972). In the work of A. Ilgunas methodological approaches to assess the composite value of industrial buildings in a historically developed large city (for example, Lviv) and to preserve their significance in the urban ensemble in the process of modern city development were described (Ilgunas, 1974).

The problem of integrated urban environment management was the subject of discussion at the large and representative scientific conference *Problems of Urban Environment Management* held in Lviv in autumn, 1979. A. Rudnytskyi, who was one of the initiators and organizers of the conference, delivered a report "Issues

of the methodology of urban environment management” which caused a considerable interest. It was to this issue that A. Rudnytskyi devoted the next decade and in 1985, he published the results of the research in the monograph *Management of Urban Environment*. Despite certain ideological and socio-political limitations of the Soviet time, the work was based on a comprehensive understanding of urban environment, the main feature was determined to be its integrity, in the author’s wording “indivisibility” ( Rudnytskyi, 1985). The material is consistently delivered in three sections: 1) Fundamentals of urban environment management (peculiarities and theoretical basis of the management process were considered there). 2) Urban environment as an object of management. The author considers mutual relations of a society with the spatial environment and defines a city as a social-spatial complex, social and territorial integrity and one of the forms of socio-spatial organization of a society. The researcher also distinguishes the two main elements as the basis of city modelling for the needs of management: people and the environment surrounding them. Thus, the urban environment, which has to be and can be managed, is considered to be the sphere of objects as well as social sphere that both surround a person in a city, that is, everything on the background of which and with which life of people and all city processes take place. The author devotes special attention to “city physiology”, he studies modelling of the processes of urban environment functioning, the mechanism and the system of its management in order to intensify usage of material, energy and labour resources. A. Rudnytsky stresses the criteria for assessing urban environment in terms of using efficiently time resources by a city resident or a guest. 3) Implementation of urban environment. The author creates a management goal tree and determines methods and algorithms for solving problems of urban environment management, while determining the place of experiment in this process.

Time has passed, and it becomes obvious that A. Rudnytskyi's methodology of urban environment management is based on objective preconditions and its main provisions are universal and stay relevant to this day, despite radical socio-economic transformations in Ukraine.

At the end of the 1980s, the “perestroika” took place in the Soviet Union, for the scientific sector it meant a significant weakening of communist ideological constraints and political control. In Ukraine, the T. Shevchenko Scientific Society (ShSS) resumed its activities in Lviv, its first scientific session took place in March 1990, where Professor Rudnytskyi delivered the programmatic report “Ukrainian National Renaissance and Architecture” (Rudnytskyi, 1992). He emphasized that the revival of Ukrainian architecture and urbanism should be considered as fulfilling by the Ukrainian state its duty to its own people and that it is possible only in the context of sovereign development of the Ukrainian people as part of the Ukrainian national culture as a whole. Soon, the Architectural and Town Planning Commission of the ShSS was formed. It became part of the Art Studies Section headed by Volodymyr Ovsyichuk, and A. Rudnytskyi headed the Commission.

For the first time since 1945, artificial scientific priorities caused by the communist ideology stopped functioning in Ukraine. Then it was possible to discuss and exchange ideas freely, new horizons have opened for scientists. In particular, it was possible to explore the true history of the Ukrainian architecture and urban planning, to bring back forbidden and forgotten names and works, to explore historical cities and their development. This resulted in the volumes of *The ShSS Notes*. Initially they were *Works of the Art Studies Section*, and later – *Works of Architecture and Urban Development Commission*. A. Rudnytskyi did a lot to organize the work of the Commission. He constantly emphasized the importance of the ShSS functioning as an independent scientific forum of the international level.

Andriy Rudnitskyi, together with Oleh Kupchynskyi and Volodymyr Ovsyichuk, made up the editorial board of the first *Notes of the ShSS, Works of the Art History Section* (volume CCXXVII, 1994); later he was a member of the editorial boards of the *ShSS Notes, Works of the Architecture and Urban Development Commission* (volume CCXLI, 2001; volume CCXLIX, 2005; Volume CCLV, 2008). There in 2001, A. Rudnytskyi published his article *Tasks and Ways of Development of Ukrainian Urbanism and Architecture in Modern Conditions*, in which he identified the main issues that required a solution in our country. The first one was the problem of choosing the most appropriate type of housing for Ukraine. The second one was identification and demarcation of protected territories and complexes of historical and architectural value. The third one was optimization of the transport system in Ukraine in general and in each settlement in particular. The fourth one was the purposeful formation of tourism industry in Ukraine (Rudnytskyi, 2001). Since that time

some progress has been made in solving each of these problems, positive changes appear to have taken place in the development of the national transport system as well as tourism, in Western Ukraine region in particular.

Thinking by European categories, A. Rudnytskyi planned to carry out scientific researches together with urban scholars from neighbouring countries and thus jointly train highly skilled professionals in the field of architecture and urbanism. For this purpose, a specialized Academic Board for the defense of thesis in the majors: “Theory of Architecture, Restoration of Architectural Monuments”, “Architecture of Buildings and Structures”, “Town Planning and Landscape Architecture” should have been organized at Lviv Polytechnic. The members of the international Academic Board were to be: A. Rudnytskyi (head, Lviv), B. Cherkes (deputy head, Lviv), B. Posatskyi (academic secretary, Lviv), A. Bem (Krakow), Y. Bogdanovsky (Krakow), V. Durmanov (Lviv), R. Zhuk (Montreal), T. Zaremska (Warsaw), M. Kubelik (Vienna), O. Kuzmych (Rivne), K. Kucha-Kuchynsky (Warsaw), G. Lavryk (Kyiv), O. Lesyk (Lutsk), T. Panchenko (Kyiv), I. Fomin (Kyiv), S. Yukhnovych (Krakiv), V. Shtolko (Kyiv), D. Yablonsky (Kyiv). However, in the post-Soviet scientific bureaucracy, this ambitious European project was not successful.

### 3. Conclusions

The scientific heritage of Andriy Rudnytskyi, his contribution to the formation of scientific research areas of the Lviv architectural school is difficult to overestimate. Andriy Rudnytskyi was engaged in scientific activities in the field of urbanism for over 60 years. He always formulated problems and outlined ways of their solutions, taking into consideration topical needs and perspective directions of developing cities and territories in Western Ukraine region and in Ukraine in general, while adhering to European trends and tendencies in urban studies. Professor Rudnytskyi as a scientist-urbanist managed to achieve a lot in difficult times, urbanism became the essence of his life, he was engaged in it on the call of his soul, and not only because it was his duty, therefore his concepts are relevant today as well.

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Богдан Посацький

### АНДРІЙ РУДНИЦЬКИЙ – УКРАЇНСЬКИЙ НАУКОВЕЦЬ УРБАНІСТ

**Анотація.** *Пройшовши всі службові щаблі (від асистента до професора) у Львівській політехніці, А. Рудницький присвятив свою наукову діяльність загальним і регіональним аспектам урбаністики, формуючи науковий світогляд кількох поколінь львівських науковців у галузі архітектури. Впродовж 1950–1960-х рр. він був єдиним науковцем у Львові архітектурно-містобудівного профілю, тому займався широким колом актуальних для міста і регіону проблем. Чільне місце у науковій діяльності А.Рудницького впродовж 1960-х рр. належить дослідженню містобудівних аспектів проблеми розвитку історичних діляниць міст у ансамблі сучасного міста. Адже Західна Україна є регіоном, де збереглися численні історичні міські ансамблі і пам'ятки архітектури в історичному і мистецькому сенсі пов'язані з європейською культурною спадщиною. Спільні риси і характерні особливості розвитку обласних центрів регіону та формування міських ансамблів впродовж післявоєнного десятиліття були виявлені на прикладах Львова, Тернополя, Рівного. А. Рудницький вперше у 1966 р. склав достатньо детальну схему планування міського центру Львова у XII–XIV ст., а у 1984 р. висунув гіпотезу про існування у Львові в останній чверті XIII–XIV ст. на сусідніх територіях майже одночасно двох міських осередків. У монографії “Транспорт в плануванні міст”, опублікованій у 1976 р., автор у системному аспекті розглянув основні вимоги до планування міст та проектування їх елементів, виходячи з умов забезпечення необхідного рівня транспортного обслуговування населення. Особлива увага надана викладу критеріїв об'єктивної оцінки ефективності вирішень транспортного обслуговування міст. А. Рудницький на зламі 1970–1980-х рр. науково досліджував проблеми методології управління міським середовищем. Результати опубліковані в монографії “Управління міським середовищем” у 1985 р. Незважаючи на певні ідеологічні та суспільно-політичні обмеження радянського часу, праця основана на комплексному розумінні міського середовища, головною ознакою визначається його цілісність.*

**Ключові слова:** *урбаністичні дослідження, міське середовище, історичний міський ансамбль, міська транспортна система.*

*Mykola Bevz*

**ZHOVKVA – A TOWN BUILT AT THE END OF THE SIXTEENTH CENTURY WITH THE ARCHITECTURAL AND PLANNING PATTERN BASED ON THE CONCEPT OF THE RENAISSANCE IDEAL CITY**

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**Abstract:** On the base of the historical and urban studies it is presented the hypothesis that the town of Zhovkva is an example of late Renaissance urbanism and was built at the end of 16th century according to the project based on the concept of *ideal city*. The towns are characterised with a well-preserved original Renaissance planning structure and a number of architectural monuments that are connected with it. Reconstruction of the original historical townplans allows us to express the hypothesis of its similarity to the projects of cities published in the treatise of the Italian architect of the 16<sup>th</sup> century Pietro Cataneo.

**Key words:** town of Zhovkva, Renaissance, urbanism, planning structure, *ideal city*, Pietro Cataneo.

### **Introduction**

In recent years, interest in historic cities has grown significantly in connection with the intensification of international scientific cooperation in the Eastern Europe related to studying and popularizing the architectural and urban heritage. This interest is also related to the identification of applicants for introduction in the UNESCO World Heritage List [1]. In the list of historic cities of Ukraine, the attention is first of all drawn to the well-known large cities – Lviv, Kyiv, Kharkiv, Kamianets-Podilskyi and Chernihiv. The ensemble of the historic center of Lviv has been on the list of UNESCO heritage sites since 1998. A part of the city center of Chernivtsi (an ensemble of sacred and administrative buildings of the Residence of Bukovinian and Dalmatian Metropolitan of the 19th century) was listed in 2011. There are very valuable urban complexes in the structure of small Ukrainian towns as well. Even today, the value of such cities or towns in Ukraine is often not very noticeable either because of insufficient scientific study of their architectural history or due to insufficient coverage in leading scientific journals. To a large extent, this situation may be explained by the fact that in 1950–1980 no thorough research was carried out in the field of historic urban planning. That is why, one of the small historic towns in the Western Ukraine was selected for study to present its urban and architectural values.

### **Results of the study on urban-planning development of town of Zhovkva**

Zhovkva belongs to one of the insufficiently studied but highly important urban-planning formations in the Halychyna region (Western Ukraine). The city is located 23 km north-west of Lviv. Zhovkva is the modern title of the town. In the historical documents, it is named Zholkiev (or Żółkiew, pol.) – it was also the name of family town of Żółkiewski in the Lublin region [2]. Next to the official name, Ukrainian casual *Zhovkva* was also used, which was established as a modern name. During the times of the Soviet Union, for a short period, it was inappropriately called *Nesterov* [3].

Scientific and academic works which have appeared in the recent years state that Zhovkva is an example of late Renaissance urbanism and was built in late 16<sup>th</sup> century according to a project based on the concept of *ideal city* [4, 5, 6]. In accordance with historical sources, this city was founded by Stanisław Żółkiewski (Zholkevski) [7] in 1594 on the territory which was part of the village Vynnyky [8]. The village was owned by the Wysocki's family at that time. Foundation of the town started on the eastern bank of the Svynia River, near the old castle of the Wysockis. It is worth to mention that in the middle of the 19<sup>th</sup> century, the bridge over the river which led to the western gate of the city did not belong to the city but to the territory of the village. It means that the agreement between Stanisław Żółkiewski and Michał Wysocki on the transfer of the part of the settlement territory, gave the old owner the control over the bridge and, of course, over the bridging tax collection. Unfortunately, only archeological traces remain from the castle of Wysockis.

Nowadays, Zhovkva has become the object of broader studies by historians and architects [9, 10, 11]. In particular, in 2016 it was published the *Atlas of the City* [12] in which the general stages of its development are reconstructed. In 1995, according to the decree of the Government of Ukraine, the historical part of the city received the status of the State Historical and Architectural Conservation Area. The Conservation Area is still functioning providing the restoration works in the castle and in the central part of the city.

At present one of the architectural objects of Zhovkva is included into the UNESCO list of world cultural heritage of Ukraine. In 2013, the wooden church of the Holy Trinity located in the Zhovkva suburb at the road from Lviv was added to this list. The church is one of the 16 shrines of the joint Ukrainian-Polish nomination *Wooden churches of the Carpathian region of Poland and Ukraine* [13]. The church was built in 1720 has preserved a unique, Renaissance iconostasis of high art value. It is characteristic that the iconostasis was created by craftsmen of the local Zhovkva painting guild. It was probably transferred to the church of the Holy Trinity from an older church. It is evidenced by the very architecture and design of the iconostasis, showing the rebuilt parts of it, "fitted" to the size of the church interior.

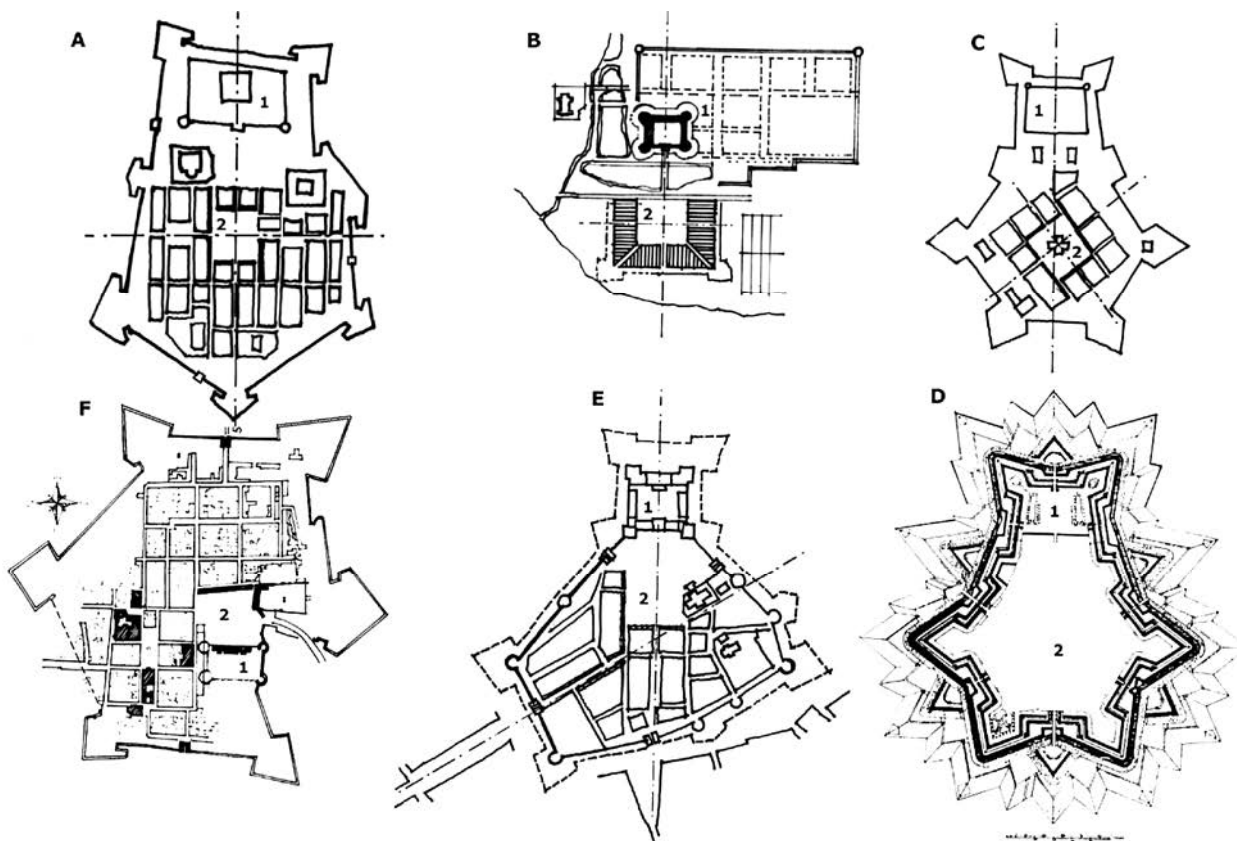
According to the characteristics of its historical architectural and urban structure, Zhovkva complies with the main requirements of the *List of historical settlements of Ukraine* regarding to the criteria of uniqueness, authenticity and consistency of the heritage. The city has a well-preserved original Renaissance planning structure and a number of architectural monuments that are associated with it. The existence of the Renaissance plan makes the city unique both in Ukraine and in the Eastern Europe. The wooden church of the Holy Trinity is one of the reference objects of the Renaissance city planning. It is located in the place where a defensive gate at the entrance to the fortified suburbs on the road from Lviv was put [14].

By the time of its foundation, Zhovkva has been one of the cities of the late Renaissance which arose on the eastern borders of the Polish-Lithuanian Commonwealth, creating a system of fortified settlements to strengthen the defense capacity of territories often attacked by southern neighbours (Tatars and Turks). However, the architectural and planning features of this fortress city have not yet been the subject of special scientific consideration in comparison with the defining examples of European Renaissance urbanism (Fig. 1). Today, the researchers have not yet agreed on the genesis of the Zhovkva Planning Pattern; the specific characteristics of its Renaissance city-building composition have not been identified and compared with similar implementations in other parts of Europe, although in general, the identity of the city plan was studied in the works by O. Sosnowski [15], V. Chornovus [16], S. Kravtsov [17], A. Martyniuk-Medvetska [18], and I. Krypyakevych [19], M. Książek [20], K. Kuśnierz [21, 22], H. Yaremych, Y. Kalika [23], and others. In our previous publications, we have already covered the issues of uniqueness of urban studies in Zhovkva [24, 25, 26], so now we are trying to develop this topic further. We believe that the immediate task of researchers is to explore the scheme of the planning structure of Zhovkva at the time of its foundation, to find out its prototypes, and compare the architectural and urban composition of Zhovkva with other objects of European urbanism of the Renaissance age (Fig. 2).

The history of Zhovkva being put on the historical map of Halychyna is unique. This city was founded in the last decade of the 16<sup>th</sup> century as a private fortified residence city. The times of the city's foundation were marked by a constant threat of military actions on the lands of the Western Ukraine and, in particular, in Halychyna. Poland, Ukraine (which strived for autonomy), Turkey, Austria, Tataria, Wallachia and Transylvania confronted each other here. Constant wars caused to its development as one of the most active new fortress-city construction areas in Europe in the 16<sup>th</sup>–17<sup>th</sup> centuries. Almost all these new cities were private, that is, they were founded by the rich owners of large land latifundia [27].



**Fig. 1.** Photo of central square of town of Zhovkva at the beginning of 20th century. The blocks of late Renaissance buildings with loggias-arcades in parter (northern part of square) [<http://www.polona.pl>].



**Fig. 2.** Comparative analysis of city plans (towns located in the 16–17th century): A – Zamość; B – Krasieczyn; C, D – Stanislaw; F – Sabbioneta; E – Zhovkva; 1 – castle, 2 – middletown.

The development of the construction of private cities in Ukraine in the 16th and 17th centuries, unfortunately, has not been studied yet. The history and geography of such cities are also to be thoroughly investigated. However, with the reference to the article by K. Kuśnierz it can be argued that the urbanization processes in Halychyna at this time occurred in much larger scale than in the rest part of Poland [28]. This era

left extremely valuable examples of urban planning, most of which, unfortunately, have been reconstructed or completely destroyed in later times (e.g., the planning structures and fortifications of the cities of Berezhany, Rohatyn, Uhniv, Kukeziv, Vasiuchyn, Kniahynychi, Burshtyn, Svirzh and many others [29].

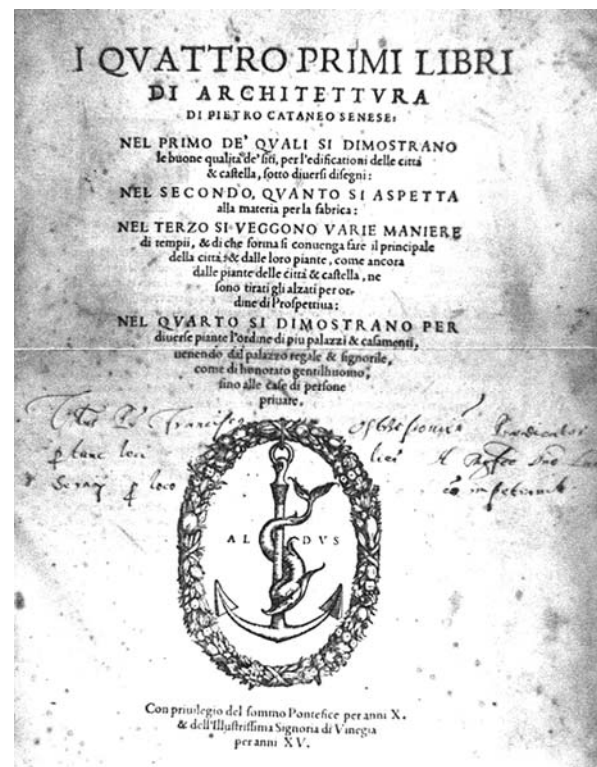
Another characteristic feature of urban planning at the end of the 15<sup>th</sup> century is the emergence and expansion of new concepts of the city planning in Halychyna and Ukraine, based on the imitation of Italian planning structures for the construction of the *ideal city* of the Renaissance. Italian architects, many of whom worked at the princely or noble courts, at monastic orders (Pietro Sperendio, Bernardo Morando, Aurelio Passaroti, Giacomo Briano, Paolo Clamensi, etc.), or those who settled as practicing architects in larger cities, encouraged this. For example, about ten architects of Italian origin practiced in Lviv at the turn of the 16th and 17th centuries – Paolo Dominichi, Pietro di Barbona, Ambrosio Nutklaus and others [30].

The inspiration and the implementation behind the state-of-the-art urban planning ideas were encouraged by the princely or noble ranks of the Polish state [31], and Halychyna was the part of it at that time. Halychyna and then all of Ukraine went under control of the Polish king through hereditary law at the end of the 14th century. Accordingly, all the Ukrainian (Ruthenian) gentry or prince's families were in service of the Polish king and had some of the high positions in the Polish state. Some special efforts were demonstrated by the ancient Ukrainian noble families who owned huge estates in the east of the Polish state i.e. in Halychyna, Podillya, Kyiv region, and belonged to the group of the richest people of the kingdom (for example, the Ostrogskis, the Vyshnevetskys, the Sieniawskis, and others as well as the Żółkiewskis). At the time of the founding of Zhovkva, Stanislav Żółkiewski had a high state office and title of crown hetman owning significant estates in the Ruthenian, Belz, Lublin and other voivodeships [32].

The emergence of well-fortified private residential cities in Ukraine was a well-prepared and characteristic phenomenon for that time. In addition to military factors, the construction of such cities was determined by the presence of relevant customers and by their financial capacity, which was underpinned by the corresponding development of engineering and architectural thoughts; there was a profound economic background for building new cities (Fig. 3, 10).



**Fig. 3.** Buildings with loggias-arcades in the central part of Zhovkva (drawing made at the beginning of the 19th century) [Zhovkva. Atlas ukrayinskykh istorychnykh mist. T. 3. Sc. Editor M. Kapral, Lviv, 2016, p. 32]



**Fig. 4.** Cover page of the book by Pietro Cataneo Senese [Quattro primi Libri di Architettura di Pietro Cataneo Senese. – Venetia: 1567. – P. 1. Photo by M. Bevz]

Zhovkva was one of the earliest implementations of the concept of *ideal city* on Ukrainian lands. There is only a small amount of Ukrainian cities that have preserved the Renaissance structure to this day. One of them is the town of Sharhorod in Vinnytsia region which was founded in 1580 by the Chancellor of the royal court Zamojski with the participation of architect Bernardo Morando. However, the detailed study of the building system which was conducted in 1988 (Yu. Nelhovskiy), and in 1994 (T. Trehubova) [33] did not find traces at the site that would sufficiently confirm the Renaissance planning and fortification which were characteristic of that time. According to T. Trehubova, the structure of the central part of Sharhorod, which is preserved to our time in rather full historical form, does not confirm the Renaissance principles of its planning layout [34]. Therefore, the planning model of the city and the nature of its lost fortifications from the 15<sup>th</sup> century remain the subject of theoretical scientific discussions and hypotheses.

To the later implementations of the ideal city concept belongs Stanislav (Ivano-Frankivsk; Fig. 2). Until the 1970's, this city still retained the remains of its bastion fortifications, but they were destroyed during the reconstruction of the city center for the construction of a Soviet administrative buildings. This construction destroyed the unique layout of the city center which distinguished this city from other historic cities of Ukraine.

Experts estimate that there are many more cities in Halychyna, which, at the time of foundation, did not receive a purely Renaissance but a transitional architectural and planning style with elements of a medieval and Renaissance city. These include Berezhany, Ternopil, Nemyriv, Novi Strilyshcha [35], and other cities.

Brody is also considered to be one of the earliest Renaissance cities in Ukraine. It is worth mentioning that the city, which was called Liubych in the beginning, also belonged to the possessions of Żółkiewskis. The founding of the city, like in the case with Zhovkva, was carried fourteen earlier on the initiative of hetman Stanislav Żółkiewski, i.e. in 1580 (but the researcher S. Kravtsov presents another date of laying of Brody – 1584) [36]. The city is located relatively not far away from Zhovkva – about 70–80 km to the north-east. The city consisted of a castle which was located on an island in the middle of a large pond. The original planning of the city has not fully survived. In 1630, Stanisław Koniecpolski, the new owner of the city, carried out a radical reconstruction, enlarging its territory and transforming its planning structure [37].

### 3. Results and Discussion

Taking into account all the facts collected about the town of Zhovkva, we argue that it has been the oldest preserved example of the Renaissance ideal city in Ukraine. And, what is more important, the state of preservation of the city's building and planning system is relatively sufficient and allows.

One of the special features of the Renaissance cities was the principle of planning a square in front of the residence of the city owner. In most cases these squares were planned separately from the rest of the more utilitarian squares of the city and formed a special front space in front of the owner's palace (e.g., the cities of Zamość, Quastalla, Sabbioneta, etc.) [40]. One of the most important features of Zhovkva is that this square was combined here with the main public and commercial square of the city. That implies, on the one hand, that Zhovkva belongs to the so-called classical planning type of the Renaissance city, when the ring or square of the defensive walls of the castle touches the city ring of fortifications with one side, and on the other, it is an example of the so-called “compositional combination” of the owner's castle and the main square of the city [41] (Fig. 7). This type of layout was not very common but we can indicate two more similar towns possessing the same structure – Krasiczyn in Poland, and Sabbioneta in Italy [42] (Fig. 2).

In the early Italian period, the residential square in front of the castle was formed at the entrance to the prince's palace through the expansion of the street (along the entire length of the palace facade). The square-street in front of the Palazzo Pitti in Florence is the illustration of this structure. Therefore, it can be argued that the planning of the square used in Zhovkva has certain associations with the early urban experiments in Italy. On the other hand, the combination of ceremonial (castle) and public city functions which are carried out by the Zhovkva's main square is a distinctive factor for contemporary urban planning practices. The final

assignment of the solemnly-representative functions (ceremonial places near the palace) to main squares of the residential cities took place only in the middle and second half of the 17th century, mainly in the French projects of ideal cities, namely in the projects of Jean Errard Bar-le-Duc [43, 44], and also in the project of ideal city by Adam Freytag (1631) [45].

It is noteworthy to point out another prerequisite of Zhovkva emergence – the rapid development of urban science at the times of laying the city foundations. Having this in mind, among the theoretical works of the architects who worked out the principles of the layout of the ideal city, we should consider only the works which preceded the time of its construction. The list is not long – these are the studies of Francesco di Giorgio Martini (1501), Pietro Cataneo (1550, 1567), Daniele Barbaro (1567) and Bartolomeo Ammanati (1570) [46]. In particular, the works of these authors could serve as a model for the planning works in Zhovkva, since they were published and distributed among architects before 1580–1590s. In these works, we often find suggestions for the installation of defensive urban fortifications, mainly in the form of walls with semicircular bastions [47].

In view of this, it becomes clear why the old system of fortifications (defensive walls, towers and bastions) were used in Zhovkva, rather than a completely new bastion one. However, it should be noted that the entrance gates to the city are already implemented under the new system as well as the fact that along with the defensive walls an additional line of earth bastions was implemented. However, the researchers have not reached an agreement about the time of its appearance. It is believed that it might have appeared somewhat later. Though, one should pay attention to the fact that documents from 1621 mention almost finished defense structures of the city and Zhovkva is named there as “complete fortress” [48]. It should be also noted that the documents of 1621 indicate the existence of four city gates – Lvivka, Zvirynetska, Glynska and Jewish. Thus, we can assume that they are not the products of later times either. This fact ensures that the city has already possessed a bastion defense line. It is quite probable that the entire system of urban fortifications was built in a relatively short period – from 1594 to 1621. The combination of new and old defense construction systems in Zhovkva is really thought-provoking and requires more detailed study and more specific dating. In particular, a comprehensive archaeological study of selected sections of the defensive walls and adjacent bastions could be very practical for further scientific development.

If we carefully analyze the plans of cities proposed by the mentioned above Italian theorists of urbanism, it is easy to trace the huge similarity of Zhovkva's planning style to one of the theoretical projects by Pietro Cataneo [49] (Fig. 4, 5–6, 7–8).

We can find one more striking feature in the works by Pietro Cataneo and it is that two versions of the planning layout of the ideal city have been developed. The first layout is with an irregular configuration of the plan and the second one presents a regular one (Fig. 5–6, 7–8). Actually Zhovkva has a similar layout according to the general compositional plan of the first irregular type. The second (regular) type is very similar to the planning of Brody. The planning structure of Brody was changed in 1630s when the city was enlarged and reconstructed. But there is enough evidence to suggest that this reconstruction was based on the previous planning pattern. This idea is deeply elaborated in the studies by B. Chornovus [50]. And later, S. Kravtsov has convincingly proved that the town consists of two layouts which divide it into the Old and the New part with different planning structure and metric conformity [51] (Fig. 8).

The fact that both Zhovkva and Brody were founded almost simultaneously and by the same owner – Stanislav Zholkevski (Żółkiewski) – and perhaps by the same architect Paolo de Dukato Clamensi (known also as Pavlo Shchaslyvyi, Pawel Szcześliwy) [52], manifests that their similarity appears not to be accidental. We can suggest that these Western Ukrainian cities are a unique implementation of the theoretical project concepts of the ideal Renaissance city by Pietro Cataneo.

The hypothesis developed above requires more in-depth investigation, balanced discussion, and deep comparative studies of the theoretical or realized models of Renaissance city-planning in Italy and other countries. On the basis of our research it is consistently emphasised that Zhovkva and Brody should be regarded as worthy of more attention in the field of national and European urbanism in the late 16<sup>th</sup> – early 17<sup>th</sup> centuries.

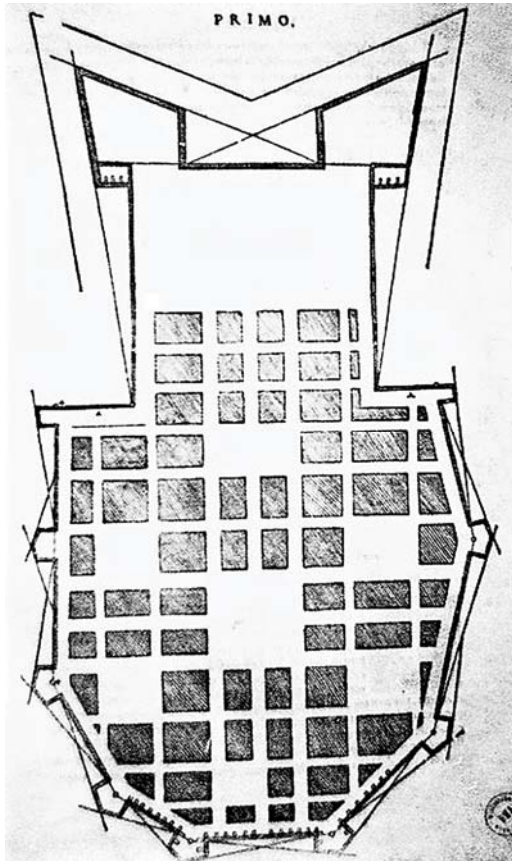


Fig. 5. The planning model of city plan with irregular perimeter [I Quattro primi Libri di Architettura di Pietro Cataneo Senese. – Venetia: 1567, p. 19. Photo by M. Bevz]

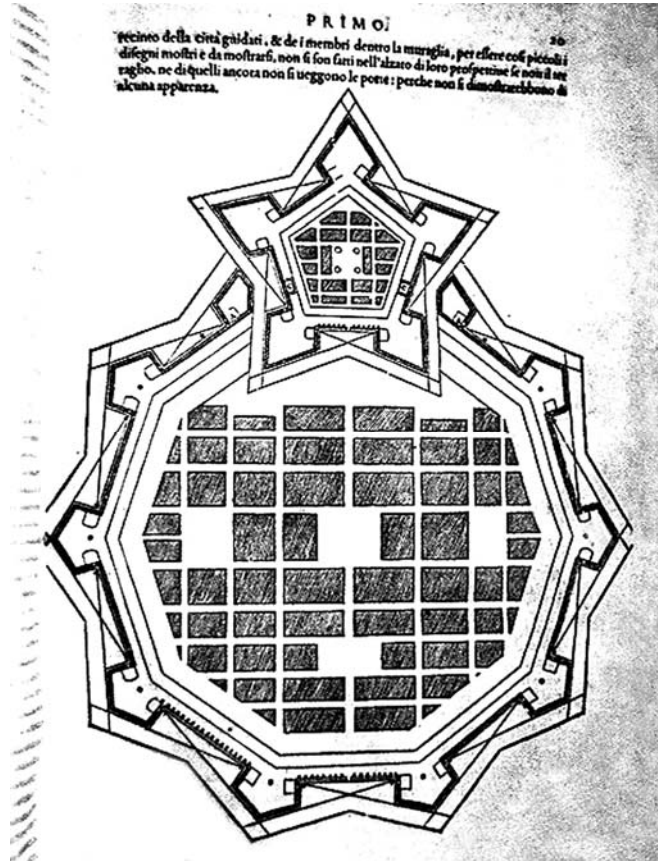


Fig. 6. The planning model of city plan with a regular perimeter [I Quattro primi Libri di Architettura di Pietro Cataneo Senese. – Venetia: 1567, p. 20. Photo by M. Bevz]

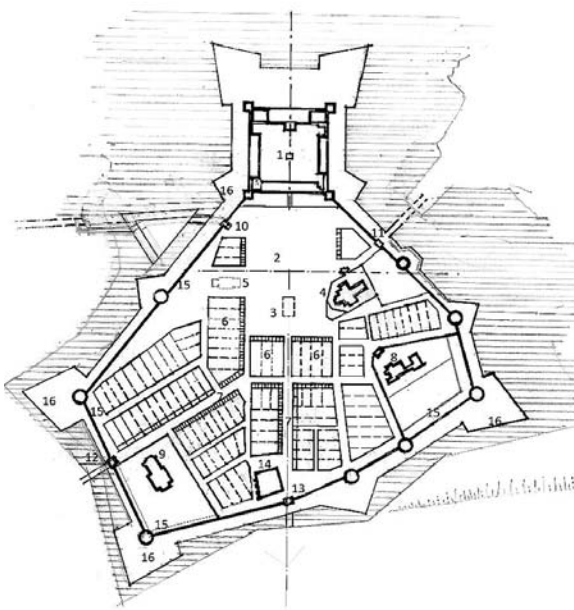


Fig. 7. The planning scheme of town of Zhovkva, 17 century [by M. Bevz]

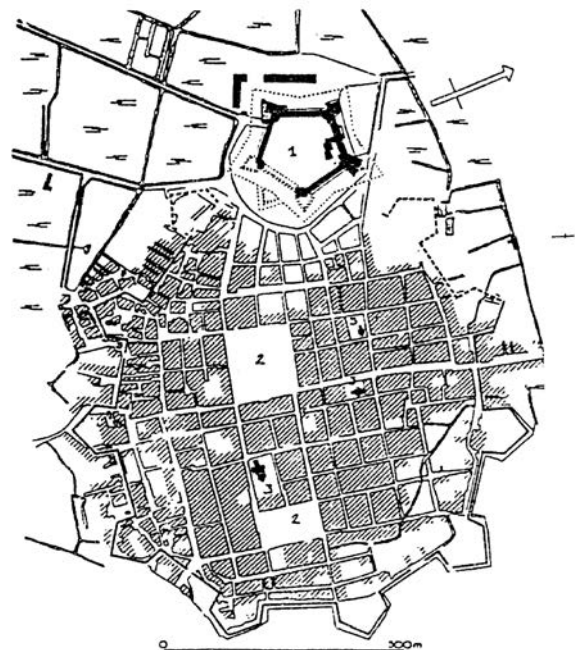
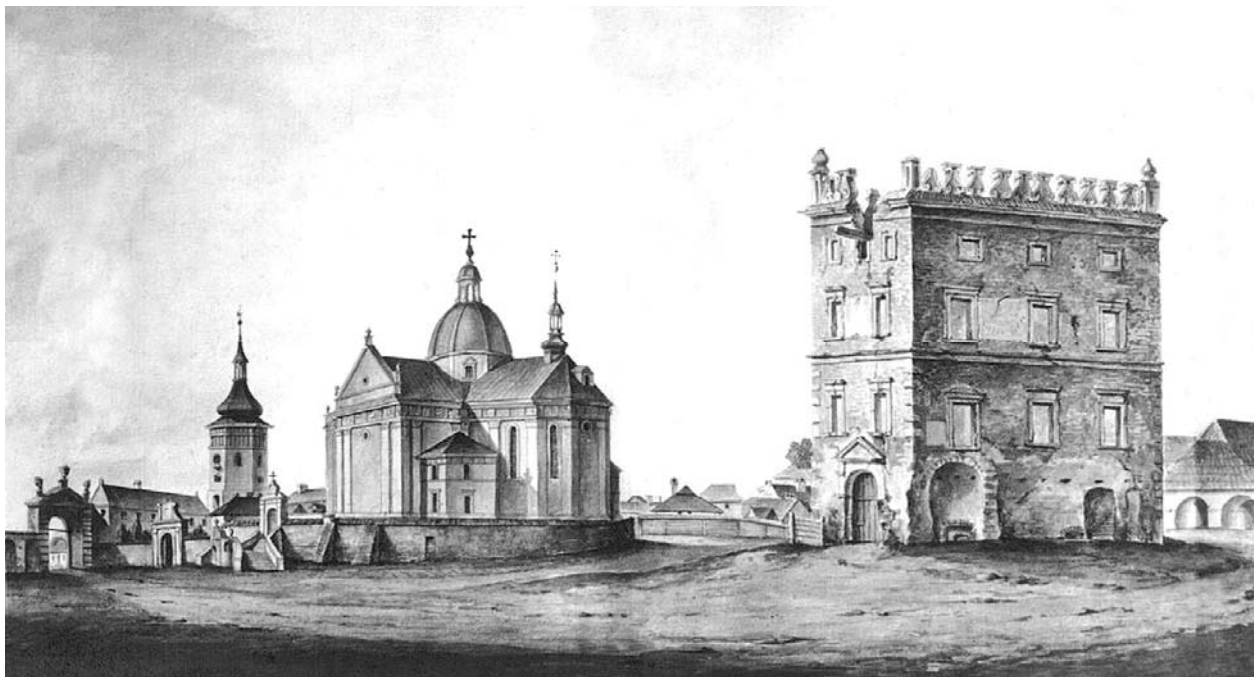


Fig. 8. The planning scheme of town of Brody, 17 century [by M. Kalinowski]



**Fig. 10.** Drawing of Rynok square in Zhovkva with the church and town hall building in the last few years of the 18 century  
 [https://polona.pl/item/zolkiew-w-koncu-18-wieku,NDAYMTgyMTY/0/]

#### 4. Conclusions

1. The town of Zhovkva belongs to the late Renaissance foundations of private residential towns in the territory of the Polish state at the end of the 16<sup>th</sup> century. The urban-spatial structure of the city was designed according to the concept of the Renaissance *ideal city*. The spatial structure of the town consisted of two conjugated parts: the castle and the fortified middletown. The combination of these two parts – the central square of the town is combined with the main facade of the castle complex – was infrequent at that time.

2. Zhovkva is one of the few towns the architect of which is a well-known person – the Italian architect Paolo de Ducato Clamensi (in Lviv he was known under the name of Pavlo Shchaslyvyi (the Happy Paul)), a member of Lviv craft masonry guild who at that time was in service of hetman Stanislav Zholkevski. In 1601–1612, he was assigned for the position of the Head of the Town Court. The construction of the castle and the town itself became an ambitious project and a life-long dream for the architect.

3. The facts of the analysis allow us to state the hypothesis that the architect planning the town used theoretical ideas of the Renaissance *ideal city* in its architecture. We believe that he implemented one of the schemes of an *ideal city* which was described in *Four Books on Architecture* by Pietro Cataneo (published in Venice in 1567). Thus, Zhovkva is one of the only European towns built on the conception of the Cataneo's theoretical model.

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**ЖОВКВА – МІСТО, ЗАКЛАДЕНЕ НАПРИКІНЦІ  
XVI СТОЛІТТЯ НА АРХІТЕКТУРНО-РОЗПЛАНУВАЛЬНИХ ЗАСАДАХ  
РЕНЕСАНСНОГО “ІДЕАЛЬНОГО МІСТА”**

**Анотація:** Матеріали дослідження висвітлюють гіпотезу про те, що Жовква є унікальним прикладом пізньоренесансного містобудування і була побудована наприкінці XVI століття як приватне місто-резиденція за функціонально-просторовою схемою “ідеального міста”. Місто має частково збережену автентичну розпланувальну структуру доби ренесансу та низку архітектурних пам’яток, пов’язаних із нею. Теоретична реконструкція схеми первісного історичного розпланування середмістя і замку дозволяє висловити гіпотезу про її схожість з проектами міст, що опубліковані в трактаті італійського архітектора XVI століття П’єтро Катанео “Чотири книги про архітектуру”.

**Ключові слова:** місто Жовква, містобудування, Ренесанс, розпланувальна структура, “ідеальне місто”, П’єтро Катанео.

## URBAN LANDSCAPE AND GREENERY PROTECTION

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**Abstract.** Human being has the most significant influence on the landscape, especially with laws created by him and for their usage. In Poland, in January 2017, the bill, which allowed nearly unlimited cutting of trees that are not intended for economic activity on private plots of land, came into force. The main argument for discarding high greenery protection, was, above all, giving owners full, unrestricted use of their property. With this line of thinking, it could be assumed that all building restrictions are unnecessary. In short period of time many environmentally valuable, age-old trees ceased to exist, because they were cut down by property owners. In many places this process changed streets and urban landscape. Until the end of 2016, it was mandatory to have a permit from municipality to cut a tree, no matter where it grew. This permit also defined what was needed to be done in exchange for removal of high greenery. In most cases those were either specific amount of money that needed to be paid on municipality account, or suitable number of new trees of native value that needed to be planted. It was a common practice that cutting down one or two trees required planting several new ones. Man-made laws often have irreversible consequences, in this case, several dozen or even several hundred years old trees ceased to exist.

**Key words:** greenery protection, landscape devastation, Natura 2000, role of greenery, trees cutting down.

### 1. Introduction

The investigation was conducted in the form of our own observations, field studies, bibliographical analysis which includes legal acts, and photographic analysis.

From the theoretical perspective the urban landscape is the combination of two factors – nature and human being. In practice it is primarily the man's work. Nature has beautifully shaped our lands, changing from valleys to hills, and from hills to mountains of different heights. The most beautiful views are those where the landscape is variable with having several elements of urban composition. One of the most interesting is a wide foreground, and then a panoramic view consisting of greenery and buildings. The landscape with diverse greenery is sure to be an attractive one, and the one which includes buildings or monumental sculptures has an amazing attraction for the human eye.

The dominant is the recognizable point of the landscape, and it is usually built by people but located in elevations formed by nature. Greenery, especially high greenery, has a significant impact on the landscape composition. In the structure of the urban landscape we differentiate the following most important constituents: the level of land, i.e. the greenery, especially high greenery; and the level of man made objects of different types (understood as buildings and elements of land development) (Switalska A. 2017).

Even people who are well-educated and have the awareness of benefits which nature offer us choose the financial profit instead of making the necessary steps to protect nature. Until the end of 2016, to cut down a tree, regardless its location and property, a permit from municipality was necessary. This permit on cutting down was mostly connected with the financial revenue or the demand to plant new trees of native

species in turn of the removal of high green trees. In most cases it was a fixed amount of money to be put into a municipality account, or a person had to plant a sufficient number of new trees. Cutting down one or several trees has usually resulted in need to plant dozen or so or several dozen of trees. Depending on the species, size of the trunk and the age of a tree, amount of money paid to a municipality could reach even several hundred thousand and even millions of Polish zlotys. There were also situations in which no agreement was reached in cutting trees. (USTAWA, 2004)

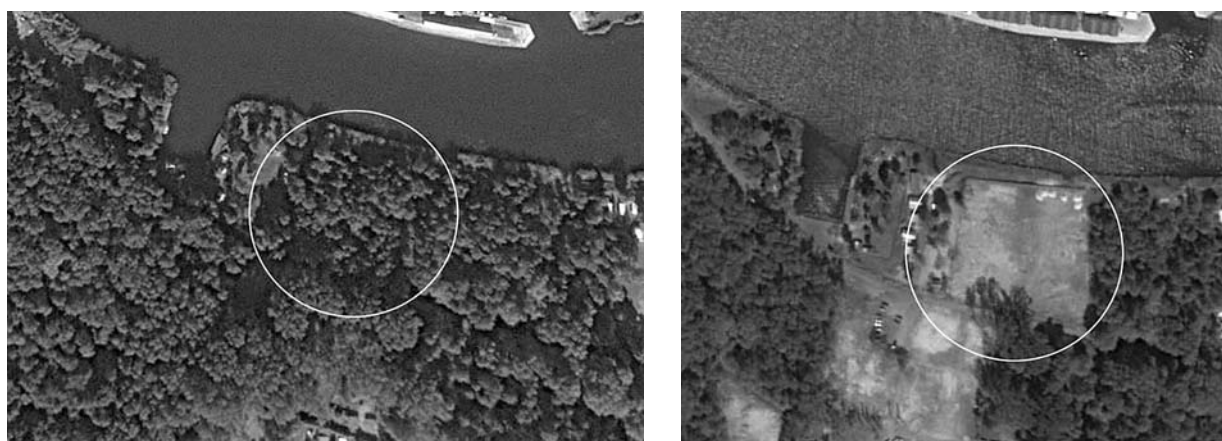


**Fig. 1a.** The illustration shows a foreground with a further panorama, The Joshua Tree National Park, United States.  
Photo by Alicja Świtalska



**Fig. 1b.** The illustration shows foreground with a further panorama, Ukraine.  
Photo by the author

One part of the study covers the selected area (Fig. 2, 3), and it is conducted on the basis of extensive field analysis. It was elaborated over several years and is related to the selected real estate and legal conditions. The basis was the study of the places where the landscape was altered by thoughtless but agreed by the law clearance of trees. The aim of cutting down the high greening was primarily to receive profit, and not the issues of threat to the environment or care for space. This kind of trees clearance would be acceptable in case it concerns safety of people or introduction of any kind of public space, however it was not the case.



**Fig. 2.** Discussed areas are circled. On the left the illustration shows the area in 2013, and on the right, it is the same area in 2017. Source: <https://earth.google.com/web/> edited by the author

## 2. The illustration of disturbed/altered panorama

One of many examples of the devastation of greenery and at the same time landscape in Poland after January 1, 2017, is an area protected by the *Natura 2000*.

*Natura 2000* is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right. It stretches across all 28 EU countries, both on land and at sea. The aim of the network is to ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under both the *Birds Directive* and the *Habitats Directive* (Natura, 2000).

European Union efforts to protect plants and animals on a wide scale are commendable because they affect sustainable development. The positive influence which it will have for future generations is the protected greenery, and trees in particular, which can serve for many years ahead.

*We aim to protect all animal and plant species facing particular threats in Europe. The world's largest network of protected areas, it offers a haven to Europe's most valuable and threatened species and habitats (Natura, 2000).*

An example of the landscape devastation caused by cutting down trees which also led to bird habitats liquidation, was possible by adopting a bill which enables such actions. It has become possible because of putting forward a corresponding amendment to the Nature Conservation Act and the Forest Act, on 16 December 2016, which states that the trees or shrubs which grow on a private property owned by natural persons and are removed on non-business purposes can be removed without a permit (USTAWA, 2016). In many private plots trees were cut down, and later these spots were transform into business places. The main reason for cutting down trees in the private plots is to adjust this land to the commercial purposes.

The area shown in Fig. 3 is the example of devastation of high greenery, caused by the adoption of irresponsible law. How the area looked in 2013 shows the top picture of Fig. 3. After the clearance of trees that took place in 2017, the view is shown in Fig. 3 below. The trees formed a harmonic landscape which influenced the microclimate and gave the survival of bird habitats.



**Fig. 3.** The panorama of the *Natura 2000* protected area. The top photo shows the 2011 look, the bottom illustration shows the 2017 image after the trees are cut. The square indicates where the landscape has changed. Source: the author

The law that should protect nature in fact has destroyed it. Landscape devastation, especially in the tourist town, is incorrect and unsound as might highly affect the reception of tourists in this place.

New legal regulations have aroused the number of tree cuttings especially in areas where it was not allowed, as soon as people who had been trying to get permit to cut trees for years learned about the new regulation came into force, they immediately started to clear the trees. Only few of them asked whether the trees on their plots could be removed or if there are other legal acts which limit or ban such removal. There are so many legal regulations that people do not know their force. However, there are institutions where everyone can apply for information and find out whether it is allowed to cut down a tree on their plot. Mass media reports that it is allowed to cut down trees on private plots without any kind of permit has caused an extensive destruction of trees in Poland since January, 2017. The institution called *General Directorate for Environmental Protection* provides information about the legal details and all regulations in cutting down the trees. We found

out there that in this area there is a forest (the law does not apply to forests) and the same area is covered by the programme *Natura 2000*. In the opinion of *General Directorate for Environmental Protection* the area where the spot is located the destroyed trees grew in the forest, and the forest clearance may potentially have significantly negative impact on the environment. Thus, it was necessary to obtain a permit for removal of trees (Kamieskie.info, 2017).

The adopted law allows to cut down the trees on a private property, and has led to its thoughtless increase as people do not check whether the area has a local plan of spatial development, which prohibits the removal of trees or is protected by *Natura 2000*. It should be developed in the inspection of land use conditions and directions of municipality.



Fig. 4. The studied area in which the trees were cut down. Source: the author

### 3. Role of greenery in a city (Czekiel-Świtalska E., 2010)

Apart of shaping the landscape and typical nature values, greenery has many other useful functions. The social function of greenery is explained in terms of rest, active and passive recreation. Walking, jogging and cycling done in green areas improves health and overall well-being of a person. Playgrounds which are designed together with the sets of green plantings also promote social integration among children and parents. The important role of greenery is in its educational and ecological function. Dendrological parks, extent monuments of nature and variety of green species helps to enforce those roles. At a time when a large number of various institutions is trying to improve the health of people, greenery has an immense factor which promotes it.

The aesthetics role of greenery in urban areas has to be highly appreciate as well. It enriches the landscape, adds charm to the streets and city squares, shapes walking trails and resting places. Certain species of plants, properly planted or shaped form beautiful compositions. The changing colours of greenery at different seasons of the year affect the diverse perception of the urban space.

Greenery also performs functions of flood protection, fire protection and wind protection. Thanks to the orderly greenery, the city has its own character. People living in such cities have daily contact with nature and its positive influence. The benefits of maintaining, cultivating and planting greenery result in the increase of cities attractiveness, both for residents and tourists.

Greenery in the city also performs other important functions as helps to improve living conditions. Trees protect human organisms from overheating on hot days. Greenery can affect the sense of security by isolating the sidewalks from the window view of the apartments.

*It has been believed for over a millennium in Europe and Asia that greenery has a positive influence on health and health-recovery (...). Presently, scientific evidence supports the inclusion of greenery (...), which assists in the relieving of stress, the calming (...) and generally providing a welcome escape from the monotony (...) environment (...) improve (...) physical and mental conditions (Switalska A. 2014).*

Greenery performs the health care function as the air is purified from dust, noise suppression, exhaust and oxygen replenishment. Further, the green colour of leaves has a positive effect on the eyesight and relaxation. In addition to this, lots of plants emit essential oils which have medical properties; numerous species of trees produce aerosol compounds.

*One of the main components of a city, which play a huge role in its microclimate, are the city's green spaces. The author of this paper suggests an increase of green areas, a re-building of a city through the use of greenery on the walls of buildings. Various methods are suggested, such as the more traditional ivy/vine-like plants, as well as the so-called 'live walls' and vertical gardens. Advantages and certain disadvantages of such green spaces and solutions have been investigated. Additionally, various functions with the focus on the aesthetic and psychological effects of green areas on the residents and their well-being are presented in the paper (Bartnicka M. et.al. 2009, p. 17).*

The biologically active areas, and in particular those enriched with trees, decrease the level of flooding and the threat of flooding the buildings. In case of heavy rainfalls or quick/rapid snow melting, the sewage systems are often unable to collect large amounts of water. Areas with pervious surface and trees in large amount absorb water excess, which prevents buildings from flooding. The flooding of buildings might often cause dampness of the dwelling.



**Fot. 5.** The top picture illustrates how lots of areas look in Poland after the law has come into force. Source: the author. The bottom picture shows how the same place looked before the trees were cut down. Source: Google Earth Pro

#### 4. Conclusions

The article is underpinned by the thorough analysis of selected publications, legal acts and observation of space. The study has also used individual observation regarding the effects of the law coming into force, the task of which should be to protect nature but instead it allows its devastation.

In defense of this legal solutions, it is declared that about 90–95 % (Ministerstwo Środowiska, 2017) of permits for cutting down a tree (these data are not covered by the study, it is only announced by the Ministry of the Environment) was favorably considered. However, it does not mention that some of the applicants having had to pay a lot, resigned from cutting down a tree or trees. Consequently, it does not trace the number of trees which should have been planted instead of the cut ones. The number of them could have reach an enormous figure. In previous times, a significant part of destroyed trees was compensated by new putting plantings, usually there were much more new trees planted than the number of trees being removed.

