

## CONSERVATION OF THE RESIDENTIAL AND PUBLIC ARCHITECTURE OF THE 19<sup>TH</sup> - EARLY 20<sup>TH</sup> CENTURIES (ON THE EXAMPLES OF KYIV AND CRACOW)

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### Abstract

*The article examines the phenomenon of "pseudo-Gothic" and "neo-Gothic" in the residential architecture of historicism-eclecticism in Kyiv and Cracow in the 19th – early 20th century. There are three essential features of historicism with elements of Gothic: free interpretation by architects of the "token" elements of medieval Gothic which were often combined with the elements of Renaissance and Baroque architecture and some details of Art Nouveau; "Kyiv neo-Gothic" was a purely "facade style", which did not affect the changes in the characteristic plans of residential buildings; the limited use of stylized and simplified Gothic motifs. In Kyiv, the appearance of Gothic stylizations in architecture was explained by general enthusiasm for the ideas of romanticism. But in Cracow, as in whole Poland with a rich heritage of the Middle Ages, it was an attempt to revive the national style – the embodiment of national identity. The difference between the Cracow neo-Gothic style and the Kyiv one was primarily in the fact that such buildings were not so numerous and were only public or sacred objects. The peculiarities of the restoration of such buildings are associated with the use of a large number of the complicated finely detailed decor, ornamental masonry, and stained-glass windows.*

**Keywords:** Gothic motifs; Stylization; Facade style; Kyiv; Cracow; Residential buildings; Public buildings; Churches; Features of restoration.

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### Introduction

In the scientific literature, there are two definitions of this stylistic trend of historicism – the "pseudo-Gothic" and the "neo-Gothic". The term "historicism" itself, concerning the architecture of the 19th century, according to V. Yasievich, was introduced in the middle of the 20th century by N. Pevzner. He united the Romanesque, Gothic, Renaissance and Baroque reminiscences of this period in one general concept. And the emergence of historicism is associated with the spread of the ideas of romanticism in literature and art. V. Tymofiienko [1] proposed to distinguish between "pseudo-styles" and "neo-styles", denoting the term "pseudo-styles" – the architecture of the 19th century and "neo-style" – the architecture of the 20th century. In his opinion, pseudo-styles, including pseudo-Gothic, evolved from simple to complex and sought to accurately reproduce elements of historical styles. While neo-styles (neo-Gothic) developed from complicated to simple, and in the process of turning to historical

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styles, they provided for their simplification and stylization, often influenced by the Art Nouveau style (modernized neo-Gothic).

Given the poorly understood problem of pseudo-Gothic and neo-Gothic, the sources were analyzed that studied the reasons and features of its appearance in different countries, archival sources related to the history of the construction of pseudo-Gothic and neo-Gothic houses, publications on the morphology of forms and composition of such objects, modern computer methods of their study, as well as a plethora of publications related to the problems of the loss of authenticity and degradation of the urban environment and the restoration experience of different countries, including examples of pseudo-Gothic and neo-Gothic buildings.

Since each study is preceded by the correct designation of the object of research, the authors drew attention to the sources that argue the difference between the pseudo-Gothic of the 19th century and the neo-Gothic of the early 20th century. In the second half of the 19th century, Kyiv, like Central and Western Europe, and also the cities of the Russian Empire, experienced a fascination with historicism-eclecticism in architecture and the analyzed sources confirm this commonality of trends, although a comparative analysis of objects in Ukraine and the countries of Western Europe confirms the conclusion that, with distance from the centre where the style originated, it acquires a more eclectic character, mixing with local architectural traditions [2-5]. Along with pseudo-Renaissance, pseudo-Baroque, even pseudo-Moorish buildings, the mansions and tenement houses with lancet windows, portals with stepped blind arches and towers with stylized pinnacles adorned Kyiv streets. The Gothic motifs were exclusively popular in Kyiv in the last quarter of the 19th century and at the beginning of the 20th century, although there were significantly fewer such buildings than buildings using motifs of the Renaissance, Classicism, "brick style" and clearly expressed eclecticism.

Unfortunately, historicism with elements of Gothic as one of the trends in architecture of the 19th-20th centuries, which did not have the stylistic purity and did not become a full-fledged formed style, remained mostly "out of the attention" of the researchers of Kyiv architecture of this period. Therefore, the scientific analysis was mainly built on archival materials and those from the authors' field surveys.

Basic information about the original facade solution and layouts of Kiev buildings was obtained based on the study by Y. Ivashko of archival materials, which made it possible to clarify the total number of pseudo-Gothic and neo-Gothic buildings in Kiev, some of which have not survived. The main advantage of such archival sources is that they made it possible to compare the degree of changes in the facades of buildings and the loss of decorative elements, which is of particular importance in the restoration of such objects. The lack of study of the issue of the pseudo-Gothic and neo-Gothic heritage required using as basic sources the following archival documents: the "Address-calendar and the reference book of the Kyiv province for 1888"; "The address and reference book "All Kyiv" for 1900 – 1915" and also the design materials of the "Ukrrestavratsiia" corporation.

Today in Kyiv there are about 50 buildings with Gothic elements on their facades. At the same time, as mentioned earlier, Gothic motifs were used in a rather loose interpretation and did not imply literal adherence to the medieval patterns. Besides, one should take into account the fact that the dominant type of pseudo-Gothic and neo-Gothic building in Kyiv was a multi-apartment mid-rise elite apartment building which did not exist in the medieval Gothic period. And so, the facade "Gothic" decor was actually "hung" on the existing structure of a tenement dwelling. And the Gothic decor was not associated with the layout or with the solution of the interior spaces. Such a limited field of application of Gothic motifs as a facade decoration for tenement houses and mansions was explained by the fact that the "Gothic" decor was more costly and difficult to manufacture, and it was much easier to solve the facade of an apartment building in a "brick style". Also, the architect-author of the project had to navigate the features of Gothic architecture and skilfully use Gothic motifs in buildings of a fundamentally different functional purpose. It largely explains why, along with most of the "unnamed" residential

buildings of the indicated period, pseudo-Gothic and neo-Gothic houses are always associated with the names of the famous architects – V. Nikolaiev, V. Bezsmertnyi, N. Vishnevskiy, M. Klug, K. Shiman, N. Gordenin, N. Dobachevskiy.

Despite the rather extensive "Gothic" heritage of Kyiv, not all buildings were equivalent in architecture. Fourteen best and most successful in terms of volumetric-spatial composition and stylistic solution of facades can be distinguished among the total number of buildings with Gothic motifs. The following apartment buildings should be mentioned here: 1 Yaroslaviv Val street, 19 Shovkovychna Street, 34 Pushkinska Street, 31 Taras Shevchenko Boulevard, 36a Taras Shevchenko Boulevard, 10 Malopidvalna Street, 7 Irynynska Street, 23 Hoholivska Street, 8b Taras Shevchenko lane, 2b and 2v Andriivskiy Descent, as well as a few mansions at 4 Verkhniy Val Street, 14 Pankovska Street, 34 Taras Shevchenko Boulevard. From this list, the mansion at 14 Pankovska Street and the apartment building at 7 Irynynska Street were demolished. The original apartment building at 31 Taras Shevchenko Boulevard was knocked down; the mansion at 34 Taras Shevchenko Boulevard was resettled.

The neo-Gothic heritage of Cracow and analysing its specificity was studied by [6-15]. The authors of these publications describe the changes in the architecture of Krakow during the period under study, the main trends of historicism and eclecticism, the history of outstanding objects, and characterize the work of prominent architects and artists, which allows us to conclude that the high level of the Krakow neo-Gothic style was due to the centuries-old medieval traditions of the city.

The comparative analysis of Gothic stylisations in Poland and in Central Ukraine determined the more eclectic peculiarities of Ukrainian buildings in compare with Polish buildings, especially in Cracow with rich medieval heritage. This proves that in the absence of the Gothic heritage, neo-Gothic motifs acquire a more simplified character.

The problems of studying buildings with Gothic elements are related to the problem of preserving the historical environment of the city as a whole, which is especially important for the cities of Ukraine, where the degradation of the existing historical buildings in the second half of the 19th and early 20th centuries is associated with the invasion of modern buildings and the violation of protected zones. Therefore, the topic of the presented research is directly related to sources that analyze the difference between restoration, reconstruction and modernization of historical objects from the point of view of international monument protection and restoration legislation.

The topic of this research is connected to problems of restoration, rehabilitation and possibilities of reconstruction of any parts of historical objects for different functions. Authors studied sources about specific meanings of the term conservation and differences between those terms: "Accordingly, the broad sense of the term conservation must be acknowledged, specifically as the preservation and safeguarding of a cultural or natural heritage asset, through maintenance activities meant to transmit it to future generations, involving a complex set of measures to be taken with respect to its discovery, classing, storage, protection, and valorisation"; "In the case of renovation works, we have the example of interventions made to the old buildings on Lajos Kossuth Street in Győr, Hungary, where it can be easily noticed that the generally accepted principles of reintegration (especially the aesthetic-artistic reintegration) were not respected. In the case of rehabilitation, it is often the case that due to a desire to adapt the building to modern standards, thermo-insulated glass is used, in which case it infringes the *primum non nocere* principles of minimal intervention and reversibility" [16]. Based on the real experience of Ukraine, where buildings with Gothic elements are mainly former apartment buildings and low-rise mansions, there are few examples of complex restoration where the authenticity of facades and their details were preserved, since such objects are mostly privately owned. The owners of apartments and buildings often rebuild and modernize their properties, which provokes the degradation of the existing historical environment. The publications about the role of the preservation of the cultural environment, problems of degradation of the cultural

heritage and decision-making processes were analyzed, because they are very relevant to the preservation of the pseudo-Gothic heritage, especially in big cities of Ukraine where most such buildings are residential houses without modern level of comfort and in need of repair [17-19].

The lack of understanding of the need to preserve such buildings with elements of Gothic in the cities of Ukraine is largely due to the fact that, in the cities of Central and Left-Bank Ukraine, Gothic architecture was perceived as a kind of exotic, transferred to an alien environment, along with other trends in historicism, which was generally typical for "many styles" period of the second half of 19th – the beginning of 20th centuries [20]. Other authors who studied the phenomenon of style transformation in the non-native environment came to similar conclusions [21].

The sources connected to specific conservation of Ukrainian Gothic objects were analyzed because these objects mostly influenced the stylistics of "pseudo-Gothic" in the 19th – 20th centuries. Particular attention was paid to the description of the conservation technologies [22].

Since Ukrainian and Polish objects with Gothic elements corresponded to the general spread of these trends in European architecture, the sources about Gothic and "pseudo-Gothic" in Germany in the 19th century also were analyzed, especially texts about specific of materials and constructive schemes: "a brick building had massive fireproof segmental ceramic floors resting on iron girders, so-called 'Preussische Kappe' or brick vaults (cross or barrel ones resting on girths) in separated with firewalls archives and library zone, but wooden ceilings outside it (above housing and office rooms)", "the structure of library buildings and their fittings at the end of the 19th century in Germany were the subject to high technical requirements. The building structure had to be insulated from humidity and fire. The collections were protected against excessive temperature, both humid and dry air, dust and source of fire. The space of a book storeroom had to have good air circulation and the optimal temperature was 13–14 °C. Balanced temperature and humidity as well as uniform supply of day light to the shelves in storage libraries were assured by open-work landings dividing iron framework structure into storeys about 2.40 m high" [23]. With both historical period's authors described the main principles of compositions, far-spread forms with high roofs, gables and towers, similar with "pseudo-Gothic" building of 20th century in other countries – in England and in Poland [24, 25].

In special conservation sources, the description of the typical peculiarities of Gothic construction schemes and new methods of their studying using the computer methods (for example, the analysis of spatial data concerning the vault's geometry) has been studied [26].

The block of scientific restoration research connected with problems and methods of restoration of Ukrainian objects, dated to the 19th – 20th centuries, is represented by the other publications [27-31] which the specific restoration activity in Ukraine and in Poland, history of building and restoration of architectural monuments, stylistic peculiarities, typical building materials and constructions of the latter half of the 19th and the early 20th century were described. The publications about protection and restoration of industrial plants from the studied periods are related to the theme of our research, because motifs of "historicism" and typical building materials and constructions were also used in these objects, which is why the main elevations of buildings from the studied period can combine motifs of Gothic, Renaissance, Moorish, "brick style" architecture, and later – Art Nouveau architecture [32-36]. These publications were the key to understanding the eclectic nature of Gothic stylisations in the 19th – 20th centuries, especially in the territory of Central and Left Bank Ukraine.