The argument which has aroused is that an owner should have the right to change his area of ground freely. It is similiar to the thought that anyone could build on their own property want they want and in the way they want – in that case it could be called freedom for their own property without any care of the public space which might look like a great chaos.

The protection of nature and hence the landscape in many countries begins at the governmental level, and continues at the educational and social level. The process of combined efforts results in broadening the consciousness of various social and age groups.

The irresponsible approach to the protection of nature in Poland in 2017 has led to the removal of thousands of trees, which have a positive impact on human functioning, enrich and even create a landscape. The government actions on the “protection” of the environment has led to the destruction of a forest which is added the UNESCO heritage list, namely Białowieża Forest. Organizations and scientists from Poland and other countries seek the ways how to protect this invaluable natural habitat, but have not found the solution yet. The forest clearance in this wilderness area has not been stopped.

The reason for this devastation is the attack of the European spruce bark beetle and that is why even the old trees in that location need to be cut down. This situation concerns a significant part of the unique terrain. Some established scientists question the need of the artificially reduction of the gradation of the European spruce bark beetle, and also stress that the actions taken in the Białowieża Forest will not stop its invasion but will harm the biodiversity of the Forest and the sustainability of its natural processes. The management of such a unique and complex ecosystem as the Białowieża Forest should consider the main fundamental facts of natural sciences (Bącela-Spychalska K. et.al. 2017).

*The greenery (...) has decorative, insulation, atmosphere purification, recreational, protective, noise preventing, aesthetic, educational, healthy and sport functions. It plays a significant role in urban layout of the city and positively influences its landscape* (Czekiel-Świtalska E. 2010, p. 165).

People behaviour, especially of authorities, must be balanced and geared towards preserving the nature heritage, not destroying, for example, centuries-old trees. Destruction is very straightforward and it can be done quickly, however regeneration takes many years, even hundreds of years, and often it is impossible to achieve previous condition of natural area.

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## МІСЬКИЙ ЛАНДШАФТ ТА ОХОРОНА ЗЕЛЕНИХ НАСАДЖЕНЬ

**Анотація.** Статтю присвячено дослідженню законодавства у сфері охорони природного ландшафту і, зокрема озеленення, в Польщі. Описується реальність та наслідки прийнятих рішень стосовно збереження та відновлення історичних зелених насаджень у містах.

Досвід Польщі показує, що людина найбільше впливає на ландшафт, особливо завдяки створеним законам та їх використанню. У січні 2017 року в Польщі набув чинності закон, який дозволив практично необмежене вирізання дерев на приватних ділянках, не призначених для господарської діяльності. Головним аргументом відмови від охорони високих зелених насаджень було, перш за все, надання власникам повного, необмеженого використання їхньої власності. За короткий проміжок часу багато екологічно цінних, вікових дерев перестали існувати, оскільки їх знищили власники майна. У багатьох місцях цей процес змінив вулиці та міський ландшафт. До кінця 2016 року, щоб вирізати дерево, незалежно від того, де воно виростало, було обов'язковим мати дозвіл від муніципалітету. Цей дозвіл також визначав, що потрібно було б зробити в обмін на вилучення високої зелені. Здебільшого падків це були або певна сума грошей, яку необхідно було виплатити на рахунок муніципалітету, або відповідна кількість нових дерев аналогічної вартості, які необхідно було посадити. Було звичайно прийнятим, що вирізання одного-двох дерев потребувало посадки декількох нових.

Дослідження охоплювали вибрані території, де було застосовано т. зв. польові аналізи. Згаданий аналіз проводився протягом кількох років і пов'язаний з обраними ділянками нерухомості та правовими умовами. Основою було вивчення місць, де ландшафт був змінений бездумним, але законним очищенням від дерев. Метою руйнування високого озеленення був, перш за все, прибуток, а не, наприклад, загроза або догляд за простором. Цей вид очищення від дерев буде зрозумілим у разі безпеки людей або появи громадського простору, але не в цьому випадку.

Аргумент, що власник повинен мати можливість вільно розпоряджатися своєю нерухомістю, надає свободу використання власної власності, тоді як публічний простір виглядатиме як великий хаос.

Охорона природи і, отже, ландшафту у багатьох країнах починається в уряді, і вона повинна закінчуватися освітою та розширювати свідомість різних соціальних та вікових груп.

Безвідповідальний підхід до охорони природи в Польщі в 2017 році привів до вилучення тисяч дерев, які позитивно впливають на функціонування людини, збагачують і навіть створюють ландшафт. Інші заходи уряду щодо захисту навколишнього середовища призвели до знищення глобально цінного Біловезького лісу, що належав до цінної всесвітньої спадщини. Організації та вчені з Польщі та інших країн хотіли захистити ці цінні природні місця, але це не допомогло. Лісозаготівля в цьому районі дикої природи не була зупинена.

Приводом для цього руйнування стало те, що на дерева напали личинки європейського жука-короїда, і тому навіть старі дерева з цього місця світового рівня повинні бути знищені. Видатні вчені ставлять під сумнів необхідність штучного зменшення поширення європейського жука-короїда, а також вважають, що дії, взяті в лісі Біловезького лісу, не припиняють його вторгнення, але завдають шкоди біорізноманітності лісу та безперервності її природних процесів. Керування такою унікальною та складною екосистемою, як Біловезький ліс, повинна враховувати переважно фундаментальні факти природничих наук.

Озеленення має декоративну, ізоляційну, очищувальну, рекреаційну, шумозахисну, естетичну, освітню, оздоровчу та спортивну функції. Він відіграє значну роль у міському плануванні міста та позитивно впливає на його ландшафт. Людська поведінка, особливо влада, повинна бути збалансованою і спрямована на збереження природної спадщини, не руйнуючи, наприклад, багатовікових дерев. Знищення є дуже простим, і це можна зробити швидко, однак регенерація триває багато років, навіть сотні років, і часто неможливо досягти попереднього стану природної території. Людські закони часто мають незворотні наслідки, в цьому випадку кілька десятків або навіть кількості дерев перестали існувати.

**Ключові слова:** охорона зелених насаджень, руйнування краєвиду, Natura 2000, значення зелені, зрізання дерев.

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**REVALORIZATION OF PARKS  
OF HISTORICAL SUBURBAN  
ESTATES BASED ON THE EXAMPLE  
OF OBROSHYNE VILLAGE**

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**Abstract.** Modern historical suburban estates with a park territory are in different forms of ownership and are used for different functions. Such anthropological pressure leads to its degradation and destruction and as a result – complete loss of the object. The project of revalorization of parks of historical suburban estate in Obroshyne village near Lviv city deals with the ways of its preservation and perspective development, adaptation to the new social and urban conditions.

**Key words:** historical parks, revalorization, landscape and spatial arrangement of the park

## **1. Introduction**

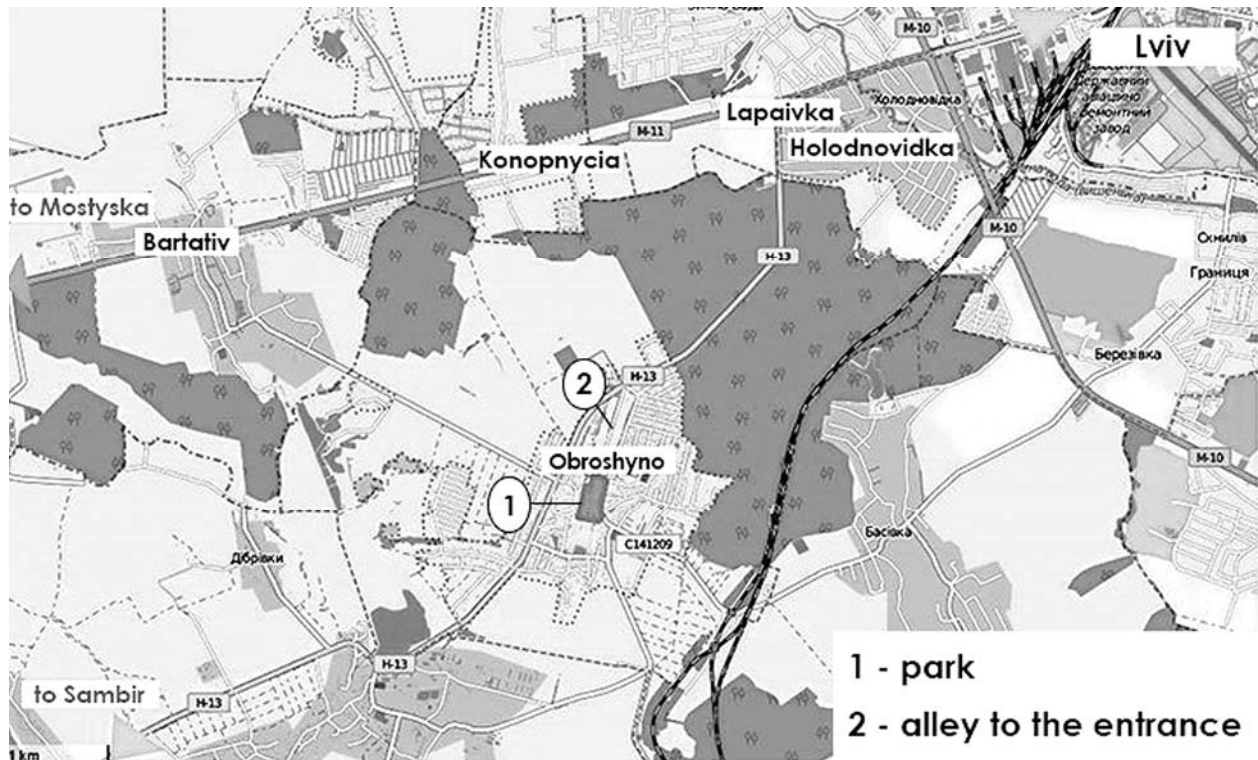
During the past decades, the interest in objects of architectural and historical heritage has grown and in particular to the palace and park complexes. Because of improper functional using, indifference and financial disability of its owners, the problem of its degradation, abandonment, and as a result – destruction and complete loss of an architectural object, has become serious and complicated. The parks of such complexes are on the highest level of danger as its territory is attractive for placing different buildings. A unique combination of landscape and space, architecture and design of such complex, structure of its space compositions which reflect a style of that epoch are especially valuable for visitors of such parks. These palaces and park objects have great tourist, recreational, cultural and didactic potential. And the palace together with its park complex in the village of Obroshyne is the best model of this.

Obroshyne village is located on the 14th km of the road Lviv-Sambir on a hilly terrain with a slope to a valley of the Stavchanka river. The former summer residence of Lviv archbishops being converted into a dendrological park of national significance *Obroshynskiyi* is located there. There is an alley of 800 meters long which was planted with lindens in the early 19th century (Fig. 1).

The palace and park complex has a good road connection – a bus stop is located at the beginning of the alley; and a railway connection – the distance from the railway station Obroshyne, which goes through the forest and village, to the park is about 1500 m (Fig. 1).

Roman Aftanazy in the paper *Materiały do dziejów rezydencji* describes its location features as:

*The existing park, the formation of which took place in several stages during the 18th century, stretched out to the palace and also covered a greenhouse. It had the character of the French regular garden composition with a channel on the axis where at different levels strung terraces, cropped trees, extensive grass lawns, ponds and landscapes located far away from it (1990, p. 379).*



**Fig. 1.** Location plan of the palace and park complex in Obroshyne.  
(author I. Chervinska)

Palace and park complex in the Obroshyne village is now used by Research Institute of Agriculture and Stock-Breeding of Western Ukraine. The monuments in Obroshyne according to the State Register of National Cultural Heritage of Ukraine include:

1. Manor Lviv archbishops (1730, No. 477-0)
2. Palace (No. 477-1) (Fig. 4)
3. Household fligels (No. 477-2) (Fig. 3)
4. Stone fence with main and household gates (No. 477-3) (Fig. 2)
5. Park of the 18<sup>th</sup> century. (No. 477-4) (Fig. 5)



**Fig. 2.** Obroshyne. Stone fence with the main and household gates (on the left) – archive photo taken before 1939 by Roman Aftanazy (1990, photo 386, p. 223). Modern photo (on the right), 2015, photo by Y. Buryak, pizzatravel.com.ua.



**Fig. 3.** Obroshyne. Household fligels (on the left), archive photo taken before 1939 by Roman Aftanazy (1990, photo 387, p. 223). Modern photo (on the right), 2015, photo by I. Chervinska



**Fig. 4.** Obroshyne. The main frontage of the palace with a round flowerbed in front of it (on the left), archive photo taken before 1939 (Narodowe Archiwum Cyfrowe, sygn 1-U-4432); on the right – modern photo of the palace with a monument to Ukrainian poet Ivan Franko in the middle of a flowerbed, 2015 (photo Y. Buryak)



**Fig. 5.** Obroshyne. Park. On the left – the main compositional axis ends with a palace, archive photo taken before 1939 (Narodowe Archiwum Cyfrowe, sygn 1-U-4432), on the right – modern view of the main compositional axis of the park, 2015 (photo by I. Chervinska)



**Fig. 6.** Obroshyne. The main compositional axis of the palace and park complex – alley of lindens of 800 m length (on the right); the beginning of the alley from road Lviv-Sambir with an arch of Scientific Research Institute (on the left); From top to down (on the left), fragments of alley with a newly built church and the ending of its perspective with the main gateway and palace (photo by I. Chervinska, 2015)

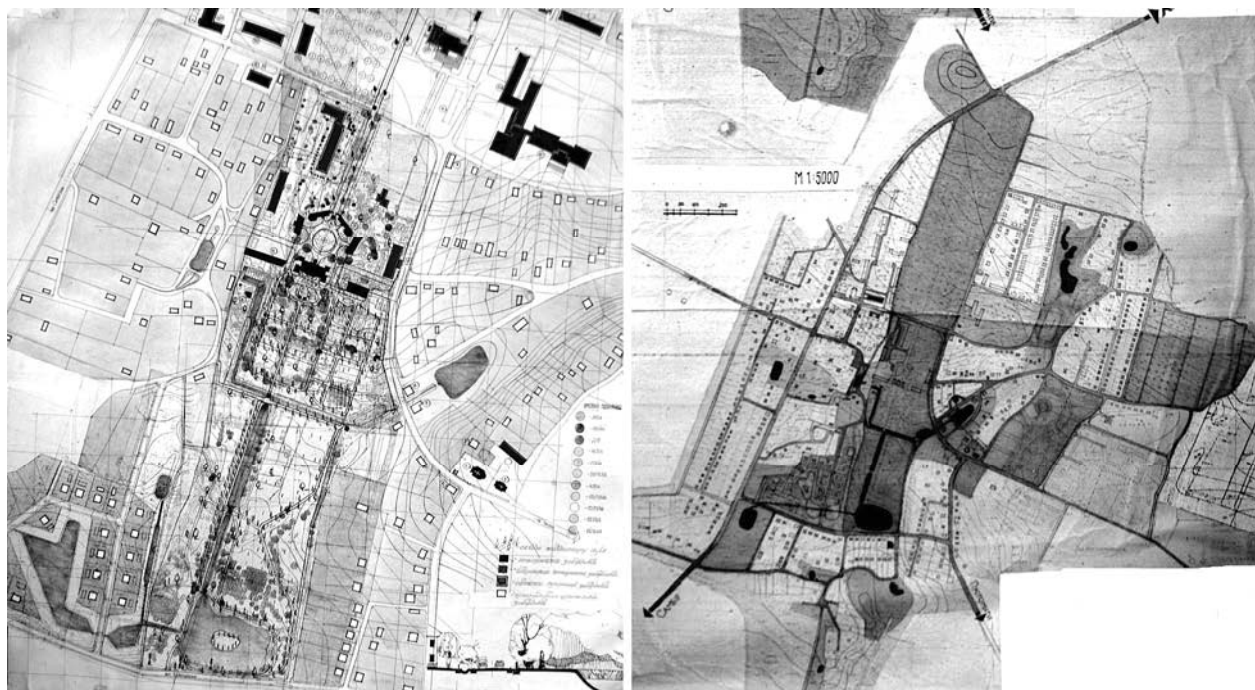
The main dates of historical investigations:

- 1411 – the earliest mention of Obroshyne.
- 1456 – Polish King Kazimierz Jangelonczik passes his mansion to his castellan Piotr Shamstulski.
- 1466 – mansion was bought by archbishop Grzegorz (Gjegoj) from Sanok.
- 1466–1939 – palace and park are owned by Lviv archbishops.
- 1568, September – Lviv archbishop of Rome Catholic Church (RCC) Stanislaw Slomowski was granted a lifelong right to own the Obroshyne village.
  - 1704 – Obroshyne is neglected after the Swedish mansion.
  - Early 18<sup>th</sup> century – curia of Rome Catholic Church headed by Jan Skarbek (died in 1753) makes there a summer residence.
    - 1730 – arch. Józef Fontana builds palace in the Baroque style.
    - Ferdinand Fitski (Jan Skarbek's heir) develops mostly a park arrangement, which was the best part of the palace during the long period and now it still has its elegant form.
    - 1780 – W. Serakowski in his will mentions the orangery of the park in Obroshyne.
    - 1914–1918 – the palace is robbed (furniture, books, wooden floors), decay and destruction of interiors.
      - 1920 – facade reconstruction (arch. Bronislaw Wictor and Józef Piotrkovskyj). A balcony, stairs and statues are added to the façade from the park side.
        - 1922–1925 – arch. B. Wictor changes the front facade of the palace into a modern style; park façade remains in the Baroque style.
        - 1945 – a library and an archive of Research Institute of Agriculture and Stock-Breeding of Western Ukraine is placed there.

- 1960s – a small zoo with exotic animals (sika deer, goose, ogar, and others) is put there.
- 1983 – it is named an arboretum *Obroshynskiy* by the resolution of USSR Council of Ministers No 311, on 22 July, 1983.
- 1998 – it gains the status of zoological park of local significance by the resolution of Lviv Regional Council.
- 2017 – Research Institute of Agriculture and Stock-Breeding of Western Ukraine is situated on its territory.

## 2. Analysis of the last investigations and publications

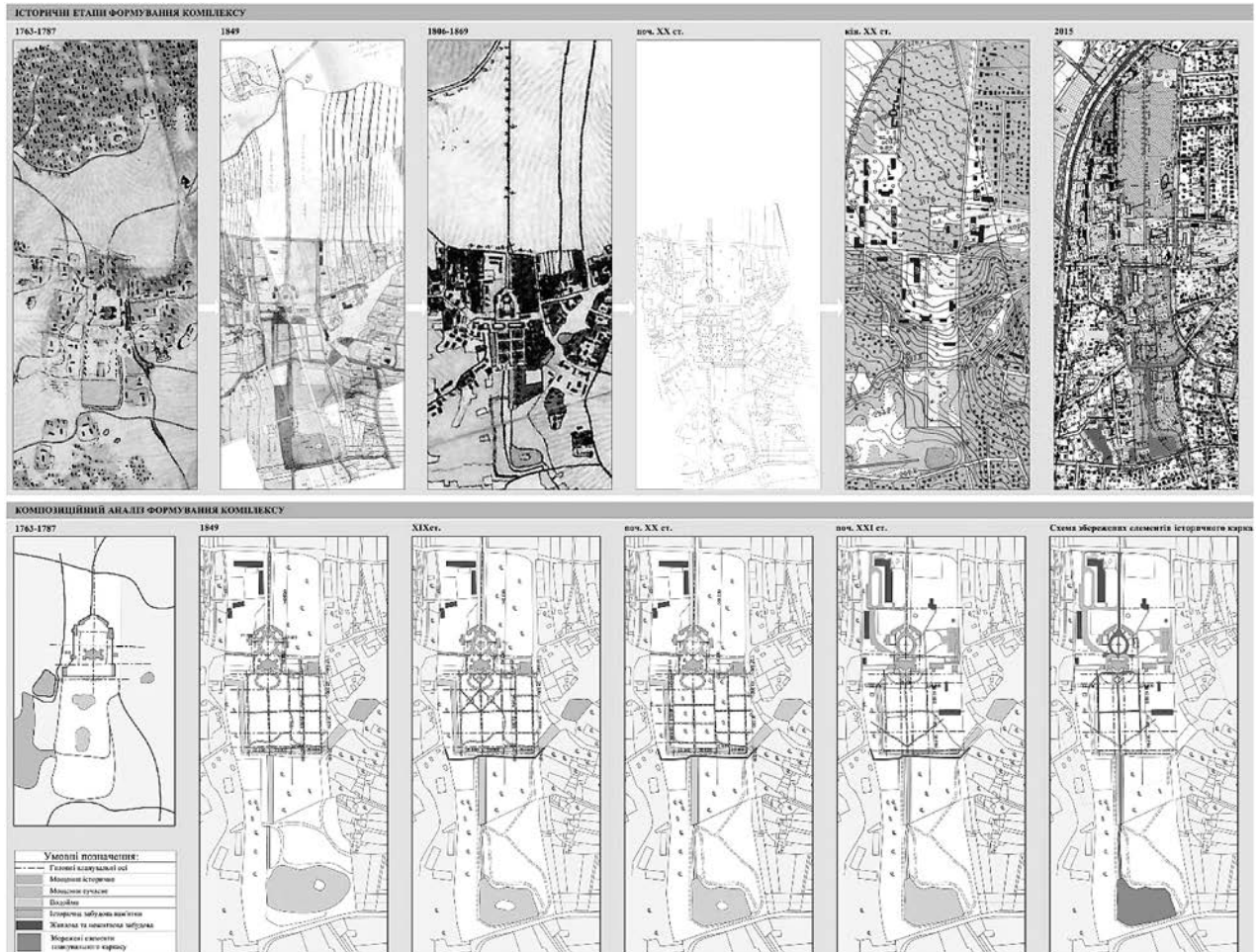
Among the recent researchers of the palace and park in Obroshyne, the name of a Polish researcher R. Aftanazy (1990) should be mentioned. In his works the description of palace architecture and nearby park is found. In 1996, at the Department of City Planning in Lviv Polytechnic National University, a graduation paper titled *Palace and Park Ensemble in Obroshyne* was presented by T.W. Baitzar, which was supervised by T.M. Maksymiuk. The research considers the landscape, its compositional design, and arboretum peculiarities; the vision of its future development and reconstruction is presented (Fig. 7).



**Fig. 7.** Obroshyne. Location plan (on the left) and masterplan of its reconstruction and development (on the right), 1996. Taken from the graduation paper by Taras Baitzar, supervised by T. Maksymiuk, Lviv Polytechnic National University, Department of City Planning, 1996, (photo from T. Maksymiuk's archive)

The most recent research of the palace and the park in the village of Obroshyne is a graduation paper titled *Revalorization of Palace and Park complex in Obroshyne village in Lviv region* carried out by I. J. Chervinska and supervised by V. V. Didyk and G. B. Lukashchuk at Lviv Polytechnic National University, Department of City Planning, 2015. At first the research was the project proposal of park revalorization of mansion in Obroshyne village in which the methods by Janusz Bogdanowski were applied. The same method was also used in the reconstruction of central amphitheater in Lviv's Stryiskiy park (completed in 1983), and later was applied in the reconstruction and restoration of various garden and park objects (Didyk, 2016).

The main characteristics of architectural and planning composition of the park in different historical periods of its development as well as the transformation of nearby territories are analysed using the maps of that time. Having the features of each period, the compositional frame models reveal authentic elements of planning structure of the palace and park complex at different stages of development (Fig. 8).



**Fig. 8.** Obroshyne. Stages of development of the palace and park complex – upper photos (four ones on the left – the Central State Historical Archive in Lviv/Stok No 186, description 1, affair 3570, p. 133–147; others are the photos of Lviv branch of “Dniprocivty”); compositional analysis on different historical stages of its development – down (by V. Didyk and I. Chervinska)

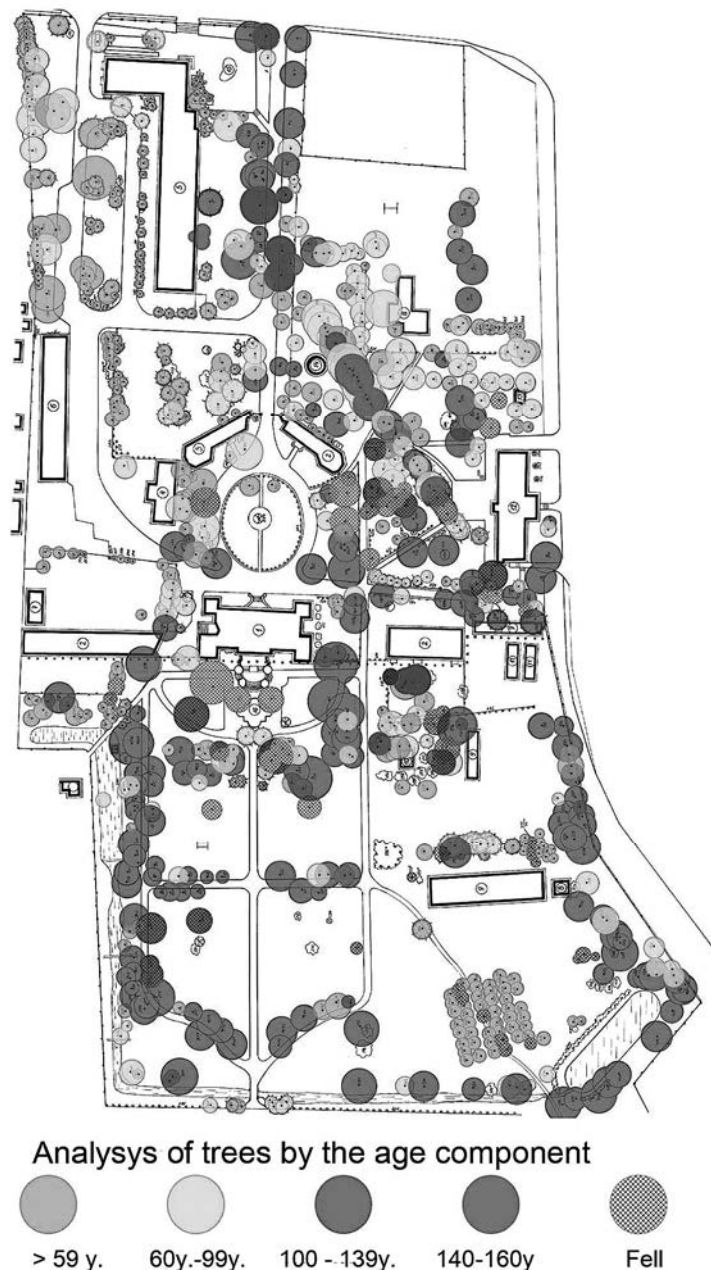
On these maps one can see the process of forming the main composite core based on the complex structures: the palace, buildings and offices that form a three-dimensional dominant. The first known map of 1849 presents an existing park in the regular style with the palace put in front of the 800 meter long main axis – alley of lindens. This organization provides a compositional balance and attraction of the whole complex.

The further development of the complex included the distribution of the territory surrounding buildings, providing clear boundaries of nearby territory planning, making the amphitheater to be the part of the park, arrangement of garden paths, organization of its landscape, and introduction of the small zoo. Architectural and planning organization of the park amphitheater continued up to the 21<sup>st</sup> century and then we can observe degradation of planning elements and composite buildings axes.

One of the main study elements is the investigation of arboretum. The method of field research identified its physical state, the age and range of structures. It was found out that it is located in a large number of old trees with the age of 160 years old, and 150–120 years old, and some of them grew out as self-seeding and thus are opposed to trees that have survived from the original landscape and composite design (Fig. 9). We think that the

formation of garden-park design was much influenced by the work of an urban gardener Karol Bauer who was involved into the city planning decisions (Didyk, Maksym'yuk & Klopot 2015).

The park is divided into landscape design with a system of ponds and the design of architecture buildings. It has the form of axial, symmetrical garden of the French type with regular channels on the axis which are decorated with extensive grass lawns, ponds, and extra landscapes located in the distance.



**Fig. 9.** Obroshyne. Analysis of trees according to the age factor  
(by G. Lukashchuk, V. Didyk and I. Chervinska)

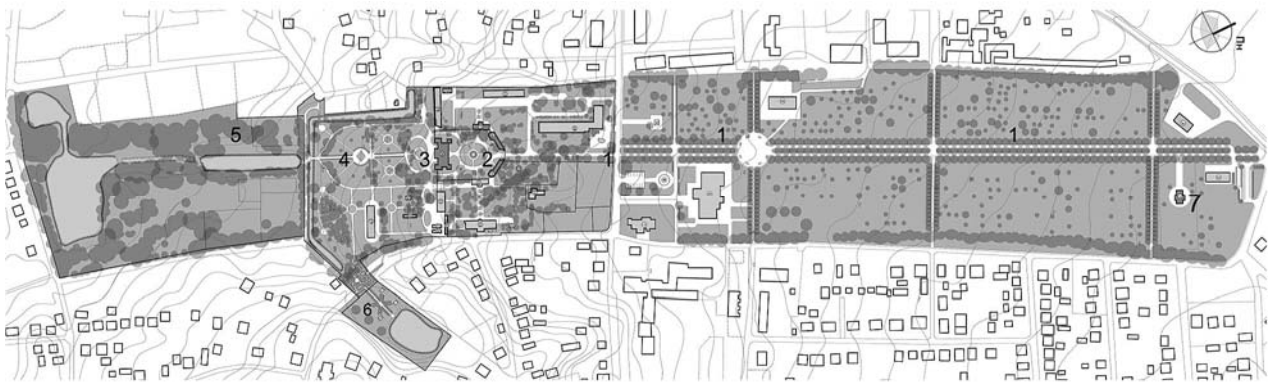
The research has proved that to join the palace and park complex space with a driveway of alley of lindens, and a zoo with a lake will result in its positive development (Fig. 7). In 2015, an alley space suffered from the anthropogenic changes – a petrol station was built on the left of the right axis. At the end of alley, on the left of its axis and close to the palace and park complex, the centre of Obroshyne village is situated. There is a museum, a library, an exchange office, a monument to fighters for freedom of Ukraine, and some residential buildings. The main building of the Research Institute of Agriculture are directly adjacent to the walls of the

palace area. The library and Archives Institute are placed in the palace and park complex. Gas distribution station is also located on the territory. Because of improper maintenance of palace and park complex, it has lost its original appearance. Auxiliary facilities of the palace and greenhouses are destroyed, pond system is on the point of drying out, and the main 800 meter alley of lindens is partially built with public buildings, which has resulted in the loss of historical and cultural value of the palace and park complex in general.

### 3. Project proposal

Recreational, cultural and historic meaning of the palace and park complex in Obroshyne is of high value, but as it has not being properly realized, it needs to be restored to receive a new perspective development.

To maintain the integrity of its territory and incorporating it into the natural landscape area of Obroshyne we need to revitalize the park and its complex, change its functional and spatial organization, improve its architectural, planning and management system. It is recommended to transform the palace library and its archive into the place where the creative work would be taken, and the corresponding conferences and excursions would be held.



**Fig. 10.** Obroshyne. Masterplan of the palace and park complex  
(by V. Didyk, I. Chervinska, G. Lukashchuk):

1 – alley to the entrance; 2 – avanzaone; 3 – palace; 4 – gardens; 5 – gardens of a small zoo; 6 – maze; 7 – church



**Fig. 11.** Obroshyne. The future perspective of the palace and park complex  
(by V. Didyk, I. Chervinska, G. Lukashchuk)

The project ensures the creation of an attachment to the territory of the palace and park complex which will consist of a representative area of the existing 800-meter linden alley and as a parallel to it a new one for the horse-drawn carriages, cyclists and vehicles will be created.

The organization of the movement of visitors to the territory of the palace and park complex will be done through fixed entrances. The main compositional axis of the park is emphasized by the restoration of vegetation and formation of hornbeam background. The animation area for children with the elements of topiary art, a labyrinth and a pond for fishing is to be put next to the park territory. The main axis of the park is lengthen to the channel axis of the zoo crowned with a pond (Fig. 10, 11).

So the territory of the palace and park complex has increased from 10 hectares to 22 hectares.

#### 4. Conclusions

The suggested programme of architectural, planning, functional and spatial development of the palace and park has adjusted it to the new content of recreational, didactic and research functions. Space development of the park territory contributes to the preservation of its environmental function and the integrity of its boundaries which is of high importance for future generations.

The research methodology of the territory of the palace-park complex in Oboshyne can be applied to the revitalization of any object similar in content.

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*Володимир Дідик*

#### **РЕВАЛИРИЗАЦІЯ ПАРКІВ ПРИМІСЬКИХ ІСТОРИЧНИХ САДИБ НА ПРИКЛАДІ ОБРОШИНО**

***Анотація.** Приміські історичні садиби з парками сьогодні перебувають у різних формах власності та використовуються під різноманітні функції. Таке антропогенне навантаження призводить до їх поступової деградації та руйнування і, як наслідок, повної втрати об'єкта. На прикладі проекту ревалоризації парку історичної приміської садиби в Оброшино біля Львова розглянуто шляхи її збереження та перспективного розвитку, адаптацію до нових соціальних та містобудівних умов.*

***Ключові слова:** історичні парки, ревалоризація, ландшафтно-просторова композиція парку.*

Iryna Dyda

**SIMILAR URBANISTIC APPROACH  
TO FOUNDATION OF THE EARLY MIDDLE AGE CITIES  
(UP TO 13<sup>th</sup> CENTURY) IN POLAND AND IN UKRAINE**

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**Abstract:** The visual image of the architectural environment of historical cities in Poland and Ukraine significantly differs in the last centuries. Nevertheless, it has not been the constant feature. The research is devoted to the search for common compositional principles of forming early medieval cities in Poland and Ukraine in order to adequately assess their contribution to the world culture.

**Key words:** architectural environment, landscape, urbanistic composition

## **1. Introduction**

The spatial arrangement of architectural environment of historical downtowns of Polish cities over the last few centuries reveals all the features characteristic of the Western urbanistic tradition. The presence of visually enclosed, interior spaces of market squares surrounded by dense high buildings is of particular importance for a city to be identified as “European”. Most clearly this approach to the urban environment design was manifested in Italian cities that developed the urban planning traditions of Ancient Rome. C. Sitte (1993, 71) in the course of analyzing the technique of forming a visually closed city squares of medieval Europe, found that streets that extend away from each corner of the square are pointed at some angle to the main viewing direction, and thus tears in the square perimeter construction got out of sight. He also noted that in terms of a five-angled square of Santa Maria Novella in Florence it appears to be four-angled from inside through visual comprehension illusions due to the perception of the square perimeter construction planes at different angles. C. Sitte, in his works, stressed that the conventional axiom that straight continuous construction line around the visually closed urban spaces are the features that create the true identity of a European city.

Such idealization of visual isolation of urban space spread across Europe along with the political and cultural influence of the Roman Empire and became the basis for the own architectural identity of the countries emerging on its ruins. Due to historical and political situation, which lasted at least for the last seven centuries, cultural and thus architectural influences have spread around Europe from its west to east part. A common algorithm of the European architecture development was well confirmed by D. Antonovych (1988, 13):

*All European styles, starting from the Romanesque, originated from the Italians or the French and were sooner or later followed by other nations..., in addition, there was something added from their own, original, and in that way both the Germans and the English, and the Ukrainians have their national art.*

Ukraine and Poland are closely located on the map of Europe, and Poland was the main supplier of the West-European approaches to architectural environment arrangement in Ukraine. The process of cities' location as required by the Magdeburg Law also came out of there. It has only partially spread along the Ukrainian area due to various reasons. By 19<sup>th</sup> century, most Ukrainian cities, especially in the central and eastern part, were built up on the principle of visual openness and integration with the landscape, and their architectural environment is still somewhat different from the West European tradition. At first glance, it seems that this

significant conceptual difference between the compositional “openness” of urban space of the Ukrainian and the “closeness” of the architectural environment of the Polish cities has always existed; and following the algorithm D. Antonovych (1988, 13) suggests that one might even conclude on existence of some mythical “civilizational boundaries” in the Ukrainian territory that separate the areas with different levels of urbanistic development. To explore this issue we need to consider the establishment of the local urban setting in historical perspective. Although the history of urban planning of both Poland and Ukraine has been studied in detail and has a wide reference base, scholars, for various reasons, do not pay enough attention to the comparative analysis of the urban heritage of the two neighboring European nations, and in particular to the fact that it has a lot in common at the early stages of development, though the majority of the similarities were lost yet in the 13<sup>th</sup>–14<sup>th</sup> centuries under the influence of peculiarities of historical development, including the introduction of the Magdeburg Law in some cities. The present article is aimed at comparative analysis of the historical cities formation concepts both in Poland and Ukraine in the early medieval period, and the objective assessment of their joint contribution to the development of the European architecture and the world culture.

## **2. Basic Theory Part**

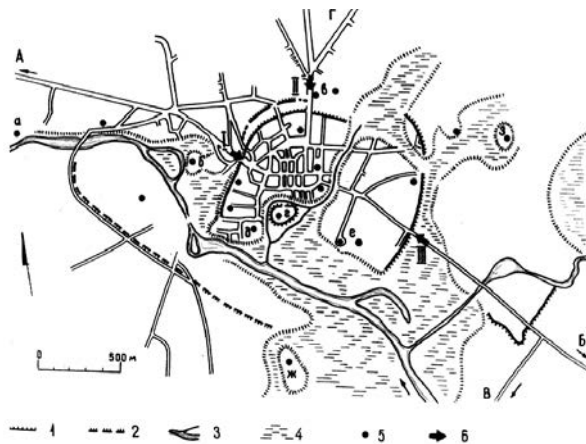
Iconic and bibliographical sources, including scientific papers by V. Vecherskyi (2001), who held a detailed analysis of the urbanistic structure of the Ukrainian cities of the 17<sup>th</sup>–18<sup>th</sup> centuries, confirmed that Ukrainian historical cities, especially in the left-bank Ukraine, had free planning integrated with the landscape, low farmsteads buildings and the surrounding landscape was visually accessible from urban areas and streets until the early 19<sup>th</sup> century (when most of them underwent radical rearrangement according to the compositional principles of the Classicism). Regardless of the administrative status of a city and the number of its inhabitants, the principle of its architectural environment establishment was similar everywhere. For example, in the capital city of Hlukhiv in the middle of the 17<sup>th</sup> century there were no visually closed urban spaces. Instead, V. Vecherskyi (2001, 95) states:

*When new churches or simply considerable buildings were constructed they were usually erected with a slight spacing... for the buildings not to overshadow each other. As a result, a complex, multifaceted, artistically perfect composition of a city was formed which incorporated the basic principles of the national urban planning.*

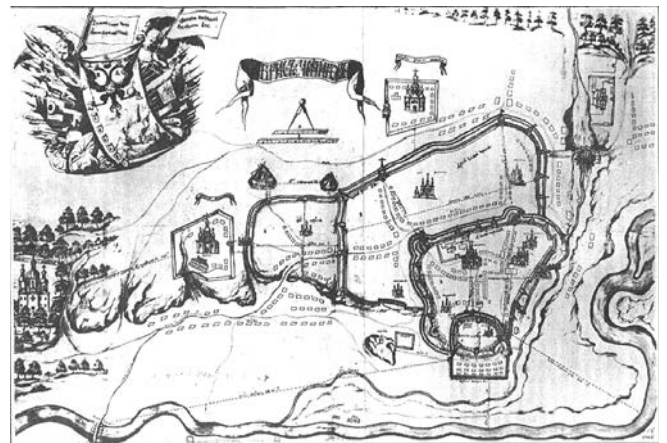
At the same time in Ukrainian cities, which were built on the river banks, “river facades” as the basis of the panorama of city architectural identity continued to develop. The most famous example of such river facade is Kyiv’s panorama, where a dominant chain oriented on the Dnipro River backwater was being created along the high river banks up to the 1770’s. Back in the late 17<sup>th</sup> century Kyiv streets were irregularly planned with the predominance of farmsteads building. This situation was the natural outcome of the consistent implementation of traditional local urban planning concept. The fundamental issue of urban space arrangement for the Kyivers was to ensure its visual accessibility from different viewing points since ancient times, and this demand was even legally approved.

City planning structure and general composition of urban construction in the historical Ukrainian cities was always consistent with the geographical features of the locality. Therefore, depending on the landscape situation two types of cities are pointed out. The first one includes cities that have been formed in complicated terrain; the other embraces the cities which emerged on the plain plot of land. Cities in complicated terrain had defensive center on the highest hill, main municipal buildings and retail squares which were located just below, then the suburbs stretched out with additional architectural dominants located on the visually distinct landscape points. Ukrainian capitals – Kyiv, Lviv and Halych – and many smaller historic towns belong to this design type. The example of a town which arose on the hilly terrain is Terebovlia that was the capital of the Terebovlia principality in the 11<sup>th</sup> century. The basis of the Terebovlia urban planning composition was a citadel located above the Hnizna River on the mountain with a flat top and steep slopes. A stone castle was built there in the 17<sup>th</sup> century. Basic urban development, suburbs with numerous temples were located in the valley at the foot of the fortress. Large areas on both banks of the river were occupied with the dispersed suburban development, as if divided by greenery. A suburban fortress – original Terebovlia gate – stood at about 5 km from the citadel, where the Hnizna River runs into the Seret River. An old monastery could be seen behind it on the mountain slope. In general, there it comprised multiple urban planning composition closely tied to the local landscape, which was consistently perceived while approaching the central city core.

Downtown of the cities set up on the plain, usually swampy riverine areas, was located on the island amid water or marshland, and another nearby island – smaller in size but higher – was chosen for the fortress. Such “island” lowland cities are represented in Ukraine by, inter alia, Volodymyr (Fig. 1). The citadel of Volodymyr city was surrounded by ramparts and occupied a part of the island in the swamps. Inside and outside of the citadel there were churches – architectural dominants. Immediate environs were located to the north and east from the citadel. Its defenses were supplemented by natural barriers – impassable wetlands. A significant compositional role of Volodymyr’s panorama was given to three small islands, each of which has a church on. The overall city panorama composition was geared towards Luha River – an important communications route. Starting from the monumental church of the 10<sup>th</sup> century, 10 km from the citadel, near the main pier on the Bug River the travellers gradually encountered city views and architectural dominants located as if in an arch to the riverbed. Plain landscape did not prevent from contemplating the panorama since there was large free area in front of the city formed by green meadows and marshes. The urban environment composition was solved comprehensively and included not only the territory inside the city fortifications but also extensive suburbs which gradually evolved into the open countryside area. Thus the reaction of Hungarian King Andrew, who declared war in 1232 to Volodymyr city, recorded in Galician–Volhynian Chronicle, when he said in amazement: “I have not come across such a city even in the German lands” is understandable (Halysko-Volynskij litopys, 1994, 43). The similar compositional approach was characteristic to other Ukrainian cities located amid the plain terrain – in Busk, Belz, Zvenyhorod, and Lutsk.



**Fig. 1.** Volodymyr city in 12<sup>th</sup>–13<sup>th</sup> centuries  
(Scheme of streets at the beginning of the 20<sup>th</sup> century)  
(Rudnytskyj, 1971, 5)



**Fig. 2.** Chernihiv city plan in 1706.  
Multicomponent structure of urban space  
(Vecherskyj, 2003, 222)

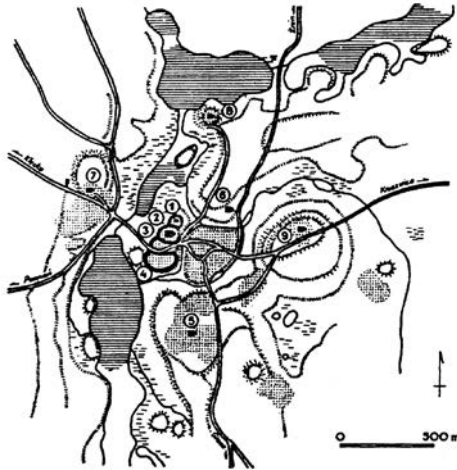
Ukrainian historical cities were formed gradually and had multicomponent structure composed of sites of different functions that slowly emerged and together occupied substantial area. Features of the urban planning of the Ukrainian cities can be well seen in Chernihiv. This city, which became the center of the Chernihiv principality since the 9<sup>th</sup> century, consisted of several functional parts. The main administrative and defensive center was the citadel. It occupied the territory of about 15 hectares on the coastal terrace ledge above the Desna River. The town of Okolne covering about 40 hectares adjoined to the citadel from the field. A separate compositional element within Okolne was Tretiak district with the Yeletskyi monastery fortified complex on a high hill above the river. Nearby, in the Boldyni Mountains above Desna, another architectural dominant – Illinska Church – was built in the 12<sup>th</sup> century. To the northwest from Okolne town and on the left bank of the Stryzhen River, suburbs evolved with the main trade square of Chernihiv and another dominant – Paraskeva church. Podil district emerged near the pier on the Desna River. The complex urban planning structure of Chernihiv was emerging and developing gradually, according to the local landscape. After Chernihiv was destroyed by Mongols in 1239, its growth slowed down but the principle of multiple components of its urban composition and a close relation with the landscape was also preserved in the next century (Fig. 2). Chernihiv, like most Ukrainian cities such as Kyiv, Nizhyn, Novgorod-Siverskyi, Pereyaslav, Putyvl, and Poltava, in which the important compositional role was given to the architectural dominants amid the landscape, continued

evolving by the traditional concept in the 18<sup>th</sup> century. The historical basis was supplemented by new high-rise accents: a high bell tower of the Yeletskyi monastery and tower on the Collegium building were constructed; the old wooden church of St. Catherine was replaced by a new and much larger one made of stone. The researchers emphasize that composite breaks in construction that contributed to visual contact with the landscape were still left during this period. Basic urban construction was predominantly low-rise buildings of farmstead type. Chernihiv, like most Ukrainian cities, obtained regular planning just in the 19<sup>th</sup> century under considerable administrative pressure. According to V. Vechersky (2001), up to the mid-19<sup>th</sup> century, downtowns of the majority of Ukrainian cities were rearranged. This new planning scheme had led to radical changes of a three-dimensional arrangement of cities. Most cities of Nadniprianshchyna received identical rectangular and straight-lined planning. The transition to regular redesign in Ukrainian cities was everywhere met with resistance and protests of the local dwellers as it is evidenced by reports of contemporary city management (V. Vechersky, 2001, 227).

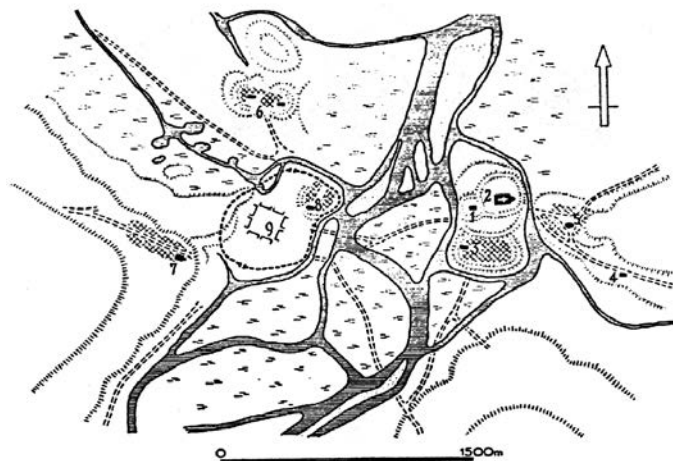
Bibliographic sources pertaining to the history of the Polish city planning and urbanistic concepts of the Polish cities establishment in the early medieval period, including the studies of M. Książek (1992), prove the existence of two categories of plans which were tied to the landscape features of the area: lowland cities and highland cities.

H. Samsonowicz, the author of the research *Life of a Medieval City* (1970), explains that in Poland large city formations like Kraków, Wrocław, Gniezno, Gdańsk, Poznań, and Sandomierz occupied large areas and comprised a complex of different villages which together formed the city. A castle in such agglomerations was an inaccessible place convenient for defense – on a hill with steep slopes or in the swamp, surrounded by a river; immediate environs limited by its own fortifications were located near the castle, and a market was located in the most convenient place if to consider the topography aspect. The trading district had the best opportunities for spatial development and was attractive place both for the locals and strangers.

M. Książek (1992) also confirms that multi-component settlements that developed around these urban centers, such as Gniezno (Fig. 3), Poznań (Fig. 4), Kruszwica, Kraków, Kalisz, Wrocław, formed polycentric structures that gradually occupied vast territories.



**Fig. 3.** Gniezno city in 9<sup>th</sup>–12<sup>th</sup> centuries  
(M. Książek, 1992, 40)



**Fig. 4.** Poznań city in 9<sup>th</sup>–12<sup>th</sup> centuries  
(M. Książek, 1992, 43)

Polish scientists B. Kalinowski (1996) and W. Ostrowski (1996), confirming the polycentric planning structure of the Polish cities or pre-location period, as well pay attention to the picturesqueness of their composition. Thus, the medieval city of Poznań lies on several islands of the Varta River, its architectural composition is based on the contrast of flat river surface and marshy meadows with urban development and high-rise architectural dominants which surround the river valley from all sides.

An example of close connection of urban composition with landscape is the ancient Polish city Kraków. Its defense center on Wawel developed in the 10<sup>th</sup> century on an oval rocky terrace over the Vistula River, housing the residence of a duke and sacred buildings. A part of the terrace separated by the ravine was occupied by immediate environs – residential district with two churches. At the foot of Wawel, craft and trade district

“Okil” (neighborhood) had been developed together with the construction of its temples. Separate settlements were also formed at the church of St. Trinity and St. Wojciech, and a number of settlements which were connected to the churches were located along the main roads. The settlements spontaneously arising in the vicinity of the Wawel together formed the vast agglomeration that occupied about 50 hectares at the end of the 12<sup>th</sup> century. In the 12<sup>th</sup>–13<sup>th</sup> centuries Kraków developed mainly in the north direction where the landscape contributed to the trade arrangements, and where separate dwelling centers united within the locational city (M. Książek, 1992).

Another example of gradual development of a Polish city that evolved on the hills on the right bank of the Vistula River is Kazimierz Dolny. It comprised the Zamkowa Góra hill (Castle mountain), Wietrzna Góra hill (Windy mountain) and Krzyżowa Góra hill (Cross mountain), and a few hills – on the outskirts. Kazimierz Dolny was established near the crossing of the Vistula River. A trade route from the Western Europe to the east, up to Kyiv was laid there. A wooden fortress with a tower has long been placed at Zamkowa Góra. In the 10<sup>th</sup> century at the crossroads of the trade route and the castle road there was the first settlement – the basis of future Kazimierz. But it was not the only one. The developed centers were concentrated along the road that led to the crossing of the Vistula; development cluster emerged on the Wietrzna Góra, neighboring hills were also occupied by individual estates. Thus, the city initially was set up as a complex of several settlements and development centers, scattered among the hilly terrain. Just in the 14<sup>th</sup>–15<sup>th</sup> centuries, when king Casimir the Great constructed a new fortress between the medieval city center and Zamkowa Góra and the city was granted the Magdeburg right, Kazimierz Dolny began its development under a regular planning scheme in new lowland area that was more favourable for the development (W. Ostrowski, 1996).

### 3. Results and Discussion

These examples of urban composition of some historical Polish and Ukrainian cities, as well as research findings recorded in bibliographic sources give reason to speak about a number of similarities of architectural environment of cities of early Middle Age in Poland and Ukraine. Primarily, it is a direct correlation of city urban planning structure, its visual image and the overall composition of the urban architectural ensemble with the local landscape. The researchers outline two types of organization of urban space both in Ukraine and Poland depending on the terrain – low-land cities and highland cities. In both cases, the location of architectural dominants and the sequence of their perception are individual for each city and village due to the unique terrain the development of which is related to. Secondly, visually open urban space over the surrounding landscape and the location of the major dominants is well perceived from different distances. Thirdly, multi-components’ urban structure: urban centers both in Poland and Ukraine were formed out of urban planning elements, different in functionality, size, and requirements to their location in the landscape. They necessarily included a fortified fortress and the main settlement which were supplemented, if needed, by fortified monasteries, river piers, trade markets and other architectural dominants. The similarity is also traced in details. For example, on the outskirts of the Polish Poznań, there is a St. George hill with the eponymous church (analogy of St. George Cathedral placed on the in the Ukrainian Lviv), and one of the old Kraków districts is entitled “Okol” (analogy with numerous “okolni towns” of the Ukrainian cities). The common feature is the same preferred use of wood as construction material for buildings of different functionality, including the city fortifications (defensive walls of wooden structures in Gniezno (M. Książek, 1992, 42)).

Therefore, integration with the landscape, which distinguished the Ukrainian cities’ development until the 19<sup>th</sup> century, actually was the continued application of architectural environment concept, which was also widespread in Poland till the 12<sup>th</sup>–13<sup>th</sup> centuries, when the main European territory was undergoing intense processes of the cities’ new location. The cities’ new planning schemes strictly adhered to the plan and usually was accomplished on a new and maximally flat area. As the location requirements had to be adjusted to the Magdeburg Law regulations, the cities had to order all legal documents, adopt a new development plan with a rectangular market square, and create a new and improved fortifications system. The process of location setting was historically determined. Formally, it moved across Europe from west to east, and was much connected with the cultural, economic, and legal impact of contemporary German cities. H. Samsonowicz (1970) writes that locating in fact was the final stage of a durable process of forming civil, industrial, and domestic legislation

based on local customary norms of a medieval city. The use of Magdeburg and Lubecz legal samples accelerated the completion of this process a lot, although sometimes new standards were taken reluctantly on sites. He also notes that the location has not negated the significance of old urban settlements and larger location cities, such as Gdansk which consisted of several centres with a different production specialization, and formed a large city planning and economic complex up to the 15<sup>th</sup>–16<sup>th</sup> centuries. It confirms that the changes in the planning structure of Polish cities, which eventually have led to the formation of visually closed spaces of city squares and streets and their compositional unification, were likely the result of social processes in the economic and legal aspects and not of philosophical or aesthetic ones.

Polish researchers distinguish a specific typological group of cities that preserved old planning structure connected to the landscape due to the location conditions. Also notable is an opinion by W. Ostrowski (1996, 200) about this phenomenon:

*Probably, it would be correct to divide the cities into those built according to certain local plan and those built without it. Thus, not only the first ones must be attributed to “urban works”, considering the others as having arisen by chance... There were excellent examples of cities and towns among them that have been developing “organically”, according to the code that existed in their creators’ imagination – and in symbiosis with the natural environment.*

It means that if we correspond the mentioned above idea to our reality, the achievements of the Ukrainian urban science that has developed over many centuries, forming a cities’ composite structure according to their own methods, in close correlation with the landscape are in close connection with the European city planning tradition.