## Materials and Methods

There are only few publishing sources about this heritage in Ukraine, which is why the authors used the archival drawings of objects, and materials from the author's investigations.

The other problem involves the changed elevations and disappearing details of these buildings after their reconstructions in the Soviet times. That is why authors analyzed the original drawings of these objects to determine the typical peculiarities of Kyiv pseudo-Gothic and neo-Gothic heritage, as the basis for their restoration and protection.

The principal ones were the graphical-analytical method and the comparative analysis. The basis for the graphical-analytical method was the illustrations made by Y. Ivashko from archival drawings, the author's reconstructions and photographs when the archival drawings were lost, or when the building was built with a deviation from the original project. The descriptive method, the historical analysis and comparative analysis, as well as archival photographs, were used to study the neo-Gothic objects of Cracow.

The main aim was to systematize pseudo-Gothic and neo-Gothic heritage, identify their characteristics, building materials and structures, and describe the practical experience of restoring buildings from this period.

## Results and discussion

### *Peculiarities of Kyiv buildings with Gothic elements*

The most noteworthy among Kyiv residential buildings with elements of Gothic chosen for the analysis, can be systematized according to their urban planning position, style of facades, planning and decorative features. By typology, residential buildings with Gothic elements can be divided into mid-rise commercial apartment buildings and mansions.

It should be noted that the development of private estates with buildings with Gothic elements on the facades took place in line with generally accepted building rules and regulations. The vast majority of the 14 studied houses (13 objects) are placed between adjacent buildings, except for the mansion at 34 Taras Shevchenko Boulevard (corner placing). The houses at 4 Verkhniy Val Street, 34 Pushkinska Street, 19 Shovkovychna Street, 1 Yaroslaviv Val Street, 8b Taras Shevchenko Lane, were built on the flat area. The houses at 2b and 2v Andriivskyi Descent, 7 Irynynska Street, 23 Hoholivska Street, 14 Pankovska Street, 31, 34 and 36a Taras Shevchenko Boulevard, were built on sites with a slope. Examples of placement of such pseudo-Gothic and neo-Gothic buildings on the complicated terrain are recorded ("Richard's Castle" at 15 Andriivskyi Descent; the tenement building at 10 Malopidvalna Street).

There are four types of compositional solutions for the main facades of buildings with Gothic elements. From the point of view of the compositional solution, the most successful one was the solution of the main facade with its central part higher than the entire volume of the building, and the accented front entrance, especially when the central part was completed with a high roof, a tower, a spire or a decorative attic (houses at 1 Yaroslaviv Val Street, 19 Shovkovychna Street, 31 Taras Shevchenko Boulevard, 10 Malopidvalna Street). The second type of compositional solution provided for the same height of the central and side parts (house at 14 Pankovska Street); the third type – the raised side parts without highlighting the lowered central part (house at 4 Verkhniy Val street). The fourth type is associated with the additions of the upper floors carried out in later years and the levelling of the different heights of the parts of the facade (houses at 34 Pushkinska Street and 31 Taras Shevchenko Boulevard).

The analysis of the stylistic features of Kyiv buildings with Gothic elements on the facades allowed us to distinguish three groups according to the degree of decoration:

- 1) the buildings with minimal Gothic decor;
- 2) the buildings with emphatically detailed complex Gothic decor;
- 3) the buildings with a combination of Gothic and Art Nouveau decor on the facades.

At the same time, it was the main facades oriented towards the street or the square, that were chosen for the analysis, since the architects did not pay attention to the stylistic solution of the courtyard and side facades, except for those cases when the building stood at the corner (a

mansion at 34 Taras Shevchenko Boulevard) or was all-facade (the "Richard's Castle" at 15 Andriivskyi Descent).

The first group of buildings is characterized by minimal Gothic decor on the facades, often by the presence of lancet windows on the top floor, or a neo-Gothic crowning. At the same time, the building can be distinguished by a dynamic silhouette and original composition of volumes, like the "Richard's Castle", where there is minimum decor though the building becomes unique due to its successful fit into the natural relief of a dynamic volume with an abundance of towers, turrets and sharp-angled gables. Simpler examples are houses at 36a Taras Shevchenko Boulevard and 8b Taras Shevchenko Lane.

The second group of buildings is characterized by the presence of emphatically detailed Gothic decor in combination with specific forms – towers with pinnacles and finials, lancet windows and entrances. These are mainly mid-rise "elite" commercial apartment buildings with multi-room expensive flats (the house at 10 Malopidvalna Street and similar houses at 2b and 2v Andriivskyi Descent, buildings at 19 Shovkovychna Street, 1 Yaroslaviv Val Street, 34 Pushkinska Street, at 31 Taras Shevchenko Boulevard). The same group includes mansions at 14 Pankovska Street, 34 Taras Shevchenko Boulevard (Fig. 1), and 4 Verkhni Val Street (Fig. 2).

The third group of buildings, which appeared not at the end of the 19th but at the beginning of the 20th century, is characterized by a combination of Gothic and Art Nouveau elements on the facades. The complexity of the harmonious combination of such different styles explains the scarcity of the successful examples, among which the house at 23 Hoholivska Street can be ranked. The originality of this building lies in the fact that it simultaneously contains and harmoniously combines both the signs of Gothic and Art Nouveau.

The accentuated asymmetry of the main facade composition elongated rectangular windows, a semi-circular window with two sculptures of cats on the sides, sculptures of owls on the sides of the entrance, and mascarons on the balcony were borrowed from the decorative Art Nouveau. Neo-Gothic features are the central part of the main façade with its Gothic gable with the chimaera and stylized stepped machicolation separating the third and fourth floors, while Gothic motifs are present in the framing of some windows and balcony balustrade.



**Fig. 1.** The main facade of the mansion at 34 Taras Shevchenko Boulevard.



Fig. 2. The main facade of the house at 4 Verkhniy Val Street.

The neo-Gothic character shows in a corner bay window in the stylized medieval tower and a balcony on the top floor. Consequently, the signs of Art Nouveau are present primarily in the side parts of the facade on the 1st – 3rd floors and in the solution of the entrance part; the signs of neo-Gothic are visible in the solution of the central part and the upper floor with crowning.