#### **4. Conclusions**

1. Analysis of architectural construction of the ancient cities of Ukraine and Poland allows to trace similarities in traditional architecture of both countries in many aspects, especially if it comes to the concept of the urban space arrangement. This similarity was largely lost due to historical changes in the 13<sup>th</sup>–14<sup>th</sup> centuries.

2. The old concept of urban space arrangement used in Poland and Ukraine in early medieval times was significantly different from the urban concepts which were traditional for the Mediterranean countries. But it does not cease to be European due to this, and has its own compositional features and benefits. Therefore, the question of which approach to urban space arrangement should be considered to be the best or the worst is incorrect, since each of these two concepts solves its own compositional task – to create visually closed environment, or vice versa, maximally open to the landscape. Ukrainian cities for various reasons have preserved compositional features that were common in Poland and Ukraine in the early Middle Ages for much longer.

3. Comparatively old regional urbanistic traditions were revealed in prelocation development of the Polish and Ukrainian cities, and their study is necessary for the adequate evaluation of the joint contribution of both countries into the world culture.

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**ПОДІБНИЙ УРБАНІСТИЧНИЙ ПІДХІД  
У ЗАСНУВАННІ МІСТ РАНЬОГО СЕРЕДНЬОВІЧЧЯ (ДО XIII СТОЛІТТЯ)  
В ПОЛЬЩІ І В УКРАЇНІ**

***Анотація:** В останні століття візуальний образ архітектурного середовища історичних міст Польщі й України суттєво відрізняється. Архітектурна організація історичних осередків польських міст, що ґрунтується на застосуванні візуально закритих просторів, виявляє ознаки, характерні для західноєвропейської урбаністичної традиції, тоді як більшість українських міст аж до XIX ст. розбудовувалися за принципом візуальної відкритості та інтеграції з ландшафтом. Складається враження, що ця істотна концептуальна відмінність архітектурного середовища існувала завжди, хоча обидві країни розташовані поруч на карті Європи. Але спосіб заснування польських та українських міст у період раннього середньовіччя (до XIII століття), а також наукові бібліографічні джерела, дають підстави говорити про наявність у тогочасних містах ряду подібних композиційних характеристик. Це, зокрема, залежність містобудівної структури, архітектурного образу і загальної композиції архітектурного ансамблю міста від місцевого ландшафту, візуальна відкритість міського простору на околиці, розміщення основних домінант так, щоб вони добре сприймалися з різної віддалі, а також формування міських осередків з кількох містобудівних елементів, різних за функціональним призначенням, розміром і потребами до розміщення в ландшафті. Таким чином, інтеграція з ландшафтом, яка аж до XIX ст. характеризувала забудову українських міст, може бути продовженням застосування тієї самої давньої концепції формування архітектурного середовища, яка в період раннього середньовіччя, до часу інтенсивного поширення на європейський схід процесів нової локації міст, застосовувалась також у Польщі, і яка щойно в XIII–XIV століттях, через історичні обставини, була здебільшого втрачена. В долокаційному розвитку польських і українських міст проявилися дуже давні регіональні урбаністичні традиції, і їх дослідження необхідне для належної оцінки спільного внеску обох країн в загальносвітову культуру.*

***Ключові слова:** архітектурне середовище, ландшафт, урбаністична композиція*

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**CITY RECONNECTION AS BASED  
ON THE PROJECT FROM STREET TO CITY  
BY THOMAS B. THRIGES GADE, ODENSE, DENMARK**

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**Abstract.** Many current problems of the public spaces in cities are connected with ill decisions taken in the past 50-60 years. It is mostly connected with the rapid growth of the importance of cars in the 20th century. More and more cities in 50' through 70' invested vastly in road infrastructure, with a thought that private transport is the sign of lived in, energetic, fast growing city. These road developments often took space of historical parts of cities, not paying attention to tearing of urban tissue or newly formed problems for pedestrians. The project *From Street to City* by Thomas B. Thriges Gadein (Odense, Denmark) is a positive modern example of how the regeneration of historic urban tissue of the city is performed. Thomas B. Thriges Street, built between 1959 and 1970, was a four-lane street that allowed transit thorough the main part of the city. The main goal of the *From Street to City* project, designed in 2011–2012 by Henning Larsen Architects, is to connect the two parts of the old town with new public spaces and multifunctional buildings. In the paper, the project solutions and other actions of Odense municipality for creating a better, friendlier urban spaces will be shown. Moreover, the relation of Thomas B. Thriges *From Street to City* project to the idea of smart city is presented.

**Key words:** urban design, road infrastructure, smart city.

## **1. Introduction**

Contemporary cities face many challenges that are often contradictory. Meeting the expectations of the inhabitants while keeping public finances afloat, care for the environment, being competitive and attractive in the national or international arena, requires a forward-looking and holistic development strategy. Modern urban development models, with sustainable development at the forefront, indicate tools and solutions to meet the needs of not just the present but also for the future generations. Road infrastructure is one of the investment categories that demand changes. Especially the wide transportation arteries in the city centres are in need of transformation. One of the organizations promoting the change of roads into more of public spaces is the *Project for Public Spaces* (Project for Public Spaces, 2017). It provides good examples of how different cities rearranged or transform streets to bring them back as public spaces. It also provides concrete solutions that could improve the quality of urban space. Even minor changes of the street space can cause changes in its perception and how it is used by the residents. Starting from bottom-up initiatives such as greening, supporting local businesses and others, and ending with large scaled, top-down urban regeneration projects. Such a broad project of reconnecting the city into one coherent urban tissue will be presented in the paper. The project *Thomas B. Thriges – From Street to City* of Odense, Denmark, is the case study.

## 2. Split cities and transport

The problem of divided city centres is widespread and common across all latitudes. Odense and the title project *Thomas B. Thriges – From Street to City* are examples of positive changes in the area previously dedicated mostly for car communication. It is also an example of global changes, in terms of urban development models, such as compact city, complex city, citta slow, smart city and many others, mostly based on sustainable development. The car, especially in the developed world, is no longer an indispensable tool and a sign of social status. Moreover, driving does not mean freedom any more but rather it is considered to be a restrictive tool. The reasons for these changes are numerous, and they are both social and environmental as arise from deeper awareness of ecology and health; economical as to own a car gets less and less profitable; improvements in the public transport system. Promoting public transport and cycling is not just an invention of developed Western European cities. Cities of South America, with Bogota at the forefront, also introduce regulations and alternative ways of moving around the city (McGuirk J., 2015). It is also dictated by the equalization of opportunities for the inhabitants and the fight against air pollution. Broad road arteries in city centres, especially historical ones, cause additional problems. The more they divide the consistent urban fabric, the more they hinder free walking, cycling, or other communication methods. The introduction of wide streets in historic cities took place mainly in the 1960s, when the post-war car industries began to develop rapidly. It was then that individual communication began to be perceived as the most important, and because of it broad roads were built. The new road infrastructure was primarily designed to improve mobility, but it also changed the way people move and spend time, accelerating the pace of lives. The passenger car and its associated infrastructure have also enabled the emergence of urban sprawl which is against the modern idea of complex and compact city. One of the examples of historical city centres divided by transportation arteries is Szczecin, Poland. The old city was destroyed during bombing in the World War II, and after the war, by demolishing most of old still standing facilities. Starting in the 1960s, the old city has been changing and has differed greatly from its historic appearance. It was cut off from the Odra River by a wide four-lane arterial road, which was divided into two parts by the four-lane Wyszyński Avenue, and separated from the 19th and 20th century city centre by a four-lane Niepodległości Avenue from the west, and the Piotr Zaremba's Castle Route from the north. In addition, the bridges on the Castle Route and Wyszyński Avenue are only connections between city centre and the Right Bank district on the other side of the Odra River. The old town was enclosed in a roadside trap and did not have a chance of development, and the investments there (including the pseudo-modernist housing complex) did not affect positively on the appearance or function of the area. It was not until the 1990s that the area began to change with new buildings built on the pre-war development plan. The historical network of streets was also restored, as much as possible, but still within arteries. Despite these changes, the old city is still not an example of good public space. Continuously being separated and divided it does not encourage walking, and the presence of so many wide roads stimulates further intensive traffic. At this point, the old town is plundered with parked cars which negatively affect the reception of space and does not allow for further development.

## 3. Thomas B. Thriges – From Street to City Project

Thomas B. Thriges Street was built between 1959 and 1970 to reorganize the city of Odense (Brandrup H. H.). It was mainly based on car traffic and its task was to enable faster connection between northern and southern districts as well as provide a faster commute from the city to the harbour. In result the historical medieval city was arbitrary divided into two parts. The project *Thomas B. Thriges – From Street to City* is designed to re-connect the city and change the way people commute. The project encompasses approximately 700 meters of four-lane road (approximately 51.000 square meters) that goes through a historic downtown from Østre Stationsvej, at the railway station, to Albani Square. It is an excellent example of changes which are initiated and have a positive impact not only for the urban development process but also for the favourable perception of the city and the consideration of needs of its inhabitants. In the 1960s, the overriding problem that created the highway in the city centre was to streamline direct connections in an expanding industrial city. The street, like its name (Thomas B. Thriges was an entrepreneur of the 19th century; electric motors

were produced at his factories), has become a symbol of the city's industrial development (Ibidem, p. 2). Over the years, the needs of the city and its inhabitants have changed with the increasing prosperity and the decreasing importance of the industry. The street that facilitated mostly car communication within the city has become a hindrance to another, suddenly more essential form of communication – pedestrian. Social and cultural needs came into the force, while the street began to limit not only space but also activities. Hence, a radical change in this area has happened – from the transportation area separated from the human (non-space), into the active and cultural space in which the man is in the centre of interest (good place) (Ibidem, p. 3–4). The reconnection is to be carried out in accordance with the principles of sustainability, and has to be compact and consistent. The resulting public areas are to be the new centre of urban life, connecting with existing pedestrian and public spaces, activating the inhabitants social life.



**Fig. 1.** Visualization of the project  
*Thomas B. Thriges – From Street to City*,  
source: <http://www.arkitektforeningen.dk/sites/arkitektforeningen.dk/files/evalueringrapport.pdf>

In 2010, an international competition for the project *Thomas B. Thriges – From Street to City* was launched. In 2011, seven projects were submitted and three of them were chosen for the nomination: the projects by the Entasis Team, Adept Team, and Polyform and Team (Puggaard A. P. 2012). From those three, after thorough analysis and discussions, the project Entasis Team was awarded a prize. The selection criteria were: the quality of the proposals, both architectural and urban, as well as the relation to the premises and requirements of the competition; description of the organizational and design process over time, and the way of connecting interdisciplinary team competences; unity with regard to sustainable development, in particular social, economic and environmental; reference to the long-term development of the city. The winner-project was then coordinated and detailed together with the representatives of Odense municipality and inhabitants, representatives of the region and the specialists. The emphasis was put on four elements of the project: master plan (urban and architectural solutions regarding city's needs and plans), economic viability (financial and time optimization of the project), sustainable development (use of sustainable development tools and solutions; social, environmental and economic resources) and organization (employing appropriate, experienced specialists to manage the individual parts of the project).

The project has no rigid guidelines, while many design elements provide the opportunity for further adaptation and development. The project creates new public spaces that are differing in character, around which multifunctional buildings are designed (about 50 % of the space is designed as residential, 40 % as commercial,

and 10 % as retail (Ibidem, p. 31)). Architectural forms give the space shape, and influence its functions. Besides buildings, a great deal of emphasis is placed on greenery, which also shapes urban interiors. The project also encompasses a varied height of buildings. In the southern part, the buildings of maximum height of seven floors are planned as not to disrupt the city's silhouette with the church tower as the dominant. In the northern part, it is agreed to build two 17-storey buildings, which would be a gateway to the harbour area. The southern part of the project is also more dense and compact, and has more of an urban character. Northern areas are more informal, with larger semi-private spaces or roof terraces. Designed buildings are, in principle, multifunctional, with commercial, open ground, and other functions on higher floors (e.g., office or residential). The dominant buildings of Thomas B. Thriges Street are the rebuilt museum of H. C. Andersen's House and a new concert hall. Additional public space it is the park (Lotze's Garden) at H. C. Andersen Museum. The four-lane street is reduced and the space is turned to be mostly for pedestrians. The project *Thomas B. Thriges Street – From street to city* is also a part of the city strategy to develop the cycle and rail transport (Cycling-embassy, 2017) system. In the project, an introduction of tram lines (light rail way) is proposed (Proposal of a tramline was presented as separate project). The need of people to use the cars in that area was, although significantly reduced, but taken into consideration as well. A two-level underground parking and another one of one-level were designed for this purpose (providing about 950 parking spaces) in the northern and southern parts. An underground and on ground road infrastructure has been integrated. The first underground level is not only equipped with good vertical communication, but it also facilitates skylights that provide day light and help with the orientation (Puggaard A. P. 2012, p. 19, 23, 24). The construction of the underground car park allows to get an independent support system for the architectural objects. Despite the high cost of such infrastructure construction, it was agreed to be the best solution in terms of flexibility of future structures (as for technical reasons, the buildings on the parking lot can maximum reach of nine storeys, which is within the agreed height limit).

The proposed sustainable solutions include rainwater management (green roofs, rainwater retention), transport management (reduction of car use, organization and integration of public transport, cycling and walking, electric vehicles), waste collection systems (including recycling and composting) and energy control (reduction of energy consumption, application of solar and wind energy). The solutions applied in the project are designed both to facilitate the use of space after its completion, and adapt it to future climatic conditions (such as high temperature and extreme rainfall) (Ibidem, p. 17–23). The time line for the completion of the project *Thomas B. Thriges – From street to city* is to be realized in 2020.



**Fig. 2.** Rebuilding of Thomas B. Thriges Street, Odense; photo by O. Gazińska, 14.07.2015



**Fig. 3.** A crossing at Thomas B. Thriges Street and Overgade, Odense; photo by O. Gazińska, 14.07.2015

#### 4. Smart aspects of the project

The project *Thomas B. Thriges – From Street to City* as well as other projects run by the city of Odense are the part of the smart city idea, which is supported by the municipality. Smart city idea in Odense means not only the use of modern technology but, which is more important, a holistic approach to the development of the city. It is necessary to apply the gained knowledge into practice, so the growth of the university and its cooperation with the city is extremely important. Openness and cooperation are the main criteria of being smart in Odense. Using technology in collaboration with many different organizations leads to new solutions, tailored specifically to the needs of the city and its residents. This approach to development has many positive effects visible in the city, both in urban tissue and social changes. Odense is also at the forefront of the European Smart Cities ranking in medium-sized cities in European Union. Odense municipality, apart from the progress made towards the smart city development, supports the development of knowledge and strengthens the cooperation with the universities, creates the basis for the development towards the City of Knowledge idea. This direction indicates the development of science and culture, which has a positive impact on the city and the quality of life of its inhabitants. The knowledge-based development strategy is also aimed at encouraging young and educated people to stay in the city. Odense, due to the greater competitiveness of other urban centres in Denmark, has yet much to do to increase its potential opportunities, and become an attractive place for development. The presented project corresponds both to the Smart City and City of Knowledge ideas.

The change introduced by the project are not limited only to Thomas B. Thriges Street. The project fits into the science scheme of the city. Together with the Odense University and its campuses, University Hospital, South Denmark Technical Collage, Science Park and Harbour, the street will become the cultural centre of the city. Its task is to create a connector function for all other educational centres, thus being the centre of the so-called Axis of Knowledge (Aalborg University). Moreover, *Thomas B. Thriges – From Street to City* greatly influences the life of the whole city. With the closing of such a significant connection (it was estimated that 30,000 cars were travelling through the streets per day (Brandrup H. H.)), the entire communication network has to change. In parallel with the project, public transport system of the city also changes. The novelty is seen in introduction of light rail transit, and the transformation of the existing bus network. An additional element that influences the level of movement around the city is the development of a cycling network. Planned changes, of which the project *Thomas B. Thriges – From street to city* is the part, require transformations in the functioning of the communications system throughout the city. Those changes regard both private transport and public transport, and could lead to growth of transportation quality within the city. Public transport should be put aside on the traffic ways (separate bus lanes or tram lines will result in not stucking in the traffic jam), be efficient and connect the most important points of the Axis of Knowledge as well as their connection to other parts of the city. This is a big challenge that requires strategic planning, and the described project can be a good starting point. Its task is not only to serve as a physical reconnection of the two parts of the old city, but to become a point that links the centres of knowledge and encourages social interaction, thus setting a new way of perceiving the city. Breaking the mental barriers that were perceived via the old street, and 'sewing' the city again, it is expected to improve the quality of life for its residents. An access to walking and cycling, new public spaces, multifunctional facilities alongside them, and connection to existing green spaces are not only to increase the attractiveness of the area, but also to boost its activity.

#### 5. Conclusions

Challenges connected to road infrastructure are numerous and varying according to location, history, development, and many other factors. In a lot of cities a trend to restore pedestrian streets could be noticed, as it is popularized by the Danish architect Jan Ghel (2013). It is achieved by changing the organization of the traffic, or closing some streets for private transport. Such changes require prospective planning throughout the city to simultaneously reduce vehicular traffic and ensure transport accessibility by other means of transport – public transport and bicycles. As part of these implementations, there are projects to reconnect the urban 'broken' urban tissue through wide arteries. Examples of cities with such problems are numerous, while solutions require many

years of work, multi-annual strategy, and cooperation with many institutions, developers and future users. A described and analyzed above project *Thomas B. Thriges – From Street to City* shows the solution for reconnection of the urban tissue. The project indicates that the change requires more than just getting rid of cars from the city centre. It presents a holistic approach that characterizes both smart city and knowledge city development model. The project goes beyond the street area, affecting its immediate surroundings (by building new buildings of a varied function and creating public spaces), and whole city (by changes in road infrastructure, way of commuting and Knowledge Axis). The approach to urban changes and spatial planning in Odense shows a sustainable development path that both responds to the current needs of the citizens and enables a flexible approach to space.

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Ольга Газінська

## ВІДНОВЛЕННЯ МІСТА НА ПРИКЛАДІ ПРОЕКТУ ВУЛИЦІ ТОМАСА Б. ТРИГЕСА – “ВІД ВУЛИЦІ ДО МІСТА”, м. ОДЕНС, ДАНІЯ

**Анотація.** Багато актуальних проблем громадських просторів у містах пов’язані з поганими рішеннями минулих, 50–60 років. В основному це пов’язано з швидким зростанням важливості автомобілів протягом ХХ століття. Усе більше і більше міст у 50-х до 70-х рр. значно інвестували в дорожню інфраструктуру, з думкою, що приватний транспорт є ознакою живого, енергійного міста, яке стрімко розвивається. Ці дорожні інвестиції часто займають простір історичних частин міст, не звертаючи уваги на розрив міської тканини або виникаючі таким чином проблеми для пішоходів. Одним із гарних прикладів сучасних проектів з відновлення історичної міської тканини міста є проект реконструкції вулиці Томаса Б. Трігес – “Від вулиці до міста” у м. Оденсі, Данія. Вулиця Томаса Б. Трігеса, побудована між 1959 і 1970 роками, була вулицею з чотирма смугами руху, яка пролягала транзитом через основну частину міста. Головною метою проекту “Від вулиці до міста”, розробленого в 2011–2012 рр. у бюро Henning Larsen Architects, є пов’язання двох частин старого міста за допомогою нових громадських просторів та багатофункціональних будівель. У проекті продемонстровані проектні рішення та сформульовано дії муніципалітету Оденсе для створення кращих та дружніших міських просторів.

Вулиця Томас Б. Трігеса була побудована між 1959 і 1970 рр. для реорганізації міста Оденсе. Ідея полягала у налагодженні автомобільного трафіка, щоб забезпечити швидше сполучення між північними та південними районами, а також швидше пересування від міста до гавані. В результаті історичне середньовічне місто було довільно поділене на дві частини. Проект “Вулиця Томаса Б. Трігеса – від вулиці до міста”, призначений для повторного з’єднання міста та зміни способу пересування людей. Проект охоплює приблизно 700 метрів чотириполосної дороги, яка проходить через історичний центр міста від Østre Stationsvej, на залізничному вокзалі, до площі Альбані. Це чудовий приклад змін не тільки в міській тканині, а й у сприйнятті міста та потреб його мешканців. У 1960-х роках першочергова потреба, яка створила шосе у центрі міста, полягала в упорядкуванні зв’язків у промисловому місті, що активно розвивалося. Вулиця, як і її назва (Томас Б. Трігес був підприємцем ХІХ століття, на його заводах виготовляли електромотори), став символом промислового розвитку міста. Протягом багатьох років потреби міста та його мешканців змінювались із зростанням процвітання та зменшенням важливості галузі. Вулиця, яка полегшила здебільшого автомобільне спілкування в межах міста, стала перешкодою для іншої, раптом більш важливої, форми спілкування – пішоходів. На

перший план вийшла соціальна та культурна потреба, а вулиця стала обмежувати не тільки простір, а й заходи. Звідси випливає кардинальна зміна цієї області: від транспортної зони, відокремленої від людського, в активний, культурний простір, де людина перебувають в центрі уваги. Повторне поєднання міста повинно здійснюватися відповідно до принципів сталого розвитку, бути компактним та послідовним. Очікувані громадські райони повинні стати новим центром міського життя, з'єднуючись з існуючими пішохідними та громадськими просторами, активізуючи жителів.

Описаний та аналізований приклад показує вирішення поєднання міської тканини. Проект показує, що сучасні зміни вимагають більше заходів, ніж просто позбавлення центру міста від автомобілів. Проект являє собою цілісний підхід, який характеризує як застосування моделі розумного міста, так і знання розвитку міста. Проект виходить за рамки вулиць, впливаючи на найближче оточення (шляхом будівництва нових будівель різних функцій і створення громадських просторів), а також усього міста (за рахунок зміни дорожньої інфраструктури). Підхід до міських змін та просторового планування в Одесі показує шлях сталого розвитку, який відповідає поточним потребам громадян і дозволяє застосувати гнучкий підхід до простору.

**Ключові слова:** міський дизайн, вулична інфраструктура, розумне місто.

*Mykola Habrel*

**SPIRITUAL AND PHILOSOPHICAL VALUES  
IN THE PROFESSION AND TRAINING OF AN ARCHITECT.  
PERSONALITY AGAINST THE TIME BACKGROUND**

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**Abstract.** The meaning of spiritual and philosophical values in profession and training of architects, and the role of a teacher in this process are defined. The study is carried out by example of Lviv Architecture School and its bright representative Andriy Rudnytskyi. Human features which do not depend on time – professionalism, honour, spirituality, justice and kindness – are discussed here.

**Key words:** spiritual and philosophical values, professionalism, architect development, Lviv Architecture School, personality against the time background, professor A. Rudnytskyi.

We beg you, our Lord,  
to send Your saint great servants  
to Ukrainian people,  
to be their wise guides  
by their example and word  
in all domains of national,  
social and public life...

*The prayer To Ukrainian People*

## **1. Introduction**

The subject study is of urgent importance in times of radical transformations and changes that have been faced by Ukraine for the last thirty years and that are nowadays being strengthened in society, science and higher education. The need to preserve good traditions of morality and professional dignity of teachers and students is particularly relevant. Priorities in teachers' activity have changed and students begin to lose motivation for thorough knowledge. In everyday life we can observe the attitude not worthy of a person in the status of high school teacher or future specialist with higher education – the elite of the nation. It is important to introduce ethical criteria for teachers' and students' personalities on the examples of scientists and professors of past generations and to perceive the significance of interrelation between the spiritual and philosophical attitude and professionalism in the development of specialists.

The issue of developing spiritual and philosophical principles for students is mainly examined by teachers and predominantly in connection with creative professions, including the training of architects. In Ukraine, the research and recommendations of V. Verbets (2005), Zh. Davydova (2013), V. Zhadko (1997), O. Oleksyuk (1997) should be mentioned here. Philosophy of pedagogic action, humanization and humanitarization of professional education was considered by the academician Ivan Andriyovych Zyazyun (1996, 2008). At Lviv Architecture School, the issues of artistic training of architects in connection with forming of spiritual and philosophical values are investigated by the Doctor of Pedagogy O. Kaydanovska (2016), as well as by the teachers of Department of Design and Architecture, Lviv Polytechnic National University.

*The study aims* to outline the role of spiritual and philosophical values in the profession of architect and the role of a teacher (at school) in formation of these qualities with respect for future profession. The analysis is conducted by example of Lviv Polytechnic Architectural School and its representative Andriy Markovych Rudnytskyi. Conclusions are made on the basis of our own experience and also on the results of the communication with students and teachers of different generations. Human features that do not depend on time – professionalism, honour, spirituality, justice, kindness – are in the core of the research.

It is well-known that the orthodox-pragmatic approach is applied to work and training of specialists. Our investigation is based on the indivisibility of the process of lofty philosophical features and professionalism forming. But the questions how to maintain the integrity of spiritual and professional values in the new realities of life and how to educate young generation in the way of highly spiritual specialists are ones of the most important. Under these circumstances, the role and the personal example of a teacher remains to be decisive.

The 90<sup>th</sup> anniversary of Prof. Andriy Rudnytskyi birth is an occasion for reflections about the versatility of his personality and his activity as a scientist, designer, teacher, Head of the Association of Architects, Dean, Chair and organizer of new departments. Power of intellect, high moral qualities and spiritual-philosophical views left a significant impact in the heads and hearts of everyone, who was under the influence of his credibility, including myself. I am grateful to my destiny for having had an opportunity to work and communicate with the professor for many years.

## 2. Basic Theory Part

No one chooses the time to live in, however in all the times human values should be the benchmarks for a person. In the years of spiritual enslavement of the Soviet period, Prof. Rudnytskyi preserved his system of values and priorities by establishing the traditions of Lviv Architecture School and forming the professional qualities and life philosophy of numerous of its graduates.

Lviv Polytechnic Architectural School was considered to be the elite one. There were about one hundred students and 35–40 teachers at the Department. Professors Andriy Rudnytskyi and Roman Lypka had an especially high authority. The deserved respect was gained by teachers Yaroslav Shvets, Ihor Seredyuk, Viktor Kravtsov, Mykola Kuzyk, Oleksandr Kubar, and those of the younger generation – Bohdan Posatskyi, Iryna Rusanova, Oleh Ilyashenko, Tetyana Maksymyuk, Volodymyr Blyusyuk – the people so different and so close to us back then (Fig. 1).



**Fig. 1.** Teachers of Department of Architecture. In the center Prof. A. Rudnytskyi (from the Rudnytskyis' family records)

Analyzing the Lviv Architecture School and its professors from a distance of time, we should emphasize both the high level of professionalism and the spirituality dimension of most teachers. The personality of Andriy Rudnytskyi (1928–2008) especially stands out among his contemporaries. Being a Halychyna native of “non proletarian decent”, seen by the “liberators” as “the ones with us, but not ours”, the professor had to be cautious in his attitude and speech and be aware of what was not worth talking about; he spoke “quietly”. However at the lectures or project discussions, he showed not only encyclopedic knowledge but also intrinsic intelligence and deep spirituality.

Having worked for many years at the Urban Planning Department, it was a pleasure to have classes together with the professor as his assistant. The *representative examples*, which reveal the spiritual nature and philosophical position of the professor are to be provided in the article. At the beginning of so called *Perestroika* (transformation) period (1987), when the spiritual revival of people began to come into force, the professor suggested various courses in the field of public building design in the urban environment. The new course *Churches and monasteries* was also put on the list. At that period it was like the action of heroism that could have had unpleasant consequences. The course development was also assisted by the author of the article. It turned out that almost all students chose the new subject. Prof. Rudnytskyi placed a great sense of responsibility on the opening lecture. Everything that had accumulated and had been suppressed in his soul by the Soviet reality resulted into two phenomenal lectures. I had an opportunity to listen to different lectures and speeches of different academicians; however I deem these Andriy Markovych’s lectures to be the best of professional and pedagogic excellence. I still regret that there was no possibility back then to record them and publish without any editing. The lectures manifested the nature of the Professor, his spiritual and philosophical values and priorities.

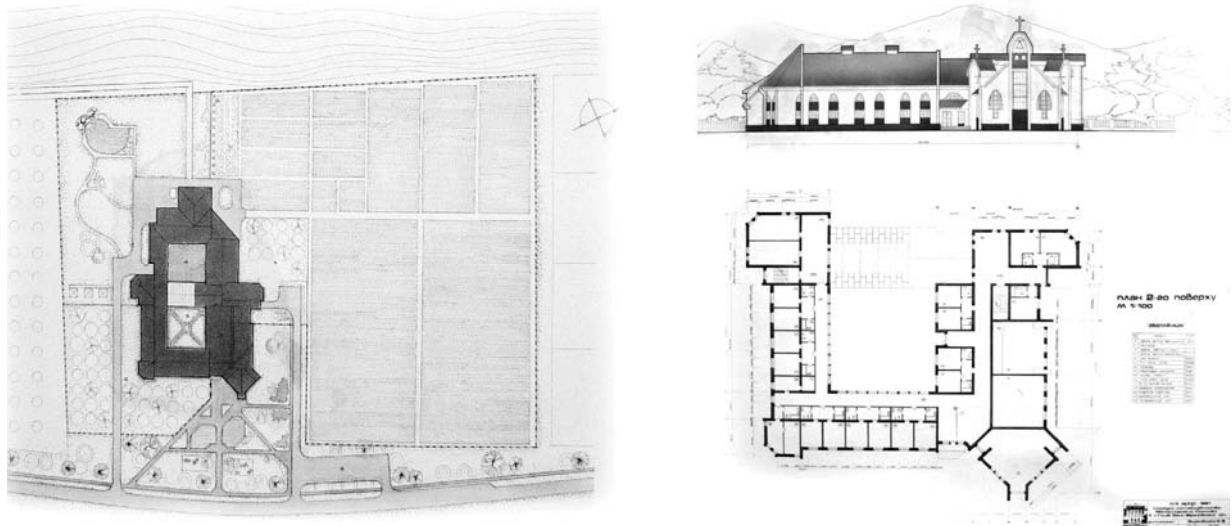
*The first lecture* dealt with the location and architecture of Ukrainian temples. On the basis of extensive material on global architecture and urban planning, the following issues were highlighted: sacrality of urban space, spirit of place and city, urban planning context in temple construction, organization of space near the temple. The peculiarities and styles of Ukrainian temple, its proportionality, finishing and symbolism of domes, etc were also explained. The Professor briefly outlined the history of Ukrainian church and indirectly addressed the topic of faith. It became almost a revelation for me; I heard the vast majority of this information for the first time. I’m sure that all the students were in the same situation. Nowadays there are many publications and other opportunities to receive information on temple construction. Then it was an attempt of the Professor to focus on it systemically and present this complicated issues to us after forty years of prohibitions and neglect of the theme.

*The second lecture* was on the interior of Ukrainian temples: structure of internal space, iconostasis, its elements, church furnishings and internal decorations, finishing. These and other issues were related to the liturgy and worship activities (baptism, marriage, etc). Special attention was paid to Christian art and its place in sacral space as well as the issues of Christian ethics. It could be felt that the Professor lacked the direct contacts with the church life at those times. He spoke so poetically and passionately about the importance and beauty of a Church both as a temple and an institution of social activities, and about its role in human life. He took the heavy losses caused by atheistic propaganda close to his heart. A lot of students didn’t know even the prayer *Our Father*, or either was ashamed or afraid to reveal their Christian knowledge and belief. Meanwhile, the project turned out to be very successful. Already two years later, we had a diploma project on the topic of sacral architecture. In particular, Oksana Davydyuk (daughter of Zynoviy Davydyuk, Stepan Bandera’s nephew) developed the project of the convent near Hoshiv (Prof. Rudnytskyi and I were the project supervisors). At that time, the Greek Catholic church was able to function openly and the project was submitted to the Church Eparchy (Fig. 2).

Nowadays there is a well-developed architectural school formed in the region the main task of which is to design temples. Directly or indirectly the knowledge and perception of sacral architecture and sacral activity space outlined by A. Rudnytskyi was used by students and later by architects in their artistic work.

*Another example* related to the project and spirituality of the Professor was revealed in one of our communications. At times, when students were doing the parti diagrams, and we had an opportunity for private talk, the Professor asked me, ‘Do you know the Ten Commandments?’ I am grateful to my mother, who taught me not only a lot of prayers, but also the Commandments. So I told them without a hitch and explained: the first three

Commandments regulate our relations with God, and the rest of them are for the relationship between people. Professor was surprised (I hope, pleasantly) with my knowledge, but I was so excited that I missed the fourth Commandment – “Honor your father and your mother, that your days may be long in the land that the LORD your God is giving you”. Reminding me of that Commandment (and thus emphasizing knowing them as well), he was reflecting on the Christian ethics. At the end of the conversation he said half-jokingly, ‘Most important is not to do evil’. I remember those words, and having sometimes a “wicked tongue”, but not being mean in my soul, I still try to honour them. While discussing the projects or scientific works, I usually speak critically but sympathetically (I want to provide good advice and help), but I never wish to hurt or humiliate any person.



**Fig. 2.** Fragments of a diploma project by O. Davydyuk (1988). One of the first projects on sacral architecture at Lviv Polytechnic National University (from the author’s private records)

*There is also another interesting example* of his attitude to life worth telling about. While designing and building a memorial sign to honour the reunification of Ukrainian lands at the entry from Kyiv direction, one more trait of his great personality (Prof. Rudnytskyi and I were the authors of the project) was found. Everything started with Lviv preparation to the Olympic Games in Moscow in 1980, as far as it is located at international touristic connection with Europe. There was a contest (1978) for the entrance signs to the city from major (European) directions. Project of mine, still a student back then, of the entrance sign from the Western direction (located at the end of Horodotska Street) was recognized as the best one. The idea was to create a “triumphal” ark with partly opened decorative grid in its hole. The interpretation was the following: we are open to those who come to us with good intentions and closed to the ones with evil. There was a historic emblem of Lviv on the ark and also the city map with main transport communications on a small wall. The grid was supposed to be made of wood and the multi-tone map mosaic was meant to be developed using the peculiar Ukrainian decorative motives.

The decision was made by the first secretary of the City Committee of the Communist Party Henrih Bandrovskyi. He had an idea to locate the developed sign at Kyiv highway, and therefore he required the changes to the project – people from the East come to us “only with good intentions”. The ark received monumental size (27 m in height) with a wooden oak grid of hospitably open city. A transversal “ribbon” also made of wood was added as well and it had to be carved with geometrical (western Ukrainian) and plant (all Ukrainian) motives, which were organically intertwined as the symbol of our united lands. The ark had historical shields on both sides with Lviv and Soviet Union emblems, as well as inscriptions “1939” and “Lviv” from the side of departure from Lviv and to the city entrance. Wooden carved crossbar symbolized the towel (rushnyk – the embroidered piece of fabric), with which Ukrainian people met the libertines. Everything was adherent to Soviet canons and myths of the time.

In such a way the entrance sign has transformed into the memorial sign. The relevant landscaping was also introduced – the oak grove had to be planted and organized through the alley with sculpture groups manifesting the battle of Ukrainian people for reunification. It was crowned with a mound at which the multi-figure sculpture composition *Meeting the Libertines* was set. At the foot of the mound, the wall with the text of People’s Assembly on Reunification was to be installed. In such a way the entire complex was created. However only a small part of the intended was implemented (Fig. 3).

While the sign was being created, I was spending a lot of time at the construction site. Prof. Rudnytskyi also visited it – especially when the excavation works were held and the complex “horizontal plane” was built, and when the important elements were installed. It was the opportunity to communicate in private and openly (Fig. 4). It is obvious that the Professor trusted me and was sure of my human decency. Once I asked him to tell me more details about the times we were “perpetuating” with help of the designed sign. The Professor told me that Ukrainians indeed were greeting “the first Soviets” with flowers and bread and salt. Having suffered during the interwar period from pacification and abuses from Polish, people believed that by uniting with the great Ukraine, they would be able to live happier and freer. However, as it is well known, the reality turned out to be different. Nowadays everyone is aware of it from various research and sources. And then it was not only new but also very painful information – about prisons, repressions, deportations and other crimes of the Soviet regime. There was also a positive moment, as the Professor mentioned, it was the reunification of Ukrainian lands. People believed that in future they would have their own state.



**Fig. 3.** Sign in honor of the reunification of Ukrainian lands. Opened in 1982 (from the author’s private records)



**Fig. 4.** Professor Rudnytskyi and assistant Habel at the sign construction site. (from the author’s private records)

Another interesting example is our trip to the Science Days in Vilnius in 1977. There was Dmytro Sheremeta, Lyena Samoylova and Volodymyr Pasichnyk from Automation Department travelling together with us. After speeches and discussions that had lasted for several days there was a closing concert. There were almost 800 people and delegation from the various cities of the former Union had to perform on the stage. Dmytro Sheremeta played the guitar very well, so on his initiative we learned the song *Step shyrokyi* (Wide Steppe) and attracted to our group a student from Dnipro city. I can still remember some parts, “The sun has burned the steppe, no drop of water, only one kozak walks in the patched peasant’s overcoat. Will I ever be back to Ukraine, or will I die here in the steppe. Die in the foreign land...” And the chorus, “Ukraine will erase in the yellow saber glow and blue glory!...” The song has had many verses. After I had returned I told about the Science Days, and about Vilnius, and how well we had been received especially

after such a wonderful song. Lithuanian people came to us and greeted. I understood the song's subtext. I sang all the verses to the Professor. He told me, 'Mykola, the song is great, but don't sing it to anyone ever again.' Without any doubt, the Professor was a genuine Ukrainian patriot, who was rooting for the future. He chose the way of quiet work in terms of education of young generation. He wasn't a noisy tribune; however he was the Ukrainian patriot.

A manifestation of professor's human values is displayed by *another example*. After wedding I lived in difficult living conditions with my wife's parents. It so happened that our baby died several weeks before birth. It was a tragedy for us. Prof. Rudnytskyi knew my situation and on his own initiative he wrote a request to the City Council to ask for the improvement of housing conditions for his employee. And only after V. Sekretaryuk had imposed the resolution "nado pomoch" (should be helped), he told me that things could have worked out that way (such resolution then was equated to an order). After a while I obtained a corporate one-room apartment with a kitchen, which was our first own accommodation and the basis for further improvement of housing conditions. That was what this Person did – he made this world to be a better place.

In conditions of high pressure on spiritual traditions of people and imposing the communists' philosophy and ideology, traditional values of Ukrainian nation managed to be preserved and aggressive activity was successfully counteracted due to certain activists and teachers. The specialists managed to defend the city from the ideas of social realism and suggestions to change its historical environment. Active position of Urban Planning Council and the Chief Architect of the city was of much importance in this case.

The Professor repeatedly went to the City Committee of the Communist Party and the City Council to persuade the city authorities and "teach them architecture". At that time Roman Myh had been the Chief Architect of the city for a considerable period. We became friends when he came to work at the Department. He told us about a lot of situations when professionalism and specialists' position became decisive, – authorities usually followed their opinion. Mr. Myh also emphasized Prof. Rydnytskyi's role in accepting a number of important decisions of city development. Young and less authoritative specialists often "advanced" the professor "to the frontline", and his professionalism and authority greatly contributed to strengthening the principles of urban planning in our city.

Roman Myh had been the Lviv Chief Architect for more than twenty years. He treated A. M. Rudnytskyi with particular respect and told us interesting situations about the life of urban architectural environment. I still feel some pity that I could not persuade Roman Myh to publish his memoirs about that period of his life. He had all information about meetings, workshops, urban planning councils and conferences which were recorded in his working notebooks. I suggested that a journalist would interview Mr. Myh and process the collected information with his assistance. But it had been always postponed until it became too late – an illness (diabetes, blindness), so the memoirs would have never been seen by the world. The notebooks might be still preserved by Roman Myhailovych's wife Mrs. Rosalia. I'm sure there is interesting information about the Professor, his speeches at urban planning councils and projects discussions.

It is typical that the relationship between a teacher-architect and a student are characterized with a high level of culture and the spirit of human values. People tried to hide from the existing reality, withdraw into their shells and improve themselves as personalities and specialists. Internal world, consciousness of their role and duty, deep knowledge of not only their profession but also literature, culture and art in general were of great importance.

While listening to the Professor, we were in awe of his beautiful Ukrainian language in texts, in always calm and weighted answers, and in always accurate and concise characteristics of people and often ironic situations. The Professor did not avoid panel discussion and always was tolerant in critical remarks. He did not initiate discussions himself except of scientific ones. He delivered short speeches; however, having been a professional urban designer, he always emphasized a broad content of the issue discussed. Having his duty and responsibility for the future of architectural school, the Professor designed and improved the syllabus for numerous courses in Architecture. He also supported future specialist in the minutes of "the debut difficulties" which were related to the adaptation of former students to the role of higher school teachers. He meaningfully created the climate of psychological comfort in the team and cared for the employees' problems (Fig. 5).



**Fig. 5.** Prof. Rudnytskyi meeting with Lviv schools' students  
(from the family records of Rudnytskis)

Those are my life examples and lessons learnt from the Professor. I am sure a lot of his students remember the lessons that were at hand in their life and professional journeys. He did not teach us to build a career, but he taught us to be a specialist having high ethical values. Such features of the professor's personality were formed also by his relatives, a family of true Halychyna elite with high culture and spirituality. His wife Mariya Bohdanivna Rudnytska (from the family of Greek-catholic priests) played a special role, not only by taking over all the difficulties of everyday life, but also by influencing his living philosophy. I had an opportunity to feel this wonderful family atmosphere, enjoy discussions, and listen to the Professor's memories about his teachers. Andriy Markovych spoke about Prof. Bahenskyi with special warmth. He was the Assistant of him and was significantly influenced by the latter. He told us interesting examples of his life experience and professional development. It was the tradition which was passed over and the school of humanity and high professionalism was formed.

### 3. Result and Discussion

And still, being a man with a "wicked tongue", I cannot help to make some remarks at the Professor's address. He was too serious towards himself and people around him, and lacked the sense of humour. Sometimes I really wanted to tell the Professor a good joke which I had just heard. But I did not dare. Roman Lypka instead was the person with a wonderful sense of humour – he replied to your joke with two of his own, very explicitly and to the point, smiling cunningly into his smoked mustache. We,

young and excited, were bothered by his excessive caution, as we understood it back then. We can realize the reasons only nowadays, when all the terror of the Soviet reality is disclosed. And he was a witness of repressions and deportations... And it resulted into the relevant form of behaviour. It is hard to call the Professor a revolutionist.

At that period, major activity of teachers was largely focused on teaching and having project discussions with students. The methodology principles were poorly developed and were of special importance. That's why Andriy Markovych researched this question thoroughly and published a lot of his papers on the problems of creative education in higher school, and training of future architects (Rudnytskyj, 1969, 1977, 1979a, 1979b, 1980, 1982, 1984, 1993) in foreign journals. They still have a very up-to-date meaning and are very informative. Considering the training of young architects and traditions of Lviv Architecture School he developed the foundations of methodological approach to architects' training. They were the basis for the development of the School that suffered from the Soviet pressure (there was the intention to close it) and making it the leading architecture school. Spiritual values of future specialists took an important place in these provisions.

Back in 1984, in the newspaper *Lvovskaya pravda* an article was published in which the Professor paid special attention to new problems encountered by architects due to the school reformation – and called for an increase of the number of open architecture competitions and promotion of scientific knowledge on Architecture and Design, etc (Rudnytskyj, 1984). In 2004, while considering the traditions of Lviv Architecture School, the Professor emphasized an important role of history and traditions being taught to future architects. He mentioned a special role of Yu. Zahariyevych, E. Kovach, T. Obminskyi, L. Markoni, T. Talyovskyi, I. Levynskyi in the development of local architectural traditions. During the first years of the Soviet period, the personality and professional activity of Prof. I. Bahenskyi played an important role in development of architectural education in Lviv.

His joint publication with Prof. Cherkes defined the role of culture and art in preparation of architects in modern conditions, and outlined the methodological problems of Ukrainian higher school of Architecture. It argues that the architects' training requires an integral development of traditional education forms combined with the introduction of new ones; and the quality requirements of art training, spiritual values, and cultural level of future architects must correspond the new reality of post-Soviet period (Cherkes and Rudnytskyi, 2007).

Modern developments of technologies, construction, urban architecture, market relations, and new opportunities have influenced the teacher-student relationship. How has the professional level, spirituality and philosophy of students and teachers changed; how has their relationship been influenced? What is the current level of our school? What should we do to improve the situation and how to adapt the traditions of great teachers of the past into the present system of architects' training?

While the system of values remains unchanged, the priorities and opportunities are considerably different now. The present moment is complicated for the development of urban architecture: violation of composition integrity due to the irrational investment into the central part of the city, strengthening of transport problems, uncontrolled redevelopment of territories and buildings, unjustified growth of buildings' height, etc. To keep traditions of pedagogy in terms of modern information epoch has become a more complicated task. In the past, the books and teachers were the main source of obtaining new knowledge. At present, the Internet and various bloggers have occupied this role. Higher school put a huge emphasis on scientific research of a teacher. We, the Professors at the Institute of Architecture, no longer has the right to participate in meetings on city development which are held at the City Tower – our opinion is not taken into account any more, and it has become inefficient to “chase the windmills”. We consider it to be a waste of time, while our predecessors were more persistent in protection of our architecture environment and harmonious city development. And they have all the reasons to blame us for such a passive attitude. Because human professional features manifest themselves in complicated situations and we, teachers, should teach the youth to demonstrate human and professional values on our own examples. This is what we could learn from the Professor Andriy Markovych Rudnytskyj.

#### 4. Conclusions

As the conclusion of our analysis, we would like to emphasize:

1) the importance of close integrity of the spiritual and philosophical component with the professional knowledge and skills of architects, which is the cutting edge in the field of Engineering, Humanities and Arts. An architect forms an environment and his activity is directed at human needs and values. Spiritual-philosophical qualities of teachers are necessary for more profound understanding of private responsibility;

2) a concept of spirituality, decency, humanity should remain unchanged in time. They should be aimed at both young teachers and students, and the actions but not the words should demonstrate their strengths. In this regard we have an excellent example of Prof. Rudnytsyi who belonged to Lviv Architecture School.

I would also like to express gratitude to the blessed memory of the professor Andriy Markovych Rudnytskyi for the living and scientific experience he seeded in the minds and hearts of his former students, who are nowadays the professors and practicing architects preserving the awe of integrity of his personality and high level of scientific and pedagogic talent.

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Микола Габрель

#### ДУХОВНО-СВІТОГЛЯДНІ ЦІННОСТІ В ПРОФЕСІЇ ТА ПІДГОТОВЦІ АРХІТЕКТОРА. ОСОБА НА ФОНІ ЧАСУ

**Анотація.** Визначено значення духовно-світоглядних цінностей у професії та підготовці архітекторів, роль особи викладача в цьому процесі. Рефлексії здійснено на прикладі Львівської архітектурної школи та її представника професора Андрія Рудницького. У полі розгляду перебувають риси людини, які не повинні залежати від часу, – професіоналізм, честь, духовність, справедливість, доброта. Основою для висновків став особистий досвід співпраці з професором Андрієм

*Рудницьким і спогади колег-викладачів та колишніх студентів. Аналіз охоплює окремі події, подані на тлі історичних обставин кінця ХХ – початку ХХІ століть. Розглянуто методичні засади викладання, що їх дотримувався професор Рудницький, його принципи спілкування зі студентами, залучення їх до практичного проектування, виховання поваги до архітектурної спадщини минулого. Показано, як в умовах ідеологічного тиску на духовні традиції народу, завдяки професіоналізму, принциповій позиції фахівців-архітекторів і повазі до думки викладачів політехніки, вдалося уникнути багатьох містобудівних помилок і послідовно відстоювати історичне середовище Львова. Серед архітекторів Львівської політехніки панував дух загальнолюдських цінностей, важливими були не лише знання професії, але й літератури, мистецтва і культури загалом. Відчуваючи відповідальність за майбутнє львівської архітектурної школи, професор підтримував молодих працівників, формував клімат психологічного комфорту в колективі. Обґрунтовано незривність процесу формування високих духовно-світоглядних рис та високого професіоналізму. Особливо це стосується архітектури, яка перебуває на стику інженерної, гуманітарної та мистецької сфери, а діяльність архітектора, спрямована на людські потреби і цінності, вимагає від нього відповідних моральних якостей, і передусім – порядності і відповідальності. У забезпеченні єдності духовного і професіонального в нових реаліях життя, у методиці виховання молодих фахівців роль та приклад викладача залишаються вирішальними.*

**Ключові слова:** *духовно-світоглядні цінності, професіоналізм, підготовка архітектора, Львівська архітектурна школа, особа на фоні часу, професор А. Рудницький.*

**RESULTS OF PRACTICAL IMPLEMENTATION OF LARGE TOWN  
PLANNING PROJECTS IN RURAL AREAS IN THE 80'S OF THE 20<sup>TH</sup>  
CENTURY IN UKRAINE (BY EXAMPLE OF VILLAGES CONSTRUCTED  
FOR THE CHERNOBYL ZONE OUT-MIGRANTS)**

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**Abstract.** On the basis of field studies of rural residential areas, performed in 2016, which were designed and built for out-migrants from the Chernobyl zone in 1986-1987, the author analyzes their evolution, the 30-year period of their operation for the purpose of matching development planning decisions the real needs of rural inhabitants.

**Key words:** villages, residential areas, settlements for Chernobyl out-migrants, development, street, farmstead.

## **1. Introduction**

According to the data of the Ministry of Regional Development, Construction and Housing of Ukraine as of June, 2016, master plans of 66.5 % of urban-type communities need urgent renewal, 29.5 % of villages in Ukraine have no master plans, and 64.4 % of the villages that currently have master plans were developed before 1991 [1]. That is, only 25.1 % of villages of Ukraine have master plans which are developed according to DBN 230-92 – a set of design rules, which fundamentally do not differ from the norms of the socialist period. Consequently, significant scope of design works on creation of new master plans of villages, against the background of degradation of the Ukrainian village as a whole, actualizes the problems of improving these master plans on basis of the previous rural construction experience.

In this regard, the results of the design, construction and evolution of villages for out-migrants from the Chernobyl zone could be interesting and useful. In spite of the unfortunate circumstances that caused their appearance, in fact, these villages represent a large-scale urban development experiment in the field of rural housing construction. Such an experiment, which represents the embodiment of the newest knowledge of the theory of village architecture for the mid 80-ies of the twentieth century and which was implemented into design rules was current at that time. These days, 30 years after the construction and settlement of those villages, it is a good opportunity to check how those design rules meet the real needs of the village, as current norms do not fundamentally differ from the design standards of 1986.

**Analysis of recent investigations and publications.** Works of physicists, physicians, historians, ethnographers and other scientists are dedicated to the problems of Chernobyl out-migrants. There are some works of M. S. Avdieieva, T. A Dotsenko, V. Ya. Pinchuk, dealing with research of housing and architectural environment for Chernobyl out-migrants, where the authors outline the peculiarities of national traditions while designing housing for Chernobyl out-migrants. Meanwhile, the architectural and planning decisions of the rural estate development project for Chernobyl out-migrants have remained unexplored.

**The purpose of this study** is to determine the results of the design, construction and operation of the settlements for the out-migrants from the Chernobyl zone. Evaluation and systematization of the collected data have formed the real picture of the present state of the villages, after 30 years of their operation.

**Methodology and research objects** – since almost no study has been carried out on the results of the construction of the settlements for out-migrants from the Chernobyl zone by this time, 30 years after the Chernobyl disaster, from August 2016, the author organized 6 expeditions to villages in the Kyiv region. Arkadiivka and Paskivshchyna in Zhuriv district, Trubivshchyna of Yahotyn district, Plesetske and Lubiana in Vasylkiv district, and the village of Havronshchyna in Makariv district were visited for the collection of materials. In the course of expeditions, field studies of the villages, photofixation, schematic measurements, interviewing of residents and heads of local village councils were conducted. The expeditions enable us to fix the current state of the quarters for the out-migrants from the Chernobyl zone, to find out the changes that happened during their 30 years of operation, to make certain conclusions based on the field studies.

## 2. Results and Discussion

The explosion of the 3rd reactor of the Chernobyl nuclear power plant caused significant transformations in the population settlement pattern of Ukraine. In 1986, about 116 thousand people were evacuated from the 30-kilometer zone around the Chernobyl nuclear power plant, for whom new settlements were designed and built on land that was promptly withdrawn from agricultural use. Despite the urgency, the choice of sites for the construction of settlements for Chernobyl out-migrants was quite meaningful and systematic:

1 – the residents of the Chernobyl zone villages were moved to new places compactly without settling them apart into different villages. However, such an ideal situation was rather exceptional, than typical for many reasons. New settlements of the commensurable size and capacity were constructed for them on the basis of the calculation of a household unit for each family (although it would be fair to note that there were often cases when single elderly people were settled in the same household or the same house). This principle mainly determined the extent of a newly formed settlement;

2 – the settlements were built in the central region of Ukraine, whose natural, climatic and landscape characteristics did not have too much differences from the conditions of the Chernobyl zone: in Vinnytsia, Khmelnytskyi, Rivne, Zhytomyr regions and in 10 districts of Kyiv region: Baryshivsk, Borodianka, Vasylkiv, Vyshhorod, Volodarsk, Ivankiv, Makarov, Pereyaslav-Khmelnytskyi, Fastiv and Yagotyn [2];

3 – the settlements had been located not far from large cities to provide more prospects for the youth, and above all – to absorb the probable surplus of labor force among those settlers who could not or did not want to work in the collective farms, to which Chernobyl out-migrants settlements were joined;

4 – the construction of housing for out-migrants was arranged in a not detached way from existing settlements, but as a part of existing settlements which consisted of several quarters or just streets. The construction was carried out not far from the existing villages in new and unoccupied territories, or within already existing village development. The aim of such settling decision was to solve several possible problems of out-migrants: residential, economic-functional and psychological:

- having settled them not separately in new territories, but along with the native population, the goal was to integrate Chernobyl out-migrants into the existing living environment as new members of the community, thus not creating any segregation of out-migrants from the rest of the society (it is known that in the beginning the native people of the villages perceived the out-migrants warily as strangers);

- employment – existing then collective and state farms, which the villages belonged to, could accept a sufficient number of newly arrived farm labour force. It can be assumed that due to the neighbourhood of a large city, at that time, those collective and state farms experienced labour shortage;

- along with the construction of the housing, the community and consumer facilities had been built for out-migrants. It was assumed that the community and consumer facilities of the existing villages could provide the needs of out-migrants at the beginning.

On the other hand, the construction of service facilities for out-migrants had to simultaneously improve the services of the residents of the existing villages. For example, in the village of Arkadiivka, 160 of homesteads, a school, a dining facility, shops, a bathhouse and a consumer services centre had been built [3] for the out-migrants, and the local people of Arkadiivka could also use all of them;

– the engineering infrastructure of the existing villages (electricity, communication facilities, water supply etc.), their source of construction materials, labour resources became an additional support in the construction of quarters for the out-migrants.