Since historicism with elements of Gothic became a stylistic trend primarily for the mid-rise commercial apartment buildings, it explains the simplification of forms and especially of the Gothic decor on the facades, as such decor was expensive. House owners rarely spent money on decorating facades with Gothic ornaments with plant motifs and stylized machicolation instead of intermediate cornices; in Kyiv, there were practically no examples of the classic solution of a Gothic window with a wimperg – a high acute-angled carved gable above it. The stylized wimperg is present only on the facades of the houses at 19 Shovkovychna Street and 31 Taras Shevchenko Boulevard. A much more prevalent technique was the use of the lancet form of window and door openings without framing decor. For the same economic reasons, the owners very rarely ordered Gothic facades to be crowned with towers and pinnacles with spires in their house designs, the ribs of which in Gothic architecture were decorated with crocket – decor in the form of a leaf or a flower. Medieval Gothic pinnacles and gables were traditionally crowned with a finial or a figured spire. The stylized pinnacles are present only in five Kyiv buildings with Gothic elements – at 19 Shovkovychna Street, 23 Hoholivska Street, 4 Verkhniy Val Street, 31 Taras Shevchenko Boulevard and at 15 Andriivskiy Descent. Pinnacles adorn the side wings of the building, or its central part, and sometimes both. Examples of the most successful stylized neo-Gothic gable are the gables on the main facades of houses at 19 Shovkovychna Street and 23 Hoholivska Street. A bay window tower on several floors with a high spire is present only in the famous "House with Winged Monkeys" at 1 Yaroslaviv Val Street, where an accent bay window tower, giving rise to analogies with the French castles of Chaumont and Le Roy on the Loire, is in harmony with the high "French" roof (Fig. 3).



**Fig. 3.** The exterior of the house at 1 Yaroslaviv Val Street.  
The pre-revolutionary postcard from the funds of Y. Ivashko

Each architectural style in the process of evolution has acquired a characteristic "window formula". So, during the medieval Gothic period a lancet window with a stained-glass filling appeared, which received the most vivid embodiment in Gothic cathedrals. When the Baroque style dominated in Ukraine, architects interpreted the "window formula" quite freely, combining windows of different sizes and shapes within the same facade (the exception is the final stage of the Baroque – the transition to classicism). During the period of classicism, the "window formula" was expressed in the use of rectangular and semi-circular windows with classical decor, which were strictly symmetrically placed on the facades. The architects who used Gothic motifs as a basis deliberately deviated from the prevailing medieval designs, and combined lancet windows with elements of classicism, Art Nouveau and outright eclecticism, which led to the eclecticism of the "window formula" in pseudo-Gothic and neo-Gothic. That is why in the Kyiv buildings with Gothic elements, there are simultaneously lancet, rectangular, semi-circular windows, decorated with "Gothic" floral ornaments, rustication, cats, owls and chimaeras.

If we talk about the most prevalent forms of windows in Kyiv "pseudo-Gothic" and "neo-Gothic" residential buildings, these are lancet and rectangular windows. The lancet windows are of three types: simplified ones without decor (the house at 34 Pushkinska Street);



with simple decor (the house at 14 Pankovska Street) and with complicated, close to the original décor (the house at 19 Shovkovychna Street).

Rectangular windows were often framed with the so-called "Tudor" crown mouldings. Predominantly, rectangular windows were located on the lower floors of buildings, and lancet windows were fitted on the upper floors (the houses at 14 Pankovska Street and 34 Taras Shevchenko Boulevard). In addition to lancet and rectangular windows, in the Kyiv houses with Gothic elements there were semi-circular ones (the houses at 10 Malopidvalna Street; 31 Taras Shevchenko Boulevard), grouped by two or three windows, not necessarily in the Gothic style (combined by three windows in the Art Nouveau style on the facade of the house at 23 Hoholivska Street).

The peculiar features were the stylized Gothic rosettes or rose windows, which most often illuminated the ground or the first floors of the main staircase (the houses at 2b and 2v Andriivskiy Descent, 10 Malopidvalna Street and 19 Shovkovychna Street).

Such elements of Gothic architecture as portals with stepped blind arches or lancet arches on driveways are on the facades of houses at 19 Shovkovychna Street and 1 Yaroslaviv Val Street.

If we talk about the placement of decor on the plane of the main facade, then the largest amount of decor was usually located in the central part, less often on the sides or only on the sides of the facades. The architectural stucco decoration played a significant role in the creation of the "castle" romantic image of the building. In some cases, the stucco decoration corresponded to the style of the building (for instance, chimaeras, or floral Gothic ornament). But in most examples, it existed, as it were, separately from the Gothic stylistics of the facade.

Unlike the neo-Renaissance and neoclassical interpretations, the Kyiv pseudo-Gothic and neo-Gothic style practically did not use anthropomorphic decor depicting human figures or mascarons; zoomorphic, teratological, phytomorphic and heraldic decor was used much more often which, however, is typical for most other branches of Kyiv historicism. The teratological decoration was also not a literal reproduction of Gothic designs. Medieval Gothic chimaeras in the Kyiv interpretation on the facade of the castle-house at 1 Yaroslaviv Val Street transformed into winged monkey chimaeras supporting the bay window tower above the low front entrance to the estate and, as it were, carefully looking at those passing under them. A chimaera also decorates the gable of "The House with Cats" at 23 Hoholivska Street; another chimaera hangs from the wall of the house at 8a Velyka Zhytomyrska Street. Such a teratological decor could have the form of a volumetric sculpture (as in the building at 1 Yaroslaviv Val Street), a bas-relief, be the principal decorative theme of the facade (the house at 1 Yaroslaviv Val Street) or a secondary theme (the house at 23 Hoholivska Street).

Plant phytomorphic ornamentation most often decorated sub-cornice planes, cornices, gables, the central part of the facade, and phials. Pinnacles, gables and wimpergs were decorated with a specific Gothic element "crocket" in the form of twisted leaves growing out of stems. Phials, pinnacles, towers, gables and intersections of the ribs of the vaults were decorated with finials, decorative stylized flowers with one or two pairs of leaf sprouts – "cross flowers". With the help of decoration, the architects emphasized the tectonics of the building – the lower floors were less decorated than the upper ones – to create the effect of lightness of the upper floors with the owner's apartments, and expensive rented multi-room apartments. In some cases, for visual lightening effect, the cornices and brackets were adorned with floral ornaments or sculptural images of chimaeras.