The project documentation with master plans of the settlements, the planning of farmsteads including residential buildings and subsidiary facilities, and public facilities had been developed by design institutions in extremely short period, sometimes in parallel with the construction, and designers working in carriages next to the construction sites. Hundreds of construction companies were simultaneously involved in the construction of new settlements. Thus, the first out-migrants from the most radiation-polluted villages entered the newly built homesteads already in September 1986, and in the following years, the construction of dozens of quarters for out-immigrants from the Chernobyl zone was completed.

Thereby, in spite of the emergency, in Ukraine, in the second half of the 80's of the twentieth century there was a complex construction of rural settlements on unprecedented scale. The design and construction had been conducted on the basis of the latest knowledge and ideas of that time with regards to what a Ukrainian village had to be like, on the basis of the newly developed for that time – Republican Construction Standards for Rural Design (RCS/86), in which the construction experience of a number of experimental villages (Vuzlove, Kodaky, etc.), constructed in Ukraine in the 70s of the twentieth century, had been taken into consideration. In view of that the current norms for the design of rural settlements are not much different from those ones which were in force in 1986, the settlements for the Chernobyl out-migrants can be considered nowadays as a large-scale urban experiment in the field of rural construction, the results of which have been tested by lives of one or two generations. Consequently, the results of this experiment can provide valuable material for both scientists who deal with rural architecture problems and development of new design rules, as well as for practicing architects working on master plans of rural settlements.

**Streets.** The first thing that strikes in the villages for the Chernobyl out-migrants is the space of the streets dividing the settlement into quarters. This space is created by an ordinary 3.5 meter roadway and 3 to 4 meters frontage on both sides of the street, which stretches along the farmstead fences, separating the street from residential buildings. In some settlements (Arkadiivka, Havronshchyna) there are rain ditches up to 40cm deep along one side of the street, which slopes are laid out with large concrete slabs.

On the streets, onside and straight rows of water pumps were arranged, most of which do not work at present. Former out-migrants remember that water out of them was of bad quality in all times. In addition, at present many of the water pumps are silted up. For these reasons a lot of owners have drilled new wells within their farmsteads.

Nowadays, the planning system of the settlements has been preserved, there is a sufficient number of households which have not undergone any fundamental reconstruction, and on the base of which it is possible to analyze the parameters of the estates, which were taken according to that time rules, and their planning decisions. As a matter of fact, it is possible to imagine a general picture of rural households that were offered by the state at that time. The household areas vary from 0.12 to 0.25 hectares (mostly 0.15 hectares), depending on the adopted directive for a certain settlement and the position of a homestead in the structure of a quarter. The homesteads located within quarters had minimum areas (0.12–0.15 hectares), and those ones located on the quarter outskirts, along the streets, to which land plots were adjoined, had maximum areas of 0.25 hectares. The width of the farmsteads along the street was taken between 24 and 26 metres.

Residents' land plots for the cultivation of agricultural products are located either near their own homesteads or at a considerable distance from the place of living. Therefore, farmsteads bordering on land plots are highly valued by the residents. The owners of such farmsteads believe that they are just very lucky, because they do not need to make any efforts or spend any time on the way to their plots. And they also note that such land plots are much easier to care after than those ones which are far away. Moreover, they emphasize that the immediate vicinity of farmsteads and land plots allows them to hold more poultry and livestock, especially cows, which number is constantly decreasing in Ukrainian villages.

The household development was carried out on the basis of the I or II typical projects of one-storey residential houses, as well as typical household facilities: a cattle shed with compartments for small animals and poultry, a cellar, and a backhouse (*see Fig. 1*)<sup>1</sup>.

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<sup>1</sup> All pictures are taken by the author.



**Fig. 1.** a–b. A house and household facilities in a farmstead of a Chernobyl out-migrant in the village of Arkadiivka, Makariv district, Kyiv region

The local residents confirm that almost all the owners kept small livestock and poultry, although at that time all out-migrants became the farmhands of local collective or state farms.

Residential houses consisted of 3 rooms, a gas-powered kitchen, a verandah and an attic. According to their areas and design, the houses were comfortable enough for one family, if not to take into consideration the lack of sewage, water supply, and the lack of insulation of walls and attic. The residents of new houses told us that they had enough living space and premises and even more than they had had before, which was confirmed by the actual survey – there is no extending of the houses.

The main changes that have affected the houses are the replacement of windows and the insulation of the outer walls and attic floor. Though, the respondents noted that there was a great lack of household facilities, there was a much less number of them than was left in their properties. Therefore, those out-migrants who had some means, they developed their farmstead facilities, and those ones who had neither means, nor health or desire for doing that, gradually minimized the household, having limited it to keeping poultry, a goat or a pig.

**The current state and new life of quarters in the settlements for the Chernobyl out-migrants.** Nowadays, 30 years later, there are less real out-migrants, many of them are no longer alive, and their descendants have moved to cities, and the parental homesteads are used as country houses. Some of the houses have new owners, most of which are former residents of Kyiv. Reconstructions and expansions of the households made by the new residents sometimes make it difficult to recognize the former homes for out-migrants. Household facilities have been converted into garages, pavilions etc. The quarters of former out-migrants in such villages as Lubianka, Plesetske, Havronshchyna, acquire outlines of suburban housing increasingly due to proximity to Kyiv, as well as due to the good condition of highways (*see* Fig. 2).

But there is another type of owners – these are the local villagers who run their households rather intensively. In this case, farmsteads of former Chernobyl out-migrants undergo radical changes, mostly they are being reconstructed or expanded and new household facilities are being built. In such farmsteads the owners very often keep small livestock and poultry, and only some farm owners breed cattle.

However, the new owners of households with no farming facilities note the extremely high demand for products produced by their neighbours-farmers. Some owners of such farms have agricultural machinery – combines, tractors, etc. Therefore, the frontage at farmstead fences serve as parking for agricultural machinery due to the insufficient area of farmsteads for maintenance of such vehicles.

Some farmstead owners have started small businesses like shops and cafes. In some villages, for example, in Trubivshchyna, the former house was adapted to serve as a church, which could not be done for some reasons in those years of their migration (*see* Fig. 3).

Nowadays, some households are used as country houses. Nothing has changed in such homesteads; houses are maintained in more or less proper conditions. At the same time, household facilities are decaying. And there is one more category of farmsteads – these are abandoned properties. Their broken remains of fences,

closed houses, with broken windows, that gradually are collapsing, sunken and overgrown with grass cellars and sloping household facilities remind that there was once life.



**Fig. 2.** Samples of reconstructed houses of Chernobyl out-migrants:

a – the village of Lubianka, Vasylkiv district, Kyiv region; b – the village of Plesetske, Makariv district, Kyiv region.



**Fig. 3.** Sample of the farmstead in the village of Arkadiivka, Vasylkiv district (a);

Reconstruction of the Chernobyl out-migrant house for a church in the village of Trubivschyna, Yagotyn district, Kyiv region (b)

### 3. Conclusions (on the results of the field studies of the settlements for the Chernobyl out-migrants)

1. The out-migrants are people from Polissya region, who used to identify and still identify themselves with the woods, who felt protected from the outside world by those woods, were relocated to open areas where they began to feel uncomfortable and unprotected. Perhaps that was one of the reasons that prompted many out-migrants to come back to their homes which were in the 30-kilometer Chernobyl zone. For others, especially for elderly people, this psychological discomfort resulted in depression, illnesses and increased mortality among out-migrants. Another category, mostly youth, have saved themselves of depression in the cities. That is why it seems fair that the toponym of each land is extremely important for its inhabitants in all aspects of their existence. And perhaps instead of economic arguments that priority had to be taken as the main thing to site the settlements for Chernobyl out-migrants at territories that would resemble Polissya or at least to recreate the spatial organization of the homesteads.

2. The farmstead areas, though they were much larger than it was usually provided for housing at that time in Ukraine, could not be equal to the spacious households out-migrants had had before the Chernobyl

catastrophe in any way. The sharp reduction of the space of a farmstead to the size of that time standard household contributed to the development of belief among the out-migrants that it was impossible to develop a subsidiary farm in such limited space, and they either curtailed it or not even started it up. Thus it is possible to assume for those out-migrants who wanted to have a developed subsidiary farm, the parcel area for a household (a cottage and a garden) had to be between 0.25 and 0.50 hectares.

3. The household facilities which were built for the out-migrants proved to be insufficient for the set of premises and the area. Also, due to the insufficient width of a homestead, it was difficult to create a comfortable farm yard, sufficient for small livestock and poultry, agricultural machinery parking. These two factors led to the refusal of the owners to conduct developed farm production on their own land plots.

4. To give the out-migrants possibility to develop farm production, it was necessary to minimize the distance between their homesteads and their land plots. The land plots had to be directly adjacent to the household, or they could share the service passage. The unconditional relevance of such a scheme of a village development has been shown by the comparison of some of the unproductive farmsteads of the out-migrant in the village Arkadiivka comparing to the farmsteads of the indigenous inhabitants of the same village. The last ones, due to competent development of the village (being the part of Russian Monarchy), have parcels with an area of up to 0.5 hectares (a farmstead and a garden), so all the households are engaged in farm production, and the village itself looks rather optimistic then resembling a depressed settlement.

And vice versa, land plots (gardens) which are separated from farms at considerable distances require additional time and efforts for getting to them, additional energy, additional transportation costs of products, fertilizers, stock etc. The future perspective of such settlements with distant land plots from homesteads can be outlined as:

- land plots become parts of larger farms or agribusiness;
- farmsteads lose the status of farm producers and, at best, are gradually transformed into cottage settlements, if there is a city nearby or some other kind of production, or in the worst case the village simply disappears;
- the disappearing of small farms may increase prices for agricultural products by monopolists like large farms and agribusiness;
- with the disappearance of villages – the main carriers of Ukrainian identity, the entire country can degrade spiritually and then physically. If migrants from Asia come to our wonderful lands, it would be another country.

**A general conclusion for modern development of the village.** The town-type settlements (a farmstead with a house and household facilities, and land plots outside the settlement) were designed and built for the out-migrants from the Chernobyl zone, which were quite comfortable from the position of a town dweller. But even after 30 years of life these settlements have not become a real Ukrainian village, evolving from small farms in the distance to a kind of hybrid of cottage development of suburban type, country-zone, and abandoned properties. The reason for this fiasco is in ignoring of the needs and regularities of the successful functioning of a farmstead, especially in neglecting the need for an organic combination of a household and a land plot as the main factor of the farm production.

The further development of master plans of villages and their quarters, as it has been done for the last 70 years with a socialist sight to erase the differences between the city and the countryside, as suburban cottage towns are neat and architecturally perfect, leads directly to degradation of the Ukrainian village. It is the time for the urbanists to understand the difference between the quarter of town households and the street of the Ukrainian village.

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Людмила Гнесь

**РЕЗУЛЬТАТИ ПРАКТИЧНОГО ВПРОВАДЖЕННЯ ПРОЕКТІВ ВЕЛИКИХ МІСТ  
В СІЛЬСЬКІЙ МІСЦЕВОСТІ У 80-ті рр. ХХ СТОЛІТТЯ В УКРАЇНІ  
(НА ПРИКЛАДІ, СІЛ ЗБУДОВАНИХ ДЛЯ ПЕРЕСЕЛЕНЦІВ З ЧОРНОБИЛЬСЬКОЇ ЗОНИ)**

**Анотація.** Згідно з даними Міністерства регіонального розвитку і будівництва, в Україні склалась ситуація, де села та селища міського типу потребують термінового розроблення генпланів, або їх оновлення. Зараз існує певна частка сіл України, які зовсім не мають генпланів, або є села, для яких генплани вже опрацьовані, а для інших продовжують опрацьовуватись згідно з уже новими проектними нормами.

Зважаючи усі сторони цієї проблеми, цікавими і корисними видаються результати проектування, будівництва і еволюції сіл для переселенців з чорнобильської зони. Незважаючи на трагічні обставини, що спричинилися до їх появи, ці села фактично являють собою масштабний містобудівний експеримент у сфері сільського житлового будівництва, який уособлює собою втілення найновіших на середину 80-х років ХХ ст. знань у теорії архітектури села, які були інстальовані в чинні на той момент проектні нормативи.

Саме через 30 років після будівництва і заселення цих сіл, постала нагода перевірити, відповідність проектних нормативів на їхню відповідність реальним потребам села, з позицій чинних на сьогодні проектних норм, які принципово нічим не відрізняються від проектних норм 1986 року.

На основі проведених автором в 2016 р. натурних досліджень сельбицних територій сіл, запроєктованих і збудованих в 1986–1987 роках ХХ ст. для переселенців з чорнобильської зони, проаналізовано еволюцію поселень протягом всього періоду їх експлуатації на предмет відповідності розпланувальних вирішень забудови, реальним потребам сільських мешканців.

Зіставляючи результати досліджень, на фоні кількісно-масштабних опрацьовань генеральних планів сіл, як це робилося останні 70 років з соціалістичним прицілом на стирання відмінностей між містом і селом, проектуючи село як приміські котеджні містечка, автор вбачає закладення складної і болючої проблеми, яка прямо веде до подальшої деградації українського села. І сьогодні, саме на тлі цього явища, настав час урбаністам зрозуміти різницю між кварталом садибної забудови для городян і сільською вулицею українського села.

**Ключові слова:** села, житлові райони, поселення для Чорнобильських переселенців, розвиток, вулиця, садиба.

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## THE SPATIAL ORGANIZATION OF SACRAL SQUARES IN THE CITY SYSTEM

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**Abstract.** The organization of sacral squares of historical cities, which not only emphasizes the importance of sacral objects, but also plays an important role in the formation of the spatial structure of the city, is researched. On the basis of our analysis, the peculiarities of formation, which allow to preserve an aesthetic and spiritual value of the squares during the centuries, are studied.

**Key words:** church, sacral square, temple, spatial organization, sacral space.

### 1. Introduction

Sacral architecture is a manifestation of spirituality and aesthetic tastes of the community. It has always been a decisive factor in shaping the outlook, culture, and tastes of its inhabitants. No less important is the area around the temple which not only increases the importance and the sacral meaning of the building but also forms the harmonious environment of the city itself. There are numerous examples of churches the surrounding territory of which contradicts the environment and cannot be perceived harmoniously. Accordingly, the need to study and identify the benefits of sacral squares that were formed by architects and for several centuries have retained a huge aesthetic and spiritual significance has aroused.

A considerable amount of scientific works both conducted in Ukraine and abroad is focused on the objects of sacral architecture. Most scholars pay their attention to the architecture of the object itself, and not to the formation of the surrounding space. The problem of canonical orientation and laying of temples is considered in the works by P. Rappoport (Rappoport, 1974, 43–48) and G. Kazakov (Kazakov, 1994, 135–136). The researcher Y. Taras emphasises the value of the arrangement of sacral objects to the site accomplishment. (Taras, 2000, 306–330; Taras, 2006) Yuriy Kryvoruchko stresses the importance of sacral objects in the spatial structure of the city:

*Sacral objects in the spiritual environment of the city are “the most spiritual of the spiritual” (as traditionally – “holy saints” – the altar in the temple is called here). Since the spirituality of the city consists of the spiritual sphere objects in the broad sense (science, education, culture, art, faith) and the perfect organization of the main urban elements (natural basis, urban fabric, society), then the “spirituality of the spiritual” creates objects of religion that perform sacred functions, that is spiritual in their most complete, direct and deep sense (Kryvoruchko, 2001, 135–141).*

While investigating the formation of the historical sacral landscape of the city, the researcher stated:

*Sacral objects in the architectural and planning structure of the city are subjects of a certain hierarchy, which determines their significance in shaping the urban image. According to the suggested classification, all sacral buildings could be divided into two levels. The objects of the first level create the image of the whole city, and the objects of the second level – the local layer, which do not dominate the silhouette but form the image of a separate area, square or street (Kryvoruchko, 2006, 34–64).*

The meaning and significance of sacral objects in the compositional structure of the city is deeply developed by G. Osychenko (Osychenko, 2007, 135–141).

## 2. Basic Theory Part

It has been a long tradition in Ukraine that to emphasize the grandeur and spiritual significance of the location of church the most beautiful and highest place in the landscape was chosen: Kyiv Pechersk Lavra, St. Sophia Cathedral, St. Andrew's Church in Kyiv, St. George's Cathedral in Lviv, Church of St. John the Baptist in Bila Tserkva. In some areas, the church was being built on such a high hill that one has to make a lot of physical efforts to reach it (e.g., Church of the Annunciation of Holy Virgin in Tuchne, Peremyshliany district, Lviv region). In cities with dense building constructions and flat landscape, it is much more difficult to identify the importance of sacral object via its spatial structure.

However, there are lots of churches constructed in dense building areas which are perceived as much important as those built on a hilly site. The main planning technique to make the temple noticeable in the environment is to arrange a square around it which will improve its visual perception and emphasise its importance. The perfect composition with a dominant which arranges the local area of the city around it is obtained when using this technique. In its turn, the streets that connect the set of such local centers increase the attractiveness of space perception. As we walk along the streets with the composition described above, a gradual change of scenes from the enclosed space of narrow streets, where the sight is limited, to spacious squares opens to the viewer's eye. There is an opportunity to slowly cover all the aesthetic values of the city environment which is formed on the basis of sacral squares with an excellent architecture of its temples.

The experience of Italy, where the warm climate and dense urban development patterns are predominant is worth mentioning here. For example, in Rome, at the end of the nineteenth century, there are 255 churches and 21 of them are attached on one side; 96 – attached on both sides; 110 are attached on three sides; 2 attached on four sides and only 6 are free standing ones (Sitte, 1889). This arrangement of objects of sacred architecture has proved itself as the one having more positive features of their perception by the viewers. The church view is opened only from the “correct” side, creating a unique perception pattern. These visually limited areas provide an opportunity to focus on spiritual qualities: Church of St. Julian of the Flemings; Church of San Salvatore in Lauro; Church of Santa Maria Maddalena (Fig. 1). And the Church of Sant'Ivo alla Sapienza can only be seen from the courtyard (Fig. 2).



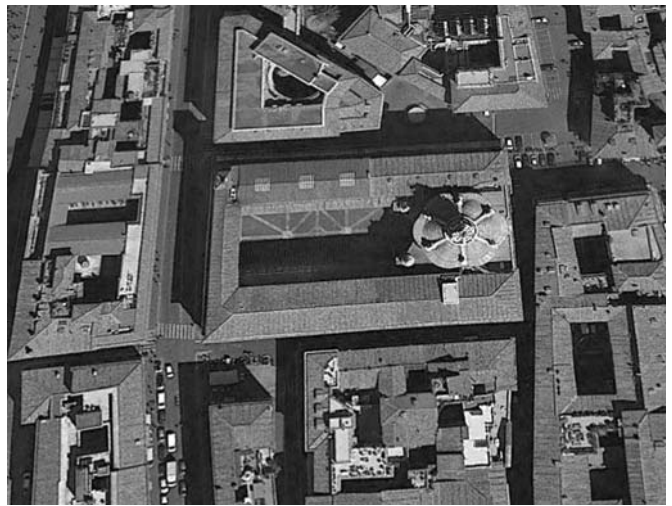
**Fig. 1.** Examples of sacred squares arrangement: a – Church of St. Julian of the Flemings; b – Church of San Salvatore in Lauro



c



**Fig. 1.** Examples of sacred squares arrangement: c – Church of Santa Maria Maddalena. Source: photos by Google Earth Pro



**Fig. 2.** Church of Sant'Ivo alla Sapienza and the courtyard. Source: photos by Google Earth Pro

The arrangement of the area not along the main axis but perpendicular to the axis of the church offers a spectacular view of the site. In this case, we have the opportunity to observe the main facade only at a certain angle: the church Sant'Agnese in Agone, which looks on Piazza Navona (Fig. 3).



**Fig. 3.** The church Sant'Agnese in Agone and Piazza Navona. Source: Google Earth Pro

If we analyze the most magnificent churches in Europe: the Cathedral of St. Peter in Rome, the Cathedral of St. Mark in Venice, the Cathedral of Milan, the Cathedral of Our Lady of Paris, etc., it should be noted that the sacral space of their squares is resolved flawlessly from an aesthetic point of view and enhances the greatness and the weight of the temple. According to the theory of vision, for the best perception of the object of architecture, it is necessary to provide an optimal vertical angle of 27 degrees view (that is a distance equal to two heights of the object) (Koznarska, 2014). Actually, these principles, in this case, are clearly elaborated, therefore, in front of the main facade there is an elongated square from which you can examine all the greatness of architecture (Fig. 4).



**Fig. 4.** Examples of sacred squares arrangement: a – the Cathedral of St. Peter in Rome; b – the Cathedral of St. Mark in Venice; c – the Cathedral of Milan; d – the Cathedral of Our Lady of Paris. Source: Google Earth Pro

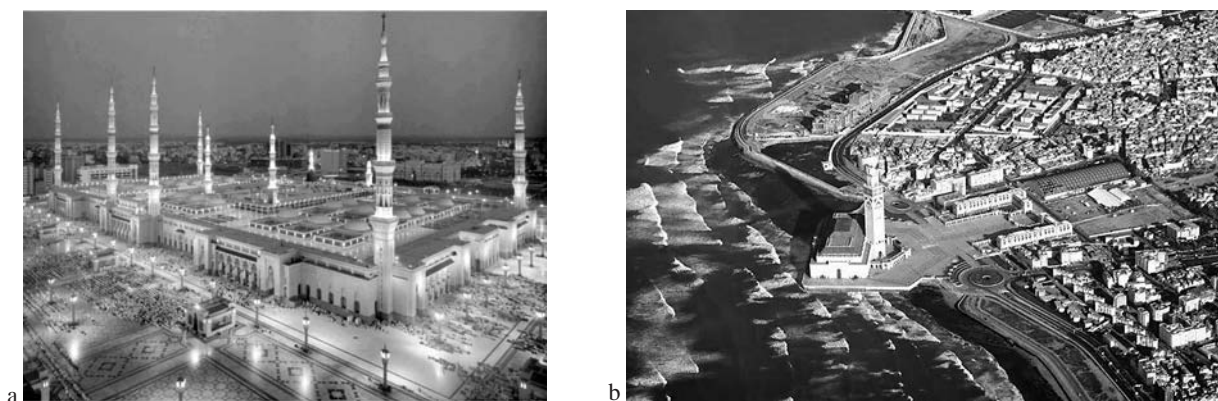
While forming the spatial structure of historical cities, the streets were laid in the direction to its dominants – the sacral objects. Thus, the facades of the surrounding buildings create a foreground that led the viewer's sight to the temple, thereby enhancing its significance, and the street gains a compositional perfection (Koznarska, 2011). Combination of several sacral spaces into a single compositional structure provides a sound basis for shaping the image of the city. Thus, the image of Kyiv is formed on the basis of a sacral center which includes two sacral complexes: the St. Sophia Cathedral and the St. Michael's Golden-domed monastery, the sacral squares of which are connected by Volodymyrsky Avenue (Fig. 5).



**Fig. 5.** Organization of the sacred space of St. Sophia Cathedral and St. Michael's Golden-domed Monastery in Kyiv.

Sources: Google Earth Pro; Fezer, 2014; Flickr, 2012

Not only the tradition of the Christian architecture of European cities causes our interest, the organization of the sacral squares of Muslim countries is no less attractive for the researcher (Fig. 6). In Arab cities, where dense building areas predominate, sacral squares are of particular importance and significance. Among densely populated cities, wide squares with the mosque are distinctly marked. The main emphasis is put on using the limited viewpoint which is experienced while staying in dense housing area with limited visibility for a long time. When entering an open space with the possibility of a broad sight there is a sharp increase in luminosity (Wejchert, 1984). In this environment, a sacral object is perceived more meaningfully and amazingly. The visual boundary between common and routine objects and the sacred ones is clearly expressed, which enhances the perception of the spiritual meaning of architecture of sacral objects.



**Fig. 6.** Organization of the sacral space of the Muslim countries: a – Mosque of Masjid al-Nabawi in Medina (Google Earth Pro); b – Hassan mosque in Casablanca (Air France, 2016)

### 3. Conclusions

Thus, analyzing the spatial structure of sacral squares, we can argue that the sacral square is an integral part of the temple, which emphasizes its functional and aesthetic value. From the aesthetic point of view, the most striking and attractive are those that allow you to observe the temple. On the other hand, the most comfortable and attractive for the visitors are enclosed squares, which enable more focusing on spirituality, increase the sense of the sacred objects, and help people find one's inner peace.

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## ПРОСТОРОВА ОРГАНІЗАЦІЯ САКРАЛЬНИХ ПЛОЩ У СИСТЕМІ МІСТА

**Анотація.** Сакральна архітектура є виявом духовності та естетичних смаків громади. Саме вона завжди була вирішальним чинником при формуванні світогляду, культури, смаків мешканців. Не менш важливе значення має і простір навколо храму, який не лише підсилює вагомість та сакральний зміст самої споруди, а й формує гармонійне середовище самого міста.

Здавна в Україні для розташування храму вибирали найгарніше і найвище місце у ландшафті, щоб підкреслити велич і духовну значимість.

Якщо проаналізувати найвеличніші церкви Європи, слід зауважити, що сакральний простір їхніх площ вирішений бездоганно з естетичної точки зору і підсилює велич та вагомість храму. Згідно з теоремою бачення, для найкращого сприйняття об'єкта архітектури, необхідно забезпечити оптимальний вертикальний кут споглядання  $27^{\circ}$  (тобто, відстань, що дорівнює двом висотам об'єкта). Власне, ці принципи, у такому випадку, чітко витримані, тому перед головним фасадом влаштована видовжена площа, з якої можна оглянути всю велич архітектури.

При формуванні просторової структури історичних міст, часто вулиці орієнтували на доміанти, якими виступали сакральні об'єкти. Таким чином, фасади навколишніх будинків створювали площину, яка вела погляд споглядача до храму, тим самим підсилюючи його значимість, а вулиця набувала композиційного завершення. Поєднання кількох сакральних просторів у єдину композиційну структуру є основою для формування образу міста.

На відміну від досвіду християнської архітектури європейських міст, організація сакрального простору мусульманських країн є не менш цікавою. У арабських містах, де переважає щільна забудова, сакральним площам відводять особливе значення. Серед густозаселених міст особливо виразно виділені просторі площі з мечеттю. Основний акцент зроблений на використанні граничного видового пункту, коли після перебування тривалий час серед щільної забудови з обмеженою видимістю ми потрапляємо у відкритий простір з можливістю широкого погляду, різким збільшенням яскравості світла. У такому середовищі сакральний об'єкт сприймається більш значимим і величним. Візуальна межа між буденним і сакральним чітко виражена, що підсилює сприйняття духовного перед сакральним об'єктом.

Таким чином, проаналізувавши просторову структуру сакральних площ, можна стверджувати, що сакральна площа є невід'ємним елементом храму, яка підкреслює його функціональне і естетичне значення. Найбільш виразними та привабливими з естетичної точки зору є ті, які дозволяють максимально зороро оглянути храм. Своєю чергою, найбільш атрактивними і затишними є замкнуті площі, які дають можливість більше зосередитись на духовності, підсилюють відчуття сакрального, спонукають до відвертої розмови з Богом.

**Ключові слова:** церква, сакральна площа, храм, просторова організація, сакральний простір.

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**URBANISTIC STRATEGIES  
OF HISTORICAL CITIES: WORKSHOP REVITALIZATION  
OF MARKET SQUARE IN LUTSK**

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**Abstract:** The article deals with the conditions and expediency of architectural workshops in the framework of pre-project studies of the territory design, namely public spaces. It is presented on the base of the workshop *Revitalization of the Market Square in Lutsk*, held in Lutsk, March 21–28, 2017, which was organized within the framework of the COMUS project *Urban Strategies of Historic Cities Initiated by the Community of the Tourist Information and Services Center of Lutsk*, together with Department of Urban Planning, Lviv Polytechnic National University.

**Key words:** urban strategy, workshop, participative design, revitalization, public space, recreational space, historical city, market square, Lutsk.

**1. Historical references. The problems statement**

Market Square (orig. Maidan Rynok) is one of the oldest and most important historical squares in Lutsk, located in the historic and cultural reserve *Old Lutsk*. From here the streets of Danylo Halytsky, Drahomanov and Yov Kondzelevich start. The Market Square is tangent to the square of Bratsky Bridge. Market Square arose in the late Middle Ages, and has greatly developed after the city received the Magdeburg Law. It was the main economic bridgehead of the city community of Lutsk and played the role of the socio-political core of the city – the city authorities were located there, and public gatherings were held there either. There were trades with many cities in Europe and the East. Along with the Market Square there were the most prestigious and richest areas of the city. It repeatedly suffered from fires. In the middle of the 18 century, the situation changed. The town hall was burnt down and the Market Square began to be built up; Market Square lost its former value of the core of the Magdeburg city. Before the Second World War the trading was still held there, but with the time flow the square lost its economic meaning (Majdan Rynok (Lutsk)).

Market Square is interesting in terms of its historical layers, which are poorly readable in its space today, but can be represented by architectural and planning tools. The historic market buildings have been well preserved – the houses of late 18<sup>th</sup>–19<sup>th</sup> centuries with the basements of the 16th-17th centuries. (See Fig. 1), located on the western side of the square, which are the basis of the square character and identity.

We also have some archaeological information about the existence of sacred buildings in the Market Square or within its immediate limits (the list is compiled according to the Majdan Rynok (Lutsk) – Electronic resource):

1. **The Church of John the Baptist** (13<sup>th</sup> c. – 1584), the foundations of which are located at a depth of 5 m of the modern surface. Near the temple at a depth of 6–7 m, there were investigated 19 graves of the parish cemetery. The church was located on the City Market, belonged to the cobbler

ground (shoemakers quarter) and was the church of the guild. It was one of the temples located at the corner of the Market. To the west of the church of John the Baptist Pokrovskiy church was put (The Church of the Protection of the Blessed Virgin).



**Fig. 1.** Historical Market Square buildings – stone houses built not earlier than in late 18th-19th centuries. (Rebuilt after a fire on the Market Square in 1845) with basements of 16<sup>th</sup>–17<sup>th</sup> centuries, from the street Drahomanov.

2. **The Church of St. Lazarus** (? – the beginning of the 17<sup>th</sup> century), the information about it is very poor. It was located in the lower part of the Market Square, near the Glushetsky bridge. Near the church there was located the Russian Hospital which was mentioned in the documents of the 16<sup>th</sup>–17<sup>th</sup> centuries. At the beginning of the 17<sup>th</sup> century, it burned down. The place was transferred to the Lutsk Brotherhood, which subsequently built its complex.

3. **Church of the Exaltation of the Honest Christ** (belongs to Brotherhood) (the beginning of the 17<sup>th</sup> century – still exists), built on the site of the Lazarus Church and the Russian Hospital. In certain periods it belonged to the union. After the fires of 1761 and 1803, the church almost completely turned into a ruin, except for the central abyss, which has survived to this day, located on the edge of the Squares of the Market and of the Brotherhood.

4. **Church of St. Yakub** (mid-16<sup>th</sup> century – 1845) one of the oldest parish churches in Lutsk. At present it does not exist, the temple's site was built up by houses of the 19<sup>th</sup>–20<sup>th</sup> century on the present Russian street, bordering on the Armenian Quarter. The Church was located not far from the Market Square and could play the role of one of the market temples, provided that the geometric concept of the Market would be quadrilateral, as mentioned in the Lithuanian metric (Russkaya istoricheskaya biblioteka, 1993), rather than triangular, as presented by some authors (Oliylyk, 1994). In any case, the church was located not far from the Market. The territory was bordered by the Armenian Quarter, in the center of which there was the Church of **St. Stephan**. Along with the church there was a cemetery that bordered with Armenian Quarter.

5. **Armenian Church of St. Stephan** – an ancient temple of Lutsk Armenians, located in the Armenian quarter of the city, it was built in 1427. In Soviet times, it was rebuilt into a residential building (1954), which exists till today. It is located at 12, Galshka Gulevichivna Street. The Armenian temple, along with the St. Yakub's Church could be included in the so-called third line of defense [4]. In any case, both temples were stonework, as this required the defense structure of the city and their location in it. (See Fig. 2).

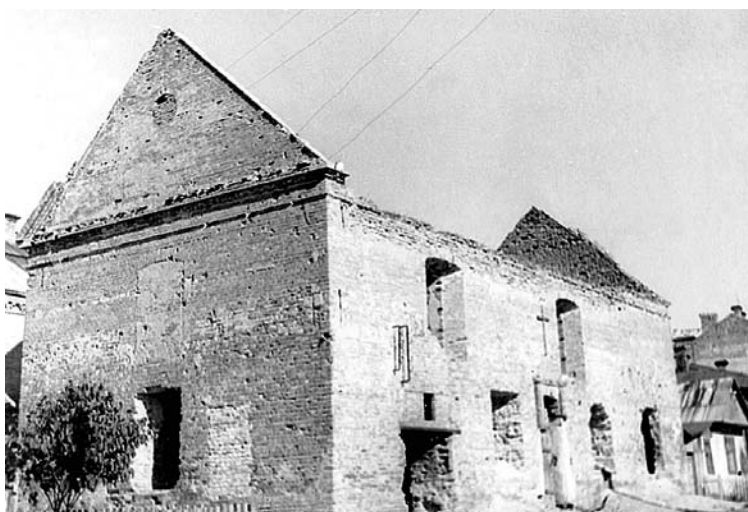


Fig. 2. Armenian Church of St. Stephen, ruins.



Fig. 3. Church of the Protection of the Blessed Virgin, before the reconstruction.

6. **The Church of the Protection of the Blessed Virgin** (1637 – still exists) was rebuilt on the site of the previous temple in the 1630's. From here the icon of the Mother of God of Volhynia comes. In 1873–1876, the temple gained its modern appearance. Located at 12, Danylo Halytsky street, this church is one of the two preserved Orthodox churches of Lutsk, of its royal period of history. A temple could have a defensive meaning, as it was located near the second line of fortifications (second defensive ring) of the city. At the beginning of the 17th century, the first temple was burned down. The ruins stood until 1625, when they were completely disassembled. In the place of the first church in 1637, a wooden building was erected. And later on the place of a wooden building a mural was erected (Kolosok, Metelnytskyy, 1990). According to another view, in 1637, a brick temple was built there, not a wooden one (*see* Fig. 3).

The existence of three temples close to the Market Square is consistent with the concept of a triangular Market in Lutsk (Oliynyk, 1994). However, in the Lithuanian metropolis of 1498, the market is fixed to a quadrangle of 40 × 80 m. On the fourth corner there was a temple, which was then used as a church of St. Yakub (Tersky, 2006). Not far from this church (both sites had a communal fence at a certain time), the Armenian Church of St. Stephan stood, but it has never been on a market place.

At Market Square, there was a **Town Hall** burned down in the middle of the 18<sup>th</sup> century and which was not restored.

Among the historical layers of the Market square there is also a **ghetto**. During the Second World War, the Market square was included in the territory of one of the three Lutsk Jewish ghettos. During the battles on the square, as well as on the adjacent streets, the destroyed property of the Lutsk Jews was there. In August 1942, most ghetto prisoners were shot (Lutsk, Elektronnaya yevreyskaya encyklopediya, Electronic resource).

Thus, interestingly, the Market Square in Lutsk presents the historical heritage, which is difficult to reveal in modern architecture of the square (except for a few stone buildings), but it is represented as a memory factor and at the level of archaeological finds. In addition, the Market Square is located in a key place for the city, having a visual connections with another preserved monuments: the road to the Upper Castle, the left ruins of the walls of the Ring Castle. Through the Market Square, the oldest street of the city (once consisted of two: Wide Street and Big Street, today – Danylo Halytskyi Street) passes, leading to the Jewish quarters from the southern part of the city and to the river port – from the northern part. Maidan Rynok (Market Square) is located in the heart of the old city, today it is the reserve *Old Lutsk*, at the intersection of excursion routes and modern city bicycle-ring. Considering such a great potential of the territory, the workshop *Revitalization of the Market Square in Lutsk* was carried out, aimed at actualizing the historical information about the Market Square, as well as attracting the public's attention to the problem of identifying the historically formed public space in the city and the character of its use.

## 2. Analysis of recent investigations and publications

This topic is devoted to the research of various authors, namely O. Kryvoruchko (2014), N. Sosonova, S. Tupis (2015), I. Shvets, A. Petrenko (2016), T. Kashchenko (2012), B. Cherkes (2010), H. Petryshyn (2013, 2017). These authors consider the workshop as a design method in the educational process and which gives positive experience as a method of participatory design and activation of public space.

## 3. Results and Discussion

The architectural workshop *Revitalization of Market Square in Lutsk*, organized within the framework of the COMUS project *Urban Strategies of Historic Cities Initiated by the Community*, was held by the Center for Tourist Information and Services of Lutsk together with the Department of Urban Planning of Lviv Polytechnic National University (LPNU) in March, 21–28, 2017. The workshop was presented by speakers from Lviv and Lutsk: Olha Kryvoruchko (LPNU), Taras Pakholyuk (architect, Lutsk), Oksana Shtanko (Center for Tourist Information and Services of Lutsk), as well as students of the Department of Urban Planning of Lviv Polytechnic National University: Valeriya Polyanska, Solomiya Shilyak, Kateryna Kosiv, Kateryna Prokhasko, Kyrylo Sledz, Lyubomyr Skakun, Nazar Tuvakov, Volodymyr Pengryn, Iryna Makovska, Anna Solovyova, Bogdan Pryshlyak, Yulia Muzychuk. Presentation of projects, discussion and awarding of participants was held on April 5, 2017.

The **main tasks of the workshop** were to present the historical identity of the old square which was developed in the 13<sup>th</sup> century and lost in the present time; to bring back activities and people to the square; to find the ways of solving the problem of traffic and parking on the territory of the square. For this purpose, the participants of the workshop analyzed the problems on the site, as well as focused on the potential and challenges of the square.

The **main problems of the site** were revealed by the method of direct interviewing and were recorded on the site. The main of them are: the transit car traffic through the square should be reduced thus opening the route to other quarters of the old city; parking on the square has caused the lost of some parts of the pedestrian zone; elements of urban furniture, damaged root systems of trees have been destroyed by parking lots and traffic; lack of attractive functions for visitors of the square and in surrounding buildings (lack of catering, museum, artistic, exhibitional, and educational functions); two unused buildings increase the feeling of emptiness in the city square; there are not enough places for sitting and there is a lack of any elements of urban design which would be appropriate for the needs of children and adolescents.

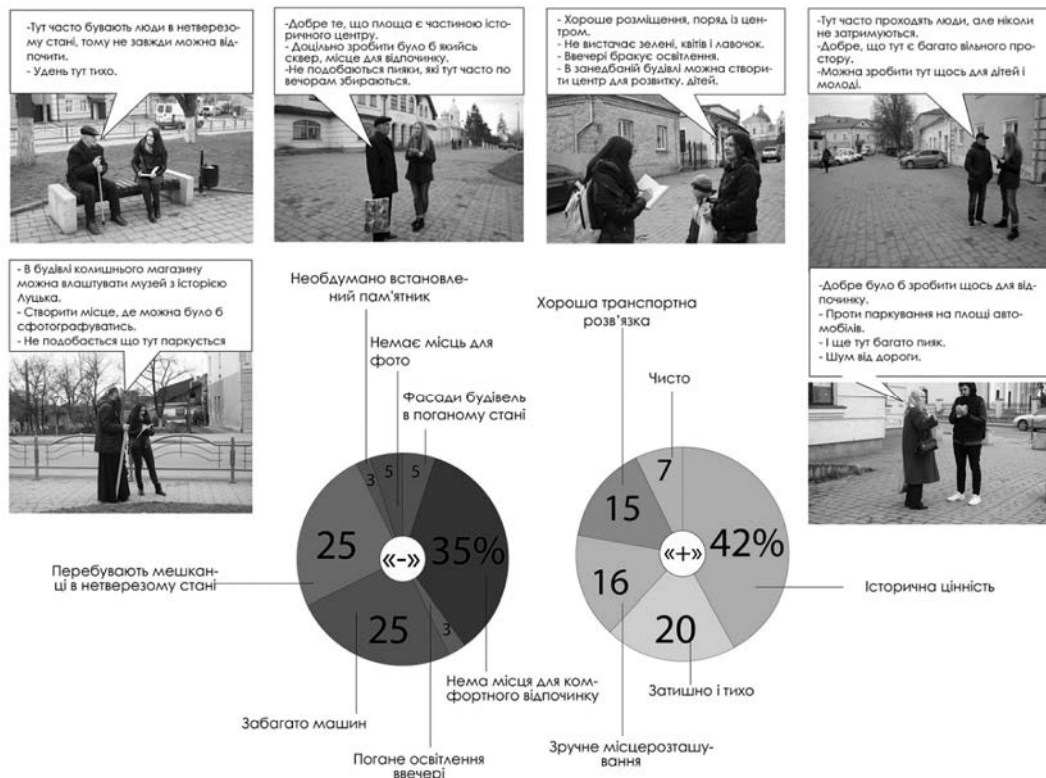
Among the **positive aspects** of the site, there were mentioned a permanent transit of residents heading to modern central part of the city, old wicker trees that create a shadow in hot months, free space that can be used for the required functions for this site, large open spaces that can be used as the location of seasonal festivals, exhibitions and fairs.

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>• historical value of the site</li> <li>• advantageous location in the city</li> <li>• good public transportation</li> <li>• constant traffic of people</li> <li>• cozy and calm atmosphere of the space</li> </ul> <p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>• insufficient financing of the city</li> <li>• the indifference of the city authorities and its inhabitants</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• car traffic through the site</li> <li>• private car parking on the square</li> <li>• mental separation from the central part of the city</li> <li>• noise and dust from the nearby main street</li> <li>• destroyed street furniture and paving</li> <li>• neglect of surrounding buildings</li> </ul> <p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>• placement of new functions in empty houses</li> <li>• parking at the expense of the street location</li> <li>• renovation and increase of attractiveness of historical buildings</li> <li>• creation of comfortable conditions for spending free time</li> <li>• attraction of the site to the tourist routes of the city</li> </ul>
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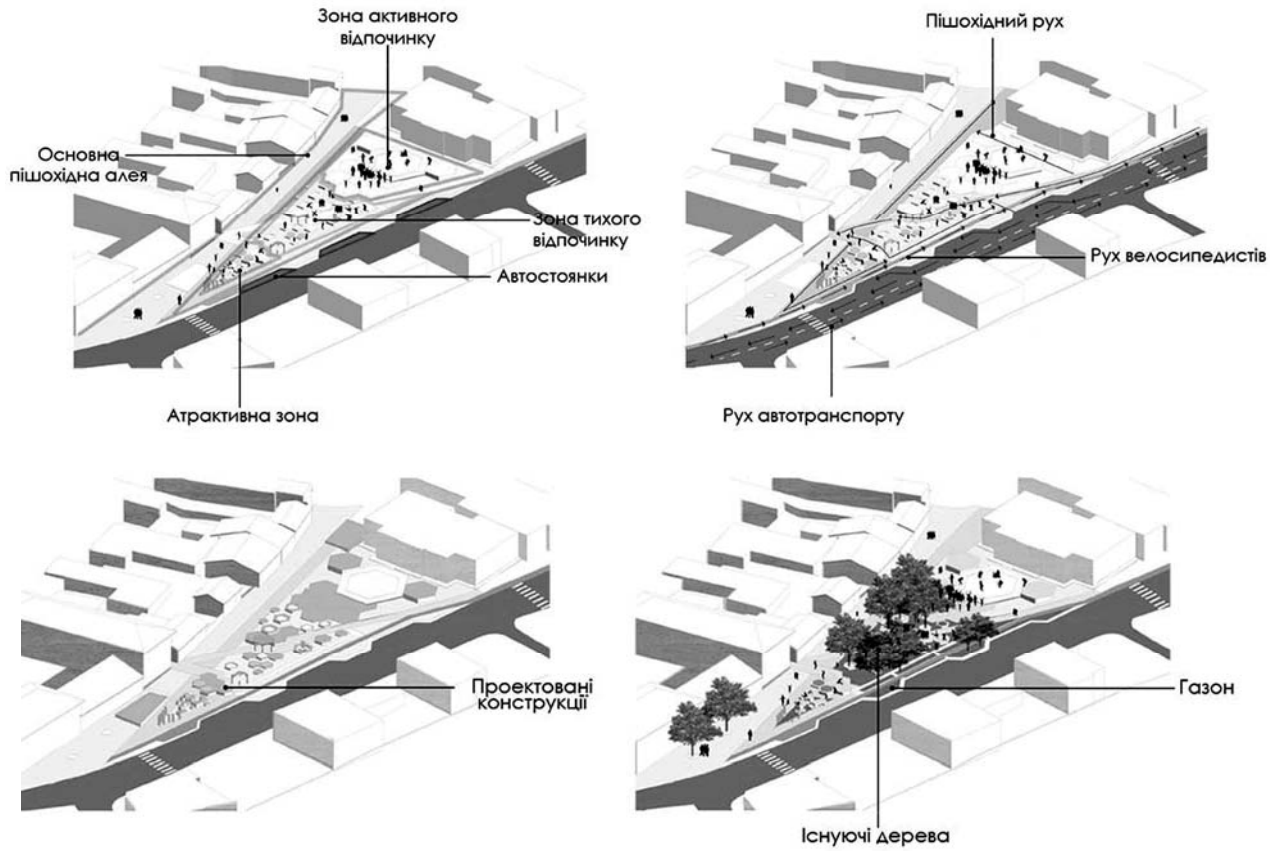
**Fig. 4.** SWOT-analysis for the study area, performed by the students of the Department of Urban Planning Valeria Polyanska and Solomiya Shilyak at the time of the workshop, March 21–28, 2017

**As a result of the workshop, the following solutions were offered:**

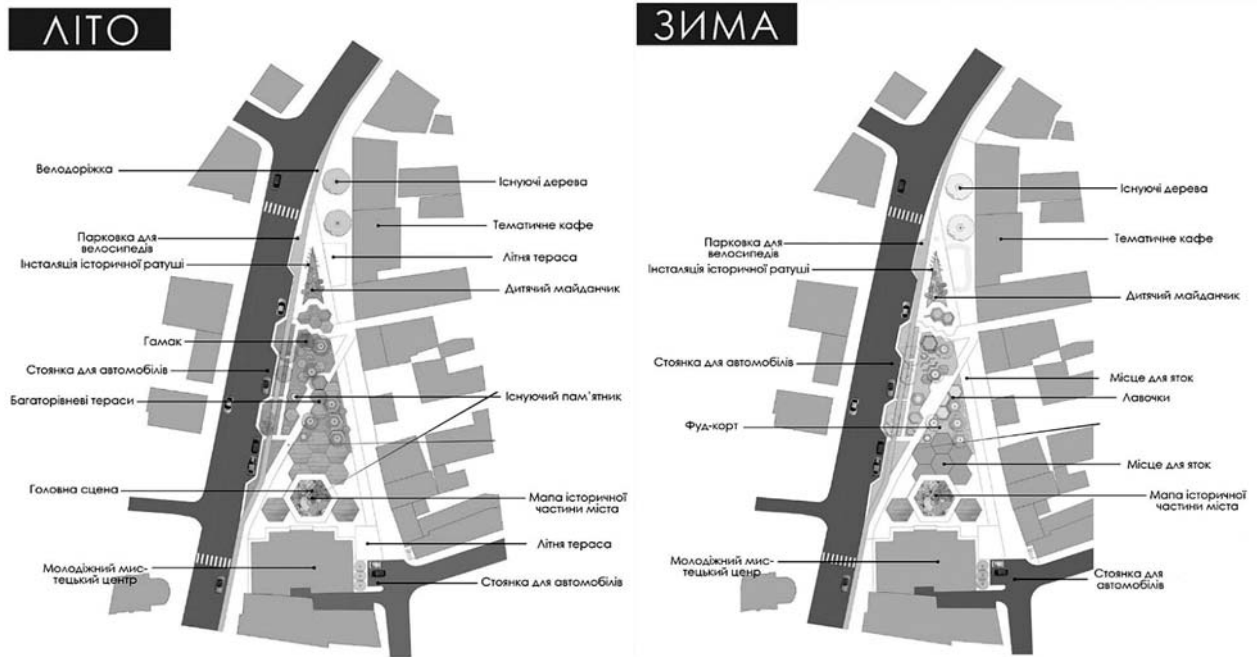
1. To restrict traffic on two streets (part of Galska Gulevychivna Street within the adjacent area of the block and part of Dragomanov Street passing through the square and within the adjoining quarter), giving the way only to special transport and the vehicles of residents of buildings. To prohibit transit traffic through the area. To move parking from the area to the parking lot developed by the means of narrowing the Danylo Halytsky Street to two standard lanes.
2. To start archaeological investigations on the square, the aim of which is to localize the old town hall and indicate its location by paving. To preserve the found foundations and to make them visible by using the special glass cover at the level of paving – it would tell the visitors of the square about its historical value. Similarly, with the help of archaeological digs, there is a need to find the locations of ancient sacred buildings and introduce measures for the conservation of the found walls or foundations.
- 3 To use the free spaces of the city square for organization of the relevant institutions which would include the Museum of Lutsk city, Architectural Museum, Art Centre of Contemporary Art, and to attract visitors to the square through lectures, exhibitions, coworking, and other creative activities.
4. To encourage more local businesses to arrange catering facilities in the area giving them the opportunity to develop summer cafes and playgrounds on the square, by introducing a scheme of instructions for the construction of the sites.
5. To provide free areas which could be used for seasonal events: fairs, festivals, jazz concerts, contemporary art exhibitions, installations, public readings and lectures. It is highly important to have such areas in front of the library building, and present empty buildings might embrace cultural, artistic and educational functions in the future.
6. To plant flowers, trees and bushes, and arrange new benches and children's spaces. It will raise the quality of the site and attract local residents who can be daily visitors of it.
7. One of the final students proposal, made by Valeria Polyanska, Solomiya Shilyak, Kateryna Kosiv, and Kateryna Prokhasko, is called *Festival Square*. It includes measures to revive social life on the square by introducing various events in different seasons of the year. Thus, it was proposed to revive the active life on the square by holding festivals and fairs of different content: from regular one-day fairs of local farmers to several-day jazz concerts, held once a year.



**Fig. 5.** Results of the express survey of visitors of the square, performed at the time of the workshop, March 21–28, 2017, by students of the Department of Urban Planning Valeria Polyanska and Solomiya Shilyak



**Fig. 6.** Proposal Festival Square offering a new functional use of the square, which also takes into account the existing flow of pedestrians and bicycle ring. Developed by Valeria Polyanska, Solomiya Shilyak, Kateryna Kosiv, Kateryna Prokhasko



**Fig. 7.** Proposal Festival Square, seasonal use of the square. Performed by Valeria Polyanska, Solomiya Shilyak, Kateryna Kosiv, Kateryna Prokhasko.

#### 4. Conclusions

The architectural workshop *Revitalization of Market Square in Lutsk* allowed to attract the attention of the residents to the problem of the neglected historical public spaces of the city and to present the need for their restoration. On the example of one historical square, it was demonstrated the importance of revitalization of the public space of the historical part of the city, as such actions lead to an increase of the attractiveness of the space itself and the city as a whole. Taking into account the huge archaeological, historical, architectural potential of the Market Square in Lutsk, and also its tourist potential, the renovation of this public space, reduction of car parking facilities, the attraction of commerce, education and leisure activities for the development of the square would have a positive impact on the development of the city's attractiveness in general.

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Ольга Криворучко

#### УРБАНИСТИЧНІ СТРАТЕГІЇ ІСТОРИЧНИХ МІСТ: СЕМІНАР “РЕАЛІЗАЦІЯ РИНКОВОЇ ПЛОЩІ В ЛУЦЬКУ”

**Анотація.** У статті розглянуто умови та доцільність проведення архітектурних воркшопів у рамках передпроектних досліджень території, а саме громадських просторів. Прикладом може служити семінар “Ревіталізація Ринкової площі у Луцьку”, який пройшов у Луцьку, 21–28 березня 2017 р. Організований у рамках проекту SOMUS “Міські стратегії історичних міст”, ініційоване спільнотою туристичної інформації та Центру послуг м. Луцька разом із кафедрою містобудування Національного університету “Львівська політехніка”.

**Ключові слова:** міська стратегія, воркшоп, ревіталізація, громадський простір, простір для відпочинку, історичне місто, ринкова площа, Луцьк.

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## STEREOTYPES OF ARCHITECTURAL THEORY AND AUTHENTIC CREATIVE WORK

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**Abstract.** An analysis of spatial and semantic archetypes of religious structures by Hungarian architects, including Imre Makovecz, made it possible to further develop the idea concerning the creative work of this original architect, which was based on deep traditions of Hungarian culture. The genetic memory of the architect, which broadly extends beyond current theoretical concepts and schemes of architectural theory, formed the basis of the work of Imre Makovecz and other Hungarian architects.

**Key words:** architecture, theory, stereotype, creativity, genetic memory, designer.

### 1. Introduction

Architectural theory exists and develops along with architectural practice and the work of architects. Although diversity is appropriate in architectural practice and in architectural theory, the same applies to unpredictability, as the theory of architecture is tasked with describing, explaining, defining and introducing concepts while revealing trends, tendencies, practices and creativity in architecture. The process of moving from empirical perception to abstract intuition, which is necessary in the field of theory, leads to a certain perception (loss) of empirical material, its schematisation. It is an unavoidable part of the process of theorisation. It is of utmost importance not to lead to a loss of the essential characteristics of architectural practice in this process—the work of architecture, and thus the complex process and result of architectural creation.

Determining the main characteristics of a work of architecture takes place by using theoretical analysis performed with a set of research tools. The fundamental contradiction between theory and creative work is the analytical character of the former and the syncretism, susceptibility to suggestion and synergism of the latter. The process of the analysis of an architect's work can show us just how the qualities and theoretical conclusions can differ depending on the goal of theorisation, the tools used in the analysis or the skill of theorising. Oftentimes, in terms of external formal characteristics, a work of architecture or an architect's body of work as a whole refer to a certain style, phenomenon or movement. Theorists often cast a methodological net or stylistic matrix upon a work and are often satisfied with any formal convergence of a work and a style, labelling works of architecture or their very creators—architects. At the same time, some important, yet not immediately apparent traits (characteristics), as well as essential qualities of a work remain unidentified.

### 2. Basic Theory

Let us discuss a number of examples of Hungarian architecture, which architectural theory either considers as belonging to the general postmodern movement or does not acknowledge certain architectural

elements as essential in their author's work. According to the author, it is the matrix of style and methodological models that often erode the value of an architect's creative works.

The Hungarian Imre Makovecz is traditionally considered to be a postmodern architect, counting on his wings of organic architecture, particularly the anthropomorphic ones [1; 2; 3; 4; 5; 6; 7]. Imre Makovecz (1935–2011) studied at the Budapest University of Technology. His work shows the influence of Rudolph Steiner, Antonio Gaudi, Frank Lloyd Wright, Ede Lechner. Imre Makovecz's architecture is characterised as anthropomorphic in terms of its form and character. The architect himself justified this approach on the basis of the traditions of the Hungarians, which gave certain parts of buildings, particularly dwellings, the names of human body parts, which is typical for many other ethnic groups.

However, looking directly from a close distance and analysing his work along with an in-depth observation of its semantics makes it possible to dissect and read the internal significance and form of the architect's religious buildings and draw more in-depth conclusions concerning the work of this Master and produce significant knowledge, for instance in the case of manifestations of the sacred.

To those who have had the occasion to study a number of examples of Makovecz's work [1], the first thing that can be seen is the extraordinary manner of organising the space of the temple in the surrounding context. The areas around the temples of Imre Makovecz usually are not marked by any outstanding qualities. As on any street of a small European town located in a lowland area, practically all that they feature are planted trees, bushes and flowers, which hang from the fences of well-maintained small houses placed along the street. Behind the unobservable meanders of the street, the image of the life of the residents is painted, modest buildings of varying sizes and expensiveness, primarily from the second half of the twentieth century. A quiet atmosphere, pedestrians and children at play that appear from time to time—nothing exceptional or special.

Suddenly, behind the turn of a small-town street, we can see something completely different and unexpected, not only for this town, but for spatial art overall, as it goes beyond architecture. Yes, spatial art, for the form itself—more of a sculpture, its colour—decorative, extraordinary. The scenography of space is theatrical, the small details are not immediately identifiable as architectural—only upon closer inspection revealing themselves to be beings of unknown shape. These beings—not anthropogenic nor zoomorphic ones, but forms (morphs) that do not resemble anything from the world of animate nature from far away. They are wings (sometimes of a naturalistic sculpture), the trunks and branches of desiccated trees, or perhaps the horns of a deer, fish scales, slugs, winged humanoid beings (angels?). The bends of curved lines and surfaces resemble a body, rays of light and many other images—an entire series of real and fantastic spaces and shapes (Fig. 1).



**Fig. 1.** The archetypal quality of Imre Makovecz's architectural image.  
Temple, design by: Imre Makovecz, 1996–1998. Location: Pest (original photograph)

The integral image of a site is composed not only of a building itself, but also of the entire visual space that the eye can see and that is around it, including discrete, traditionally modest buildings, which only highlight the extraordinariness of the temple with their background. However, it casts an intense light on the entire image of the average environment around it.

The environment of this extraordinary image becomes extraordinary in and of itself, taking on qualities in such a manner that for some time everything before our eyes takes on a completely different shade than an ordinary street of a small town and its temple. A sort of mystical influence begins its work here, to which, we feel, we have come late, or that it has stopped due to our presence, producing an impression that time has stopped. Time stays still and has stopped space along with it, space that moved along with the steps of time. The decorations are exposed. We reach an understanding that the temple has, in some unexplainable form, dominated not only the place, the space, but also events, time, dominating in the history of this part of the universe.... Somebody rode past on a bicycle, girls entered the coffee shop nearby—the world is divided into the one created by the Master and the world that exists in reality, both of them transcending each other.

Around itself, the temple establishes an order of things that only it can know in this microcosm. Something unseen penetrates space and time with vertical belts from top to bottom—these are not lines of time, rather, they are lines of consciousness that strives to triangulate coordinates in order to tie down, to explain, understand, to gain knowledge of this place, while simultaneously rationalising, analysing, comparing, it searches for the answer to the question—what is this? A Catholic, Greek-Catholic, Protestant temple? Just a temple? Both yes and no. It is both one and the other at the same time. Just a temple. Just a space. Just a shape. Just a mass of consciousness.

Something here transcends more than just the boundaries of Christianity, but also of faith in its traditional forms. Professional instinct and awareness draw some sort of—rather murky—primal faith. Finality, inevitability, the predictability of everything—this is what this place achieves.

The conscious strives to search for an explanation of that which has been seen and felt. Every line, every shape, every tactile sensation, every micro space, while amassing, it searches for support in previous experiences, trying to touch something already known. However, after some time everything can gradually be told apart and starts to exist within the mind as a separate and holistic image. The multitude of the details of this image creates the original image of surprise, of awe, which cannot be qualified in any way...

It is then that, suddenly, we are aided by remembering that the Hungarian people have not been in this place forever, that they are a nomadic people, who came from the distant Siberian and Kazakh spaces of their ancestors, who have preserved their spiritual and material culture. For instance, the Kazakhs call their people Madiyar, while Hungarians have names like Zoltan (Sultan) or Imre (Amir).

### 3. Result and Discussion

You start to understand that the dome built by the architect Gyorgy Czete, and which is actually an entire Catholic temple, placed atop a purpose-built hill, and which one enters by walking across a small bridge—is not simply an artistic, individual work by a Master, but a replication of the ancient image of a mountain and at the same time of the traditional dwelling of nomads and steppe peoples—the Kazakh yurt or an igloo—a dwelling-shelter made out of snow (the Khanty and Mansi peoples) [8] (Fig. 2, 4).

Indeed, apart from a purpose-built mound (mountain-earth), a dome-sky (the temple itself) and the connecting bridge, which is something else, which pieces together the form and content of the temple—there is nothing. The impression becomes stronger, as the entrance to the temple takes place straight away from the dome in our European tradition. Inside the church there is a completely open space of the dome, a modest post-Council altar, a cross, a tabernacle, pews arranged in a circle along the wall. There is also the level underneath the dome with other facilities, but they are not directly tied with the religious part of the church.

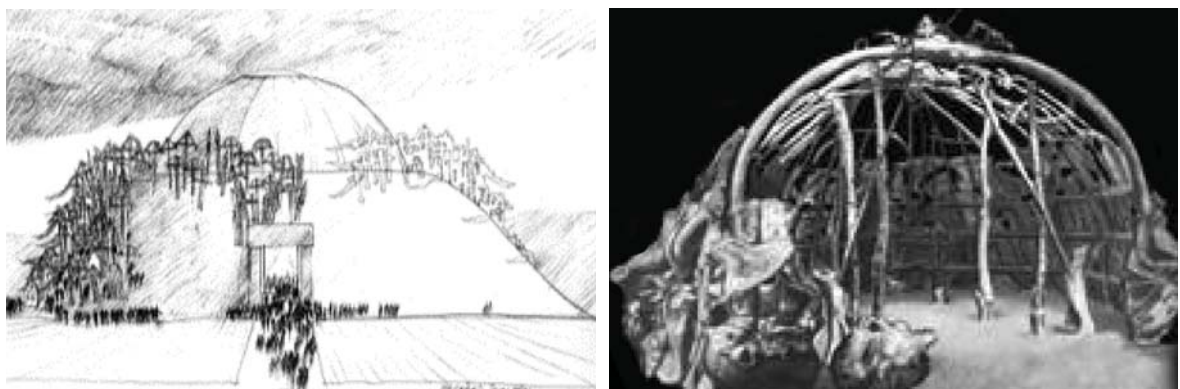
A similar semantics of the image of the temple can be found in the city of Pest in the temple built by Imre Makovecz, in which the motif of the mountain and the dome was articulated numerous times—in the large and small domes separated by a wall with perforated arches (Fig. 3, 5). This white, quite decorative wall is the only attribute of European architecture which could justify a reference to the postmodernist movement. Insofar as the mountain and the domes—by paraphrasing the yurt-tent, and the tower above the entrance—present a different archetype of dwelling of the Siberian peoples—the chum.



**Fig. 2.** Mountain-dome. Dome-sky. Church of Saint Ersebet, design by: György Csete, 1979. Location: Halásztelek, Csepel Island, near Budapest (original photograph)



**Fig. 3.** Temple, design by: Imre Makovecz, 1996–1998. Location: Szazhalombata (original photograph).



**Fig. 4.** Mountain-dome, design by: Imre Makovecz. Traditional dwelling of the Evenks and Khanty people (open source image)



**Fig. 5.** “Igloo” chapel, built out of stone. Pilisszántó Boldogasszony kápolna, design by: Imre Makovecz, 2006 (source: Imre Makovecz’s website); Embodiment (manifestation). Temple, design by: Imre Makovecz, 1996–1998. Location: city of Pest (original photograph)

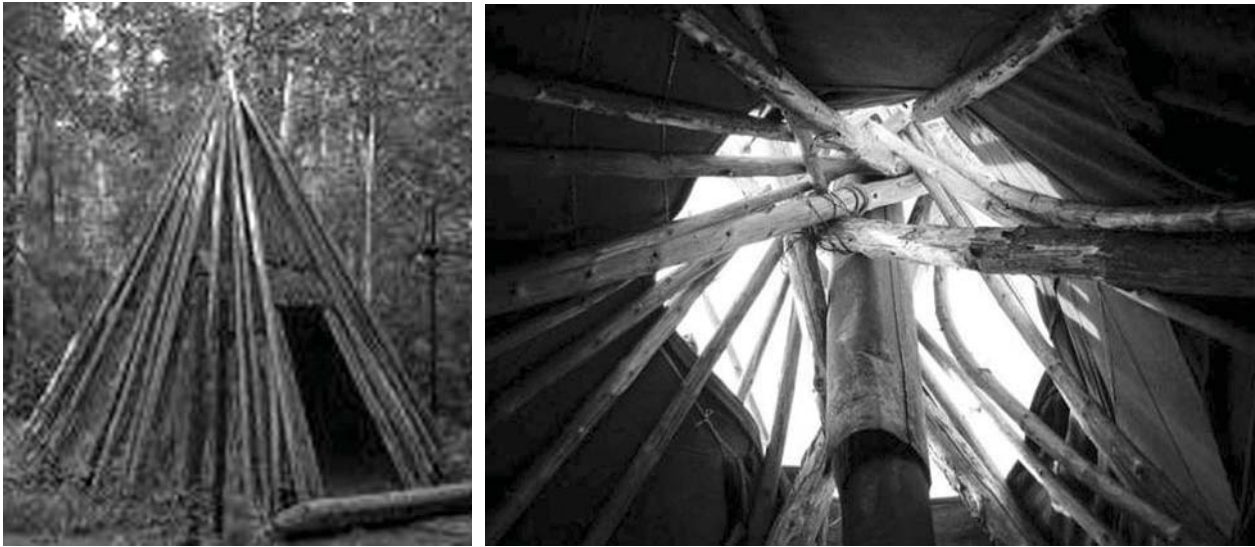


**Fig. 6.** The dome and the cone. Traditional dwellings of the Evenks and Khanty people of Siberia: an igloo built out of ice and a chum (open source images)

Enlightenment of perception gradually incorporates rows of ancient images of the spatial language of Imre Makovecz: a mountain; deer horns, a chum; an igloo; a fish; fish scales; an opening (light) at the top of the chum; (“makodasi” of the Nenet people); the ribs of the vaults (“simz” of the Nenet people). Hence—the organic style and the leaning towards the spatial and visual understanding and perception of the dome (yurt) and tent-tower (chum) by Imre Makovecz—the hemisphere and the cone as archetypal geometric forms of ancestors. In this role these forms are also identical with the ideal forms of Christian temples—of domes and towers (Fig. 3, 5).

The content of the form by Imre Makovecz, despite its visual distinctness, also geometrically identifies such various different objects like a nomad dwelling and a Christian church. Among the ideal forms of these buildings there are the hemisphere (the dome) and the cone (the tent) (Fig. 6). One distinct shape of the tent (chum) is its central pillar, braced by poles that are covered with animal skins. This motif of poles that are tied

together, where the heavens and the earth are linked on the path of light and fire, is often encountered in various religious and lay buildings by Imre Makovecz (Fig. 6, 7).



**Fig. 7.** Dome-sky. The cone and the chum. Traditional dwelling of Siberian peoples: structure and opening (open source images)

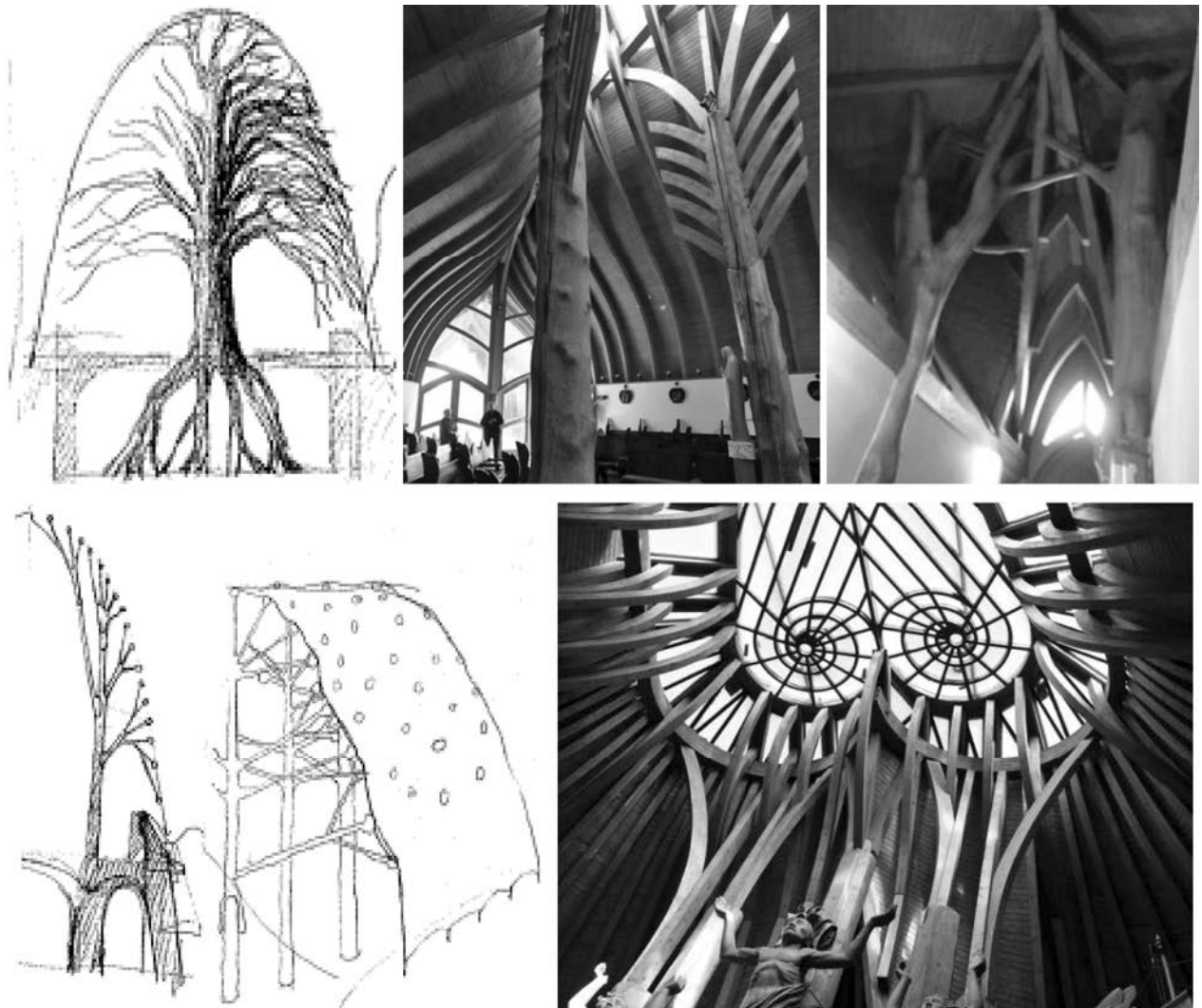


**Fig. 8.** Cone-chum. The image of the cone and the chum, drawing by: Imre Makovecz; Temple, design by: Imre Makovecz, 1996–1998.

Location: Szazhalombata, city of Pest; Catholic temple of the Holy Ghost, design by: Imre Makovecz, 1991. Location: city of Paks (original photograph)

Imre Makovecz, both in the interiors and on the outside of temples, often used timber—not only as a formogenic material, but primarily as a symbolic sign and image of the World Tree, the Tree of Life (Fig. 9). Similarly, he used images of fish (Fig. 10), deer horns, the central pillar of the chum (Fig. 11), the two main poles (boards) of the chum (Fig. 9). The image of the living (life-bearing)—in numerous forms and images of wings, human or angelic figures (Fig. 12), to the most sophisticated lines, pointing the lines of the human body or that of fish (the primary food of Siberian tribes), to abstract, archetypal forms, such as the gothic arch, which is similar to the shape of the tent (once again, the chum), equalising the abstract and the figurative—or

rather interweaving, thanks to architectural imagination, the figurative into the abstract and the abstract into the figurative, showing that the ideal can be expressed as an abstract and as a figurative image in a masterfully constructed context of form.



**Fig. 9.** The Tree of Life. The Axis mundi. Drawings by: Imre Makovecz;  
Catholic temple of the Holy Ghost, design by: Imre Makovecz, 1991. Location:  
city of Paks (original photograph).

#### 4. Conclusions

The universality and value of the archetypes of the dwelling of the ancestors of ancient Hungarians (the yurt, the tent) and the holiness of the archetypes of the Christian temple (the dome, the tower) in the creative world of Imre Makovecz are present as equally important categories, representing the highest values—the spatial resources for the survival of nomads, wrought into religious forms of the Christian tradition (Fig. 13). It is in this that the everlasting preciousness of the creative work of Imre Makovecz lies—as he was an architect of not simply the already set postmodern movement with all of its identifiers (if it is so necessary to the globalising critique of contemporary architecture), but primarily of architectural work that was so deeply national that it spoke of something general, something that can be sensed and is close to completely different nations.

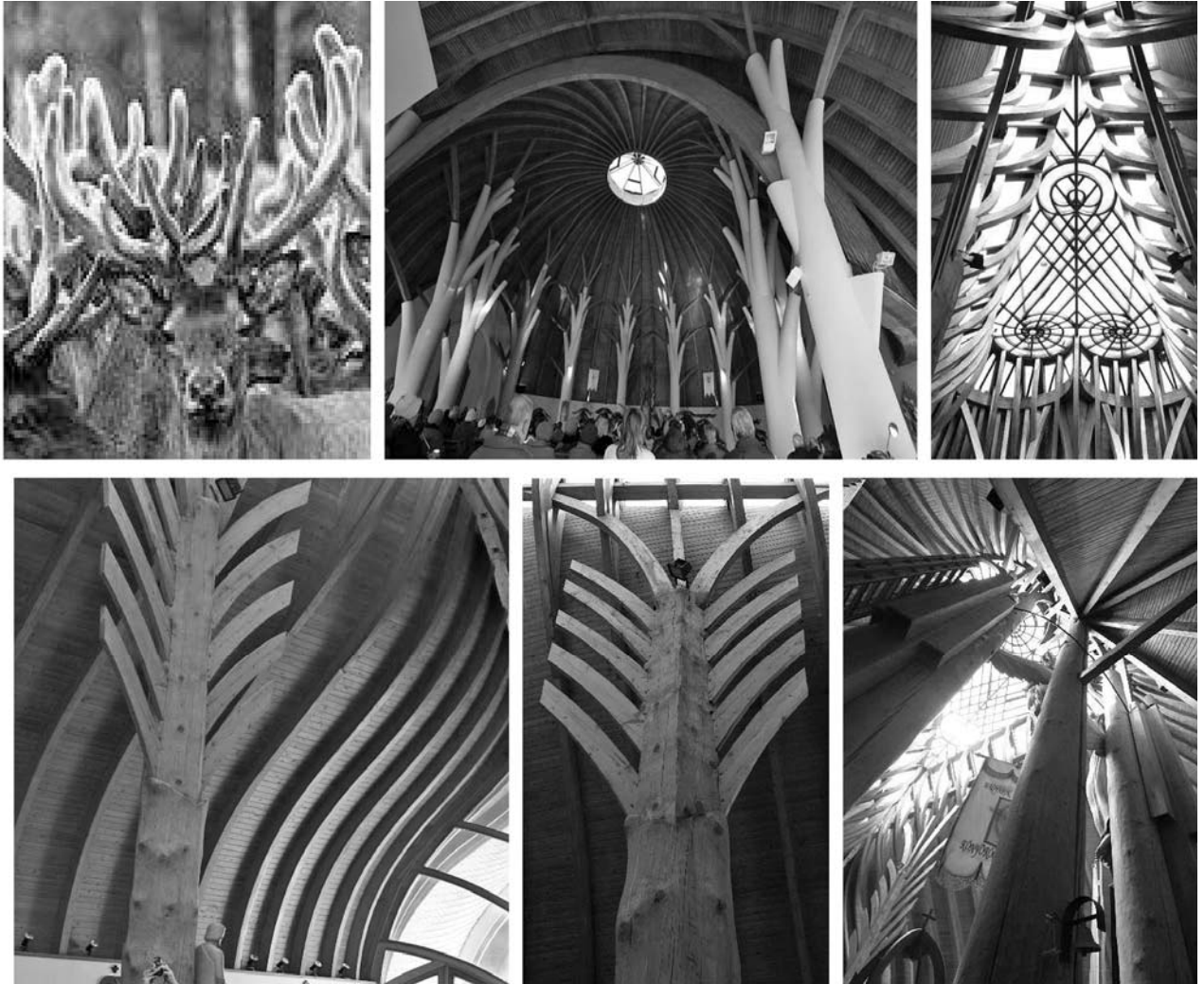


**Fig. 10.** The Fish. Traditional dwelling of the Evenks of Siberia. Catholic temple of the Holy Ghost, design by: Imre Makovecz, 1991. Location: city of Paks (original photograph)

The simplicity and clarity of thought processes and the creativity of the architect Imre Makovecz is so clear that it is sometimes unbelievable—it is difficult to believe that such a postmodern architecture, which usually likes acrobatics of complicated thoughts and shapes, does exist.

Searching for the sources of the creative language and the thoughts of Imre Makovecz shows their genesis through genetic precursor images, so distinct of the ancient history of Hungarian culture to the archetypes of modern religious architecture, demonstrating the strangest and most astounding paths of the manifestations of the sacred—through the genetic memory of the designer, emotionally and sensually combining mythologies and monotheism into a single, cohesive religious building.

Postmodernism—is usually a game, primarily a mixture of form and content, juggling semantics, irony, grotesque, freedom without bounds. Meanwhile, Imre Makovecz—shows us existence not only in the most direct expression, but also an ontology of space within its temporal and non-temporal continuity. Imre Makovecz—genetic memory, semantics of elements that are solid and have been tested for over a thousand years of human life, an archetypal quality, unambiguity and simplicity of form and creative freedom. The work of Imre Makovecz—largely exceeds the historical bounds of postmodernism, it builds a bridge of the conscious between the ancient memory of the nation that lives in his period and the present day with his pursuits of his own authenticity. Imre Makovecz personally showed us a tried and tested path in this direction.



**Fig. 11.** Deer (open source). Catholic temple of the Holy Ghost, design by: Imre Makovecz, 1991. Location: city of Paks (original photograph)



**Fig. 12.** Beings (morphs). Man, Angel. Catholic temple of the Holy Ghost, design by: Imre Makovecz, 1991. Location: city of Paks. Arch. (original photograph)





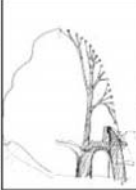
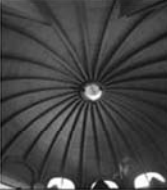



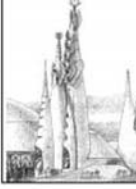




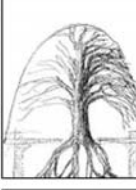




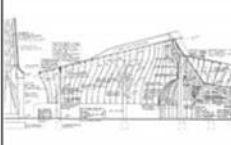

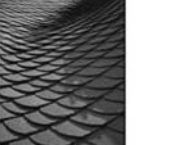




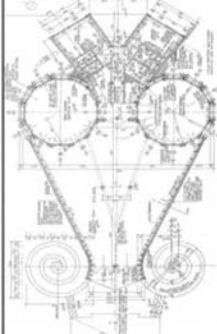



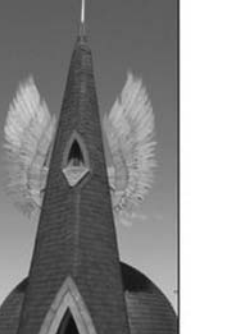
Categories-images	Prototype Archetype	Incarnation				
<b>Mountain</b>						
<b>Dome-sky</b>						
<b>Plague</b>						
<b>Tree of life</b>						
<b>Fish</b>						
<b>Man</b>						
<b>Creatures (morphs)</b>						

Fig. 13. Archetypical qualities of the religious image in the work of Imre Makovecz

This is why reviewing embedded stereotypes and assessments of architectural theory, as well as the search for new methodological approaches and discovering the depth of the authenticity of true Masters of architecture are so important.

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### СТЕРЕОТИПИ ТЕОРІЇ АРХІТЕКТУРИ І АВТЕНТИЧНА ТВОРЧІСТЬ.

***Анотація.** Проведений аналіз просторово-семантичних архетипів сакральних об'єктів угорських архітекторів розширив уявлення про самотутню творчість архітектора Імре Маковеца, яка опирається на глибокі традиції народу. Генетична пам'ять творця архітектури широко виходить за рамки існуючих уявлень та схем теорії архітектури та лежить в основі творчості. Теорія архітектури існує і розвивається разом із архітектурною практикою та творчістю. Оскільки архітектурна практика відзначається різноманітністю, а архітектурна творчість і непередбачуваністю, то теорія архітектури покликана описувати, пояснювати, давати визначення, вводити поняття, впливати на практику, виявляючи тенденції і практики, і творчості в архітектурі. Процес переходу від емпіричного споглядання до абстрагування в області теорії супроводжується певними втратами емпіричного матеріалу, схематизацією. Головне, щоб у цьому процесі не втратити суттєвих рис архітектурної практики – архітектурного об'єкта, а тим більше – складного процесу і результату – архітектурної творчості. Суттєвим протиріччям теорії і творчості є аналітичність і синтетичність першої і синкретичність, сугестивність і синергійність другої. Нерідко, з погляду зовнішніх формальних ознак, твір архітектури або творчість архітектора загалом відносять до якогось стилю, течії, напрямку. Досить часто стараються накинути методичну сітку чи матрицю стилю на твір і задовольняються якимись нерідко формальними збіжностями твору і стилю, навішуючи ярлики і таблички на архітектурні об'єкти самих архітекторів. Водночас нерідко важливі, але непримітні ознаки творчості та суттєві характеристики об'єкта залишаються не визначеними.*

*Універсальність і цінність архетипів житла предків давніх угорців (юрта, чум) і святість архетипів християнської святині (купол, вежа) у творчому світі І. Маковеца виступають як рівнозначні категорії-репрезентанти найвищих цінностей – просторових засобів виживання кочівників, що переплавляються у сакральні форми християнської традиції.*

***Ключові слова:** архітектура, теорія, стереотип, творчість, генетична пам'ять, творець*

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## DEGRADATION OF THE FOREST PARKS IN CONDITIONS OF THE DEVELOPMENT OF LVIV AGGLOMERATION

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**Abstract.** The expansion of urban agglomerations increases the anthropogenic impact on the environment. Forests are more likely to suffer from this pressure. The process of degradation of forested green areas takes place. It is primarily manifested in the change of the spatial structure of forest parks and synanthropy of forest parks flora. We observe phytocenotic degradation, recreational degradation and degradation resulting from improper care of forest parks.

**Key words:** green area, forest park, phytocenotic degradation, anthropogenic, man-altered territory.

### 1. Introduction

Contemporary urbanization is characterized by an increasing spatial mobility of the population. Agglomeration belongs to the most important elements of the modern settlement. In Ukraine the agglomerations are formed on the basis of the main regional centers of industry, science, culture, education and transport hubs. Such centres as Kyiv, Kharkiv, Odessa, Lviv are the centres of agglomeration. A significant number of agglomerations were formed in the Prydniprovia (the Dniper River areas). These areas include Zaporizhzhia, Kryvyi Rih and the Dnipro-Kamiansk conurbation. Lviv Metropolitan conurbation is the largest in population agglomeration in the West of Ukraine. Its development has a significant influence on the development not only of the Lviv region but also on the entire macro-region (Rusanova, I., Idak, Y., 2016).

From the time of the founding of the city until the end of the 20<sup>th</sup> century its area has increased by more than 25 times. A significant increase in the area has occurred over the last 70 years – the territory of the city almost doubled as a result of affiliation of a large number of rural settlements (Kostyuk I., 2007). Due to the development of residential and industrial facilities and transport routes, relative area of vegetative territories has decreased in 1,6 times and has made in 90-ies 37.6 % of the territory compared to 61.2 % of it in 1940, which is below applicable standards (Kurnitska M. P., 2011). To ensure the establishment of favourable environment, the forest ecosystems play an important role in preservation of the biological diversity. Around the city the forest belt is being formed, which unifies the forests adjacent to the urban territory.

The forests included into green zones of the cities complete architectural and spatial perception of the urban landscape, provide a link of urban areas with suburban forests and create favourable conditions for the rehabilitation of the cities. The removal of the forest ecosystems as a result of urbanization processes determines their degradation and deforestation. Green areas of the city are important components of the socio-ecological environment of the city. The dynamics of changes in their size and condition will be an important indicator of changes in ecological situation within the city boundaries and outside it (Nazaruk M., Zhuk Yu., 2013). Taking into account the requirements of regional planning and master plans of the cities to establish a unified urban and rural natural spaces, the suburban green areas connected to the city suburbs start to play an important role. Development of modern ways of ecological comfort zones formation is one of the most significant directions in the urban agglomerations progress.

## 2. Basic Theory Part

Primary dispersed features of the localization of built up and open areas of the city of Lviv are due to the height differences of the natural skeleton. Development of the valley space of the Poltva river and the gradual urbanization of the territory of the Lviv plateau with the part of the West Podolia and South-East skirt of Roztochchia led to evenly-dense built city centre with a part of open areas. Only 10 % of those areas were more intensively developed.

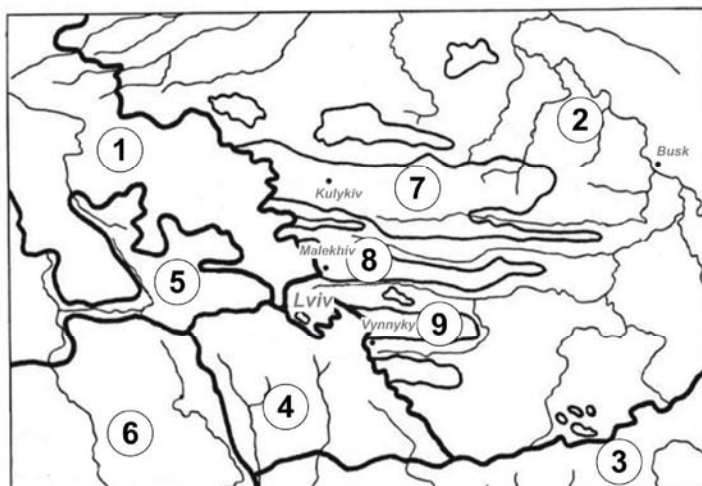
They were situated along the radial links with the existence of developed local centres between them. Some streets or groups of houses were crowded on the skirts and stripes of hilly and cut terrain and, being limited by natural barriers from two or even three sides, they were originally little fit for the citywide structures (V. V. Didyk, T. M. Maksymyuk, S. P. Tupis, 2010). Embedding of the city into a natural framework characterizes the urban planning of the past centuries. Development process of the city skips the sites inconvenient for the construction works, leaving them in the urban structure unchanged. As the result, the distinctive natural elements divided the city into separate, relatively independent parts (N. S. Sosnova, 2012).

The further process of development of the city of Lviv has undergone several stages. During the first stage (1960–1970) the city center of Lviv was a city concentrating a variety of functions.

In 1970s, this process covered the area within a radius of 30–35 km around the city. In the late 70s, the densely populated suburban area was built up, which in accordance with the urban planning concepts, should not be built. During the next phase (the 1980s) the interconnections of the city centre with the surrounding settlements within a radius of 40–50 km became stronger. After 1990, the process of building in the suburban areas has acquired a character of dynamism and disorder. The suburban areas of Lviv in Briukhovychi, Vynnyky, Solonka, Obroshyno, Hriada and the like were built-up in chaotic manner. New private buildings, territories for transport connections and public functions squeezed in, grabbed and splitted the surrounding green areas (Rusanova, I., Idak, Y., 2016). Since that time an active attack on the green areas of the city has begun.

In the early 20<sup>th</sup> century, Lviv was one of the greenest cities in Central Europe. In 1910, the area of green space in Lviv was 8.54 sq.m. per capita, while in Prague, it was 3.96 sq.m., in Graz – 5.32 sq.m., in Bern – 3.67 sq.m., in Vienna – up to 1.09 sq.m (Raciborski M, 1910). Over the long history of the city, the green zone has been formed around it which is characteristic only to Lviv providing optimal living conditions for the residents. It should be noted that today the natural conditions of the existence of green zones within the Lviv agglomeration have changed under the influence of anthropogenic factors. There is a significant fragmentation of the green spaces, simplification of species composition, uneven distribution of tree stands, and decrease of biodiversity in forest ecosystems. The share of forests in suburban areas is 25.05 % (Bila, T., 2013).

The variety of landscapes of Lviv is due to its location at the junction of different geomorphological zones. The green zone of Lviv is situated at the crossroad of five landscape complexes: Roztochchia, Pobuzhzhia range, Vynnyky hills, Holohory, Lviv plateau and Lublin plain. Through the territory of Lviv the Main European watershed runs, part of which is located in the northern part of the Podolian upland of Ukraine. The northern part of suburban forest zone, which lies in the upper reaches of the rivers, belongs to the Baltic sea basin, the southern part of it belongs to the Black sea basin (Fig. 1) (O. Babich, 2010).

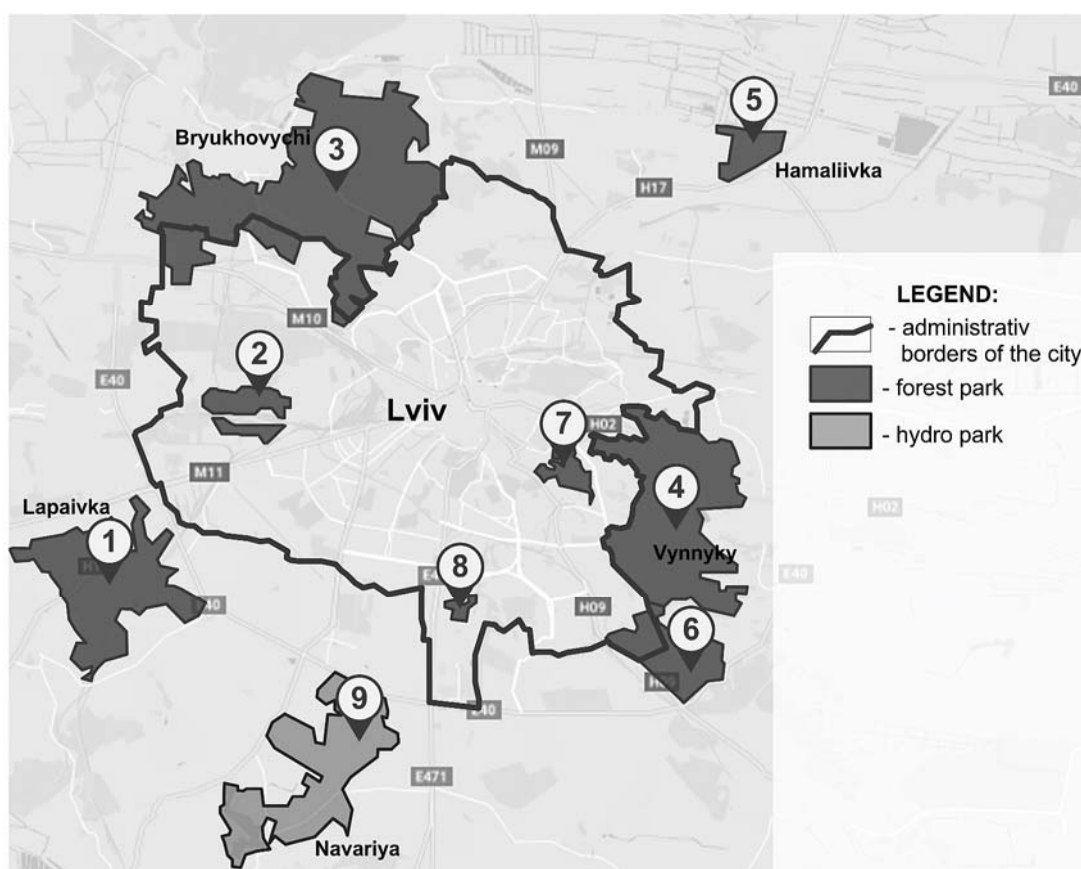


**Fig. 1.** Geomorphological scheme of the Lviv surroundings (Babich, O., 2010)

- 1 – Roztochchia; 2 – Hriadove Pobuzhzhia;
- 3 – Opillia; 4 – Lviv plateau; 5 – Bilohorsko-Malchyt'ska valley; 6 – Sian-Dnister watershed valley; 7 – Kulykivska Hriada; 8 – Malekhivska Hriada; 9 – Vynnykivska Hriada

Lviv has a pronounced radial-ring system of gardening. The suburban forests are considered as a whole unit with the urban green areas and they form the third green ring (V. P. Kucheryavyy, 2008).

Green zones, forest and forest massifs are subordinated to the *Lviv forestry* of Lviv Regional Department of the Forest and Hunting Economy. The forest park part of the green zone of the city (according to the report of 2012) is 28.867 ha (there are 8 forestries – Borshchovychi, Briukhovychi, Zavadiv, Vynnyky, Krasiv, Lypnyky, Lapajivka and Tovshchiv forestry). The forest park area within the city limits (Vynnyky, Zavadiv and Brukhovychi forestries) is of 3.447 ha. These forests belong to the first group which does not follow the main deviation. The forest park area is located within a radius of 12 km. It includes Briukhovychi and Vynnyky forest parks, Basiv forest park, and forests in the upper area of the Zubra river being on the landscape of the Lviv plateau geocomplex. They also include the numerous forest tracts on the Bilohorshcha-Malchytisi plain (e.g., the forest park of Bilohorshcha) (Fig. 2). The integrated environmental program for the city of Lviv for the time period of 2012–2016 was developed in accordance with the decision of the Lviv City Council No. 365 dated March 31, 2011.



**Fig. 2.** The scheme of the Lviv forest parks: 1 – the Basiv forest park; 2 – the Bilohorshcha forest park; 3 – the Briukhovychi forest park; 4 – the Vynnyky forest park; 5 – the Hamaliivka forest park; 6 – the Zubra forest park; 7 – the Pohulianka forest park; 8 – the Sykhiv forest park; 9 – the hydro park of Hlynna-Navaria

### 3. Results and Discussion

The outskirts of Lviv are mainly characterized by broadleaf forests and partly by pine forests. Forest vegetation is most often concentrated in the basins and valleys of streams. River valleys are covered with meadow vegetation; unique meadow-bog and peat groups have survived in the area of the forest park of Bilohorshcha.

Forest park arrays are unevenly located around the city, and mainly adjacent to the urban quarters from the east (the Vynnyky forest park) and the west (the Briukhovychi forest park) and partly from the southwest – Basivka forest park. The southern and northern outskirts of the city are forestless. From the southwest side near the river of Shchyryk, the hydro park of Hlynna-Navaria lies having an area of 400 ha (Fig. 2).

Our surveys were conducted in 2016–2017<sup>2</sup> and their results have revealed that the existing green arrays have recede under the onslaught of the construction, which is carried out both along the perimeter of the territory and from the inside.

The process of dissection of the forest massifs into isolated island areas together with the air pollution and increase of soil density due to the increase of the number of visitors leads to a change in the spatial structure of forest parks, changes in its species variety of the woody and grassy tiers. This, in turn, leads to their degradation.

The Vynnyky forest park, which is located within the hills and partly in the Pobuzhzhya range, is characterized by the indigenous type of forest. The main forest species are *Fagus sylvatica* L. with an admixture of *Carpinus betulus* L., *Acer platanoides* L. Over the past few years, massive felling of the forest beech has occurred in this area, which has caused the formation of new groups partially different from indigenous species. *Betula pendula* Roth., *Acer pseudoplatanus* L., *A. platanoides* began to enter the first tier in the tree tier. *Sambucus nigra* L has spread to the undergrowth. Along with the decrease in the projective cover of the typical forest grasses with mosaic placement in the grass cover in the luminaries and along the paths, the meadow and meadow forest species of grasses penetrate there. These are *Agrostis tenuis* Sibth., *Veronica chamaedrys* L., *Trifolium repens* L. The involvement of ruderal species comprises *Carex hirta* L., *Capsella bursa pastoris* (L.). Some species increase in the glades as well as those of “forest weeds”: *Geum urbanum* L., (3–5 %), *Urtica dioica* L. (2–10 %), *Geranium robertianum* L., *Galeopsis pubescens* Bess, *Lamium maculatum* (L.) L. (1–5 %), *Alliaria petiolata* (Bieb.) Cavara et Grande, *Aegopodium podagraria* L. Distribution of these species depends on the composition of the plantings. Expansion of the network of forest roads led to the bogging of the territory of the forest park.

It is worth mentioning that the collection areas that are laid down on the territory of the Vynnyky forest park are currently in abandoned state. In 1895, in the western part of Vynnyky (not far from Zhupan hill), the director of the Forestry school S. Sokolovsky created an extremely interesting arboretum in terms of the organization of the territory: the introduced species were planted on the areas of 10\*10 m. In 1913, fifty six species of wood were acclimatized: *Betula lenta* L., *Carya alba* (L.) S. Koch, *Quercus austriaca* Willd., *Thuja plicata* Lamb., *Pseudotsuga glauca* Mayr, *Abies nordmanniana* (Stev.) Spach (A. Baysar, 2012). At present, most species are lost. Some individual species such as *Pseudotsuga menziesii* Mirb., *Pinus nigra* Arn., *Larix leptolepis* (Sieb, et Zuce) Gord., *Quercus rubra* L. are the only species preserved.

The pine butchers characteristic of the Briukhovychi forest park are a new natural succession planted in the early 19<sup>th</sup> century on the local sand fields (V. P. Kucheryavyy, K. S. Brunets, 2010). The species structure on the territory of the former park is represented by *Pinus sylvestris* L., *Quercus petraea* Liebl., *Q. robur* L., *Acer platanoides*, *Carpinus betulus*, *Betula pendula*, occasionally by *Picea abies* (L.) Karst and *Fagus sylvatica*. The specimens of the rock oak and the common pine are old and are over the age of more than 150 years.

The ordinary pine stands out in the first tier and forms an array with an admixture of a spiky maple. In these areas, the formation of sublime sinusia with the participation of *Sambucus nigra*, *Corylus avellana* L., *Euonymus verrucosa* Scop. and *E. europaea* L., species of the genus *Rubus* L. is observed.

In the grass cover, *Anemone nemorosa* L., *Lathyrus vernus* (L.) Bernh., *Galeobdolon luteum* Huds can be seen. A rock oak is a part of the alley and acts as a powerful solitaire. In the thickened part of the park under the old specimens, there is an abundant renewal of the rock oak. The distribution of deciduous tree-shrub species indicates an improvement of soil condition. On raised areas, hornbeam and beech plantings dominate. The territory of the forest park is anthropogenically disturbed. This is especially true for areas that are directly adjacent to the transport routes. It is possible to note the formation of a peculiar structure of trampled paths and unstoppable places. Under the influence of trampling, cereals start to grow on the sites. On the separate sites of the forest, park herbal cover is completely destroyed.

For the Bilohorshcha forest park dominating plants in the first tier are: *Quercus robur* and *Alnus glutinosa*. On separate sites *Salix fragilis* L. joins these species. Undergrowth is formed with *Padus avium* Mill.,

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<sup>2</sup> H. Lukashchuk.

*Rhamnus cathartica* L., *Corylus avellana*, *Euonymus europaea* and *Frangula alnus* Mill. In the wet areas, a large number of species of the genus *Salix* L. are found. Typical forest types of grass are covered with weeds.

It is worth mentioning that the forest park is practically not adapted for recreational activities, there is no net of tracks, although it is situated close to urban areas. On many sites, a fertile layer of soil (peat) is excavated. The meadow-boggy complexes of Bilohorshcha are of a significant zoological value.

The Pobuzhzhia range landscape is practically not reforested. At this researched area the forest park of the array of the tract of Hamaliivka is to be discussed (Fig. 2). The old oak forest forms the basis of the phytocenoses of this tract. Underbrushes are formed with *Padus avium*, *Rhamnus cathartica*, *Corylus avellana*. Novoyarychiv forests are represented by oak and beech phytocenoses.

The forest park area includes the Sykhiv forest park, the Basiv forest, as well as the Zubra forest area (Fig. 2). The oak and oak-beech cenosis of these forest parks have been significantly altered by man for mixed broadleaf cenosis. On wet areas the species of *Alnus glutinosa* survived. There is the seizure of large areas by the non-abiotic species (*Acer negundo* L., *Impatiens parviflora* DC.), the synantropy of flora takes place. The Basiv forest park includes the Basiv arboretum – a park-monument of landscape and landscape art of the local significance. The arboretum is located among the forest massif in the 35 quarter, sections 6–7, which lies between the villages of Lapajivka, Obroshyno and Basivka, belonging to the Lapajivka forestry. Its area comprises 15.4 hectares; and was approved by the decision of the Lviv Regional Council on October 10, 1984. The purpose of its foundation is to preserve more than 100 wood-shrub species of plants. These are, as a rule, introduced from the North America, Japan, and China. Today, the arboretum is in an abandoned state. There is no maintenance of exotic species of plants there.

However, despite the significant transformation of the territories of the forest parks, species of vascular plants that are included in the *Red Data Book of Ukraine* are preserved in their territories. In most cases they are spring ephemerals. The prevalence of the forest species and the presence of rare species is evidence of a high level of sustainability of natural forest ecosystems. At the same time, the formation of specific groups of spontaneous vegetation within the forest parks on the outskirts of Lviv depends on the intensity and nature of the use of the territory. The vitality of phytocenoses of forest parks is negatively affected by soil redevelopment. Excessive attendance leads to a violation of the links between the components of the forest, the loss of resistance to the forest planting, and in some cases – to its complete disorder (H. B. Lukashchuk, T. A. Fedorchuk, 2015). Typical vertical structure has survived in plantations, which by origin and composition are indigenous (Vynnyky forest park, Pohulianka forest park). Differentiation of the first and second wood tiers, brushwood, undergrowth and grassy tiers is observed as well.



**Fig. 3.** The degradation of the Bryukhovitsky Forest Park: a – erosion processes in the forest park area; b – the unauthorized arrival of vehicles in the forest park area (H. Lukashchuk, 2016)

A significant problem in practically all of the forest-park part of the city is its pollution with solid household waste, in particular, construction debris, arrival of vehicles into suburban forests, their parking and unauthorized arrangement of residents' places of recreation (incendiary of foci) (Fig. 3). The erosive processes are observed along the transport routes. The sanitary condition of the forests is estimated as satisfactory.

Having analyzed the forest parks in the vicinity of Lviv, we can state that the level of their degradation depends upon the depth of the territory's entry into the urban environment, the nature and intensity of their usage. It is worth mentioning that present recreational stability of the forest areas of the green zone is not sufficiently studied. In the territories of forest parks in the vicinity of Lviv, the areas of forest parks that correspond to different stages of forest degeneration are revealed.

## Conclusions

Urbanization causes the suppression of the natural environment as a quantitative – spontaneous seizure of large areas of land – and qualitatively: the deterioration of the natural environment in general. The reasons for the deterioration of forest conditions and the reduction of forest ecosystems are due to the complex activity of natural and man-made factors.

In the forest park plantings, the degradation processes are caused by the onslaught of the urban environment on the natural surroundings. We can distinguish between degradation caused by recreational pressure, degradation due to inadequate forest park maintenance, degradation associated with changing the landscape of the forest parks, and phytocenic degradation (a change in the composition of indigenous phytocenoses of the forest parks). The end of the 20<sup>th</sup> – the beginning of the 21<sup>st</sup> century is marked by the creation of collections of land in the territories of the forest parks, on which exotic plants are concentrated. Today, the task is to restore these collection areas and to preserve the existing species composition of plants.

As all forest parks undergo significant anthropogenic influences, it would be advisable to take measures for the restoration of indigenous forest stands, to organize recreation areas, that would reduce unauthorized recreational pressure on these areas.

Due to the modern development of the urban areas, a special urbogenous environment was formed, the ecological state of which requires constant monitoring (environmental monitoring). Plants react very sensitively to changed conditions, so they can serve as indicators of the state of the environment.

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Галина Лукашук

## ДЕГРАДАЦІЯ ЛІСОПАРКІВ В УМОВАХ РОЗВИТКУ ЛЬВІВСЬКОЇ АГЛОМЕРАЦІЇ

**Анотація.** Розширення міських агломерацій посилює антропогенну дію на середовище. Лісові масиви найбільше потерпають від цього навантаження. Лісопаркові масиви розміщені навколо міста нерівномірно, прилягаючи до міської забудови переважно зі сходу (Винниківський лісопарк) і заходу (Брюховицький лісопарк), частково з південного заходу – Басівський лісопарк. Південна і північна околиці міста безлісі. З південно-західної сторони на р. Щирек лежить гідропарк Глинна-Наварія, площею 400 га. Існуючі зелені масиви відступають під натиском забудови, яка здійснюється не тільки по периметру території, але і зсередини. Процес розчленування лісових масивів на окремі острівні ділянки, загазованість повітря, збільшення щільності ґрунтів через зростання кількості відвідувачів веде до зміни просторової структури лісопарків, зміни видового складу деревного та трав'яного ярусу. Дубові та дубово-букові ценози лісопарків суттєво змінені людиною на змішані широколистяні ценози. За останні кілька років у лісопаркових зонах відбулися масові рубання бука лісового, що спричинило утворення нових угруповань, частково відмінних від корінних У деревному ярусі почали виходити у перший ярус такі види як *Acer pseudoplatanus* L., *A. platanoides*, *Betula pendula* Roth.. Спостерігається захоплення неаборигенними видами (*Acer negundo* L., *Impatiens parviflora* DC.) значних площ. У підліску поширилася *Sambucus nigra* L. Поряд зі зменшенням проективного вкриття типових лісових трав із мозаїчним розміщенням у трав'яне вкриття у провітах та вздовж мережі стежок проникають лучні та лучно-лісові види. На галявинах збільшується участь рудеральних видів. Проходить деградація лісопаркових зелених зон. Вона проявляється передусім у зміні просторової структури лісопарків, синантропізації флори лісопарків. Ми спостерігаємо фітоценотичну деградацію, рекреаційну деградацію та деградацію, зумовлену неналежним доглядом лісопарків.

**Ключові слова:** зелена зона, лісопарк, фітоценотична деградація, антропогенно порушена територія.

## STREET WITHERING

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**Abstract.** Due to Allied Forces bombing of Szczecin in World War II, nearly the whole old town and most of 19<sup>th</sup> and 20<sup>th</sup> century housing were destroyed. After the war, the part of ‘the heart of the city’, or rather its ‘living room’, was taken by the longest street – Wojska Polskiego Avenue, especially by the part in the centre of Szczecin. Lots of luxury boutiques were located there. Despite the communist period, the appearance of the street was taken care of. At some point most of shop windows were replaced. The identical, modern for that time, aluminum shop windows with vast glazing were installed. Nowadays this street is withering. Huge amount of shops and other services are closed. The rebuilding of the old town with its plaza does not have much impact on this process. Szczecin’s plaza does not act as a living room of the city as much as it should be. The cause of this issue is the location of a few big shopping malls in the center of the city. They ‘vacuumed’ many of the services from streets. In the paper, by example of Szczecin, the fatal impact of locating shopping malls on traditional services system in the city centre will be shown.

**Key words:** urban planning, shopping centres, neighbourhood shopping

### 1. Introduction

Szczecin during the Second World War was a target of intense Allies bombardments. As an important industrial center, especially considering the existing harbour, it was particularly exposed to attacks. As a result, majority of the city infrastructure was destroyed, including almost 90 % of the Old Town (Fig. 1).



**Fig. 1.** A view on a bombed Castle borough. In the back Pomeranian Dukes’ Castle in Szczecin.  
Source: photo by Stanisław Dowłasz, <http://www.szczecin.wyborcza.pl/szczecin/7,34939,21613826,odrzucic-propagande-i-przypomniec-fakty-zostawcie-ulice-26.html>

## 2. Short history of splendour and fall of the central street in Szczecin

The issue of bombardment of the Old Town is especially important for the topic of this paper. After the War, the Old Town buildings were not reconstructed. The renovations included only a small number of surviving historical constructions, and among them the Pomeranian Dukes' Castle had a top priority. Consecutively, renaissance Loitz House and Old City Hall were renovated. The rest of the Old Town was only cleaned from the rubble and left for decades without any intervention. The upper part of the Old Town started being developed in the 1960s. The apartment housing complex was build up there. Fortunately, due to financial problems the plans for constructing four high rise buildings in the close neighborhood of the Old City Hall were dropped. Only in 1994 the development of the lower parts of the Old Town, considered as a Castle borough, started to unfold. The implementation of this construction project agreed with the compliance to historical spatial arrangement of this part of the city (Fig. 2, 3).



**Fig. 2.** Left: Development condition of the Castle borough in the '80s. Right: Rynek Sienny (Haymarket), 2017.  
Source:<http://www.skyscrapercity.com/showthread.php?t=316839&page=293>, photo by Waldemar Marzęcki



**Fig. 3.** Panoramic view on developing borough in Szczecin. Source: Photo by Waldemar Marzęcki

The area of the Old Town is mostly filled with modern buildings inspired by historical developments. As opposed to previously mentioned developments in the upper part of the Old Town, the lower part is mostly developed in a close compliance to the former old-town arrangement. A part of the Old Town was however set for infrastructure investments. Most of the free spaces of the Old Town and Rynek Sienny (Haymarket) are nowadays developed. The residents of Szczecin are more and more aware of this place. For almost 49 years Szczecin was deprived of its historical heart. This influenced the behavior and perception of the citizens. The lack of the Old Town resulted in a creation of a different center located along the Wojska Polskiego Avenue. The part of the longest street in Szczecin, between the Szarych Szeregów Square and Zwycięstwa Square, started to be the meeting place thanks to existence of the exclusive boutiques, restaurants and coffee shops. Taking a walk on Wojska Polskiego Avenue was viewed as a good taste (Fig. 4, 5).