When the landlords of the houses were aristocrats who wanted to emphasize the antiquity of the family, they used heraldic decoration. State Councillor Baron Rudolf Steingel in his pseudo-Gothic mansion at 27 Vorovskiy Street (Bulvarno-Kudriavska Street) placed his own and his brother Magnus's initials in the wrought iron railing of the loggia. And above the main entrance of Baron Ikskul-Gildenband's tenement house at 19 Shovkovychna Street, there

was a place for a stucco image of the coat of arms of the family known since the 12th century, – a symbolic shield with a crown, lions and weapons.

Later, at the beginning of the twentieth century, this whim was adopted by wealthy merchants, industrialists and bourgeoisie. For example, A. Frolov just immortalized his initials in Latin in the cartouches of "twin houses" at 2b and 2v Andriivskyi Descent.

If the stucco decoration on the facades of Kyiv houses with Gothic elements has survived well, the decor of the interiors of most buildings has practically disappeared, though it was usually not associated with the style of the main facade. As a rule, it was a typical decor in the form of borders, frieze bands, decorative "mirrors", rosettes, and plafonds with plot compositions. Even in the houses with Gothic elements, the interiors usually had a Renaissance-Baroque or neo-Russian character.

### ***The neo-Gothic trend in the Cracow architecture***

The neo-Gothic trend in the architecture of Cracow, as well as in Poland as a whole, developed since the middle of the 19th century as one of the branches of historicism, which used examples of styles of bygone eras (Gothic, Renaissance, and Baroque) for artistic, ideological and political purposes. Architectural theorists, who study this historical period, outline the neo-Gothic style as trying on the "costumes" of the eras of the past. In particular, the flourishing of the neo-Gothic was associated with the rethinking of the heritage of medieval architecture. In the Cracow architecture, the neo-Gothic trend was expressed in both sacred and public constructions [6].

Among the outstanding examples of Cracow's public buildings of neo-Gothic architecture, built in the 19th century, are the following buildings: the Main Railway Station building (budynek Dworca Głównego); the building of the Shooting Society (budynek Towarzystwa Strzeleckiego); the building of the "Sokol" Gymnastics society (budynek Towarzystwa Gimnastycznego "Sokół"); New College (Collegium Novum). While analyzing along the way the manifestations of the Neo-Gothic in sacred buildings, we should undoubtedly mention the Church of St. Joseph in Podgórze (kościół pw. św. Józefa w Podgórzu), and the Chapel of Blessed Bronislava near the Kościuszko Mound (kaplica bł. Bronisławy obok kopca Kościuszki) [8].

An important direction in the Cracow neo-Gothic in the 19th century was restoration (conservation) activity, which involved revalorization and modernization of Gothic architectural monuments. Feliks Księżarski, Karol Kremer, Karol Knaus, Władysław Ekielski, Zygmunt Hendel and Franciszek Mączyński were the most prominent representatives of Cracow neo-Gothic architecture [9].

The complex of the Main Railway Station in Cracow was built in 1847 according to the design of Piotr Rosenbaum, an architect from Wrocław, at the expense of the Joint-Stock Company of the Cracow – Upper Silesia Railway Line (Towarzystwo Akcjonariuszy Kolei Krakowsko-Górnośląskiej) (Fig. 4). Architectural theorists characterize the architectonic forms of the station as a combination of neo-Gothic and arcades [10].

It should also be noted that the object comprises three massive cubic risalits. As the main accent of the composition of the building, one should name the side facades which rise above the railway tracks in acute-angled arcades, crowned with four narrow acute-angled turrets, between which two exits to the platforms are designed. The arcades are completed by a high attic with niches with semicircular or segmental arches. The facades are decorated with inter-floor and under-window friezes and under-window panels. Iron is widely used in the structures of the building, and the structures themselves acquired a neo-Gothic character, which subsequently led to the popularisation of iron structures in the Cracow architecture of the period. It should be noted, however, that the building was slightly altered and partially lost its original appearance.



**Fig. 4.** The view of the Main Railway Station building at the beginning of the 20th century. Photo: Archives of Department of History of Architecture and Monuments Preservation, Faculty of Architecture, Cracow University of Technology

Another interesting example of a neo-Gothic public building is the seat of the Shooting Society (siedziba Towarzystwa Strzeleckiego), located within the Strzelecki Garden (Park Strzelecki). The author of the development project, completed in 1837, was the architect Tomasz Majewski in collaboration with Franciszek Maria Lanci (Fig. 5). The complex consisted of a palace with a medieval tower and a pavilion with a large shooting hall. The complex, with its neo-Gothic forms "fashionable" at that time, was intended to serve as a reminder of the traditions of the Shooting Society in Cracow [6].



**Fig. 5.** The view of the building of the Shooting Society at the beginning of the 20th century. Photo: Archives of Department of History of Architecture and Monuments Preservation, Faculty of Architecture, Cracow University of Technology

The volume of the building, closely attached to the protruding arched portico, differentiated in height. Bearing and non-bearing walls are made of bricks. In the main hall, the floors are ready-made building elements on steel jacks. In the basements, there are barrel (cradle) vaults on dividing arches. Above the entrance portico, there is a vault based on an acute-angled arch, and there are cradle-type vaults in the hall, the rearward indoor spaces, as well as in the basements. The building is erected on the plan of an irregular quadrangle with an expressive drop in the main hall section. Its facades are made of unplastered bricks, except for the rear facade, and are decorated with beautiful brick details.

The next notable example of a neo-Gothic public building is the edifice of the Gymnastic Society "Sokol" at Pilsudskiego Street, designed in 1889 by Karol Knaus and implemented five years later by Teodor Talowski (Fig. 6) [13]. The object has two expressive parts, which is associated with the already mentioned construction. Both parts are based on a rectangle, but the later part of the building is slightly wider and protrudes in front of the volume designed by K. Knaus which is more balanced in architectural appearance. The part of the building realized by T. Talowski is freer in terms of detailing, but it harmoniously combines with the earlier one. The main façade of the earlier part is symmetrical, with seven axes, accentuating the entrance and highlighting the axes with large rectangular windows, between which there are buttresses typical for Gothic. The main facade of the later part of the building has five axes; the entrance is located on the middle axis. Just like his predecessor Knaus, Talowski used here the buttresses which visually joined two parts from different times into one. The side facades are also a Gothic nod through the use of pointed tops and buttresses. The building is decorated with a fresco by the artist Frederick Lachner and interior decor by Anthony Touch [7].