**Fig. 4.** View of Wojska Polskiego Avenue, 1965–70. Source:

[http://www.szczecin.fotopolska.euSzczecinu115240,al\\_Wojska\\_Polskiego.htmlf=95321-fotoLata 1965-70](http://www.szczecin.fotopolska.euSzczecinu115240,al_Wojska_Polskiego.htmlf=95321-fotoLata 1965-70)

[http://www.szczecin.fotopolska.euSzczecinu115240,al\\_Wojska\\_Polskiego.htmlf=95321-foto1969](http://www.szczecin.fotopolska.euSzczecinu115240,al_Wojska_Polskiego.htmlf=95321-foto1969)



**Fig. 5.** View on Wojska Polskiego Avenue from Zwycięstwa Square, 2017. Source: photo by Waldemar Marzęcki

After the political transformation in 1990, Poland started to undergo dynamic changes. The shops on Wojska Polskiego Avenue were overflowed with western merchandise. On a long run however, the political transformation meant a death to the shops. Suddenly the Wojska Polskiego Avenue started to die slowly. One shop after another was being closed. Only “For Rent” and “For Sale” signs decorated the windows of the shops. The approximate number of closed shops on the Wojska Polskiego Avenue was made (as of 20.06.2017) and is presented on the photos below (Fig. 6, 7):



**Fig. 6.** Wojska Polskiego Avenue. Black spots mark shops for rent or sale. Source: own analysis, (<http://geoportal.szczecin.pl/mapa/>, 2017)



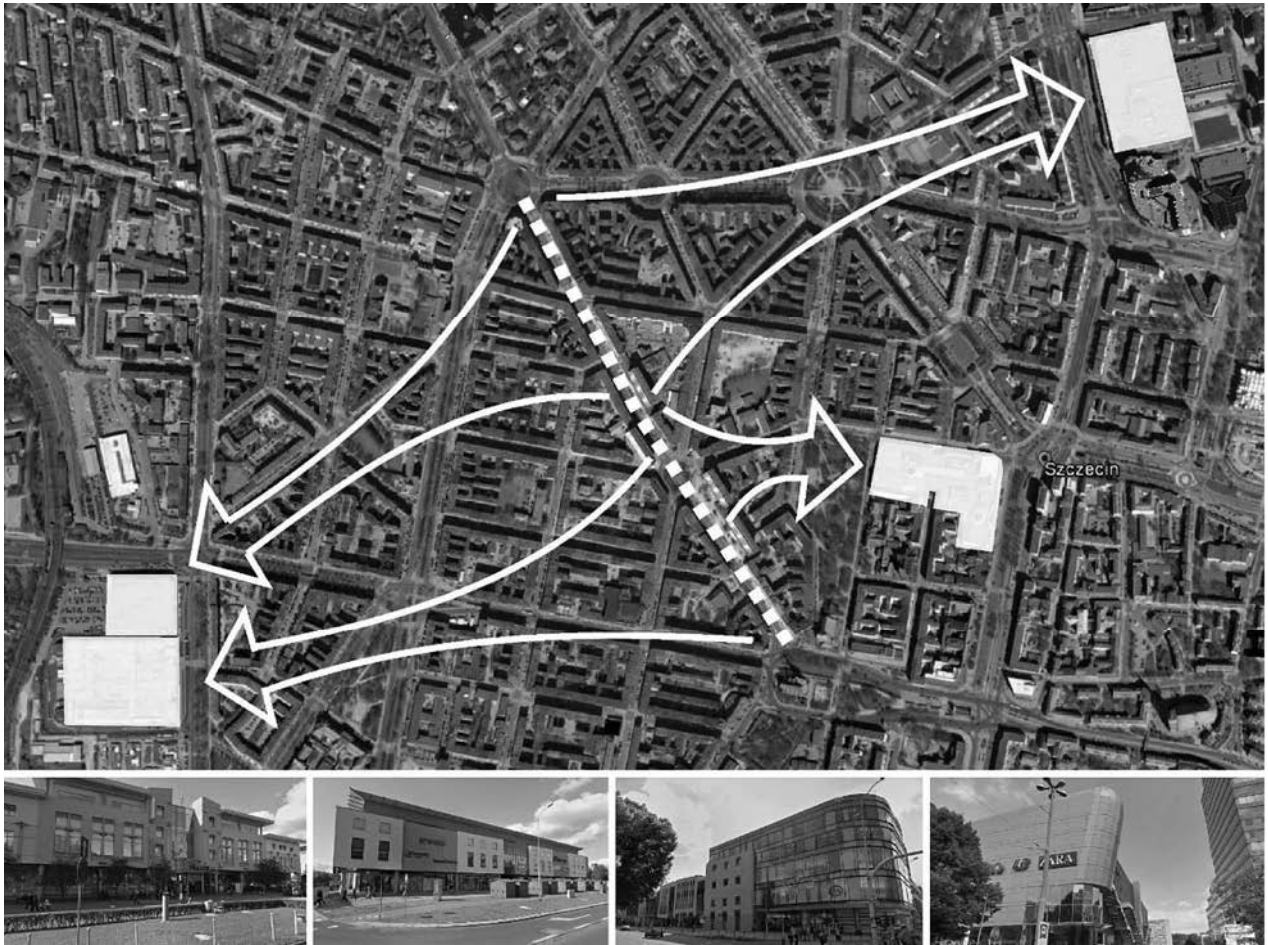
Fig. 7. Examples of business premises for sale or rent. Source: photos by Waldemar Marzęcki

The demand for rental and selling of the businesses was so great that one of the real estate companies opened their office there to provide the services (Fig. 8).



Fig. 8. Left: Real estate office on Wojska Polskiego Avenue providing rental and sale services. Right: One of numerous business in the real estate company's offer. Source: photos by Waldemar Marzęcki

It is necessary to understand the reasons which lie behind this: huge malls started to appear right in the centre of Szczecin (Fig. 9). In 2001, *Turzyn Mall* was built. In 2003, shopping and entertainment centre *Galaxy* was commissioned. The Wojska Polskiego Avenue was surrounded by big shopping centers almost on each side. The biggest and most modern shopping center with 110.000 m<sup>2</sup> of space was built in 2011. The *Kaskada* shopping center is located only 300 m from Wojska Polskiego Avenue.



**Fig. 9.** The location of big shopping centers in the neighbourhood of Wojska Polskiego Avenue. Source: own analysis, <https://www.google.pl/maps/@53.4393714,14.4747994,13z>

It is not surprising that most of the citizens of Szczecin chooses the shopping centers, especially when the weather is bad. The city administration has finally noticed the issue. There is an idea to restore, at least partially, the greatness of the Avenue. The preparations for tender on revitalization of the Wojska Polskiego Avenue has already been launched (Fig. 10, 11).



**Fig. 10.** City website containing the information about tender on revitalization of Wojska Polskiego Avenue. Source: [http://www.szczecin.eu/zycie\\_w\\_miescie/aktualnosc/52810-rewitalizacja\\_alei\\_wojska\\_polskiego\\_przygotowanie\\_do\\_konkursu.html](http://www.szczecin.eu/zycie_w_miescie/aktualnosc/52810-rewitalizacja_alei_wojska_polskiego_przygotowanie_do_konkursu.html)

But is it really possible? Can we repair the damage done not only to Wojska Polskiego Avenue but also the whole neighbourhood shopping area in Szczecin that was destroyed by the unfavourable location of big shopping centres in the very heart of the city?



**Fig. 11.** Photomontage dedicated to dying of the Wojska Polskiego Avenue. Source: photo by Waldemar Marzęcki

### 3. Conclusions

Location of the big shopping malls in the centres of the cities results in a probably unchangeable deterioration of historically shaped local services. The urban substance starts to barren from all sorts of diversified premises. The coffee shops, boutiques, small movie theatres and many others disappeared from the cultural map of Szczecin. We think that the idea to revitalize the Wojska Polskiego Avenue will probably fail. It looks like dealing with symptoms and not the causes.

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**ЗАВМИРАННЯ ВУЛИЦІ**

***Анотація.** У статті, на прикладі Щеціна (Польща), продемонстровано фатальний вплив від розміщення великих торгових центрів у центрі міста на традиційну систему обслуговування в межах міста.*

*Внаслідок бомбардувань союзних сил Щеціна у Другій світовій війні майже все Старе місто і більшість житлових будинків XIX і XX століття були знищені.*

*Питання бомбардування Старого міста особливо важливе для теми цієї статті. Після війни забудова Старого міста не була реконструйована. Реставраційні роботи включали лише невелику кількість збережених історичних будівель, включаючи замок, що мав найважливіший пріоритет. Послідовно було відремонтовано ренесансний будинок Лоїців та Стара ратуша. Решту Старого міста було очищено від руїн і так залишилося протягом десятиріч, без будь-яких втручань. У 60-ті роки починається розробка верхньої частини Старого міста. Був побудований житловий комплекс. На щастя, через фінансові проблеми, відклали плановане будівництво чотирьох висотних будинків у безпосередній близькості від Старої ратуші. Лише в 1994 році почала розвиватися нижня частина Старого міст – Підзамче. Реалізація цього проекту будівництва виконується з дотриманням історичного просторового розпланування цієї частини міста*

*Після війни частина “серця міста”, а точніше її “вітальня”, була перетнута найдовшою вулицею – проспектом Войска Польського, особливо частиною в центрі Щеціна. Більшість розкішних бутиків розташовувалися там. Незважаючи на комуністичний період, зовнішній вигляд вулиці був доглянутий. У якийсь момент більшість вітрин були замінені. Ідентичні, сучасні на той час алюмінієві вітрини з великим склінням, змінили давній характер вулиці.*

*Після політичної трансформації 1990 року Польща почала динамічно змінюватися. Магазины на проспекті Войска Польського були переповнені західними товарами. Але в довгостроковій перспективі політична трансформація означала смерть магазинів. Раптом проспект Войска Польського розпочав повільну смерть. Один магазин за іншим було закрито. Тільки оголошення “Винаймається” і “Для продажу” прикрашали вікна магазинів. Оцінка кількості закритих магазинів була здійснена для проспекту Войска Польського.*

*Потрібно зрозуміти причини цього. Величезні торгові центри почали з'являтися прямо в центрі Щеціна. У 2001 році був побудований торговельний центр “Turzun”. У 2003 році був запущений торгово-розважальний центр “Galaxy”. Практично з усіх боків проспект Войска Польського було оточено великими торговими центрами. У 2011 році був побудований найбільший і найсучасніший торговий центр площею 110 000 м кв торговий центр “Kaskada”, розташований всього за 300 метрів від проспекту Войска Польського.*

*Зараз ця вулиця зів'янула. Величезна кількість магазинів та інших послуг було закрито. Відновлення Старого міста з його площею не мало значного впливу на цей процес. Середмістя Щеціна не діє як вітальня міста, наскільки цього б хотілося. Причиною цього є розташування декількох великих торгових центрів у центрі міста. Вони “прибирають” багато послуг з вулиць.*

**Ключові слова:** міське планування, торговельні центри, магазини на околицях.

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**MULTI-MODAL TRANSPORTATION HUBS  
AS THE ELEMENTS OF A POLICENTRIC SYSTEM  
OF THE GREATER CITY CENTRE FORMATION  
(by example of Lviv city)**

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**Abstract.** The current state of multi-modal transportation hubs construction as the key elements of the city's transport network, problems and tendencies of the architectural and planning organization of urban development in the zones of their influence are analyzed. The complex of issues of urban development of functional-planning and architectural-spatial reorganization of the territory and building around these nodes as elements of the formation of the polycentric system of the city center is considered. Conclusions and recommendations on the given problems are presented.

**Key words:** city public centre, polycentric system of the city centre, multi-modal transportation hub.

## **1. Introduction**

The city public centre belongs to the very complicated architectural, urban, social and spatial phenomena. Its environment, formed by the main public buildings and architectural ensembles, institutions and departments of city services, is the centre of concentration of the most important types of activity and public life for the city. The city public centre, located in the central planning area, more than other elements of the city structure provides continuity of its development. On the one hand, the territorial development of the city determines the functional and spatial structure and size of the centre, and, on the other hand, the active transformation of the centre significantly affects the development of the city as a whole. An increase in the urban population and the growth of urban areas is accompanied by the growth of central functions and the transformation of their components and require new organizational and spatial forms. Accordingly, there is the so-called eccentricity (over-saturation) of the city centre, which can be offset by the development of the transport network and the emergence of centres in new areas of development. Today, in many large cities and urban agglomerations, the **polycentric** system of the city public centre is actively formed, in which much of the service functions are transferred from the core to the periphery – in the subcentres outside the central planning area. The city public centre turns into a spatially developed, differentiated system, which covers the most important nodes of the city and forms the structural and functional basis of its compositional and planning structure (Posatskyi B., 1992; Posatskyi B., Korol Y., Mazur T., 1996).

In modern urban planning practice, the creation of a city-centred polycentric system in large cities is considered an important factor in improving their planning organization. Nodes and complexes of the subcentres drag out the pressure from the core of the city centre, bring service to consumers and make the lives of the city's inhabitants more vibrant and brighter (Posatskyi B., 2001).

The city centre as the main focus of attraction of the population also acts as the main transport hub of the city and urban agglomeration. There is a steady tendency of attraction of public service complexes to areas of optimal transport accessibility and technical infrastructure – units of public passenger transport with railway stations and bus terminals, public transport stops of the city, parking of individual motor vehicles. The main nodes of the transport network and the main complexes of city and district significance are combined spatially in the territory, implementing the principle of public service “on the road”. Proceeding from this trend, it is expedient to develop the polycentric system of the city centre and to form its elements on the basis of multi-modal transportation hubs of the city (MTH).

Multi-modal transportation hub is an element of the planning organization of the transport network, in which the transfer of passengers between different types of urban, regional, external and individual transport in different combinations is carried out. Integration of all types of transport into a single spatial complex, realized through one large transshipment, around which the accompanying infrastructure can be formed. In modern urban planning practice, the multi-modal transportation hubs’ are designed in two types (Fig. 1). These of the first type are exclusively for transport purposes – multi-level structures combining various transport objects (car and railway stations, platforms of trains, entrances and subways, trams, bus, trolleybus stops, car parking, etc.). The second type covers the hubs, where transport objects are complemented by objects of various types of public services (trade, catering, leisure, recreation zones and other types of public spaces) (Rusanova I., Sklyarova I., 2012). From the planning point of view, the second type of hubs can serve as the basis for the formation of a polycentric system of the city centre and the creation of a spatially and functionally connected urban organism, in which a developed transport infrastructure integrates into the whole one or several city nuclei and sub-centres of different levels.



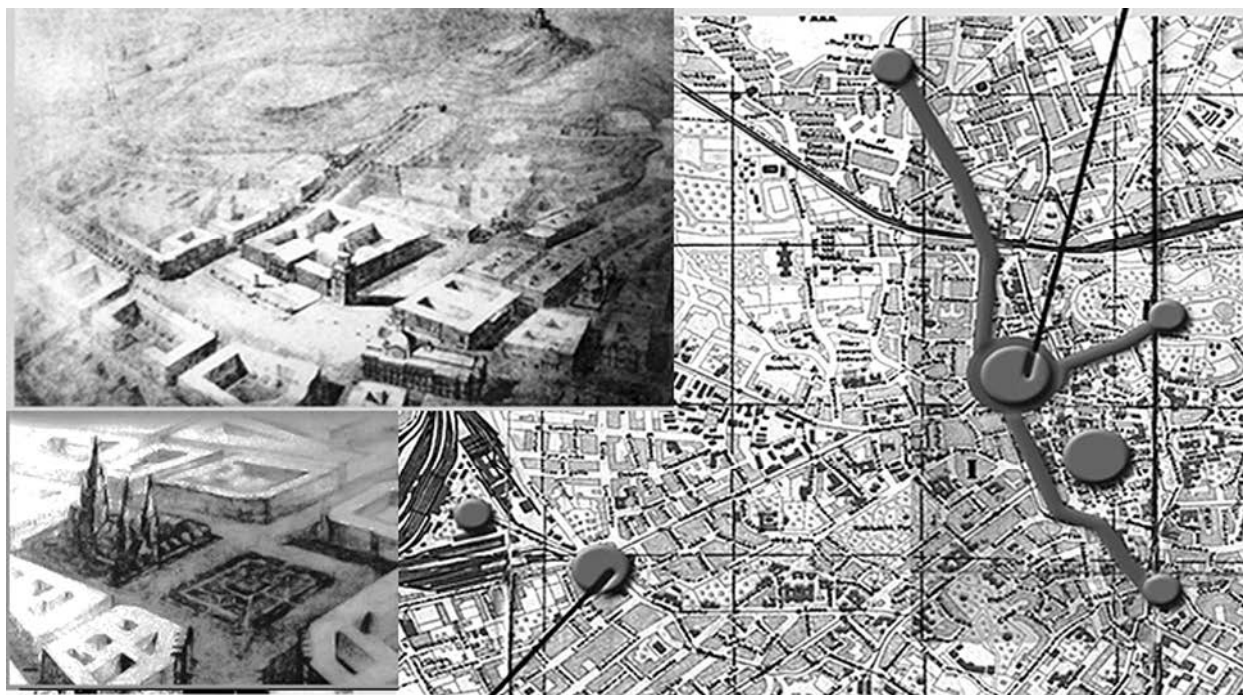
**Fig. 1.** Examples of multi-modal transportation hubs of different types:  
a – for transport purposes (Tokyo, Japan); b – for transport and public purposes (London, United Kingdom)

## 2. Basic Theory Part

Due to the high value, density and compactness of the buildings, the potential of the development of the city centre of Lviv (the historical core of the city) is insignificant. Practically there are no spatial reserves of the intensification of its territory by saturation of adjacent streets and quarters with public functions and their inclusion in the structure of the centre. At the same time, with the development of the city, the functional and tourist pressure on the city public centre is constantly increasing. Respectively, the General Plan of Lviv will implement until 2025 the idea of forming a polycentric system based on multi-modal transportation hubs, which reflects the growing importance of the development of transport infrastructure for the successful functioning of well-developed cities at present stage, as well as the role and significance of the city as a powerful transport hub of state and international meaning on the border with the EU (DP DIPM “Mistoproekt”, 2009).

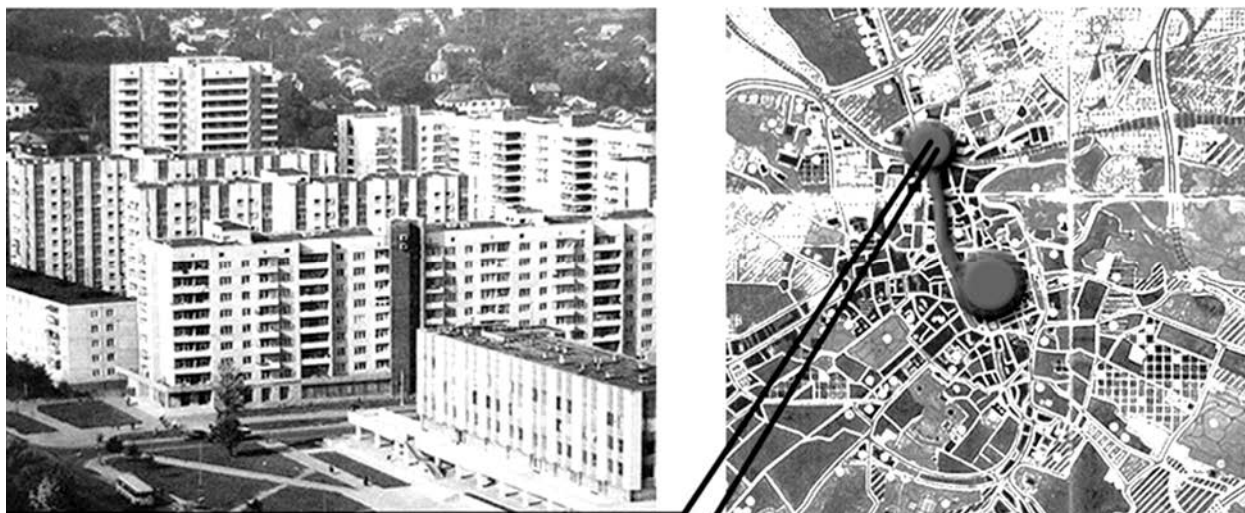
In the documents of the master plan of Lviv development until 2025, the transport system of the city is represented by a developed network of transport highways, transport nodes and complex infrastructure, which combines its separate components formed from several types of external transport (rail, road, air) in cooperation with urban public and individual transport for organization of mass passenger and freight transportation. The development of the city's highway network implies the development of the main street network, which is initiated by previous general plans, towards the transformation of the radial system of highways into the radial-ring one, which is most in line with the compact city plan. Priority tasks include at the same time the formation of a large transport ring of main streets of continuous traffic on the border of the historic area of Lviv along the streets of Lypyns'kyi, Yaroshenko, Levandivska, Siayvo, Luhanska, Pasichna, Bogdanivska-Proektovana, Plastova and transport junctions at all their intersections with radial highways (streets Lychakivs'ka, Zelena, Stryis'ka, Horodots'ka, Shevchenko, Khmelnitskoho, and Chornovola Avenue). In zones of transport nodes, it is planned to place large intercepting garages-parking lots in order to restrict the entry of individual vehicles into the central part of the city. It is also planned to create the second mainline semicircle within the peripheral zone of the city from the Sykhiv residential area along the streets of Naukova, Proektovana, Riashivska through the Levandivka, Riasne, Zboyishche districts in the northern part of Lviv to the Khmelnitskoho Street with an access to the highway of state importance Lviv-Kyiv.

The formation of the polycentric structure of the city centre of Lviv with the purpose of unloading its historical centre was also provided by the general plans of previous historical periods. Fig. 3, 4, 5 show their planning models. The project of development of the city centre in accordance with the general plan of Lviv (1946) proposed the creation of its linear-node system: the formation of an “urban composite axis” north-south length of about 3 km (Chornovola, Svobody, Shevchenko Avenues), which began from Petrushevych Square and finished at the beginning of Lypynskogo Street by a large square. The main square behind the Opera House had to become the new public centre of the city, which was connected by the east-west axis with the hill of the High Castle, where it was supposed to set up a statue of Lenin at a height of 50 m. Thus, in the centre of Lviv, the system of communist coordinates “was canonized”.



**Fig. 3.** Project of the development of the city centre of Lviv in accordance with the Master Plan of Lviv, 1946  
(authors A. Natalchenko, B. Shvets'ko-Vynets'kyi)

In the general plan of 1966, the polycentric system of the city centre was proposed for the first time, the concept of its linear-nodal development along the Chornovola Avenue was preserved.



**Fig. 4.** Project of development of the city centre of Lviv in accordance with the Master Plan of Lviv, 1966  
(authors O. Rapoport, M. Yorysh, E. Kutz, E. Doubynskyi, I. Bazarnyk, A. Shulyar)



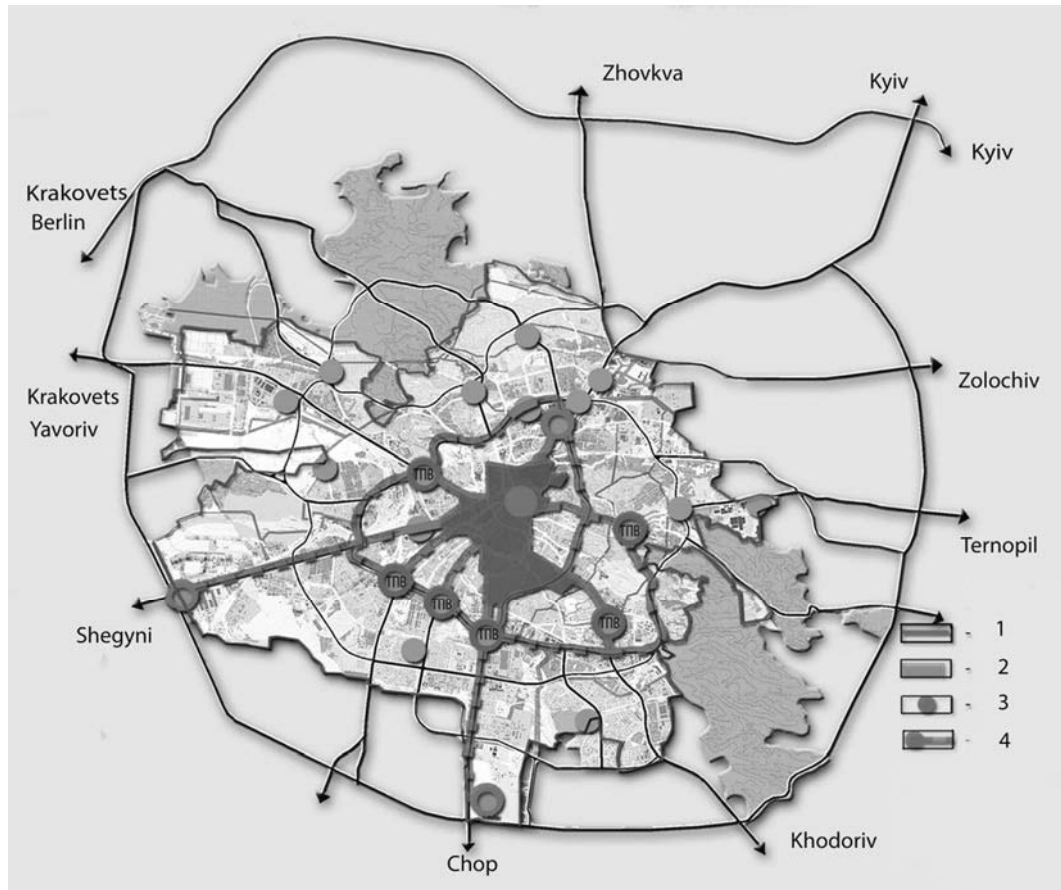
**Fig. 5.** Project of development of the polycentric system of the city centre of Lviv, 1970  
(authors J. Novakivsky, P. Myh, A. Petrova, A. Rudnytskyi)

The project of 1970 develops the idea of forming a polycentric system in the city of Lviv, including new sub-centres: the western one – in the Gorodotska Street near the suburban railway station; the eastern – at the intersection of Lychakivska and Pasichna Streets; the southern – in Stryiska Street next to the Tax Administration building.

Master plan of the city development (1993) and Master plan of Lviv until 2025 continue to embody the idea of forming a polycentric system of the entire city centre, linking it closely with the development of the street-road network and the main transport hubs of the city. It is proposed to create a number of new public sub-centres in connection with the transport infrastructure, including the projected multi-modal transportation hubs – at the intersections of the main streets: Stryjska and Luhanska, Kulparkivska and Luhanska-Proektovana, Kniahyni Olgy and Luhanska-Proektovana, Shevchenka and Levandivska, Khmelnytskogo and Lypynskogo, and others (Fig. 6).

It should be noted that the practical implementation of the declared general plan principles for the development of the polycentric system of the city centre was threatened because of the delay in the implementation of proposals for the development of transport infrastructure of the city – communication paths,

transport junctions and multi-modal transportation hubs. Since the territories around them, as the most attractive from the perspective of promising transport reach, are chaotically developed and built up by objects of public service of various functional purposes. On the one hand, it actualizes the task of finding ways and means for implementing the plans laid down in the general plan for the development of the transport network of the city, and on the other – preservation of surrounding areas to protect against accidental and unpredictable use (V. Shchurova, 2005; T. Mazur and Y. Korol, 2017).



**Fig. 6.** The proposal of the polycentric system of Lviv city centre development according to the Master plan (2025)  
 Legend: 1 – planned boundaries of Lviv city; 2 – planned boundaries of the city-planning system “Great Lviv”; 3 – multi-modal transportation hubs; 4 – city mains

## Conclusions

Development of the polycentric system of the city centre should have a complex approach and an organic relationship with the planning structure of the city, the location of transport mainlines and multi-modal transportation hubs, functional zones, landscape and recreational territories. To reach these tasks, the following principles should be followed:

- Principle of optimization of transport and pedestrian connections between elements of the centre and its core, and also with each other by way of development of communications, transport solutions and the whole complex of transport infrastructure of the city;
- Principle of complementarity of system development, namely mutual complement of public service functions in new sub-centres;
- Principle of maximizing the use of existing compositional potential of the architectural environment and natural environment of surrounding territories;
- Principle of phased formation of planning and spatial structure of the polycentric system of the centre, while observing the functional and compositional completeness of its components at each stage of formation.

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*Тамара Мазур, Євгенія Король*

**ТРАНСПОРТНО-ПЕРЕСАДКОВІ ВУЗЛИ  
ЯК ЕЛЕМЕНТИ ФОРМУВАННЯ ПОЛІЦЕНТРИЧНОЇ СИСТЕМИ  
ЗАГАЛЬНОМІСЬКОГО ЦЕНТРУ ЗНАЧНІШОГО МІСТА  
(на прикладі м. Львова)**

***Анотація.** Проаналізовано сучасний стан будівництва транспортно-пересадкових вузлів як ключових елементів транспортної мережі міста, проблеми та тенденції архітектурно-планувальної організації міської забудови у зонах їхню впливу. Розглянуто комплекс питань містобудівного розвитку функціонально-планувальної та архітектурно-просторової реорганізації території та забудови навколо цих вузлів як елементів формування поліцентричної системи загальноміського центру. Представлено висновки та рекомендації з цієї проблематики.*

***Ключові слова:** загальноміський громадський центр, поліцентрична система загальноміського центру, транспортно-пересадковий вузол.*

*Andriy Pavliv*

## THE ROLE OF URBAN-PLANNING IMPULSES IN THE ACTIVITY OF CITY-WIDE INSTITUTIONS

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**Abstract.** The subject of our study is the issue of post-industrial urban planning and problems of impulse development and city management in the conditions of the informational society, which turned out to be the most urbanized in the history of mankind.

**Key word:** post-industrial modelling of urban space, universal impulse factors for the rapid development of the city.

### 1. Introduction

At the beginning of the 21<sup>st</sup> century, the “procedural” urban model has undergone significant changes. The growth of the service sector has changed the transport priorities, large human settlements and crowds, requirements to the living space, and so on. Service and non-industrial activities, which are mainly concentrated in the central part of cities, have created new infrastructure challenges that can not be resolved through the volatility of “non-industrial” activities the success factors of which are not stable and require constant creative search.

### 2. Basic Theory

In this article an attempt is made to consider the current urban situation in the context of the analysis of the concept of centralized modelling of urban development and the competence of bodies that carry it out. These data can be considered as an effect of impulse factors on rapid changes in the city, as well as in the form of an applied system of knowledge and recommendations on the theory of city development in the 21<sup>st</sup> century.

### 3. Results and Discussion

An important step towards outlining the theoretical and practical scheme of impulse modelling of post-industrial urban fabric is to define the role and place of universal factors of rapid urban development. The starting point for the modelling of urban fabric with impulse factors is the structure corresponding to the minimum possible number of inhabitants of the metropolitan city which makes about 1.2–1.3 million placed in an optimum density of 10.000 people per square kilometer. Universal city-planning impulses, four of which are infrastructural, demographic, economic, and legendary may to a certain extent be present in the proto-post-industrial experience of analyzed hyper-cities [1, 2, 3, 4].

Emphasizing the theoretical and practical schemes of impulse modelling of post-industrial urban fabric, one should pay attention to the diversity of universal factors of rapid urban development.

In the first case, the infrastructural factor, the factor of convenience, which means the difference in the use of infrastructure goods in comparison with other similar cities, contribute to a mechanical increase in population. In the conditions of spread of such phenomena as “economic especially that part of it, which has to do with the factor of solidarity. In the context of proto-post-industrial concept of knowledge” and “economy of attention” by itself a large population can not be considered as a benefit to the development of the city.

The universal accessibility factor implies the possibility of taking advantage of the available infrastructure by a maximum possible number of inhabitants as opposed to the competing cities, where such infrastructure is not available. Similarly, the demographic factor of impulse development can be interpreted, in some way, as experience and the ability of local groups to organize horizontal connections and formulate common goals, regardless of the existing centralized system, and it is one of the most obvious signs of the paradigmatic expansion. In the design of a post-industrial management model, such structures should be supported and viewed as collaborative. A completely different factor is “the self-initiative”, which can be considered as one of the keys in the system of transformative modeling.

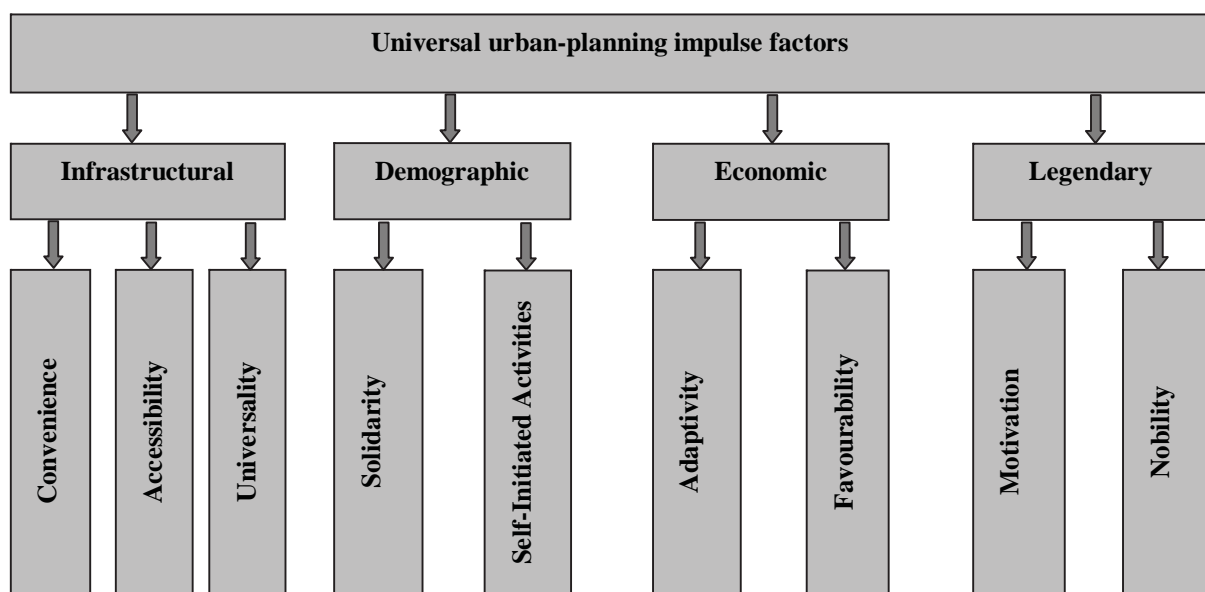


Fig. 1. Hierarchy of urban-planning impulses of the modern city

In the context of theories of modern urban planning, self-initiated activities as a feature of the population often appear in the concepts of “creative city” [5] and “creative class” [6, 7, 8].

Among the economic factors of the universal block of factors of impulse development of urban structures, which include adaptability and favourability, it is worthwhile to focus on the latter, since the former, due to its specificity, is aimed at a distant historical perspective associated with the formation changes. The role of a favourability factor, which implies a targeted programme of the allocation of individual formation of economic sectors by providing them with preferential legislative or logistical functional conditions, is considered completely different. Support of sectors of the economy has been used in various historical and social conditions, but for its implementation it is imperative to have strong institutional, managerial or private instruments, which may decide on changes in legislative and regulatory conditions.

A special part of the block of universal impulse factors belongs to the factors that are defined as legendary in this work. Two types of such factors are identified as factors of 'nobility' and 'motivation'. By 'nobility' we mean that a certain solidarity group creates or constructs its own cultural space which acquires material forms, symbols, associations, traditions, the sum of which creates a sense of special value of a place.

The 'nobility' factor is one of the most important elements of modelling of the post-industrial urban-planning impulse. This is due to the fact that the industrialized economy itself, which is based on technical progress, has a tendency for a constant decrease in the cost of production which might, in a competitive environment, acquire additional value mainly through the formation of an appropriate atmosphere of consumption, conjuncture of a “lifestyle” and the concept of “prestige” and “tradition.” All these categories are

closely interrelated with the birth of the ethno-postmodern and informational economy, as it was in the media that a significant part of the added value of production was created. The legendary nature of the city due to its 'nobility' is mainly a phenomenon close to the above-described transformation of the industrial economy into the informational one. In the pre-modern and modern era, the 'nobility' was achieved as part of the self-interpretation of certain religious (in the first case) and national (in the second case) groups, now they can be related to certain professions or subcultures (life styles) that are necessary for the development of the city.

An important factor in stimulating the human potential of the city is the feeling of competition and rivalry in relation to the similarly developed and progressing neighbouring cities, which involves the city community. The experience of limited rivalry between the ancient Greece and the northern Italian cities of the Renaissance era contributed to the active development of science and knowledge, intellectual activities and arts. At the same time, it should be noted that such competition, though sometimes being quite radical including military conflicts, was of a framework nature, and in the first case, it was limited to the opposition of the Hellenic world to barbarism, and in the second – to the domination of a unified Roman Catholic religious network with a single administrative center.

If such competition was restricted from radical forms of confrontation and limited to the non-aggressive manifestations, the motivational quality of the 'legendary' factor could be a source of additional growth of the city's activity. However the motivational factor can act most effectively in the case of opposition to the city structure. Such an opposition is already an important element of the city-wide discourse around important issues of its infrastructure development (for example, discussions around the reconstruction of Bandera Street in Lviv in 2016–2017, when all the participants turned to examples of a competing for a “different” city –the one without a cobblestone and the one where it is partly preserved).



Fig. 2. The present condition of the road surface from the pavement side, Bandera street, 2018, [9]



Fig. 3. Project proposals for the reconstruction of the Bandera street, project of 2017, [9].

Thus, for the construction of city-transforming impulses for the development of a post-industrial city, the universal factors of the rapid growth of urban fabrics, should be divided into two parts. One of them can be

attributed to the authority of the city center for administration and regulation. These include the newly-assigned factors: accessibility, self-sufficiency, favourability, nobility and mobility. All other factors can be attributed to the scale of local clusters and implemented at their level.

In accordance with this statement, the question of the priority of cluster and city-wide impulse categories is aroused. On the one hand, the concept of so-called “urban village” tells us about the ideal accumulation of all necessary functions within pedestrian accessibility with a radius of 1000 meters. On the other hand – as it is evidenced on the amount of analyzed data, there is the impossibility of the existence of such a ‘formation’ by itself, and not in the group. The modern transitional stage between two urban-planning paradigms – modern and post-industrial – does not make it possible to determine exactly what type of links (horizontal – within which the cluster system has developed, or vertical, in which traditionally city-wide administration is carried out) can be linked to the future of urbanism. In any case, such large organisms, as the hyper-cities of the early twenty-first century, do not leave doubt that even if the horizontal type of connections will ultimately be recognized as a priority, the reconciliation of their plurality and complex logistics of the living of multimillion masses in one settlement will require coordination and “superlocal” structures, which will replace the current upper levels of vertically integrated systems of modernism.

In this sense, the impulse strategy appears as a multi-stage combination of factors, the final result of which is the creation of a local cluster within which the widest possible choice is combined with the closest possible accessibility. The idealistic hypothesis of such a concept involves endless choice in the absence of any distance to its implementation. The realistic hypothesis involves a fixed distance of the pedestrian movement in the form of a conditional circle of 2 kilometers in diameter, within which there is a continuous process of saturation with the possibilities of choice.

Since the question of the priority of horizontal and vertical links in the management of the city-wide system of a large post-industrial city can not be resolved, at least at this stage, we follow the idea that is formed on the basis of the inertia of modernism and the existence of a structure of predominantly centralized management. In this context, we can distinguish a universal impulse layer which consists of the following aspects:

- a) creation of infrastructure advantages in relation to competing cities of the regional area – competition of infrastructure;
- b) design of conditions for flexible education and cross-field communication – competition of competence;
- c) development of favourable conditions for specially selected spheres of activity – competition of exclusivity;
- d) creation of the reality of an exclusive presence – competition of legends.

In addition to the universal factors of impulse development, which should be the subject of the activity of local institutions, attention must be paid to the formational factors, among which some aspects of the strategy of action variability can be distinguished. First of all, it means the projection, design and placement of objects of one-time event with a long-term infrastructure effect – stadiums, concert halls, congress halls, which arise mainly within certain international or national events and require planning for their future use in the city context. It is a factor in the spin-off development of urban fabric which increases the number of choices among surrounding local clusters, and so on in certain areas. Moreover, the instruments of such a factor include the organization of periodic short-term events with similar implications for urban fabric. However, with the development of passive and active renewable energy systems, it is possible to predict the perspective of individualization and regionalization of some types of infrastructure of the settlement, however, it is impossible to speak about the complete autonomy of local clusters in the field of water supply, transport, medical care, specialized education, etc. All these phenomena remain a hallmark of a large city and its functioning as integral unit. High quality of water, medicine, and transport supply, which are also joined by formation factors such as places of heterotopy, makes it possible to create a space for the permanent residence of highly self-sufficient (self-acting) population groups, as well as cause the development of the education sector. All of these results are caused by the centralized administration within the framework of creating infrastructure benefits as part of the impulse strategy.

The main task of designing conditions for flexible education and convergence of competences (intersectoral communication) is to develop the factors for new economic strategies and creative commercial symbiosis. These perspective results have a direct impact on the development of production capacity and, accordingly, the accumulation of funds. From a purely town-planning point of view, it is about creating reservoirs of territory and space that can meet the needs of flexible education spontaneous and dynamic in

nature. It is aimed at different age groups, diverse and changeable formats of knowledge interpretation. By its content, flexible education and convergence of competences are a necessary tool for the creation of new and useful knowledge paradigm in the post-industrial era, the programming and modelling of which takes place at the level of city-wide institutions.

Creation of especially favourable conditions for the development of separate specially selected branches of activity (favourability) can not fully develop within the framework of a local cluster and requires management at the level of the entire urban structure. This proves the fact that favourability requires not only considerably greater possibilities in the sphere of transformation of the regulatory base, but also the availability of a developed intellectual centre that will be able to offset the risks of the experimental nature of such activities. In addition, the prospects of favourability largely depend on the peculiarities of the climate, educational structure, resources and other similar factors of the city as a whole, and it is almost impossible to fully engage them at the level of small rayon (region) structures.

A very specific part of that segment of impulse modelling, which is carried out at the city level, is the development and implementation of urban legendary strategies through the creation of a socially confirmed subjective experience of exceptional presence. In a nutshell, this phenomenon can be linked to the creation of city-planning motivation associated with the idea of a place.

Following the definitions of the community nature based on the foundation of emotional character [10], we can argue that in the first case, it is often associated with emotional attachment to certain mystical or religious identity patterns, and in the second – to the national ones. In most cases, these patterns overlap. Athens, Budapest and Jerusalem had a rapid development phase in the 19-20th centuries not because of the factors of favourable geographical location, climate or industrial potential, but above all, because of the idea of a place that is highly sensitive to the national patterns of self-consciousness of the respective solidarity groups.

At the same time, in the post-industrial era, residential potential of pre-industrial and industrial legendary models has not always been adjusted to the problems of the urban science of the 21<sup>st</sup> century. In addition, their motivational effect is used by relatively small, though passionate groups of the urban population. Therefore, it is necessary to outline the needs and strategies that should be used in modern context of the legendary doctrine.

Such urban formations as the Silicon Valley, Mazdar, Palm Jumeirah are examples of the creation of the effect of “exceptional presence” in the post-industrial social formation. They are at different stages of their development and have different ontological nature, but they present an idea of what a living space can be, which ensures a legendary reputation in the 21st century. From the point of view of city planning, the Silicon Valley is not a special phenomenon that can be outlined in project categories, but it is an external factor, and a consequence of a large number of technological innovations. “Exceptional presence” can be taken as an additional argument in commercial competition and advertising strategy that exploits the existing idea of a place with its own purpose. The separation from geographical, cultural and semantic contexts makes it possible to state that the Silicon Valley is not so much a legendary place as the legendary organization of labour, the significance of which depends on the quality of the products (intellectual and technological) produced there.

In two other cases (Mazdar, Palm Jumeirah), we can discuss the design systems that were originally planned as an emotional event on the theme of a special environment, thus becoming sensitized to the information-like state of the era of developed media. At the same time, these systems operate with other consistent elements of the subject environment such as landscape and architectural form, which provide them with more strength power in the context of legendary urban structure.

Due to the lack of a sufficient array of scientific generalizations and relative consensus regarding the social-community dimension of the post-industrial era, one can only intuitively outline the characteristic features of social-valorisation factors that will affect the category of legendary location. Having the information specifics of the era, we can assume that, in place of the religious associations of the agricultural period and national associations of the industrial age, associations formed on the basis of a common interpretation of knowledge will be introduced. Such groups, or solidarity communities, can be formed through various forms of technology interaction and information exchange, and they are likely to be flexible and not rigidly determined (that is, they will be inclusive).

Such a rather vague picture of the new types of social integration might become more specific if the inclusiveness of such a community is replaced by exclusiveness. Knowledge and its interpretation, in this case, is

regarded as the attainment of only a certain limited circle, which uses it to generate economic gains, power and civilization influence, or, on the contrary, to isolate themselves from an unfavourable or undesirable environment. In this case, exclusiveness is achieved not so much by means of directive disciplinary restrictions, but by the symbiosis of human activity and technology. Accumulation of as much knowledge as possible is only a prerequisite for the realization of such a community whose success depends on the way it is interpreted. The information and technological products created in this way will become a new kind of instrumentation of the confrontation of communities, which was a weapon in the agricultural age, and it is the economy in the industrial age.

At the same time, it is worth saying that the author of this paper does not see the prospect of implementing such a scenario in such a pure form as it is described theoretically. On the other hand, it should be perceived as a speculative model that can not be applied in practical urban planning. The experience of previous formative transitions proved that the principles and mechanisms, as well as the socio-cultural aspects of one or another period, never disappear with the appearance of a new formation model but simply overlap. It applies both to the sphere of economic relations and to the sphere of materialistic culture. Therefore, in the context of the legendary strategy, all three of its formation models, which were outlined above, should be considered together.

All these considerations should be taken into account in the context of the main goal of the legendary strategy, namely the creation of conditions for the development of post-economic activities [11], in which the traditional priority of receiving economic profit is shifted to the background. There are two sources of such relationships: on the one hand, one should have more free time and ways for leisure activity, and, on the other hand, the unnatural speculative pricing of the late industrial age which is based on socio-constructive marketing (the sale of goods as an attribute of the “lifestyle”). Both sources are in the position of a systemic conflict in which post-economic relations look like a natural reaction to property imbalances and the discriminatory distribution of material goods produced in society. Despite such an ontological nature, post-economic relations do not exist, as by default they can not exist beyond the traditional mechanisms of market-speculative regulation, which constantly engages post-economic forms of activity in its system and diminishes their achievements. In order to survive, post-economic forms are forced to use one of the possible ways to exist, namely – the constant generation of new ideas and formats for their realization. Thus, post-economic relations, in the end, prove to be advantageous to the traditional system, since it, although losing in the first stage, is much more acceptable in the future, as a result of the co-optation of innovative models derived from the post-economic sector.

In an urban-planning context, legendary structuring aimed at stimulating post-economic relations, is the source of support for any forms of non-systemic economic activity, creating favourable and comfortable living conditions for it. This task is important in the context of balancing the effects of the so-called “creative” economy, based on the accelerated creation of new industries and demands, through an unexpected combination of knowledge. This is clearly seen in the example of Shanghai, where the “creative” economy leads to severe stratification of society and the emergence of tensions both in the middle of the “creative class” and those groups of people who find themselves outside of it [12, 13]. It is the post-economic activity and its legendary character that makes it possible to avoid a new antagonistic division of society and, on the one hand, to preserve the “creative class” and to positively conceptualize those groups of inhabitants who find themselves beyond its borders on the other.

In this sense, the strategy of legendary structure acts as a three-component system of views consisting of archaic level – finding and updating of historical, symbolic, and religious aspects.



**Fig. 4.** Archaic legendary structure, Montmartre in Paris. Source: photo by Andriy Pavliv



**Fig. 5.** Modern legendary structure, Maidan in Kiev. Source: photo by Andriy Pavliv



**Fig. 6.** Communicative legendary structure, Christiania in Copenhagen, [14]

Thus, the city-wide stage of impulse modelling of a large settlement is outlined, consisting of a combination of factors of accessibility, amateur or self-initiative, favourability, legendary structure and variable events. In this paper, it is assumed that their study, adaptation to a particular place and project implementation leads the structure of the post-industrial city to a high and balanced economic and social level of life. However it is only a part of the impulse strategy, the implementation of which is impossible without those factors relating to the proper level of development of local clusters that create a speculative picture of the city in the 21<sup>st</sup> century.

#### **4. Conclusion**

It is found out that for specific conditions of a post-industrial city, the design of the impulse model should consist of two stages – city-wide and cluster ones. Moreover, having the danger of hyper-urbanization, the first stage has to keep only those factors that have a 'transformative' character and those whose potential is mainly 'inhabiting' one should be left behind. The activity procedure of city-wide institutions with the use of such impulse factors as accessibility, favourability, self-sufficiency and nobility are considered.

The practical tasks of city-wide management institutions within the framework of the universal impulse layer, which are derived from the universal factors of the spin-off development of urban structures, are distinguished as follows: a) creation of infrastructure advantages as compared to competing cities of the regional area – competition of infrastructure; b) design of conditions for flexible education and inter-industry communication – competition of competence; c) development of favourable conditions for specially selected branches of activity – competition of exceptionalism, d) creation of meta-functional reality of exceptional presence – competition of legends.

It is determined that in addition to the universal factors of impulse development, which should remain the subject of activities of city-wide institutions, at the same level one should pay attention to the factors of formation among which some aspects of the strategy of the variability of events are highlighted. The practical realization of this factor is planning, design and placement of one-time objects with a long-term infrastructure effect – stadiums, concert halls, and congress halls which arise mainly in the framework of certain international or nationwide actions, and require planning actions from the point of view of their future use in the city context – as a factor of the spin-off or rapid development of urban fabric in certain areas, increasing the number of choices among surrounding local clusters.

The practical structuring of impulse modelling of the city's legendary strategies through the creation of a socially confirmed subjective experience of exceptional presence is outlined. Providing the information of specifics of the post-industrial society, it can be assumed that replacing the religious groups of the agricultural period and the national communities of the industrial age, associations built on the basis of a common interpretation of knowledge will appear. Such groups or solidarity communities may arise through various forms of technological interaction and information exchange, and they are likely to be flexible and not rigidly determined (that is, they will be inclusive).

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Андрій Павлів

### РОЛЬ МІСТОБУДІВЕЛЬНИХ ІМПУЛЬСІВ В ДІЯЛЬНОСТІ ЗАГАЛЬНОМІСЬКИХ ІНСТИТУЦІЙ

**Анотація.** Проаналізовано ситуацію стосовно пост-індустріального містобудування та проблем імпульсного розвитку та управління містом, в умовах інформатизованого соціуму, який виявився найбільш урбанізованим за всю історію людства.

Зроблена спроба розглянути сучасну урбаністичну ситуацію, в контексті перегляду поняття про централізоване моделювання міського розвитку та компетенцію органів котрі його здійснюють. Усі ці дані, самі по собі, можна розглядати як теорію імпульсного розвитку крупного поселення у своєму розгорнутому викладі, однак крім того, також у вигляді прикладної системи знань та рекомендацій щодо теорії міста у XXI столітті.

На початку XXI століття, “процесуальна” урбаністична модель, зазнала значних змін. Ріст сфери послуг змінив транспортні пріоритети, місця скупчення мас людей, вимоги до життєвого простору тощо. Обслуговування та непромислова діяльність, що переважно концентрується у центральній частині міст, створили нові інфраструктурні виклики, які неможливо вирішити в рамках мінливості “непромислової” діяльності, фактори успіху якої не є стабільними і потребують постійного креативного пошуку.

Важливим кроком до окреслення теоретико-практичної схеми імпульсного моделювання пост-індустріальної містобудівної тканини, є роль та місце універсальних факторів стрімкого урбаністичного розвитку.

Універсальні містобудівельні імпульси, чотири із них – інфраструктурні, демографічні, економічні, та легендарні тією чи іншою мірою можуть бути присутніми у прото-постіндустріальному досвіді проаналізованих гіпер-міст.

Важливим чинником стимулювання людського потенціалу міста є відчуття конкуренції та змагальності щодо так само розвинутих та прогресуючих сусідніх міст, в яку залучена міська громада. Досвід обмеженого суперництва полісів класичної Греції та північно-італійських міст епохи Ренесансу, сприяли активному розвитку науки і знань, інтелектуальних видів діяльності та мистецтва.

Отже, для конструювання містоперетворювальних імпульсів розвитку пост-індустріального міста, універсальні чинники стрімкого росту урбаністичних тканин, варто розділити на дві частини. Одна із них може бути віднесеною до повноважень загальноміського центру з адміністрування та регуляції. До них відносяться цюїно виділені фактори: доступності, самодостатності, фаворитивності, мобілізації та мобілізаційності. Всі решта фактори можуть бути віднесені до масштабу локальних кластерів та реалізовуватись на їхньому рівні.

**Ключові слова:** постіндустріальне моделювання міським простором, універсальні імпульсні фактори розвитку міста.

*Halyna Petryshyn*

**MISTOZNAVSTVO (URBAN STUDIES):  
ETHYMOLOGY OF THE TERM  
AND ITS APPLICATION IN UKRAINE**

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**Abstract.** The article summarizes the results of a long-term research project, which was aimed at the development of the Ukrainian Center for City Historical Studies. It was embodied in many stages through the organization of a data bank, holding conferences, seminars, and workshops. The interdisciplinary comparative studies on the topic *Book on the Cities of Halychyna (East Galicia)* were undertaken in the course of the research.

**Key words:** *Mistoznavstvo/Urban Studies*, cities and towns, Halychyna (East Galicia), comparative studies, interdisciplinarity

## **1. Introduction**

The process of urbanization of Ukraine is a logical continuation of the development process of cities in the West Europe as well as in the Central Europe and is, in comparison with them, a comparable process in magnitude and intensity (Petryshyn, 1999). In the long run, the direction of optimal urban development is traced from its creation and network formation in the period of Ukraine-Rus to the cities with the management system of administration confirmed by the Magdeburg Law, which became one of the important factors of the cultural and legal progress of Ukraine to the West Europe (Entsyklopediya Ukrayinoznavstva, 1994). The continuity of the city development process provided the authenticity and specific features of Ukrainian cities. In the 19<sup>th</sup> century, stagnation of the late medieval period and the formation of a new network of cities based on other urban-forming factors took place in ever tighter political, administrative and industrial forms. Since the end of the 20<sup>th</sup> century, the city-forming factors have begun to change again in Ukraine under the influence of geopolitical transformations (Petryshyn, 2016).

In Europe, since the 19<sup>th</sup> century, the application of the term *Urban Studies* which is considered as the part of the society history has been rapidly developing. It is worth mentioning that among the Ukrainian studies of the early 19<sup>th</sup> century the most important work is *Investigation of the Cities and the Petty-Bourgeoisie of Ukraine-Rus in the 16<sup>th</sup>–18<sup>th</sup> centuries* by M. Vladimyrskyi-Budanov, V. Antonovych, D. Bahaliy, P. Klymenko, and others. The Lviv School of Historians was developed at the Lviv University in the first half of the 20<sup>th</sup> century and its research work was dedicated to the investigation of urban development in Halychyna (Galicia). The most notable scholars of the School are: F. X. Liske, F. Papee, J. Ptašnik, M. Balaban, D. Zubrytskyi, and L. Charewiczowa.

However, in Ukrainian historiography of the 20th century, Urban Studies as a science has suffered tremendous changes because of various reasons. The huge damage caused by forceful Russification towards the socio-political life (struggle of social classes) resulted in the fact that the city was dominated by the financial and economic factors, and its spiritual culture and value was left in the shadow. The fundamental work of 26

volumes *The History of the Cities and Villages of the Ukrainian Soviet Social Republic* published in 1960s–1970s, concerns the concept of history in terms of social struggle and propaganda of the socialist lifestyle and presents the objective historical data about the life of cities. Although it is a comprehensive reference work, there is a need to have more ground and reliable sources for further study of a subject in consideration.

The study of cities in Europe as a systematic process was initiated in the 1930s by the German researcher E. Kayser, and subsequently developed in a number of regional schools. Among them, the most well-established are: the German school (Erich Kayser, Alphons Lhotsky, Heinz Stoob und Peter Johanek), the Austrian school (Wilhelm Rausch, Alfred Hoffmann, Othmar Pickl) and the Polish school (Michał Baliński and Tymoteusz Lipiński, Sadok Barącz, Maria Bogucka, Andrzej Wyrobisz, Aleksander Gieysztor, Stanisław Herbst, Maurycy Horn, Henryk Samsonowicz). The works are coordinated by special research institutions: the Institute for Comparative History of the University of Münster (Germany), the Commission for Social, Economic Research and Research of Cities of the Austrian Academy of Sciences, Commission of the Cities of the Polish Academy of Sciences. Thus, at the first stage (until the 1970's), comprehensive databases were created to study the urban-forming process in these countries; at the next stage, a method of comparative research was formed, the main regularities of the urban-forming were determined, and a number of encyclopedic editions were published.

The urban studies of the West Ukrainian region as a base for urban development projects was developed at a professional level at the Faculty of Architecture of Lviv Polytechnic Institute in the 70's–80's. A number of diploma projects were executed at the Department of Urban Development under the direction of Prof. Andriy Rudnytskyi and Prof. Bohdan Posatskyi.

The attempt to generalize the description of historic cities of Ukraine was initiated in the 80's by the editor-in-chief of *the Collection of the Historical and Cultural Monuments of the Peoples of the USSR in the Ukrainian SSR* under the leadership of the Lviv Regional Organization of the Ukrainian Society of Historical and Cultural Monuments (Chairman Ihor Kudin). This work was descriptive, and due to universal criteria, it was blurred in the extensive descriptions of the cities and it was not published.

The investigation of the problems of City Historical Studies at the level of the requirements of modern European science began in Lviv in the second half of the 80-ies with a group of young scholars who set the goal of systematic and comprehensive research (Mykola Bevez, Bohdan Cherkes, Volodymyr Chornovus, Andriy Hrechylo, Serhiy Kravtsov, Yuriy Kryvoruchko, Alla Martynyuk-Medvedtska, Roman Mohytych, Halyna Petryshyn, Petro Rychkov, and others).

It was necessary to finish the era of the USSR with its politicized research methodology, so that it could methodologically rely on foreign experience and conduct research in the field of urban studies, which would be based on such principles as:

- cooperation of researchers of different fields to solve a common problem (in the field of history, architecture, urban studies, art studies, economics, demography, geography, heraldry, etc.);
- the research material has to be based on plausible data that equally covers the whole region/country (censuses of people, maps, statistics and source data);
- the objective assessment of events and facts without the author's interpretation.

## 2. Basic Theory Part

In 1994, during a scholarship stay at the Vienna University of Technology, the author was also able to start collaborating with scientists from the Austrian Academy of Sciences, the Commission on Economic, Social and Urban History (Prof. Othmar Pickl, Dr. Ernő Déak and Dr. Friderike Goldman). This group led the interdisciplinary project of *Book on the Cities of Austria*. In the process of numerous workshops and discussions, the idea arose to apply a technique developed by the Austrian Academy of Sciences and tested by the study of nearly 150 cities (total size of 16 volumes), also for the cities of Halychyna (Est Galicia), in particular for the territory which has been under the Austrian domination in 1772–1918, and today it is a part of Ukraine (Petryshyn, 1994).

For this purpose, in 1995, the interdisciplinary group of *Book on the Cities of Halychyna (East Galicia)* (the leader – Dr. H. Petryshyn) was created at the West Scientific Center of the National Academy of Sciences of Ukraine and the Ukrainian-Austrian Institute. The scientific research apparatus relied on the *Urban Studies* definitions (städtewesen) and the study methods of the Austrian school, which would allow to conduct a comparative analysis in future (Fig. 1).

In 1995–1999, a number of organizational events were held:

– the first Ukrainian-Austrian Scientific and Methodological Seminar *Book on the Cities of Halychyna (East Galicia)* was held in Lviv (October 23–24, 1995), at the State University “Lviv Polytechnic” in collaboration with the West Scientific Center of the National Academy of Sciences of Ukraine (Ya. Ivankiv, V. Demchenko), and the Ukrainian-Austrian Institute (E. Hofer). For its comprehensive analysis the survey which contained methodology and examples of city analysis was issued (Petryshyn, 1995). The programme of the seminar included the exchange of opinions of experts in various disciplines: historians (F. Steblj, M. Drak, M. Dolynska, W. Yahnishchak, H. Yaremych, O. Matsiuk), historians of architecture and urban development (A. Rudnytskyi, B. Posatsky, M. Bezv, Ch. Boyko, B. Cherkes, Yu. Kryvoruchko, T. Maksymyuk, H. Petryshyn, M. Pryyma, S. Tupis), geographers (Yu. Zinko, T. Zhezherun), heraldry (I. Svarnyk, A. Hrechlyo) and archivist (V. Savchuk). The scientific level of research and the prospects for future cooperation has received a favourable review from the Austrian scholars (O. Pickl, F. Goldmann, E. Déak, 1996);

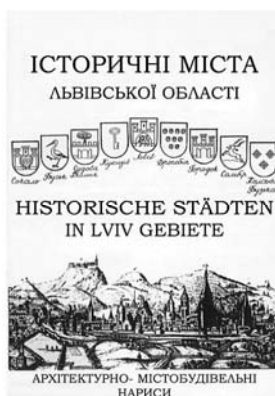
– the second Austrian-Ukrainian seminar *Städtebuch von Ostgalizien (The Book on the Cities of the East Halychyna)* was held in Leibnitz-Seggau, Austria (October 20–24, 1997). Its organizer was the Committee on Economic, Social and Urban History of the Austrian Academy of Sciences (headed by Prof. Othmar Pickl) in cooperation with the State University “Lviv Polytechnic”, the West Scientific Center of the Academy of Sciences of Ukraine and the interdisciplinary group of *Book on the Cities of Halychyna (East Galicia)* project (Petryshyn, 2008) (Fig. 2).

– in 1998, with the support of the State University “Lviv Polytechnic” and the Lviv City Charitable Foundation “Science and Art”, with the aim to institute research, coordination, and advisory work, as well as its cultural activity, a group of researchers was formed. They apply modern methodological principles in the field of City Historical Studies, impartially interpret historical sources and facts, develop a new direction in Ukrainian science, i.e. City Historical Studies. As the result of their work, the Center for Ukrainian City Studies based on the interdisciplinary group *Book on the Cities of Halychyna (East Galicia)* was found (Petryshyn, 1999);

– in 1999, with the support of the International Renaissance Foundation, a scientific seminar of the long-term perspective *Comparative City Studies of the Central and East European Countries* was introduced;

– the third scientific workshop based on *Book on the Cities of Halychyna (East Galicia)* project was held in Lviv (March 3, 1999). There, the city studies of the town of Zolochiv were presented according to the developed scheme (H. Petryshyn), and the problem of the application of the methodology used by Austrian scholars for the study of the Ukrainian cities was discussed;

– the final scientific workshop based on *Book on the Cities of Halychyna (East Galicia)* project (August 26, 1999) approved the main methodological provisions for the urban studies of Ukrainian cities. Thus, the developed and popularized thoughts and principles of city studies have been manifested in the following publications of the seminar participants:



*Historical Towns of Lviv Region: architectural and urban essays (prospectus of the publication), 1994*



*Survey for the study of the project “Book on the Cities of Halychyna (Galicia)”, 1995*



*Zolochiv (Book on the Cities of Halychyna (Galicia), Issue 1), 1999*



**Fig. 1.** Scientific events and publications – the founders of the introduction of the term “Mistoznavstvo/Urban Studies” in the Ukrainian scientific arena

It should be also mentioned that the introduction of the methodology of *Mistoznavstvo/Urban Studies* into the educational process started at the December Annual Student Conference *Readings on the History of Architecture in Ukraine* (December, 1994) which was the most massive and popular phenomenon. The participants were the students of the seventh semester of the Faculty of Architecture of the State University "Lviv Polytechnic". The conference was held annually during 1994–1999 as a testing event on the subject *History of Architecture and Urban Development of Ukraine*. About 80–100 annual reports on the problem of city studies in chosen cities were presented, and the works based on study of some architectural and urban complexes were demonstrated.

Thus a productive network of specialists from various Ukrainian and foreign institutions, namely the State University "Lviv Polytechnic", the Institute of Ukrainian Studies of the National Academy of Sciences of Ukraine, the National University of Ivan Franko, Central State Historical Archives of Ukraine, Academy of Ministry of Internal Affairs of Ukraine, Lviv Forestry University, Institute of Ukrainian Archeology of the National Academy of Sciences of Ukraine (Ukraine); Historical Commission of the Academy of Sciences of Austria, Gerder Institute (Marburg, Germany), Institute of Comparative City Studies (Münster, Germany) Architectural Faculty of Krakow Polytechnic (Poland), etc was created in the field of City Historical Studies. The scientists of the Ukrainian Centre for City Historical Studies had the opportunity to take internships in foreign institutions and participate in conferences.

As the outcome of the held work, a data bank on the topic *Book on the Cities of Halychyna (East Galicia)* was compiled. Accumulation, systematization and archiving of materials of the field was undertaken; archive, statistical, and bibliographic research using computer technologies was



**Fig. 2.** Ukrainian delegation at the Austrian-Ukrainian seminar "Book of the cities of Halychyna (East Galicia)", Austria, Seggau, October 1997. From left to right: Dr. Feodosiy Stebliy, Dr. Yuriy Kryvoruchko, arch. Andreas Weinzierl, Dr Sc., Prof. Yaroslav Isayevych, Dr Sc., Prof. Andriy Rudnytskyy, Dr. Halyna Petryshyn, arch. Khrystyna Boyko

implemented. The establishment of a library of professional literature on City Historical Studies was initiated as well.

These activities (not a full list is presented here) have forwarded a development of the Ukrainian science the *City Historical Studies* which applies modern methodology of world science. Introduction of the scientific school which is founded on its basis promotes to put Ukrainian city historical studies at the level of world standards, and bridge the knowledge gap between Ukrainian historical science and world science about Ukraine.

Activities of the Ukrainian Center for City Historical Studies contributed to the introduction of professional, unbiased scientific and cultural information about the culture and history of Ukrainian cities and towns which are the carriers of centuries-old and multinational culture. Its productive work helps to overcome negative stereotypes about Ukraine and bring it closer to the standards of European and world community.

Unfortunately, at the end of 1997, because of the retirement of Prof. O. Pickl, the Commission on Economic, Social and Urban History of the Austrian Academy of Sciences was disbanded, and the draft of the *Book on Cities of Austria* was not completed. Consequently, the Austrian part of the project was not interested to continue the cooperation in this field with other countries.

The implementation of ambitious goals requires a solid and a well-planned financing. However, grants applications were rarely approved, academic city studies were developed in an unfavourable period of time, and Ukraine struggled with persistent economic problems. So the

main portion of work was moved to the educational sector aiming to introduce new facts and sources of the history of the Ukrainian cities to a new generation of specialists.

In subsequent monographic publications, the term *Mistožnavstvo/Urban Studies* was introduced, and some research papers defined its meaning and interpretation. The developed investigations of the interdisciplinary comparative studies of the Ukrainian Center for City Historical Studies (field studies, materials of the workshops *Comparative City Studies of the Countries of Central and East Europe*) were published in a joint monograph under the general editorship of H. Petryshyn. The monograph *Book of the Cities of Halychyna (East Galicia). Interdisciplinary research in the city-studies* contains thirty three papers submitted by the scientists of the Ukrainian Center for City Historical Studies who come from Ukraine, Austria, and Poland. Its size comprises eighteen copyright sheets, and it was accepted for publication by the Academic Board of the State University "Lviv Polytechnic" (September, 23, 1999) in the series "Architecture" of the Bulletin No. 379. Some chapters of the works, which clarified the not enough investigated areas of Mistožnavstvo/Urban Studies, became especially demanded in the scientific field and initiated the in-depth studies, for example, architectural and urban development of cities after the Second World War (Cherkes, 1999).

The consistent development of "Mistožnavstvo/Urban Studies" trend inside the Lviv Polytechnic National University has become possible thanks to the defended thesis works (PhD Degree in Architecture) of our postgraduates carried out in speciality 18.00.01 – "Theory of Architecture, Restoration of Architectural Monuments." They were carried out under the scientific supervision of the Professor of the Department of History and Artistic Foundations of Architecture (at present it is a Department of Design and Basics of Architecture) Dr H. Petryshyn – Olena Oleshko, 1999; Khrystyna Boyko, 2000; Svitlana Topilko, 2003; Nadiya Sosnova, 2003; Uliana Ivanochko, 2004; Ludmyla Hnes, 2005; Yuliya Idak, 2006. In the process of preparing a young generation of scholars, separate scientific studies were devoted to Lviv (Petryshyn, 2008). The practical implementation of urban development studies was conducted and tested in the works by Prof. M. Bezv (2004) and the Department of Architecture and Restoration at Lviv Polytechnic National University. A wide-scale research paper of comparative Mistožnavstvo/Urban Studies was presented in the monograph by Prof. B. Cherkes. It considers architectural and planning patterns as a clue to discover national identity during the formation of public centres of metropolitan cities. Architectural means of various types to define the national identity in the cities of Kyiv, Moscow, Berlin and Warsaw were considered. The monograph was awarded the nomination *Book of the Year* in Ukraine (2008).

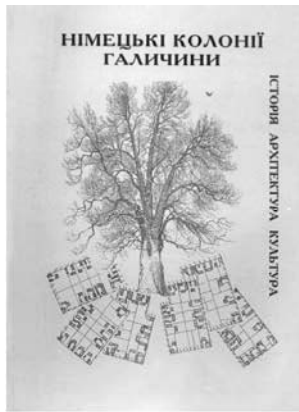
Subsequently, the methodological principles of architectural, urban-planning and "Mistožnavstvo/Urban Studies" approach, based on the example of various objects, resulted in the elaboration and publication of a coursebook that was recommended by the Ministry of Education and Science of Ukraine for all higher educational institutions in the field of Architecture (Petryshyn, 2006a). The mastering of German-language professional literature, the comparison of the meaning of terms and the introduction of new ones resulted in the publication of the Dictionary of Terms, also designed for students and scholars (Petryshyn, 2006b).

The next work by Dr. H. Petryshyn (2006) was published after her study in the Vienna Military Archives where the cataloging of city plans which are an extremely important source for the study of the history of the towns and villages of Halychyna (East Galicia) (von Mieg) was conducted. The publication received a favourable and widespread feedback due to the popularization of the hard-to-reach source at that time. Right after the publication, the book was scanned and without the author's permit was posted on the Internet site for the purpose of by-page sales. In the Google search system, one can trace hundreds of evidences of using this publication, and participants of various forums have exchanged their observations, passively promoting the popularization of the term *Urban Studies* (<http://forum.zamki-kreposti.com.ua>).

Since 2015, with the launching of the *mapire.com.eu* website, the Josephine Cartography (for East Galicia – "Map F. von Mieg") appeared in an easy-to-use electronic version accessed on Google maps. The book received a bibliographic significance.

The database information of the foundation of the towns in Halychyna (East Galicia) was used in the papers of the international grants by Ukrainian researchers such as M. Bezv and H. Petryshyn in collaboration

with the Swedish Royal Academy of Sciences (Bo Larsson, 2002–2004, 2013). The numerous author's presentations and publications in European scientific institutions were highly important as they contributed to the popularization of the city-studies investigations about Halychyna (East Galicia) and Ukraine (Petryshyn, 1998, 1999, 2001, 2006). In parallel and according to the methodology of the “Mistoznavstvo/Urban Studies”, there were researches concerning settlements of the German settlers in Galicia from the end of the 18th century, who created excellent examples of urban building art (Petryshyn, 1996).



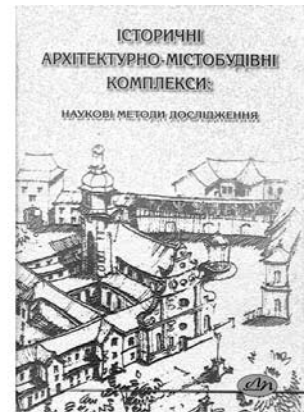
*Deutsche Siedlungen in Ostgalizien, ed. H. Petryshyn (Works of Ukrainian Centre for City Historical Studies, Issue 1), 1996*



*Book on Cities of Halychyna (Galicia): interdisciplinary research in the city studies edited by H. Petryshyn (Works of Ukrainian Centre for City Historical Studies, Issue 2), 1999*



*Deutsch-ukrainischer Terminologie-Leitfaden zur Geschichte der Architektur und Stadtplanung ed. H. Petryshyn (Works of Ukrainian Centre for City Historical Studies, Issue 3), 2006*



*Historical Architectural and Urban Complexes. Scientific methods of research ed. H. Petryshyn (Works of Ukrainian Centre for City Historical Studies, Issue 4), 2006*



*Petryshyn H., "Map of F. von Mieg" (1779-1782) as a Source for City Studies of Halychyna (Galicia) / (Works of Ukrainian Centre for City Historical Studies, Issue 5), 2006*



*Idak Yu., Compositional Aspects of the Formation of the Front of Quarterly Building of Lviv (the end of XVIII – early 20th centuries) / (Works of Ukrainian Centre for Historical City-studies; Issue 7), 2011*



*Topylko S., Towns and Small Towns of Galicia during the Renaissance period (second half of the 16<sup>th</sup>–17<sup>th</sup> centuries): urban-related aspects (Works of Ukrainian Centre for City Historical Studies, Issue 6), 2015*



*Scientific conference "Mistoznavstvo/city-studies: formation of a scientific field", 2017*

**Fig. 3.** The first books which introduced the term “Mistoznavstvo/Urban Studies” in the Ukrainian scientific arena

Looking back into the past, it can be argued that the Student's December Scientific Conferences, which for several years promoted the field, played a crucial role in the formation of a city-studies school (Fig. 4). A considerable part of young Doctors of Sciences of the Institute of Architecture at Lviv Polytechnic National

University belongs to the cohort of our followers. As the follow-up of the Urban Studies tradition, the monograph by Yu. Idak (2011) on the development of the urban substance of Lviv and the monograph by S. Topylko (2015) on the formation of cities and towns in Halychyna (East Galicia) during the Renaissance epoch were published. The publication of the above mentioned works constitutes the scientific heritage of the Ukrainian Centre for City Historical Studies (Petryshyn, 2017) (Fig. 3).

An International Conference *Creative Urbanism* (May 27–29, 2013) celebrated the centenary of urban education at Lviv Polytechnic National University and the publication of a scientific monograph is the result of research in the field of urban planning theory, including the Mistoznavstvo/Urban Studies (Cherkes, Petryshyn, 2014).



**Fig. 4.** Prof. H. Petryshyn with the undergraduates of the Department of History of Architecture of Ukraine, 2001

The modern application of the term *Mistoznavstvo/Urban Studies* has appeared to have a broad interpretation. It is traditionally understood as 1) a comprehensive method of city studies in their development phase; 2) the study of the city as a material, social and spiritual object; 3) historic urbanization.

The term *Urban Studies* has the tradition of the multiple usages. 1) It is found in an official scientific field in academic and educational institutions, for example, the project *Historical Urbanistics: the Theory of Mistoznavstvo/Urban Studies and the Methodology of Chronology* of the Department of Historical Regionalistics at the Institute of History of the National Academy of Sciences of Ukraine (source: <https://uk.wikipedia.org>). 2) The research work of the Department of Economic and Legal Problems of the Mistoznavstvo/Urban Studies of the Institute of Economics and Law (source: [www.iepd.kiev.ua](http://www.iepd.kiev.ua)) is also worth mentioning here. In the field of research projects, scientific articles, and monographs, we can find the following thoughts, “A wide range of theoretical and methodological problems of modern *Mistoznavstvo/Urban Studies* is violated – from the definition of the concept “misto(city)” and the criteria of typology of cities to tracing the evolution of urban tradition in domestic terrains” (Vermenych, 2011), or “The spreading of comparative *Mistoznavstvo/Urban Studies* beyond the scope of the narrative interpretation and its inclusion on the interdisciplinary basis into the context of interactions of the globalized world” (source: <http://ukrskr.com.ua>). 3) In the coursebooks on historical subjects, e.g. by O. Kovalenko, we can find a course of lectures *Historical Urbanistics*. Section 1.3. of the book is entitled *Terminological Tools of Domestic Mistoznavstvo/Urban Studies*, and Section 1.4. – *Object-Subject Domain of Historical Mistoznavstvo/Urban Studies* (source: [elcat.pnpu.edu.ua](http://elcat.pnpu.edu.ua)). 4) The term has entered the pages of Wikipedia, for example, “The tradition of comparative *Mistoznavstvo/Urban Studies* with the trace of cyclical fluctuations in urban development was initiated by M. Weber .... (source: <https://uk.wikipedia.org>). 5) It has become slang and appeared in the blogosphere, so the term *Mistoznavstvo/Urban Studies* is understood as familiarization with the city, for example, “Travel always changes something inside us. It does not matter if it is a trip abroad or a trip inside the native country. I had an opportunity to live in Poltava ... “ (source: <http://kurs.if.ua/>). 6) It is used in the texts of regional and local

events, contributes to the educational process of teenagers, and coordinates students' activity, for example, "Student excursion bureau was opened in Zhytomyr State Technical University. There is an experience of having excursions within the frame of the school of *Mistožnavstvo/Urban Studies*. And as a logical necessity of our activity, the opening of the student excursion bureau was announced (source: <http://pedpresa.ua/>).

### 3. Conclusions

A long-term research project is aimed at developing the activities of the Ukrainian Center for City Historical Studies (UCCHS) the main tasks of which are to organise a data bank of cities of Ukraine, hold conferences and workshops, carry out interdisciplinary comparative studies of "Book on the Cities of Halychyna (East Galicia)" project, and promote among Ukrainian and foreign specialists and the general public new professional knowledge in the field of historical *Mistožnavstvo/Urban Studies*. It will help to cover some unknown areas and significant gaps in Ukrainian historical Culturology, Urban Studies, History, and Regional Studies. A proper understanding of the unique nature of Ukrainian lands, cities and people will foster Ukrainian progress into the European and world community.

Born in Lviv Polytechnic National University while carrying out the research project *Book on the Cities of Halychyna (East Galicia)* in 1995, the term *Mistožnavstvo/Urban Studies* has had the positive scientific development as was introduced in the favourable times of Ukrainian society. Self-identification of Ukrainians requires an intensive study of the history of cities and urban culture in various forms. If we compare the Ukrainian term *Mistožnavstvo/Urban Studies* with its corresponding prototerm – the German *städtewesen* and Russian *gradovedenie* –, we notice that it is much more widely used, has greater invariance of applications and interpretations. If to take into account the Google search system, it is observed the increasing number of the term matches; while its German and Russian prototypes are applied only in the fields of academic science.

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## МІСТОЗНАВСТВО: ЕТИМОЛОГІЯ ТЕРМІНА ТА ЙОГО ЗАСТОСУВАННЯ В УКРАЇНІ

**Анотація:** Повинна була закінчитися епоха СРСР із заполітизованою методологією досліджень, щоб можна було методологічно опертися на закордонний досвід і виконувати дослідження у галузі містознавства, яке б опиралося на такі засади як:

- поєднання дослідників-спеціалістів різних галузей для вирішення спільної проблеми (з галузі історії, архітектури, урбаністики, мистецтвознавства, економіки, демографії, географії, геральдики тощо )
- дослідницький матеріал базується на вірогідних даних, які однаково висвітлюють увесь регіон/країну (переписи населення, мапи, статистичні та джерельні дані)
- не використовується суб'єктивна оцінка подій і стану речей та відсутня авторська інтерпретація фактів.

У 1995 р. при Західному науковому центрі НАН України та Українсько-австрійському інституті була створена міждисциплінарна група “Книга міст Галичини” (керівник – доц., к. арх. Петришин Г. П.). Науковий апарат досліджень опирався на містознавчі дефініції (*städtewesen*) та методи дослідження австрійської школи (Австрійська академія наук, комісія економічної, соціальної та міської історії, керівник – проф. Отмар Пікль), які б дозволили у перспективі виконувати порівняльний аналіз.

У 1995–1999 рр. було проведено ряд організаційних заходів та українсько-австрійських науково-методичних семінарів з циклу “Книга міст Галичини”. Таким чином утворилася комунікативна мережа фахівців у галузі історичного містознавства. Ці заходи дозволили сформулювати на ґрунті сучасної методології світової науки новий напрямок в українській науці “Історичне містознавство” та створити наукову школу, яка прагнула поставити українське історичне містознавство на рівень світових стандартів, заповнити суттєву програму в українській історичній науці та світовій науці матеріалами про Україну. Діяльність Українського Центру історичного містознавства посприяла введенню до європейського та світового простору фахової і неупередженої наукової та культурологічної інформації та знань про культуру та історію українських міст та містечок як носіїв багатомірової та багатонаціональної культури.

**Сьогодні термін “містознавство” утвердився:**

- як офіційний науковий напрям в академічних та освітніх установах,
- у тематиці дослідницьких проєктів, наукових статей, монографій,
- у підручниках історичного спрямування,
- увійшов на сторінки вікіпедії,
- став сленговим та фігурою у блогосфері, розуміється як ознайомлення з містом,
- використовується у регіональних та локальних заходах, сприяє виховному процесу підлітків та скеровує активність студентів.

Народжений у Львівській політехніці у науково-дослідному проєкті “Книга міст Галичини” у 1995 р., термін “містознавство” своєчасно потрапив на добрий ґрунт української науки у сприятливий час розвитку українського суспільства. Самоідентифікація українців вимагала посиленого дослідження історії міст та міської культури у різних формах. Якщо порівняти український термін “містознавство” із його сусідніми прототермінами-аналогами – німецьким “*städtewesen*” та російським “*градоведением*”, він є набагато ширше застосовуваним, має більшу інваріантність застосувань та трактувань, а, судячи по пошуковій гугл системі, стрімко поширюється. Тоді як його німецький та російський прототипи залишилися в сферах академічної науки.

**Ключові слова:** містознавство, міста і містечка, Галичина, порівняльні дослідження, міждисциплінарність

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**ARCHITECTURAL IMAGE DEVELOPMENT  
IN THE CITIES OF WESTERN UKRAINE  
(AT THE TURN OF THE 20<sup>TH</sup> AND 21<sup>ST</sup> CENTURY)**

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**Abstract.** The article describes the formation peculiarities of the architectural image of the Western Ukraine cities during the second half of the 20<sup>th</sup> century and at the beginning of the 21<sup>st</sup> century in connection with historical and natural conditions, as well as general trends and tendencies of architectural development in Ukraine.

**Key words:** city, architectural image, Western Ukraine.

## **1. Introduction**

The cities of the beginning of the 21<sup>st</sup> century represent a complex mosaic of architectural images, which have been mutually superimposed over time according to the city progresses. The modern architectural image appears to us gradually, as a collection of spatial pictures that are significantly different in the center and in the peripheral districts of the city. As for historical cities, the general tendency demonstrates us the shift of accents – the emergence of new ones which coexist with the ones formed in the past.

The architectural image of the city (or the city landscape, or landscape in general) is constituent of the following components:

a) natural environment (climate, relief, green masses, aquatic spaces, etc.)

б) city-planning structure (planning of the territory, drawing of a street network, the ratio of built-up to non-built up territories)

в) architecture of houses and their complexes (the presence of dominant, architectural composition of the building). Among the features of the natural environment, the shape of the terrain on which the city is located is a determining factor.

In the Western Ukrainian region, we can talk about several specific features. Cities formed on the slopes of Podillia hills, as well as in the river valleys of the Ukrainian Carpathians, are characterized by a significant dismemberment of the surface and changes in the heights of the relief of 50–100 m. The cities of Buchach, Berezhany, Dolyna, Horodenka, Zbarazh, Irshava, Kamyanets-Podilskyi, Kremenets, Lviv, Rakhiv, Rohatyn, Sniatyn, Skala-Podilska, Terebovlia, Turka, Uzhhorod, Chortkiv, Yaremcha [1] are the representatives of this category. In addition, in many of these cities (Buchach, Zbarazh, Kamyanets-Podilskyi, Kremenets, Lviv, Skala Podilska, Terebovlya, Uzhhorod, Chortkiv) during the Kievan Rus and Principality of Galicia-Volhynia in the 12<sup>th</sup> and 13<sup>th</sup> centuries, and subsequently Polish Kingdom in the 14<sup>th</sup>–17<sup>th</sup> centuries, castles were located on the highest sections of the relief, which enhanced the expressiveness of their overall architectural image. Most of the princely castles that started the development of the cities of Kievan Rus and the Principality of Galicia-

Volhynia in the 12–13<sup>th</sup> centuries occupied the hills in the suburbs, for example, in Kremenets, Lutsk, Lviv, Mukachevo, Terebovlia, Ternopil, Uzhhorod [2]. Instead, the cities located mainly in the north of Lviv region, Volhyn and Rivne regions of Volhyn are characterized by plain relief, e.g., Berestechko, Brody, Busk, Dubno, Kamin-Kashyrskyy, Kovel, Radekhiv, Sokal.

Over the centuries of development of western Ukrainian cities, the diversity of forms of their urban structures (the territory's expansion) has survived to this day. The most characteristic are: – **centered** plans based on regular plans of medieval cities, for example: Berezhany, Brody, Busk, Buchach, Gorodok, Drohobych, Zhovkva, Zbarazh, Zolochiv, Kolomyia, Lviv, Mykolayiv, Ostroh, Radekhiv, Rohatyn, Sambir, Skole, Ternopil, Truskavets, Uzhhorod, Chernivtsi, Yavoriv (Fig. 1); – **linear** plans based on the factors of the surrounding landscape, such as: Dubno, Kremenets, Pustomyty, Rakhiv, Skala Podilska, Sokal, Straryi Sambir, Voda Vyshnya, Tyachiv, Yaremcha (Fig. 2); – **irregular (combined)** plans are developed on the basis of plans that evolved from both of these types and are typical for medium or large cities occupying vast territories, for example: Ivano-Frankivsk, Lutsk, and Rivne (Fig. 3). While preserving the area of historical centres, which continue to be the centres of the city plan, the town-planning structures of these cities over time have changed significantly and have increased geographically.



Fig. 1. Skole. Cadastral plan, 1853 [3]



Fig. 2. Kremenets. Town plan, 1853

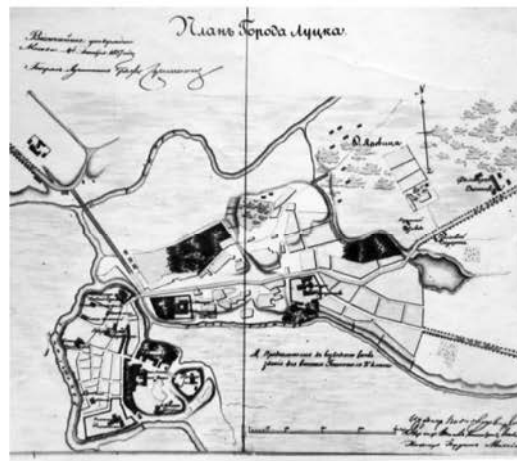


Fig. 3. Lutsk. Town plan, 1837.  
Source: the author's archive

Architecture of houses and their complexes in Western Ukrainian cities is characterized by a variety of forms typical to European architecture during the seventeenth and early twentieth centuries, which are combined in various configurations. In many small towns of the region, the architectural image of the city still is defined by both historical development and preservation of its dominant role, e.g., in Berezhany, Buchach, Horodok, Dobromyl, Zhovkva, Zbarazh, Rohatyn, Sambir, and Sudova Vyshnia.

## 2. Basic Theory Part

In the past and at the beginning of the 21<sup>st</sup> century, the above-mentioned components are organically interconnected in the cities of Western Ukraine and, due to centuries-old evolution, create their modern architectural image. Evolutionary processes in Western Ukrainian cities have gained considerable acceleration in the second half of the 20<sup>th</sup> century and at the beginning of the 21<sup>st</sup> century under the influence of radical political and socio-economic transformations. During this period, in the cities of the region, during the evolution of the architectural image, three distinct periods can be distinguished: 1) the first period (1945–1955) is the period of creative development of the classical heritage in Soviet architecture in the conditions of a totalitarian social and economic system; 2) the second period (1955–1990) is the period of industrialization of construction and typification as well as unification of

architectural and urban development solutions in Soviet architecture under conditions of limited evolution of the totalitarian social and economic system; 3) and the third period (1991–2016) is a period of pluralism of architectural and urban-type forms in the conditions of development of a market economy and parliamentary democracy.

After 1945, for most cities in Western Ukraine, general plans were developed, according to which the reconstruction of their centres was planned in accordance with the principles of regular formation of classical architectural ensembles. Large central squares were designed in cities (for party rallies and government demonstrations) with monumental public buildings and regular building blocks in their surroundings. Thus, a change in the architectural image of the Western Ukrainian cities was programmed, giving them space-spatial characteristics of the “Soviet city” according to the contemporary direction of the Soviet architecture development [4].

At the same time, in most of the cities centres of Western Ukraine, there was no broad potential for the creation of new ensembles, as they retained a rich historical and architectural heritage in one form or another. Forming the spatial structure of city centres, the monuments of urban planning and architecture significantly restricted the possibility of creating new ensembles. Accordingly, the requirements for a new image creation of the cities centres in an expanded form could only be carried out in those cities where the existing urban situation allowed for radical spatial transformations. Favourable preconditions for this were formed in Ternopil, Lutsk, and Rivne in 1945. Ternopil is a typical example, where an architectural-landscape system was formed in the city center during the post-war reconstruction of 1945-1955. It is marked by the unity and harmony of natural and architectural forms, is organized in space in accordance with the unified artistic conception that creates a rich and interesting architectural image. The reconstruction of Ternopil centre began on the basis of the general plan scheme of 1945, and then continued in accordance with the general plan of 1954, which provided the formation of new ensembles in the destroyed territory of the city centre. The basis of the space organization concept for both plans was the idea of creating a system of greened areas, squares and boulevards in the center of Ternopil in 1945–1955 (Fig. 4) [5].



**Fig. 4.** Ternopil. Central Square with the theatre, 1955.  
Source: photo by B. Posatsky, 1983



**Fig. 5.** Lutsk. Central square, 1955. Source:  
[www.volynpost.com/news/15600-luck-z-vysoty](http://www.volynpost.com/news/15600-luck-z-vysoty)

A post-war formation of a new city center in Lutsk took place somewhat differently. It was decided to transfer the new city centre to a new territory near the historical centre, which did not undergo significant military destruction. The first post-war general plan of Lutsk provided for the formation of a new urban centre system in the form of two squares, connected by a new main street on the shore terrace of Styr.

The first of the squares was located on the edge of the city centre of the early 20th century and was connected with the historical centre of the city – the main street at that time. According to the project, the new area should have had a rectangular shape with perimeter buildings and regular parterreal landscaping. However, the area space in the 1950's was not formed because then only one building of the hotel was built [6].

At the same time, one can talk about the completion of the ensemble of the second square, which became the new main city square on the new main street of Lutsk. The ensemble of the new square is formed on a high northern terrace of the Styr river floodplain with the opening of the space for the floodplain of the river. In the spatial composition of the square there is clearly a single artistic conception, the subordination of the whole and the individual components of the ensemble to the main axis of symmetry, carried out by classical architectural means (Fig. 5). Similarly, as in Ternopil, the new ensemble of the centre in Lutsk also received a significant spatial scale in comparison with the historical centre and the city centre of the early 20<sup>th</sup> century [7]. Similar opportunities for the formation of the new image of the city centre were formed in the late 1940s in Rivne. This was due to the situation that the city during the 19th and early 20<sup>th</sup> centuries lost "... all the traditional features of its long-standing architectural ensemble. In such circumstances, a decision was made on the new planning of the city centre in order to create a new ensemble of the public centre" [8].

The main focus of the new centre of Rivne was drawn to the theatrical square, located in the main street of the city. In its space the house of the theater dominates with a six-column portico, the perimeter of the square is built up with four-storey residential buildings. The facades of the buildings are decorated with classic pilasters. The theater and the perimeter of the building area are different in height, that is, one can not speak of the presence of unambiguous dominant (Fig. 6).

The complex nature of the planning and space-spatial structure preservation of the centre in Chernivtsi determined the main direction of its development in the first post-war decade (Fig. 7). The street network remained practically unchanged, and the building was supplemented by separate buildings – inserts. Their modest classical architectural forms were rather organically combined with eclectic and secessionist forms that prevailed in the construction of Chernivtsi centre [9].



**Fig. 6.** Rivne. The Theatrical Square.  
Source: photo by RATAU, 1970



**Fig. 7.** Lviv. The general view of the city centre.  
Source: photo by B. Posatskyy, 1995

A similar city-building situation has developed in the centre of Uzhhorod. The city was not ruined, its core – a spatial structure of the centre remained in the complex, only some elements of needed renovation. Small architectural forms were set up in small streets and squares, decorative herbalsists and flower beds were formed.

The first post-war decade also brought some changes to the space of the Ivano-Frankivsk centre. In its historical part, the main city boulevard was formed on the site of a building destroyed during the war. Unlike Ternopil's, the new Ivano-Frankivsk Boulevard does not have a clear axial symmetrical composition, and its construction initially consisted of renovated old buildings [10].

Complex city-building problems arose in the late 1940s in the centre of Lviv – the largest city in the region. The city centre preserved a historically complex space-based structure with a major building of numerous neighborhoods, which severely restricted any intentions of its redevelopment. According to modern concepts of city development, each city centre should have a new large central square – a venue for state festive celebrations. In addition to the ensemble of the main square, the new image of the centre of Lviv was supposed to develop a new monumental building, for which it was supposed to appoint "... the best high-altitude areas,

which are clearly read in the silhouette of the city, ruling over the suburbs ...”, that is, the High Castle, the Citadel mountain, the hills of Roztochya [11]. An important role in creating the image of “socialist Lviv” was given to parks and squares, as well as memorial complexes. The central position was occupied by the territory of the Park of Culture named after Bohdan Khmelnytskyi, which was built on a crossed relief and opened in 1953. The project of the park included the creation of a main hallway with fountains, water cascades, monumental staircases with balustrades and lanterns [12]. The project was not implemented in full, but the entrance arches, the cinema, the green theater and the temporary wooden pavilions for the agricultural exhibition were built.

Summing up, it may be concluded that the first post-war decade (1945–1955) did not significantly change the architectural image of the centre of Lviv, the new elements of planning and building in evolutionary way complemented the existing urban structure (Fig. 7). In general, it can be explained by the common sense of artistic language of architecture of different periods, which was based on classical forms.

Most of the cities of Western Ukraine were (and continue to be) small. After 1945, small towns were mostly centres of administrative districts and they also needed the formation of a new city image. It is quite clearly viewed in the first post-war projects of planning and development of small towns, especially those which were carried out in 1946–1947 for the development of small towns in Lviv region.

Almost all projects have had a design of regular plans for a city with a division of the territory into approximately equal quarters. Their authors mostly considered the development of historical centres of small cities with granting them the role of new public areas. Each city was provided with the main square for rallies and demonstrations in the days of public holidays, and building areas together with other constructions served the purpose of providing magnificence to the whole composition structure. The central areas in Brody, Vinnyky, Hlyniany, Peremyshliany, Rava-Ruska, Yavoriv and other cities are the bright examples of that idea implementation. It is interesting that the significant importance was given to existing religious buildings, which were considered as compositional accents in the space of the centres. This idea is fully applied to the projects in Zhovkva and Sokal [13]. At the same time, we should note that the implementation of the projects mentioned above was not realized, except some separate fragments.

New cities that arose as a result of the implementation of the Western Ukraine post-war industrialization programme are also worth considering. The first of these cities are Novovolynsk (founded in 1950) and Chervonograd (1951). New-born cities were supposed to demonstrate in their own way a new type of “socialist city”, and the basis of their planning and building design was the concept of “city-garden”. Plans of the cities were characterized by a regularity of construction, city centres were located at the intersection of the main streets and avenues, urban areas consisted of quarters with spacious courtyards, the height of residential buildings comprised three or four floors [14].

A radical change in landmarks of Soviet architecture and urban development in general took place during 1954–1955. It is stated in government decrees on the restructuring of the architectural and construction industry in the USSR. The creative method of the post-war decade in architecture was applied, and at the government level, a radical restructuring of the design and construction process was announced and it was based on modern scientific and technological achievements. Any appeal to the samples of the classical architectural heritage became inadmissible, new construction should be carried out only according to typical projects and using prefabricated reinforced concrete structures. The new technology, which included the installation of buildings from the factory-made constructions and its parts, has become a significant, even crucial factor in the formation of shapes in architecture. After 1957, local building plants began to work everywhere and their final product was not a “constructive-building elements but ... a finished house” [15].

The shift in priorities in architecture eliminated the problem of creation of architectural ensembles. Instead, the main problem was the rapid construction of a large number of buildings of the same type, located on the territory in the way of so-called “free planning”. During 1960s and 1980s, large areas in the cities of Western Ukraine were occupied by typical industrial, residential and office buildings.



**Fig. 6.** Lviv. New apartment buildings, 1970.  
Source: photo by B. Posatskyy, 1975



**Fig. 7.** Ivano-Frankivsk. New office and apartment buildings, 1985. Source: photo by B. Posatskyy, 1990

In large cities, two diverse city images were developed: 1) the image of the historic city centre with architectural monuments; 2) the image of new industrial and massive multi-storey residential developments. Industrial nodes and new residential areas have become self-sufficient elements of urban space with their own “industrial” architectural image, due to the wide use of large-panel structures. The designs of new residential areas in Lviv, Lutsk, Ivano-Frankivsk, Rivne, Ternopil, Uzhhorod, and Drohobych are good illustrations of the idea.



**Fig. 8.** Lviv. New residential district *North*, 1970s–1980s.  
Source: photo by B. Posatskyy, 1997



**Fig. 9.** Lutsk. New residential district 1970s–1980s. Source: [www.volynpost.com/news/15600-luck-z-vysoty](http://www.volynpost.com/news/15600-luck-z-vysoty)

The city ensemble of Lviv centre was enriched with the quarter of new buildings of Lviv Polytechnic (built from 1965 to 1978); the centre city of Ivano-Frankivsk was supplemented by the buildings of the main post office and the theater; Lutsk, Rivne, Ternopil, Uzhgorod received new hotels and department stores with the common design. In the mid-1970s, it became clear that the abstracted, “tied” from the “place” and the cultural context, “typical” architecture proved to be unable to form a complete spatial environment. In this situation, it was logical to apply architectural traditions, especially in those cities where the rich architectural heritage has been preserved. During the period of 1975-1986, state architectural preserves were organized in Lviv, Kamyanets-Podilskyi, Lutsk and Dubno, which included the territory of historical centres.

However, in the process of development of spatial environment in small cities, the stereotypes of “free planning” and “typical development” and the benefits of the “new” methods in comparison with the “old” ones continued to operate. According to such representations, the master plans of Western Ukrainian small cities were worked out in the 1960–1970s, which replaced the traditions of the post-war decade of construction. This was particularly the case for cities that were subject to military destruction and in which the first post-war master plans were not implemented. For example, in Brody, Rava-Ruska, and Sokal, in the 1960s–1970s, the regular quarterly structure of the historical centres destroyed by World War II was broken due to the changes in street network and the accidental location of new residential and public buildings (Fig. 10, 11). In addition, new buildings have become much larger in size than the old ones and became foreign dominant.



**Fig. 10.** Brody. New buildings in historic city centre, 1980.  
Source: photo by B. Posatsky, 1980



**Fig. 11.** Rava-Ruska. New building in historic city centre, 1980. Source: photo by B. Posatsky, 2015

The situation changed in the early 1980s under the influence of the critique of functionalism and the transition to postmodernist conceptions of the architectural and urban-type forms of creation. A wide variety of stylized architectural forms were widely distributed, designed to “decorate” and “regionalize” the building image. Similar decisions have gained much of popularity in the construction of the resort towns such as Truskavets, Morshyn, and Yaremche. The spatial forms of postmodern architecture of various design found their application in numerous buildings constructed on the site of amortized building. In this respect, the characteristic features have the centres of Drohobych, Ivano-Frankivsk, Lviv, and Zhovkva, where new buildings are organically fitted into the historical context.

Describing the period of the 1980s, the inspiring influence of the cultural regional heritage on the process of composite formation of spatial forms and architectural details has been immense. In the cities of Western Ukraine, the process of construction “sealing” often contributed to the restoration of the planning structure and spatial form of previously lost traditional urban neighborhoods (Fig. 12, 13). Extensive searches for regional forms based on local traditions of the 1980s gradually changed into “new eclecticism” of the 1990s due to the effects of commercial mass culture. Radical socio-political and economic changes which took place in Ukraine in 1991 significantly changed the conditions of urban development activities. Forms of ownership changed, and the abolition of lots of Soviet-era constraints led to a huge “explosion” of residential housing in cities. Unfortunately, the architectural image of the cities in western Ukrainian regions generally suffered heavy losses.



**Fig. 12.** Drohobych. Market Square, 1985.  
Source: photo by B. Posatsky, 1993



**Fig. 13.** Zhovkva. City centre, 1995.  
Source: photo by B. Posatsky, 1998

In large cities of the region, the chaotic building of free areas with multistory housing in the central parts of cities, and the placement of a blatant form of advertising became a negative factor in the development of urban landscape. Buildings having the aggressive coloured facades have become a casual alien background for historical development, especially distorting panoramas and silhouettes of historical centres. Moreover, such situations have arisen even then when the new building is quite distant from the monuments of architecture. An example of this is the analysis of panoramas of Lviv centre from the eastern direction, where the spiers of Greek Catholic and Roman Catholic churches are lost on the background of coloured massive facades of new residential multistory buildings. It indicates the deformation of the historical urban cultural landscape in the city, where the part of the historic centre is included onto the UNESCO World Heritage list and has become a significant tourist attraction.

Against the background of chaotic changes in the appearance of cities in Western Ukraine at the beginning of the 21<sup>st</sup> century, the city of Rivne has gained certain exceptions in that respect. Its purposeful development of architectural image has followed its master plan of 2003. It defines a landscape framework development of Rivne along the Ustya River (north-south direction) and the urbanist framework to the east-west direction. The street of Soborna was formed as the result of the city-building concept of a new public complex along the main highway in the western part of the city [16].



**Fig. 14.** Rivne. New complex with a rotunda (a); Rivne. Street view. Source (b): photo by B. Posatskyy, 2008

The main part of the complex (built during 2000–2007) consists of three six-seven-storeyed dwelling houses (the first floors are for shops and offices) and a decorative rotunda with a monument to Maria Nesvitska, the founder of Rivne (Fig. 14, *a, b*). The rotunda with a monument is located in a small square and the structure has a role of the compositional dominant of the complex as a whole. Its spatial construction is marked by simplicity and clarity, providing pedestrians with the street space easily perceived. On the other hand, the use of historical architectural forms adds the sense of the overall architectural image of the past being separated from the present.

### 3. Conclusions

During the studied period there was a gradual reduction of the ideological influence of state on architecture: from complete subordination during the 1945–1980s to the minimum regulation of the process in the 1990s and the first decade of the 21<sup>st</sup> century.

Gradual development of the architectural image of the cities took place in direct relation with the socio-economic changes and general cultural tendencies at the turn of the 20<sup>th</sup> and 21<sup>st</sup> centuries.

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### ЕВОЛЮЦІЯ АРХІТЕКТУРНОГО ОБРАЗУ МІСТ ЗАХІДНОЇ УКРАЇНИ (НА ЗЛАМІ XX–XXI СТ.)

**Анотація.** Архитектурний образ міста або міський пейзаж чи краєвид загалом формують такі складові: а) природний простір; б) містобудівна структура; в) архітектура будинків та їх комплексів. Еволюційні процеси у західноукраїнських містах набули значного прискорення у другій половині XX ст. і на початку XXI ст. під впливом радикальних політичних і суспільно-економічних перетворень. Можна виділити три характерні періоди: А. 1945–1955 рр. – період творчого освоєння класичної спадщини в радянській архітектурі в умовах тоталітарного суспільно-економічного ладу; Б. 1955–1990 рр. – період індустріалізації будівництва і типізації та уніфікації архітектурних і містобудівних вирішень в радянській архітектурі в умовах обмеженої еволюції тоталітарного суспільно-економічного ладу; В. 1991–2016 рр. – період плюралізму архітектурних і містобудівних форм в умовах розвитку ринкової економіки і парламентської демократії.

Після 1945 р. для більшості міст Західної України були розроблені генеральні плани, згідно з якими у містах проектувалися великі центральні площі (для партійних мітингів і урядових демонстрацій) з монументальними громадськими будинками і регулярними кварталами житлової забудови в їх оточенні для надання західноукраїнським містам архітектурного образу “радянського міста”. Сприятливі передумови для цього у 1945 р. склалися у Тернополі, Луцьку, Рівному. Водночас, у більшості центрів міст Західної України не існувало широких можливостей для їх перебудови, оскільки, формуючи просторову структуру міських центрів, пам’ятки містобудування і архітектури суттєво обмежували можливості створення нових ансамблів. Комплексний характер збереження планувальної та об’ємно-просторової структури центру у Чернівцях визначив основний напрямок його розвитку у перше післявоєнне десятиліття, схожа містобудівна ситуація склалася у центрах Ужгорода та Івано-Франківська. Перше післявоєнне десятиліття не внесло значних змін у архітектурний образ центру Львова, нові елементи планування і забудови еволюційним шляхом доповнили існуючу містобудівну структуру. Автори проектів реконструкції малих міст у більшості випадків бачили перспективу розвитку історичних осередків цих міст у наданні їм ролі нових громадських центрів зі збереженням існуючої містобудівної структури. У кожному місті передбачалося створення головної площі для мітингів і демонстрацій у дні державних свят, забудові площі намагалися надати парадності тощо. Прикладами можуть служити проекти площ у Жовкві, Бродах, Винниках, Глинянах, Перемишлянах, Раві-Руській, Сокалі, Яворові. Свідченням нових перетворень повинні були стати нові міста Новововлинськ і Червоноград, які у просторових формах демонстрували тип “соціалістичного міста”, в основу їх планування і забудови була покладена концепція “міста-саду”.

В урядових постановках 1954 р. і 1955 р. засуджувалося звертання до зразків класичної архітектурної спадщини, нове будівництво мало здійснюватися лише за типовими проектами і з використанням збірних залізобетонних

конструкції. Впродовж 1960–1980-х рр. значні території у містах Західної України були зайняті типовою промисловою і типовою багатоповерховою житловою забудовою. У великих містах сформувалися два різнохарактерні міські образи: а – образ історичного центру міста з пам'ятками архітектури; б – образ районів нової промислової і масової багатоповерхової житлової забудови. Прикладами описаної ситуації можуть служити Львів, Луцьк, Івано-Франківськ, Рівне, Тернопіль, Ужгород, Дрогобич.

Радикальні суспільно-політичні та економічні зміни, що відбулися в Україні у 1991 р., суттєво змінили умови містобудівної діяльності. Зміна форм власності та відміна багатьох обмежень попередніх періодів обумовили своєрідний “вибух” індивідуальної житлової забудови у містах. На жаль, архітектурний образ міст західноукраїнського регіону загалом зазнав при цьому великих втрат.

У великих містах регіону негативним чинником у формуванні міського ландшафту стала хаотична забудова вільних ділянок багатоповерховим житлом у центральних частинах міст. Прикладом може служити огляд панорам центру Львова зі східного напрямку, де сьогодні шпиль церков і костелів губляться на тлі кольорових масивних фасадів нових житлових багатоповерхівок. Це свідчить про деформування історичного міського культурного краєвиду у місті, де частина історичного центру вписана до списку Світової спадщини ЮНЕСКО.

**Ключові слова:** архітектурний образ, місто, Західноукраїнський регіон

Youri Rotchniak

## TO THE PROBLEMS OF FORMATION OF ARCHITECTURE OF THE RAILWAY PASSENGER NODES IN LVIV

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**Annotation.** The possibility of functioning of the inner city passenger railway in Lviv and the architectural foundations of the passenger stops and nodes are analyzed. The necessity of such implementation on the basis of a social request, problems of transport overload of the streets in Lviv, usage of existing resources, experience and new trends is expound. In this case, passenger railway buildings are understood primarily as a continuation of the urban communication space.

**Key words:** city railroad, railway passenger nodes, passenger platform.

### 1. Introduction

The city passenger railway, according to its technical bases, infrastructure and services, is based on the “classic” railway and is, at the same time, one of the types of urban rail systems. It refers to the broader concept of rail transport, which also includes tram, subway and partly a funicular. In general, it has features of suburban transportation, subway and to a certain extent of trams. Urban railway passenger nodes (junction) are understood as a combination of stations and railway stations of the city railway with landings of the other types of public transport.

### 2. Problem statement

The expansion of motor transport in cities, in addition to obvious advantages, has a number of negative aspects, which are due to pressure on street network, seizure of urban space, air, noise and other types of pollution, accidents, etc. The use of rail transport, and in particular, on the basis of the railway, is an important complement to the traffic in cities. It takes over, to certain extent, the task of passenger transportation. As it can be noticed, one of these areas of development is the introduction of urban rail transport, which can effectively use the existing rail tracks, infrastructure and territorial resources of the rail transport. Future passenger stops are understood primarily as passenger transfer nodes. The General plan of Lviv does not specify the use of the railways for intra-city passenger transportation. The experience of the cities of the other countries demonstrates a positive effect of such functioning with the engagement of architecture in the arrangement of passenger stops and nodes.