**Fig. 6.** The view of the building of the "Sokol" Gymnastic Society at the beginning of the 20th century.  
Photo: Archives of Department of History of Architecture and Monuments Preservation,  
Faculty of Architecture, Cracow University of Technology

In the group of the sacred neo-Gothic objects we should mention the Church of St. Joseph in Podgórze, built according to the design by Jan Sas-Zubrzycki in 1905 – 1909 (Fig. 7). Initially, the architect completed a competition project for the design of the Church of the Savior in Warsaw. Later the primary idea was somehow modified. It should be noted that the project fully corresponded to the context of the site, i.e. Podgorski Market [12]. Earlier on this site there was a church in the classicist style, which, due to its insufficient size, could not accommodate the number of believers. The church, built at the beginning of the 20th century, was a three-nave building with a transept, an ambulatory around the presbytery and the chapels at the side aisles. The building is crowned with ribbed cross vaults. The dominant feature of the shrine is a tower that rises above the "kamienice" (residential tenement buildings made of brick or stone) around the Podgorski market and imitates the tower of Saint Mary's Basilica. The interior of the church is designed according to the Gothic model in the style of "Vistula" Gothic with numerous altarpieces, pews, and other attributes of religious activity, made of wood. Wall decor in the form of polychrome and sculptures was executed by Bukowski *et al* [6].



**Fig. 7.** The view of the Church of St. Joseph in Podgórze at the beginning of the 20th century.

Photo: Archives of Department of History of Architecture and Monuments Preservation, Faculty of Architecture, Cracow University of Technology

It is impossible to ignore the restoration activities, which were often carried out in the neo-Gothic style in the indicated period. In this regard, at least the example of restructuring of the Collegium Maius, which took place in three stages, should be mentioned. The first stage (restructuring of the eastern wing) took place under the supervision of Karol Kremer, the second – Tomas Majewski (Fig. 8), the third – Felix Księżarski. Among other things, the changes affected the volume of the internal staircase, the installation of new window openings and new ornamentation, which used the style of different eras. The atmosphere of authenticity was created by ancient architectural details, as well as sculptures transferred here from other Cracow sites. A reference to the "Gothic of the Crusaders" is the use of the types of pointed arches, characteristic for the "Vistula-Baltic" Gothic [6]. In addition to the general praise of the described restoration, it should also be noted that such a clear interference in the structure of an architectural monument led to criticism of some members of the restoration industry.



*Features of the restoration of architectural monuments of the second half of the nineteenth century and the early twentieth century (experience of the “Ukrrestavratsiia” corporation)*

The main methods for strengthening masonry are: 1) re-laying the brickwork of the walls, 2) making of the outer cage of "the belt" with bandage metal bracings, 3) arranging a confining element in the thickness of the longitudinal and transverse walls by drilling horizontal wells with a diameter of up to 70mm ("boreholes") with the installation of reinforcement and filling them under pressure with cement mortar (as a variation of the Italian method of Fernando Lizzi "Raticolo cementato"), 4) replacement of load-bearing elements of walls and brick partition with concrete or a metal frame, 5) injection of brick or rubble masonry with mortars, 6) reinforcement of brickwork with cementation (Italian method "cemented mesh", "Raticolo cementato"), 7) replacement of ruined bricks with significant efflorescence, 8) strengthening the brittle brick with putty on the outer surface of the cavities and filling the joints if the size of a cavity is less than 5cm.

Injection work is carried out in the following sequence:

- clean the brick joints of the walls and fill them with cement mortar and point up the mortar joints;
- after the solution has hardened in the joints of the walls, holes (boreholes) are drilled with a diameter of 20 – 40mm at an angle of about 200 from the horizon with a step of 500 mm

and, as an option, reinforcement (with a diameter of 20 – 32mm) is introduced there for better connection of the walls;

- fix the pipe for injector;
- the solution is injected into the wall under pressure. Injections are carried out in two stages with a time interval between stages not exceeding 48 hours;
- to maintain static, work is carried out carefully in stages with the adjustment of the amount of solution in one operation. Boreholes filling is considered complete if a column of the solid thick mortar is formed in the boreholes (cracks), or the mortar is not moved into them under a pressure of 0.3 – 0.5MPa. To prevent the cement slurry from "shrinking", bentonite is added in a proportion of 2 – 3% by weight of the cement. In Old Russian masonry, lime mortar with powdered brick was used as a binder, and the mortar for injection is often similar.

Injection of brickwork and rubble of foundations is carried out with cement mortar. Injection of brickwork of facade walls is carried out in two stages:

a) a more liquid lime-cement mortar 1:0.7, and then 1:1, also, add 10 – 30% of slaked lime;

b) in the dry walls add white stone dust 10 – 30%, and in the wet ones - powdered brick (1 part of lime, 1/3 part of finely powdered brick, 1 part of cement, 2 parts of sand), in a wet state, grind and filter through a sieve.

To strengthen brick walls in Italy using the "Raticolo cementato" ("cemented mesh") method, as a rule, 3 – 4 holes are made per 1 square meter of the wall, and the length of one borehole is three times the thickness of the wall.

To seal caverns in brick, use ready-made mixtures of German companies "Caparol", "Nekel" or prepare the following composition themselves: lime paste – 1 part, powdered brick – 3 parts, cement – 0.5 parts, iron minimum to the desired colour, polyvinyl acetate emulsion 5 % to the volume of water.

To eliminate caverns in white stone masonry, the following composition is used: lime paste – 2 parts, white cement – 0.75, white stone dust – 3 parts, sand – 3 parts, polyvinyl acetate emulsion 5% by volume of water. To increase the water resistance, ethyl silicate – 0.1 part of the weight of the polyvinyl acetate emulsion – is added to this composition. Hydrophobization of brick and white-stone structures and an increase in frost resistance are provided with a 5% solution of organosilicon fluids.