### 3. Analysis of recent research and publications

Railway transport is the pivot of communication of the state and regions. It is as well one of the factors of urbanism. Practically all essential urban studies refer to urban transport, in which is always spoken about internal urban movement. For example, in various publications a question of rail transport is considered, first of

all, as out-of-town transport, at the same time road transport is considered as a public one (bus, trolleybus, electric car, taxi). The same is with private transport which is understood as well as one the really main things in the urban on-land transportation [1–9]. These main urban on-land street-road movements have their own usage and development limits, which prompts the search of alternatives.

Researchers claim the importance of railway station complexes as the urban planning multifunctional formations in the urban process (Dreval I., Radlbeck K., Ryabova O., et al. [10–13]). About the role of railway stations for various types of railways and about them as a kind of specific cities inside the cities is mentioned in a number of publications [14–16]. From time to time the attention to the railways in the cities is drawn by scientists and public, which is reflected in the professional and other periodicals [17–20]. The subjects of rail passenger stations and stations in cities were diploma projects of different levels of training of the specialists at the Department of Architectural Design and Department of Urban Development of Lviv Polytechnic [21, 22].

#### **4. Drafting of the the goal of the article**

We have an aim to follow up the emergence and conditions of the existence of intra-city rail passenger traffic, the operation and features of the architecture of passenger stops and nodes, as well as the possibility of their implementation in Lviv.

#### **5. Presentation of the research material**

*Evolution of the city railway.* Railway transport reached the greatest dynamics of its development at the beginning of the XXth century. In the middle of the century, it gave way to the automobile transport, and in passenger transportation it gave up to aviation as well. At the end of the century the railway in European countries was revived. In the cities with a rail network the internal urban passenger trains were introduced. To do this partly new lines were planned and old ones renovated. In the German-speaking countries the “Fast Railway” (S-Bahn, from Schnellbahn) has been established as a successful development and implementation of older ideas of urban trains on steam traction.

Around a hundred years ago, “steam locomotive” city railways in some cities, such as Berlin, Vienna, Salzburg, Innsbruck, Kolomyia, and Lviv [20] were being designed and implemented. Due to a number of technical and sanitary problems they were either not brought to the realization, dismantled, or replaced by an electric motor transport. Due to the application of the electric drive, it became “understandable” when the railway lines on off - road tracks penetrated to the centers of Berlin, Vienna, Munich and the other cities. Similar developments are now observed in the Ukrainian cities, and in particular, in organization of the city electric trains in Kyiv. In Lviv in 2009–2010 there was a trainroute of the city railway passenger motor carriage on the diesel drive called “the rail bus” along the Sykhiv – Lviv Main railway station – Pidzamche route. For the servicing of passengers, landing platforms with canopies and pavilions were built, but this form of urban passenger transportation has not been developed.

The railway connection in the European cities is primarily the result of the expansion of settlements outside the railway stations, which in the middle of the 19<sup>th</sup> century were most often a dead-end at the dead-end stations. Later, the railway link between dead-end stations and city railway stations was achieved by main ways: 1) reconstruction of the existing dead-end stations into the passage railway stations; 2) laying of roundabouts along the city center; 3) construction of the subway.

Over time with the expansion of cities, these by-pass lines, like railway stations, have found themselves in the body of cities and are now perceived ambiguously because of the existing barriers / connections, zoning, resource utilization, safety, cleanliness of the environment, etc. However, since then in the cities there has been created a rail road network with a large communication resource [14].

*Architecture of the passenger railway stops and nodes .* With the laying of city railways, the task arises to provide space for the provision of access, stays and transfer of passengers. The experience has shown that the terminal stations and nodes stations of the city railways are connected primarily with conventional railway as well as with other types of urban public transport.

The trains of the city railway arrive accordingly to the designated landing platforms by common tracks. City trains have separate marking including separately prescribed schedule and sometimes separate platforms. There are no fundamental differences in the way of the arrangement of landings compared to commuter trains. The difference is in the rhythmic and high frequency of motion with short-term stops of the short trains with train cars having more doors, which makes them similar to the subway trains.

The basic design, architectural and construction unit of railway stops and railway stations is a passenger platform connecting pedestrians and people in wheelchairs (or persons with carts) with other routes and spaces. Such exterior structure is often built in the form of pavilions or roof coverings over the platforms. On such platforms there are waiting places and information boards with weather protection over them. Cash premises and other premises in the form of the buildings are absent. The general nature of the construction is spacious, simple, clear and has the appearance of an open passage. The railway station as a building in the “classical” sense is not substantive. In many cases the passenger stops of urban railways have an open non-interior appearance, pretending not to attract attention. They are designed not to facilitate retention of movement and aimed at moving faster.

At the formation of the railway passenger node the concept of approaching of landing to other types of public transport is being implemented. The idea of a short barrier-free communication requires introduction of ramps, elevators since the lines of internal urban railways have to avoid the crossings of the tracks at one level with motor ways. This spatial-transport conflict is solved by the way of separating the movement on different levels (Fig. 1, 2).



**Fig. 1.** The platform of the Praterstern railway station in Vienna. Photo by the author



**Fig. 2.** Klosterneuburg-Kierling stop for the urban and suburban trains. Lower Austria. Photo by the author

Intensification of passenger rail transportation motivates active use of the existing resource. For quick reaching of the city center or nodal stations of public transport more intermediate stops at the end stations are arranged even for distant and high-speed trains, as, for example, in Budapest (Kelenföld), Vienna (Meidling), Lviv (Pidzamche), Kyiv (Darnytsia) and others. There is also a trend in laying of tracks to the airports as the end railway stations for distant and high-speed trains (the Vienna airport). Thus in some cities there is a separate railway for the transportation of passengers to the airports from the railway stations and other transport means.

**The city railway of Lviv.** The Lviv railway network coincided with the beginning of the XXth century. It is subordinated to the main transit highways with intersection of them at the Lviv railway station: 1) Krakiv / Kraków – Peremyshl / Przemysl – Lviv – Chernivtsi – Suchava / Suceava (constructed in 1850s – 60s) and 2) Kyiv / Odessa – Krasne – Lviv – Mukacheve – Chop (constructed in 1870s – 80s) [23]. The mentioned highways pass partly through the city territory including residential areas. The remaining tracks around the named railway station form a network, which is situated also partly within the city limits. There are quite a lot

of bridge crossings of railways and main highway. These and other factors suggest the possibility of arrangement of stops and allow the installation of passenger platforms for trainstops.

The main railway station Lviv and the other railway stations of Lviv are the nodal passenger stations within the city and they can serve for different categories of trains. From the urban planning and transport point of view as the potential railway passenger hubs, there are the existing Lychakiv, the Palace of culture named after H. Khotkevych, Pidzamche, Sykhiv stops / stations, as well as the non-existent yet railway passenger junction of the Lviv airport in case of building of a track connection to it. At some of the named stoppages, the urban, suburban and long-distance trains can stop, if the length of the landing platform permits, as it is already exists at Pidzamche station. Each of the named stops belongs already to the transport network and can serve as a nodal station. The platforms need to be updated and adapted to new needs. First of all, they need extension, lifting, expansion and marking. They need as well connection with near-station space, including mechanized segments (with elevators, escalators), for walking out and for transport links. In fact, the railway stops near the car bridges over Lviv-Khodoriv railway are the nodal ones.

Restoring, extending and connecting of relatively small sections of the railway tracks in the city and the nearer neighborhoods allows significant coverage of the potential area of passenger servicing. In this context, construction of the future sidecar link of Sykhiv – Lychakiv as the completion of the inner city railway ring in the east end from the center of Lviv becomes the nearest plan [17, 18]. The restoration of the track and the arrangement of the passenger traffic between Lviv and Vynnyki through the station of Lychakiv on the fragment of the former Lviv-Berezhany – Pidhajtsi line also addresses this problem. An important factor in using of the existing tracks for passenger purposes is the presence and proximity of lines and stops to the other types of public transport. Development of the new transport scheme of the city is the basis for further actions and orientation of passenger traffic becomes an integral part of the design process.

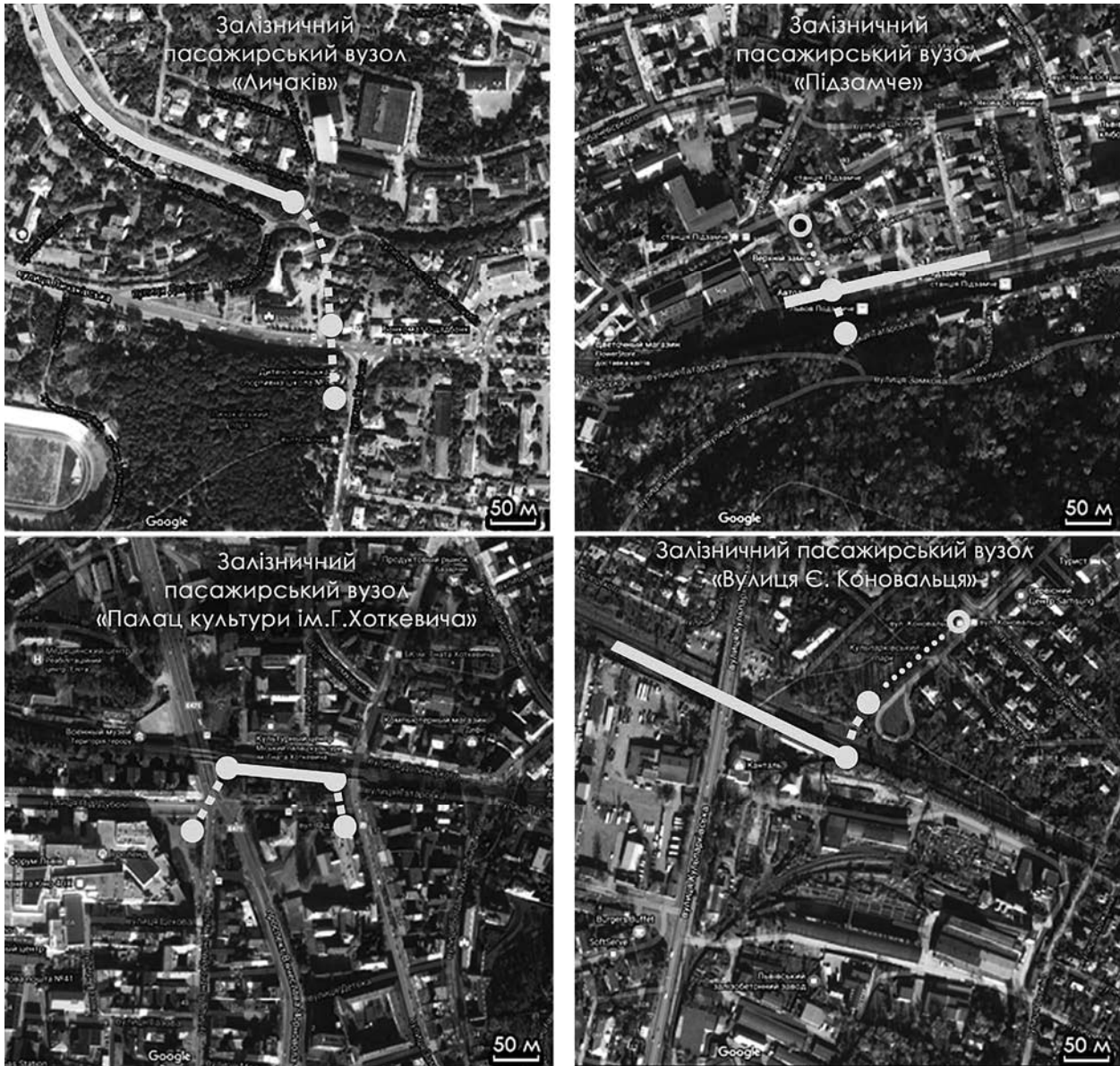
***The schemes of architectural solution of railway passenger nodes of Lviv.*** After proper urban planning research and project activities, the architectural solution has to be the continuation of the idea of safe, simple, short, understandable movement, stays and services for passengers. In accordance with the specific situation, installation of landing platforms is consistent with technical capabilities and needs of moving of pedestrians and passengers with carts. The pedestrian and “wheel-roller” connection of the railway platforms with the city and other means of transport is the primary task for solution. Vertical movements become inevitable, both in the natural way by using stairs, ramps and mechanized (lifts, escalators), which are realized with the aim to reach different levels of the street, over- ground and underground passages.

If it is possible, the pedestrian movement has to be carried out by as short as possible trajectories and with light and open for visiting spaces. Visual openness is also achieved by the use of transparent enclosing constructions of serial production. The similar constructions are used in elevators. Organization and coverage of the floor for moving applies all possible tactile and visual properties to provide a sense of safety and comfort for people of different physical condition. The idea of an ongoing “platform-pavement” should be realized on a regular basis (Fig. 3).

For consideration, several districts of the city were taken around the existing railway tracks with a sufficient approximation of other types of public transport, in particular, the tram lines: “Lychakiv” (trams No 2, 10), “Pidzamche” (tram No 6), “Palace of Culture named after H. Khotkevych” (trams No 4, 5, 6), “E. Konovalets street” (tram No 2). These sections are considered as good grounds for the development of railway passenger hubs. A method of combining the landing platform of the railway with pedestrian ways to the sidewalks and landings of the other transport is a priority task. In case of large drops in height of pedestrian levels it is necessary to use stairs, ramps and elevators. But in case of calculated increase of a large number of passengers the escalators are to be planned in addition as well.

The arrangement of pedestrian-wheeled connection on the sidewalks with elevators in the proposed railway passenger nodes, in addition to the direct passenger transfer function, serves as a spatial “constriction” between the points of landing. A specific compression of space causes a new perception of the city and enriches its image. Due to this, there is an opportunity of getting quickly from one district of the city to another, which, in spite of their physical closeness, are still quite isolated. This

is particularly noticeable in the case of the node near “Pidzamche” and “E. Konovalets street”. The railway passenger node “Palace of Culture named after H. Khotkevych” is the nearest railway “passenger point” to the historic center of Lviv. In addition to the transfer to the tram line, there is a transfer to the trolleybus line No 13 and a number of bus routes. The presence of the Palace of Culture, historical churches, schools, other educational institutions, the Monument to the victims of the Lviv Jewish ghetto and the Memorial to the victims of deportations, the Forum of Lviv, – intensify the attractiveness of this object. All this transforms it into an important railway and public node [10, 11, 13].



**Fig. 3.** The schemes of pedestrian movement at the railway passenger nodes of Lviv: “Lychakiv”, “Pidzamche” [21], “Palace of Culture named after H. Khotkevych” [22], “E. Konovalets street”. Denotements: unbroken line – perron (one or two platforms), interrupted line – pedestrian underground / over-ground connection, dotted line – on-ground connection, circle – vertical connection

## 6. Conclusions

1. City railways are understood as a part of rail transport in public transport in cities and as an addition and functioning within the framework of the united transport system of the city and the railways. Harmonization

of traffic schedules, the number of potential users and economic calculations are the basis for the installation of passenger stops in urban space.

2. A city rail passenger node is formed at the junction of urban planning and design properties as well as a part the railway network. It develops pedestrian communication between transport units of its various types and as a connecting link for the needs of passengers. It also serves as an attraction of social activities.

3. The historically composed railway network of Lviv allows to introduce the urban railways for the passenger needs of the city. The installation of a number of passenger nodes in the most transportable and geographically suitable places around the historic center of the city becomes actual. These nodes are formed on the basis of other passenger types of the urban public transport.

4. Architectural solution of passenger stops of the city railways is subject to the idea of fast pedestrian moving (on wheelchairs, with trolleys) to and from landing platforms and connection with the other means of transport as well as the exit directly to the city. The idea of an uninterrupted platform- pavement is determined by the unceasing communicative space, which is formed by simple architectural and design forms using serial constructions.

*Translation of the article from Ukrainian into English is made by Bohdan Horbovyi*

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Юрій Рочняк

## ДО ПРОБЛЕМИ ФОРМУВАННЯ АРХІТЕКТУРИ ЗАЛІЗНИЧНИХ ПАСАЖИРСЬКИХ ВУЗЛІВ ЛЬВОВА

**Анотація.** Досліджено можливість функціонування внутрішньо міської пасажирської залізниці у Львові та архітектурні основи влаштування пасажирських зупинок і вузлів. З'ясовується необхідність таких впроваджень на підставі соціального запиту, проблем транспортного перевантаження вулиць у Львові, використання існуючих ресурсів, досвіду і новітніх тенденцій. При цьому пасажирські споруди розуміються насамперед як продовження міського комунікаційного простору.

**Ключові слова:** міська залізниця, залізничний пасажирський вузол, пасажирська платформа.

### Анотація

Досліджується можливість функціонування внутрішньо міської пасажирської залізниці у Львові та архітектурні основи влаштування пасажирських зупинок і вузлів. З'ясовується необхідність таких впроваджень на підставі соціального запиту, проблем транспортного перевантаження вулиць у Львові, використання існуючих ресурсів, досвіду і новітніх тенденцій, про що мовиться у ряді наукових праць. При цьому пасажирські споруди розцінюються насамперед як продовження міського комунікаційного простору. Міська залізниця розуміється як частина залізничного транспорту в громадському перевезенні у містах і як доповнення та функціонування в рамках єдиної транспортної системи міста й залізниці. Узгодження графіків руху, кількість потенціальних користувачів та економічні розрахунки є підставою влаштування пасажирських зупинок у міському просторі. Міський залізничний пасажирський вузол формується на стику містобудівельно-розпланувальних властивостей та колійної мережі. На ньому розвивається пішохідний зв'язок між транспортними одиницями різних його видів як сполучна ланка для потреб пасажирів та відбувається притягання соціальних активностей. Історично складена колійна мережа Львова дозволяє впровадити міські залізниці для пасажирських потреб міста. Актуальним бачиться влаштування ряду пасажирських вузлів у найбільш транспортно завантажених і територіально придатних місцях довкола історичного центру міста. Ці вузли утворюються на базі інших пасажирських видів міського громадського транспорту. Архітектурне вирішення пасажирських зупинок міської залізниці підпорядковується ідеї швидкого пішого (на візках, з візками) переміщення до і від посадкових платформ та зв'язку з іншими видами транспорту й виходу безпосередньо до міста. Ідея тяглої платформи-тротуру обумовлюється неперервним комунікативним простором, який формується простими архітектурно-будівельними формами з використанням серійних конструкцій. Соціальний запит, проблеми міського транспорту, професійне надбання та світові тенденції мотивують залучення залізничних перевезень у міському просторі, а архітектурне вирішення подальших розробок в руслі доступності, зручності та гуманізації довкілля.

*Iryna Rusanova*

## TRANSFORMATION OF URBAN SPACES OF LVIV IN 20<sup>th</sup>–21<sup>st</sup> CENTURIES

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**Abstract.** The historical aspects of urban spaces forming in Lviv are considered. The influence factors on the level and specifics of the processes of their transformation are characterized. The general features of the architectural and planning transformation of the spaces in the urban fabric development process are defined. The modern tendencies and directions of urban environment transformation are revealed.

**Key words:** urban space, transformation, urban environment, squares.

### 1. Introduction

The theme of this article refers to urban studies, which are aimed to discover the influence of cities transformation processes on its modern environment. Dynamic urban processes of different epochs create the specifics of historical cities, where the conflict between modern buildings and historical heritage exists. The efficient concept of this conflict solution is obviously hidden in the consideration of the concrete city's spatial change, in this case of Lviv.

### 2. Problem statement

The problem of urban spaces' transformation becomes more topical among researchers of different scientific fields, like sociologists, geographers, cultural scientists, urbanists. The spatial aspect of city analysis is determined by the necessity of the principles of society's vital activity in different historical periods comprehension, the factors affecting this process revealing and the tendencies and indicators of new social processes in their interaction with spatial reconstruction of the city forecasting.

The Lviv city is an example of such transformations, which were especially active during XX-XXI centuries, when new development factors of the city were superimposed with the old ones. In the same time this is an example of the old city spaces functioning in new conditions of social changes. Their studying and analysis form urban politics of spaces in urban environment forming, that should be favorable not only for city's residents daily life, but also for creative activities (mass events, concerts, festivals, tourism and so on), which form the image of the city, its specifics and uniqueness.

### 3. Analysis of recent research and publications

According to multidimensionality of the problem discussing in the article a lot of examples of investigations in the field of sociology, geography, culture and urbanism can be mentioned. The closest to the urbanistic field are the works of foreign scientists: D. Jacobs, whose works are dedicated to the development of

American cities; Danish urbanist J. Gayle, who analyzed spatial transformations of European cities; different approaches to the study of spatial typology are highlighted in the works of H. Lefevre. Different qualities of urban space are the subject of main studies, in particular the semiotic meaning of the spaces one can find in works of D. Vizhalov, D. Zamjatin. The city space in accordance with the development of urban culture is discussed by B. Posatskyi, culturological aspect – I. Tyshchenko, S. Shlipchenko.

The theoretical basics of architectural and urban planning principles were formed by the famous architects and urbanists of Lviv's School: I. Drexler, I. Levynskyi, J. and A. Zachariievychi, R. Felinskyi. Despite the wide spectrum of studies, the urban aspect of spatial transformation is not enough enlightened in dynamics of different historical periods.

#### 4. Drafting of the the goal of the article

The goal of the study is to consider the city spaces in the historical retrospective, which are in the process of permanent transformation, and also to analyze the factors as a base of their forming in different historical periods.

#### 5. Presentation of the research material

The city space is multidisciplinary notion that is why there is no single meaning of it. From the point of urbanistic the city space can be interpreted as a place of common communications, which in material and spatial dimensions corresponds to the system of social centers (squares), urban arteries-highways and streets, green spaces. The transformation of urban spaces is regular and continuous process, which stems from the dynamics of city development. The character of urban transformations is conditioned by the socio-economic processes and value criteria of the society, and also by the specifics of the city.

On the example of Lviv as a capital of Galicia province in the Austria Hungarian and Polish periods and a capital of Western region in Soviet period and modern Ukraine one can analyze the transformation of its spaces not only in the temporal aspect, but also with taking to the account the political state, which caused different factors of city development and ideological priorities. The urban development of Lviv with the architecture of its spaces, described in publications (Biryulyov Yu. 2008, Cherkes B. 1996), is considered according to the historical periods (table 1).

Table 1

Historical periods of urban spaces' transformation in Lviv

Period	Phase	Temporal scope	The characteristic of the period
I	1 <sup>st</sup>	1900–1914	The period of political and socio-economic rise of Lviv as a capital of Galicia province in Austria Hungarian Empire
	2	1914–1918	Stagnation in the period of 1 <sup>st</sup> World War
II	1 <sup>st</sup>	1919–1923	Interwar period. Lviv – a capital of Polish Eastern region. Development of the suburbs. Urban spaces are supplemented by public and sacral buildings. The architecture of functionalism.
	2	1923–1930	
	3	1930–1939	
III	1 <sup>st</sup>	1939–1941	Soviet period. The city is part of USSR
	2	1941–1944	The period of 2d World War. German occupation.
	3	1944–1956	The industrialization of the city. The spaces of industrial districts and new housing. Renewal of historically formed spaces. Totalitarian ideology of the spaces.
	4	1956–1991	
IV	-	1991–2017	The city is a part of independent Ukraine. Spreading of urban spaces in the suburbs. Destruction of the industrial spaces and their functional transformation. De-communization of the spaces.

Starting from the beginning of the XX century one should mention that the period 1900–1918 was the most active in the development of the city. This fact is associated with the Austria Hungarian Empire. According to the biggest European cities the radial beam structure of streets with style unity of 3–4-storage buildings and with proportional interrelations between height of the buildings and width of the streets, the accents – beacons of corner houses are made.

One of the basic factors of city development in that period was the technical progress, in particular the development of railway transport, which contributed the construction of new station (1904) with Dvirtseva Square. According to European traditions new representative squares appear – Solyarni (Kropyvnytskoho) with St. Elizabeth Church, Smolky (Hryhorenka), Striletska (D. Halytskoho), Mariiska (Mitskevycha), constructed around landmark buildings, monuments, on the crossing of main streets (in the future – urban nodes).

In urban spaces forming natural features played an important role: putting Poltva River into the collector and creating Karl Ludvig Avenue (today Svobody Avenue) on Hetmanski Valy created compositional axis, which stretched to the newly built city theatre and continued along the underground river Poltva (today Shevchenko Avenue) (Fig. 1). Hetmanski and Hubernatorski Valy became the planning basement for Boulevard Ring – “Lviv’s Corso” like in European cities – “Krakiv’s planty” or “Ring in Wien”.



**Fig. 1.** The view on Karl Ludvig Avenue (today – Svobody Avenue) on Hetmanski Valy in Lviv. Photo of early XX century

The architecture of spaces, which are still the landmarks of the city, was created by brilliant architects-constructors of Lviv’s School: I. Drexler, I. Levynskiy, R. Felinskyi and others. Theoretical comprehension of urban ideas in city construction was held by R. Felinskyi, who believed that the most important task of architecture – is forming spaces.

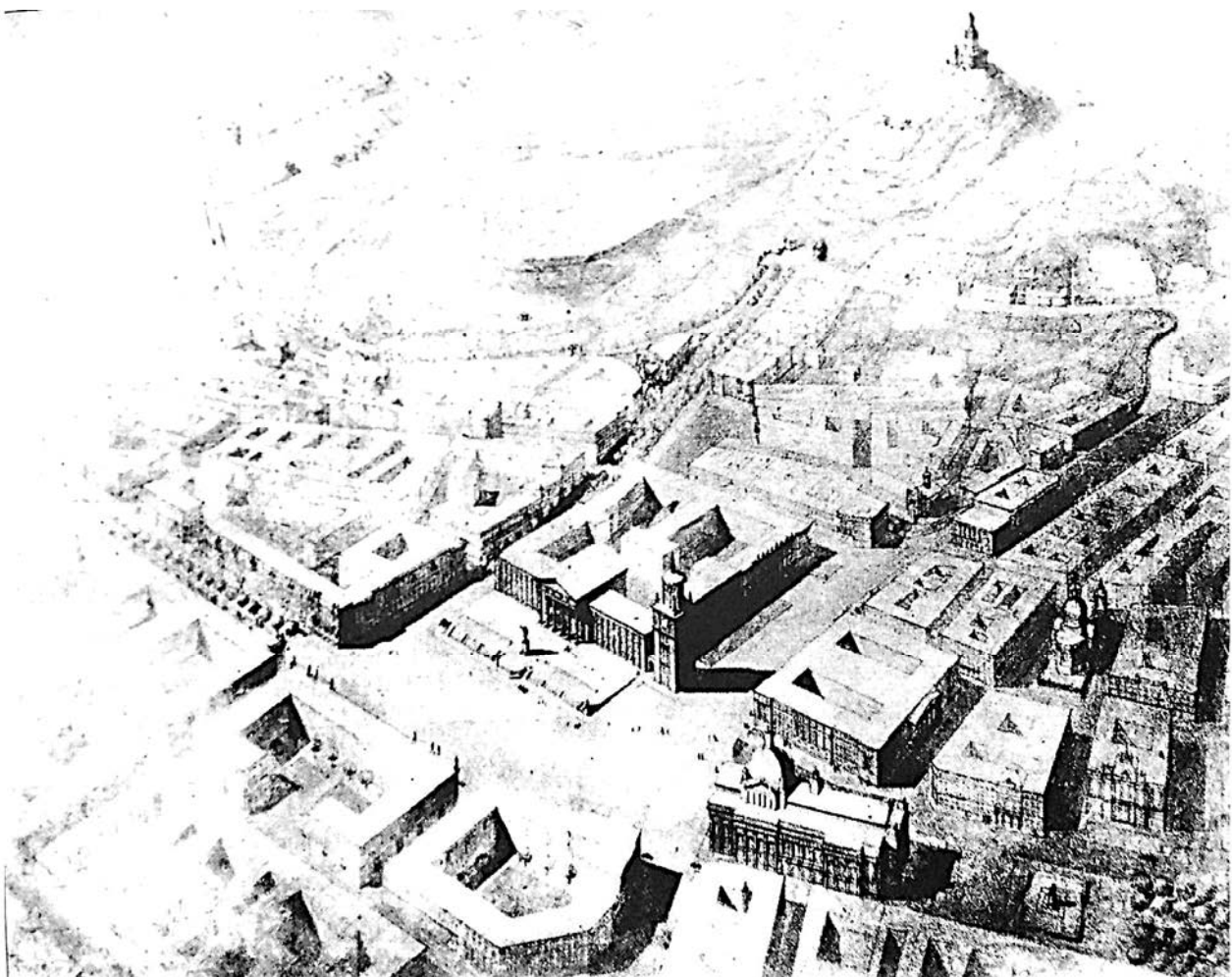
The period of 1918–1939 after the end of 1<sup>st</sup> World War, when Lviv became the capital of Polish voyevodstvo, is known as interwar period. Unlike the previous period the scale of city construction decreased and the suburbs have been built up – Novyi Lviv, Kastelivka, Sofiivka, Lychakiv. During the construction of picturesque villas and cottages in these districts the ideas of Garden City were implemented. On the whole this period did not essentially changed city spaces of the central part, but only complemented them with new buildings. Among them – the house of J. Shprecher in functionalism style, which ended the perspective of the street; the house of medical services on Zelena Street; the house of city electricity services on the corner of the Hvardiiska and Vitovskoho streets; the main post office. The modern Petrushevych Square with swimming pool and not finished public buildings are formed. Among sacral buildings – Church of the Mother of God Ostrobramska on the hill of Lychakivska Street was built.

In that period one can observe the differentiation of the spaces with prestige and comfortable districts mainly in southern part of Lviv, and with districts for poor residents in Klepariv and Zamarstyniv.

The character feature of that period was also creating plans of city construction starting from 1930, which were the forerunners of future masterplans of Lviv, and the regulative plans of living districts of the city required churches, schools construction. Until the beginning of 2 World War the image of Lviv consisted of the

spaces that could be named as historically formed on the contrary to new age, which were formed on other political, socio-economic and ideological factors.

In the soviet period, which lasted from 1939 till 1991 and was interrupted by 2 World War 1941–1945, Lviv was a center of the region and it didn't correspond to the standard of socialistic city. That's why the first attempts of its transformation were aimed to correspond the socialistic standards and Stalinism ideas embodiment that was reflected in before war and after war master plans (authors: O. Kasyanov, H. Shvetsko-Vinetskyi, A. Natalchenko). According to the tendencies and ideological resolutions of that period there were planned two perpendicular compositional axis, on the crossing of which behind the Opera house the Square (S=4 ha) was planned. And on the top of the Vysoky Zamok a grand monument of Lenin was planned, which completed the west-east axis (Fig. 2). The realization of that plan was much more modest: the center was extended to the Sonyachna Street (today – Chornovola Avenue) and installation of the monument-bust of Lenin in front of Opera house.



**Fig. 2.** The project of new city center of Lviv (1946–1948) (Source: Biryulyov Yu. 2008)

The strategic plans of active industrialization of Lviv, which caused creation of three industrial zones in northern, south-eastern and western directions, changed dramatically the functional filling of urban fabric. Industry associations built their infrastructure inside the city: the palaces of culture, medical establishments, project institutions, and engineer-laboratory blocks (Trehubova T. et. al. 1989).

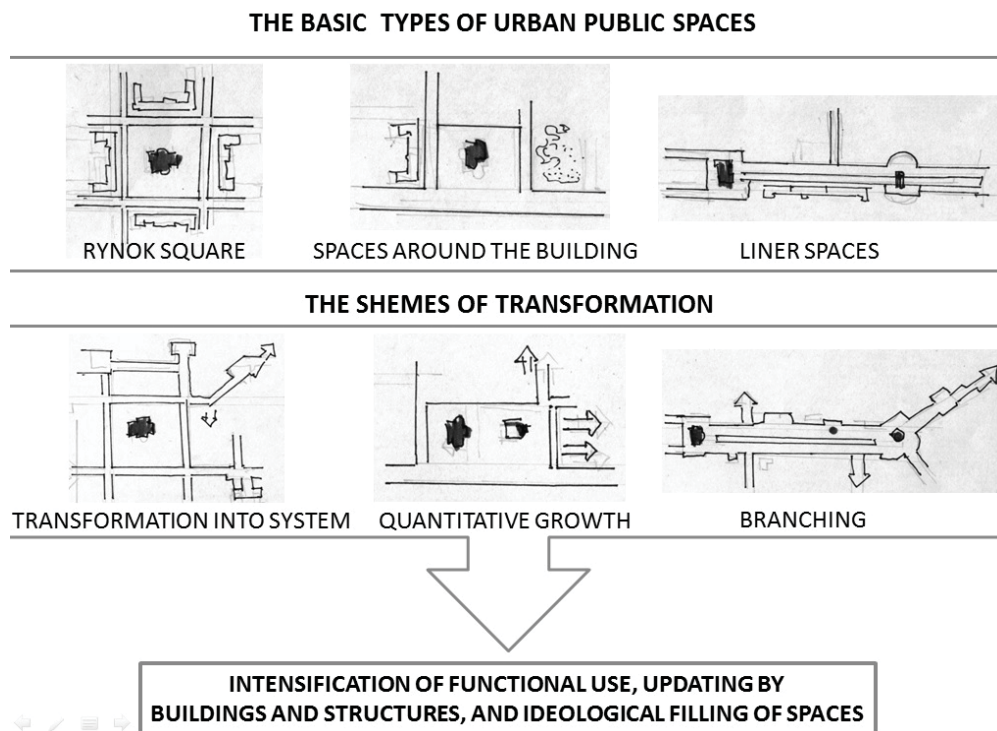
The huge volumes of industrial construction, that caused population growth from 441 000 in 1959 to 753 000 inhabitants in 1989, was accompanied by mass housing construction. Big housing districts, which were built with the typical houses, were the spaces of single generation without accumulation of experience of previous

generations (Kotukov O., 2015). The monotonous new spaces encourage looking for the aesthetics of the city in the environment, that became socially significant in the upbringing of a Soviet man (Ikonnikov A., 1972).

The period of Ukrainian independence after 1991 generated the tendencies, caused by the appearance of new factors, which influenced the character and the scale of the city on the whole and its separate elements. The first factor was lost of industry that had great social consequences, and in the urban aspect it caused the release of great postindustrial areas, which need to change the function.

One of the most important achievements of urban politics in Lviv was the conservation of its historical center, which belongs to the List of World Cultural Heritage. Modern change of image of the center was characterized by the construction of UkrSotsBank building on the Mitskevych Square and Opera hotel on the Svobody Avenue, which attract the ambiguous attitude of the citizens to the buildings. New ideological meaning was given to central spaces by the monuments of T. Shevchenko, M. Hrushevskyi, I. Honta, which are Ukrainian historical symbols.

The important factor of new city spaces became restoration of their spirituality that was implemented in renewed temples, which used to be a ruin or warehouses. New temples of different confessions were built mostly for all territorial communities. The commercial function of the spaces became the priority meaningful in the peripheral areas (Pivdennyi Market, hypermarket “Aushan”, commercial center “Forum”). Housing development, that in different times had different volumes and character of construction, adapted to new conditions of free market economy. Single buildings of houses or new housing districts are adapted to the interests of private developers. The basic types of urban public spaces and their transformation are shown in the Fig. 3.



**Fig. 3.** The basic types of urban public spaces and their transformation

As a result of urban transformations of Lviv one can state that its beauty, spirit and historicity are provided by stable functions and abilities of architectural and planning solutions of its spaces in the endless process of renewal.

## 6. Conclusions

So the compressed analysis of urban spaces transformation during XX–XXI centuries showed that the period before 2d World War was the most efficient, when the city was built according to European experience and traditions. The urban spaces formed in that time especially in its central part, which hasn't been influenced

by coming up generations, became nowadays a magnet for numerous tourists. In the same time Lviv's experience showed the co-existence of spaces of different ages and their modern use.

The architectural and urban planning principles of spaces transformation comprehension is important for all participants of this process: the citizens – consumers of “their” spaces, self-government bodies that make managerial decisions, investors, without whom any reconstruction is impossible, and architects, urban planners – direct performers of transformations, who bear responsibility for the unique environment of the city, where different epochs co-exist.

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## ТРАНСФОРМАЦІЯ МІСЬКИХ ПРОСТОРІВ ЛЬВОВА XX–XXI СТОЛІТТЯ

***Анотація.** Міський простір можна інтерпретувати як місце загальних комунікацій, яке в матеріальних та просторових вимірах відповідає системі соціальних центрів (квадратів), міських артерій – автомагістралі та вулиці, зелені простори. Перетворення міського простору – це регулярний і безперервний процес, що впливає з динаміки розвитку міста. Характер міських перетворень обумовлений соціально-економічними процесами та ціннісними критеріями суспільства, а також специфікою міста. Розглянуто історичні аспекти формування міських просторів Львова, охарактеризовано фактори впливу на рівень і особливості процесів їх трансформації, визначені загальні риси архітектурно-планувальної зміни просторів в процесі розвитку міської тканини. Виявлені сучасні тенденції і напрямки перетворень міського середовища. Важливим чинником нових міських просторів стало відновлення своєї духовності, яка була реалізована в оновлених храмах. Комерційна функція просторів стала пріоритетною у периферійних сферах. Розвиток житла, що в різний час мав різні обсяги та характер будівництва, адаптований до нових умов вільної ринкової економіки. Одинокі будівлі будинків або нових житлових районів адаптовані до інтересів приватних забудовників.*

*Стислий аналіз трансформації міських територій протягом XX–XXI століть показав, що період до 2-ї світової війни був найефективнішим, коли місто будувалося за європейським досвідом і традиціями. Міські простори, що склалися в той час, особливо в його центральній частині, на яке не вплинули майбутні покоління, стали сьогодні магнітом для численних туристів. У той же час досвід Львова продемонстрував співіснування просторів різного віку та їх сучасного використання.*

*Архітектурні та містобудівні принципи розуміння трансформації просторів важливі для всіх учасників цього процесу: громадян – споживачів “своїх” просторів, органів самоврядування, які приймають управлінські рішення, інвестори, без яких ніяка реконструкція неможливо, та архітектори, містобудівники – безпосередні виконавці перетворень, які несуть відповідальність за унікальне середовище міста, де існують різні епохи.*

**Ключові слова:** міський простір, трансформація, міське середовище, площі.

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## THE USE OF THE B. HILLIER'S METHOD FOR THE SIGNIFICANT CITY PUBLIC SPACE ANALYSIS

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**Abstract.** The article covers the subject of professor Bill Hillier's methodology for the analysis of urban spaces. This technique for research of the structures, that are differently ordered and have different purposes, is adaptive and applied to review city public spaces as independent system as well as the city structure element of the highest order.

**Key words:** the structure of the city, methodology for the analysis of urban spaces, public space

### 1. Introduction

Socioeconomic changes in Ukraine has promoted the urbanization process. Increase of the urban land by using a density factor which also embraces urban public spaces is the most distinctive feature. Unfortunately existing approaches in urban design, particularly in the organization of the city environment, were they used to be efficient in the past, nowadays have become inapplicable or non-operated in new market conditions.

The research of the modern techniques in urban design causes to consider the studies in related fields or to investigate objects which have similar principles of operation.

B. Hillier's method is one that can be useful for the research of the public spaces of the city. Bill Hillier is the Professor of Architectural and Urban Morphology in the University of London, Chairman of the Bartlett School of Graduate Studies and Director of the Space Syntax Laboratory at University College of London.

As the original pioneer of the methods for the analysis of spatial patterns known as 'space syntax', he is the author of *The Social Logic of Space* (Cambridge University Press (CUP), 1984, 1990) which presents a general theory of how people relate to space in built environments, *Space is the Machine* (CUP, 1996), which reports a substantial body of research built on that theory, and a large number of articles concerned with different aspects of space and how it works (Space Syntax Limited, 2017).

The B. Hilliers investigative approach of the street network could be generally reflected as the theoretically methodologic foundation in the urban structures foundation. Urbanist A. Gutnov based the urban structure investigation value, in particular when it is about the carcass element. According to him, the intersection of the highways, consolidated with the functionally important objects, are the knots tying mechanisms. This is about the space that formed as the community centers of the planning areas. According to Gutnov, these are territories of the consistency of high intensity development and transport high accessibility, which are optimal conditions for the business development nowadays. As knot tying mechanisms that take the main role in urban structure, these territories "become the most sustainable through the time, relatively constant parts of the urban planning system" (Gutnov, 1986).

Well-known K. Lynch`s book *The Image of the City*, published in 1960, displays that people consider city space as five-elements structure. The first are the connections, streets, sidewalks. The second are different kinds of barriers, obstacles, fences, buildings. The third are areas, city districts that are relatively big parts of the city that distinct from their identity or nature. The fourth are the knots – centers. The last one – the fifth part of the city space are spatial orientations – objects, that are easily identified.

Different ways of grouping city space objects or features can be indicated as fixative parts. “The unity of the territories with close or related features ...with purpose to gain new territory features ... may occur as the cluster” (Kryvoruchko Y., Kryvoruchko O., Petryszyn H., 2013).

Researchers also considered the mechanisms of city structure conduct as part of the scientific reports. In particular composite aspects of the city formation and consolidation of its knot elements are introduced in Y. Idak`s monography (Idak, 2011).

O. Panchenko`s researches of urban fabric symmetryzation could be also interpreted as approximate to the B. Hilliers methods. In complicated system, which is city, “symmetry serves as group forming way” and helps the city with its development “aspiring to ideal” (Panchenko, 2012). City districts designed with use of symmetry are more sustainable to further planning changes. Scilicet existing local symmetric structures acting in further planning changes may become knot tying mechanisms in the city carcass.

**Purpose of the article is** to present possible use of the Hillier`s method in the urban practice and his theoretical research of the urban structures and networks, especially of the city public space network.

**Research methods.** The basis of the research is transferring the cartographic material – mapping of the city – into cartogram, using binary code. As in sociologic research, specifically in the questionnaire method, explication of the results, their interpretation and verification are important.

## 2. Presentation of basic material

For a long time Bill Hillier researches syntax that means construction and order of making city networks. He published scientific works, dedicated to the urban structures and methodology of their analysis (Hillier, 1989, 1996, 2004). As a functional outcome some parts of the city may distinct – streets, spaces, that have perspective to disseminate their features on the adjacent territory. The scientist outlines them as ones that have “moving potential” or “priority spaces”. This is new theoretic knowledge of the city viewed as a system that organises itself depending on the city network geometry.

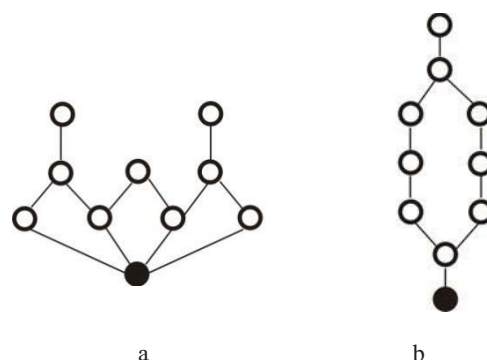
In the research, except physical parametres of the urban space, outlined function and features of its user, there may also be considered description of the position of each space in relation to all the others – “relations that take into account other relations”.

This layout is interpreted as integrated (Fig. 1a) or as segregated (Fig. 1b) element in urban space network.

Considering amount of integration connections of separated layout we can mathematically place the whole space into the scale from integration to segregation. Accordingly, we gain the integration scheme of the urban spaces.

Although integration criteria in Hillier`s method don`t have the outlined parameters and this technique is considered to be auxiliary and subjective, it reveals the possibility of cross-analysis. Thus, based on integration city space schemes we can explore, for example, regional housing culture or interconnection of public spaces.

The author of the method considers two ways of structure-functional relations “space –society”. The first one, according to Hillier, is conservative (reproductive). The organization of such space represents social vision of situation, within it, amplifies it or reproduces. That is the primary function of the object and the space ensures



**Fig. 1.** Model of the variance of urban space functioning in relation to other spaces, Hillier, 2004

the functioning of the facility. These are the conditions of the space in the public facilities, agreed according to Ukrainian DBN 360-92 \*\* "Urban development. Planning and development of urban and rural settlements."

In fact, it is the same type of the parameters, function and conduct in these spaces, that you can design using method of templates or other term – patterns. This design method was developed by K. Aleksander.

However, according to B. Hillier, city is more complicated organism, that is self-organised, so that it can't contain only the typical templates. The problem of the space syntax is that city territories with the same purpose or statements – as size of the housing group, open area ratio etc – are very similar. So that, K. Aleksander's method of templates has to be restituted.

The second way of the structural-functional relations is "space – society". That is if space creates new opportunities of the social cooperation, encourages the user to action. With the changes in the economy and the changing in nature of society new models of urban space are created and, in accordance, new ways of behavior. However, implementation of the same models of space (for example, area near typical shopping mall) in cities that differ by culture and morphology will happen in different ways. This space-conduct differences may be one of the city identity criteria.

According to B. Hillier, cities are "large collections of buildings held together by a network of space: the street network. The network is the largest thing in the city. It is what holds it all together". By analysis of city street network we can see the difference of the network density. There are cities, whose road network has a bit of continuous lines and numerous short stretches of street intersections, contiguity, dead-end passages.

The main part of analysis, by Hillier, is section of the street between intersections. We analyze the correlation between segment of the street between two intersections and adjacent segments. The analysis is to transfer image data in a binary system. More specifically, the distance between the center of the selected section of the street and the center of the adjacent segment is set to "1" if there is a change in direction between the selected segment and the adjacent segment, and is set to "0" if there is a change of direction. Accordingly, the direct connection is arranged – 0-character line that is a sequence of 0-evaluated connections. This is how the linear structure of the city is marked.

The next step is to calculate the syntactical integration of street network elements, or mathematical proximity which measures how close each segment is in relation to others. The length of distance between elements is being calculated, minimizing the path between each pair of segments. As follows how a system with the least amount of turns on the map is being found. Standard dimension of search system with the least amount of turns is performed for the territory within a radius of 2 km. For the sake of clarity, performed measurements are remarked with coloured symbols (or by gradations from white to black). The most stable network with the fewest turns is marked in red, the most segmented sections – in blue. This method essentially determines the potential for the development of space, as one of the criteria of space quality.

Thus, part of the network indicated in blue are blind: they have no potential for direction development. They can be regarded as fragments of the urban network of exhausted possibilities for further urban density. This data fragments of the city are not able to accept additional functional load or take planning complications.

The network marked in yellow can be interpreted as a logical structure that controls content in a structural order of surrounding urban areas. This network has stocks of resources to be consolidated with new features and buildings.

The network marked in red can be interpreted as a framework to develop the capacity for both of the structures – frame of the city, and its fabric and functional content.

Study of the real movements in the city revealed, that people move, perceiving the geometry of the space by angle fracture of the street axis, but not the actual metric distances. Thereby, if the distance between A and B is larger than between C and D although bends of the street or space are smaller, so the majority – up to 80 % according to B. Hilliers research – will choose the trajectory with the smallest angle of changing path.

Processing B. Hilliers method we conducted it on mapping the Lviv city. Analysis of the Lviv city street network is done by measuring the average distance from each other space to all of them (metric

means depth). It is defined that the criteria for “priority space” by B. Hillier in Lviv is the rectangular network of streets at the Market Square and the area around it (Fig. 2, a, b). As well as the space, that has the potential to develop, highways of the city importance are distinguished. That was expected to radial city (Fig. 3). Areas of apartment buildings of 60s-80s are the “patches” in the structure of the city with more resources to development and complications (Fig. 4). This definition is confirmed by the density of these areas with new buildings, especially with new functions. So that Sykhiv, Levandivka, Shchurata streets have had the built-of shopping centres, markets for fifteen years. The first floors of residential buildings have completely been passed into the various types of business. In addition, density of areas usage in these regions has increased, also mainly because of open-typed trading facilities and cafes. In general, the nature of the network of “priority spaces” in Lviv has the patch nature, combined with the centre with the use of radial directions (Fig. 5).



**Fig. 2.** Street network of the central part of Lviv city: a – a common network, b – identified as “prior spaces” according to the B. Hilliers method. Source: the author analysis



**Fig. 3.** Preferred fragments of the city street network. Source: analysis of the author.



**Fig. 4.** Areas of the city, that have received impetus to the high-quality development despite the priority of Lviv street network pieces. Source: analysis of the author.



**Fig. 5.** Territories that will rapidly develop on the basis of street network potential by B. Hillier's theory. Source: analysis of the author

Monitoring the event activity in the city also confirms the B. Hilliers theory about priority spaces of the city and their dependence on the geometry of the street network. The most significant events in the city, both of cultural and commercial nature, and social actions are held in spaces along the streets with the lowest angles of rotation as well as with the nearby streets of the smallest grinding.

Indirectly B. Hilliers theory is consistent with the K. Lynch's investigations regarding the perception of urban space during movement of people (Lynch, 1960). Because of the lack of composition in some of the territories, overall perception of the city deforms. An appropriate formulation was obtained by K. Lynch – if “direction of movement has the lack of recognition, then the whole image of the city remains unclear”.

Analysis of urban structures, made by the Hillier's method, is based on decisions of planning acceptance. For example, we can use it in the election of the distribution direction for central functions of the city and public space of the city center. As downtown of many cities have exhausted their capacity of critical operating space per indicators for pedestrians density and density functions per unit area (Panchenko, 2012), a question arises in what direction the city center should be developed.

There are two city districts that are suitable for Lviv to solve the task of development of the centre functions using the criteria of “continuity” as the qualitative structural unite according to the graphical analysis. They are the Chornovil's Avenue with surrounding neighborhoods and the territory between Shevchenko Avenue, Stefanik street and Doroshenko street. With some breaks in the structural grid, the second section goes on through the Ivan Franko Park and covers the area between the streets of Bandera and Metropolitan Andrey to Horodotska street. The quality of the section, the axis of which is the Kopernik street, it is said in the research of potential formation of art city clusters of Lviv. The authors of the research distinguish this territory as the one with the most number of art and cultural functions and attractions (Kryvoruchko Y., Kryvoruchko O., Petryszyn H., 2013). As the second district has a hilly relief, the Chornovil's Avenue has the priority in development of the city-wide functions, as it is said by the urbanists of several generations (O. Nowakowsky, O. Pidlisnyy, M. Habrel).

According to the Polish researcher Dorota Wantuch-Matla “public spaces of the new suburbs operate in isolation from the traditional multi-functional city space systems. In addition, they are separated from them with communication thread” (Wantuch-Matla, 2016). Otherwise, transport and pedestrian network can be the only one combining element between the local public spaces.

Thereafter, we can talk about the interchangeability between pieces of lower order network, which can be the urban space network, and the elements from higher hierarchical network. In our case, higher hierarchical network is the network that is more completed and structural with no gaps – the transport network. City structures as street network, pedestrian links and public spaces of the city are interconnected. By laying new public spaces or modernization the existing ones can be achieved the ‘healing’ of the urban structures, that were separated due to the urbanization or flawed planning decisions (Wantuch-Matla, 2016).

Appropriately, the results that concern the functional hierarchy of street network by Hillier's method can be the foundation for further research of the other urban structures or separated structure elements: public spaces, landscaped areas, forming local urban communities.

With feedback and multiplier effects – once one shop appears, others follow – this is the fundamental ‘city creating process’ by which cities evolves from collections of buildings to living cities, with busy and quiet

zones, often in close juxtaposition, and with differentiation of areas according to the detail of how they are embedded in the larger scale grid.

City networks conducts are similar. Based on this statement, B. Hillier`s theory of the structure conduct is important in urban public space researches. Assuming that street structure forms movement flow even at a certain distance as well as patterns of land use, then such statements must be sought in the network of public spaces. There is a network of public spaces that has the potential to progress in other parts of the city where this typological unit does not exist. In other words, if qualitative public spaces are formed in the city center, then patterns of these spaces will be taken over by adjacent districts. Appropriately, urban districts, which had lower environmental quality, will take patterns from better-organized spaces. Therefore, these spaces will become both economically and socially more effective.

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Надія Соснова

## ВИКОРИСТАННЯ МЕТОДУ Б. ГІЛЛЬЄ (B. HILLIER`S) ДЛЯ АНАЛІЗУ ГРОМАДСЬКОГО ПРОСТОРУ ЗНАЧНІШОГО МІСТА

**Анотація:** Методика дослідження міських структур різного порядку і функцій Білла Хіллера є адаптивною і прикладною у розгляді громадських просторів міста, як самостійної системи так і елементу міської структури вищого порядку. В результаті застосування методу можна виділити ділянки міста – вулиці, простори, що мають потенціал до поширення своїх характеристик на сусідні території. Б. Хіллер окреслює їх як такі, що мають “потенціал руху” або “пріоритетні простори”. Це нове теоретичне розуміння міста як системи, що самоорганізується в залежності від геометрії міських мереж.

Найбільш структурованою і сталою в місті можна вважати вуличну мережу. Згідно методики Б. Хіллера, з точки зору розподілу довжини лінії у вуличній мережі, найменший відтинок приймається за масштабний модуль. Основний елемент аналізу – відрізок вулиці між перехрестями. Аналізується співвідношення відрізка вулиці між двома перехрестями чи примиканням і сусідніми відрізками. Аналіз полягає в розрахунку математичної близькості, яка вимірює, наскільки близько кожен відрізок знаходиться по відношенню до інших, зводячи до мінімуму шлях між кожною парою відрізків. Таким чином знаходимо систему з найменшою кількістю поворотів та безсистемних примикань у вуличній мережі, яка, згідно Б. Хіллера, має найвищий потенціал до подальшого розвитку міської тканини.

Опрацювання методу Б. Хіллера проводилося на топозйомці м. Львів. Визначено, що критерієм “пріоритетного простру” за Б. Хіллером у Львові відповідає прямокутна мережа вулиць площі Ринок і ділянки докола неї та магістралі загальноміського значення, що було очікувано для радіального міста. Загалом, характер мережі “пріоритетних просторів” у Львові має характер плям, поєднаних з центром радіальними напрямками.

Отримані результати можуть бути основою для досліджень міських структур чи окремих структурних елементів, таких як громадських просторів, ландшафтних територій, локальних міських обцин.

**Ключові слова:** структура міста, методика дослідження міських структур, публічний простір

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[1] Kovalskiy D. and Plekhov V.: Neorganichna Khimiya. Naukova dumka, Kyiv 1990.

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Journalpaper: Authors (4), journal (all the words with a capital letter), year, volume, initial page

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Patents: Authors, country and patent number, date of publication

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Conference: author, title of the conference, country, city, year, initial page.

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