The nature and extent of the damage determine the way of restoring the brickwork: sometimes destroyed bricks are replaced with similar new ones; sometimes lost fragments are supplemented with special mortars. Before this, the surface of the brickwork is cleaned of dirt, efflorescence, and old paint and varnish layers are removed, after which they proceed to putty chips, caverns in the surface layer of the brick and fill in the masonry joints with mortars close to authentic.

Loose brittle brick is fixed with reinforcing mortars based on polymeric materials; then the brick surface is covered with hydrophobic substances.

The method of cleaning the wall surface from contamination is determined by the wall material. Brick walls are cleaned by a chemical method (sometimes in combination with a manual, mechanical or water-jet steam cleaning method). Chemical cleaning includes the elimination of fatty contaminants with organic solvents and their mixtures (alcohols, ethers, ketones, aromatic hydrocarbons, carbohydrate terpenes, mixtures of aliphatic and acyclic compounds, chlorinated hydrocarbons, acid amides, inorganic and organic acids). An aqueous solution of ammonium fluoride is used in combination with a synthetic substance to remove dense atmospheric pollution from the surface of stone, brick, ceramic tiles.

Fragile layers of efflorescence are removed from surfaces with brushes and scrapers using an aqueous solution of hydrochloric acid, but this method cannot be used to clean soft marble and limestone.

The surfaces are cleaned from biofouling with the use of a benzene-ammonia mixture. After that, the cleaned surface is washed with water. Rust spots are removed with solutions of oxalic, hydrofluoric, citric, orthophosphoric acids. Old paint and varnish coatings are removed with special removers which consist of acids, alkalis, salts and organic solvents.

After any method of cleaning surfaces, the top layer of the surface is damaged and requires protection by applying strengthening and hydrophobic compounds.

The restoration of the basement and the basement floor involves the removal of water-soluble salts from the outer walls of the basement, injecting cracks in the masonry, conservation and restoration of the surface of brick masonry, conservation and restoration of the surface of the stone in the facing.

As the experience of practical restoration shows, the walls of most architectural monuments contain water-soluble salts, the content of which is due to the age of the landmark and the conditions of its existence. Most of the salinization is observed at the level of the basement sections of the walls at a height of up to two meters from the ground. The salinization of the walls leads to the sharp increase in the sorption properties of the walls, and the formation of efflorescence on the surface, which leads to the gradual destruction of the surface layer. The process of demineralization of the thickness of the masonry precedes the restoration of monuments.

For the laying of limestone or clay brick walls, a technology for demineralization of the basement of the walls to a height of 2 – 3 meters has been developed. The method for extracting water-soluble salts is based on the use of a direct current applied to the electrodes in a capillary-porous system of masonry filled with a vapour solution, and under the influence of the current, the salt solution is displaced from small pores in large drainage times, from where, under the pressure of gravitational forces, the solution moves down. The process of demineralization under the influence of an electric current occurs throughout the entire thickness of the masonry, the salt content in the upper rows of the masonry gradually decreases and increases in the lower rows, from where the salts pass into the soil. The condition for the completion of the demineralization process in thicker masonry is the permissible salt content in the lower part of the wall at a depth of 5 – 10cm from the side of the installed anode. As practice shows, desalting lasts 2 – 3 months. This work is usually performed in April – June. After the completion of the demineralization work, wall waterproofing work starts to prevent secondary salinization.

The restoration of gables and cornices provides for the injection of cracks in the masonry, the conservation and restoration of the surface of brick masonry, the restoration of plaster, the use of weather-resistant facade paints, the re-plastering or replacement of destroyed gypsum and cement fragments and arranging the protective and decorative coatings, the preservation of damaged wood of windows, wood preservative, its insecticidal processing, the arrangement of modern paint and varnish and decorative coatings for wooden surfaces, restoration of metal elements of windows.

Restoration of bay windows includes injecting cracks in masonry, preservation and restoration of the surface of brick masonry, restoration of plaster, use of weather-resistant facade paints, preservation of damaged wood of windows, antiseptic treatment of wood, its insecticidal treatment, application of modern decorative painting and varnish coatings for wooden surfaces, restoration of metal elements of windows.



The restoration of arches includes injection of cracks in masonry, conservation and restoration of the surface of brick masonry, restoration of plaster, and application of weather-resistant facade paints.

Column restoration consists of injecting cracks in the masonry, preservation and restoration of the surface of brick masonry (if the columns are made of bricks and plastered and painted), prosthetics of destroyed gypsum or wooden columns, the restoration of plaster, application of weather-resistant facade paints.

The restoration of balconies involves the replacement of destroyed concrete slabs, complete or partial replacement of gypsum and cement sculptures, the restoration of forged and cast artistic gratings made of ferrous metal.

The restoration of windows includes the preservation of damaged wood of windows, wood preservative, its insecticidal treatment, modern paint and varnish and decorative coatings for wooden surfaces, restoration of metal elements of windows.

Painting of the facades of architectural monuments is carried out as the final stage of the complex restoration work. Before painting the facades, an examination of the remains of the old layers of paint is carried out, the level of salinity of the masonry and the plaster layer is determined, the restoration of brickwork and plaster is completed, and the colour of the facades is determined for the period adopted for the restoration. While maintaining the original colour scheme, it is allowed to use present-day high-quality facade paints. Painting the walls of historical objects involves preparing the surface for painting, preparing and applying a primer, putty and facade paint. The paints of the companies "Caparol", "Nekel", "KEIM", which exceed the warranty period twice, have proven themselves notably well if the technology of work is adhered to.

Concrete, brick and wooden surfaces of facades are painted with lime paints, especially in case of high humidity of the walls. Concrete and brick walls can also be covered with cement and polymer-cement paint solutions.

Exteriors and interiors of houses of the second half of the 19<sup>th</sup> – early 20<sup>th</sup> centuries, which include both pseudo-Gothic and neo-Gothic objects, are divided into mass (in residential buildings, typical public buildings) and unique (in the most significant public buildings, palaces). In mass exteriors and interiors, moulded parts of cornices and plafonds were typical, mass-produced; in unique ones – each element of the interior was developed by famous architects, painters, sculptors, carvers, therefore it is of great artistic and architectural value.

In the second half of the 19<sup>th</sup> – the beginning of the 20<sup>th</sup> centuries, stucco decoration was used in the interiors, it was gilded. From the beginning of the 20<sup>th</sup> century, cement decor was used. Plaster decor is located both on the ceiling and on the walls. The stages of its restoration include cleaning paint layers from the fragment, complementing gaps using the "pre-gypsum" method by applying gypsum mortar to emergency areas with the addition of lime dough, and the lost parts of a complex configuration are made by casting in moulds from formoplast. Reproduced fragments are glued back on using plaster mortar, and large parts – with dowels. If the parts are covered with gilding, first the surface is washed, then the remnants of the old gilding are removed, the cleaned and filled-in surface, is cleaned with sandpaper, swept over with a dry brush and fixed with hot linseed oil and wood glue. The soil for the gilding of gypsum parts is a dense and hard coating of chalk, gypsum (kaolin) or glue, levels are applied in several layers – the first layer is stronger, the subsequent ones are less durable, but thicker. The levkas (the ivory ground) is applied with a bristle brush on the glued surface of the base in layers, drying each layer, then grease the places of irregularities with thick levkas, clean and grind several times.

The method of gilding on the polymer is also used, but it is more laborious.

## Conclusions

An analysis of Kyiv buildings with Gothic elements on the facades proves that most of the objects show characteristics of eclecticism and only single objects can be considered examples of "pseudo-Gothic" or "neo-Gothic".

Due to the complexity of the design of such buildings and the cost of construction, Gothic motifs are manifested primarily in elite mid-rise commercial apartment buildings and much less often in mansions.

The buildings surveyed include houses with minimal use of Gothic décor, houses with intricate Gothic décor, and houses with a combination of Gothic and Art Nouveau décor. The first two groups of buildings were built in the last quarter of the 19th – early 20th centuries, the third – exclusively at the beginning of the 20th century. At the same time, the forms and decor of Kyiv buildings, although in general inherited the signs of medieval Gothic, were distinguished by their simplification compared to the originals. It was also explained by the fact that "pseudo-Gothic" and "neo-Gothic" became the stylistic direction of predominantly profitable construction, which imposed some restrictions. Typical layouts of apartment buildings did not provide for the use of Gothic motifs; the plans remained T-shaped, L-shaped, U-shaped, rectangular, regardless of the stylistic solution of the main facade. The most striking examples, where there is an original layout, volumetric-spatial composition, characteristic morphology of forms, the richness of decor on the facades and in the interiors, are the apartment building of Michal Podgorsky at 1 Yaroslaviv Val Street (architect N. Dobachevskyi) and the apartment building of Baron Ikskul-Gildenband at 19 Shovkovychna Street (architect N. Vyshnevskyi).

Summing up the review of the heritage of the Cracow neo-Gothic, it should be noted that this direction was one of the trends in the architecture of Cracow in the 19th and early 20th centuries. Its appearance was a response to society's expectations for the creation of a "national style". As already mentioned, the neo-Gothic style manifested itself primarily in Cracow public buildings, churches and took place in the event of rebuilding and modernization of previously built objects.

As the experience of "Ukrrestavratsiia" corporation showed, the typical walls in buildings of the end of 19th – the beginning of 20th centuries were built with yellow Kyiv bricks of different sizes, with the use the different types of mortars such as the limestone mortar, the lime-sand mortar, the lime-cement and the cement-sand mortar, lime-cement-sand, and cement mortar. That can combine brick walls and wood walls.

The overall focus should also be turned to the needs of the revalorization of these outstanding objects and the need to monitor their technical condition, which is relevant for the entire historical heritage.

The issues of the monument preservation are divided into the legal problems (imperfect system of monument registration; failure to comply with the monument protection requirements; inefficient work of the monuments protection authorities; the disparity between the national legislation and international law) and the restoration issues directly associated with the work of the restoration industry, and methods of their solution, which is the subject of the submitted research. The main issues to be solved for the preservation of architectural heritage in Ukraine, including its restoration are: insufficient legislative and legal regulations for the preservation and restoration of monuments; consequences of their uncontrolled exploitation

(accident rate, violations of statics of buildings, changes in the hydrogeological conditions under foundations, loss of parts of foundations, etc.), the lack of the methodological and organizational framework, information system of monitoring and expert assessment of the monuments condition.

The state of development of the modern theory of restoration of monuments of the immovable architectural heritage provides a fundamental opportunity for scientific foresight of the consequences of restoration intervention in the life of a landmark (positive or negative) already at the previous stages of developing a set of measures to restore a monument, allows you to direct and facilitate the search for an optimal solution for its preservation.

The external surfaces of the restoration object are analysed in accordance with the first structural-logical model, which includes the foundation, the wall, the floor framing and the roof. The components of the process differ in the cases of a completely destroyed and reproduced object, a significantly destroyed object or a partially destroyed object. The causes, varieties and nature of damage to the main components of architectural and constructive systems were systematically reviewed: foundations and footings, walls, ceilings, floor framings, roofs and the methods to strengthen them.

The main reasons for the destruction of walls and old masonry are the violation of the static system "footing-foundation-building", changes in hydrogeological conditions, an increase in the level of groundwater with an aggressive environment, in which lime mortar cannot be effectively used; unorganized drainage or emergency condition of the roof, ageing of masonry mortars; a decrease in the strength and bearing properties of stone, bricks and plinth forms; an increase in the load on the wall as a result of rebuilding and building additional floors; changing the functional purpose of the building and, as a result, placing equipment in the building that creates vibration.

The causes of the emergency condition of stone walls are associated with a change in hydrogeological conditions, with the subsidence of footings and foundations (this leads to deformation of walls, their wetting, destruction of the masonry, the appearance of cracks); unorganized drainage from the base and roof, lack of waterproofing foundations and basement, absence of foundation blind area; damage to drainpipes and gutters, aging of mortar solutions; decrease in strength and load-bearing properties of stone, brick, plinth; increase in the load on the wall as a result of rearrangements and superstructures of additional floors; a change in the functional purpose of the building, and as a result of it, placing equipment in the building that creates vibration.

The lack of established decision-making procedures in the field of restoration of architectural monuments, a structured knowledge base: logical inference and input of information, on accumulated facts and rules, with insufficient, in comparison with the volumes of design and research works in the field of restoration of objects of immovable cultural heritage, the number of experts, testifies to urgency to raise the issue of creating an expert system (ES) on restoration and reconstruction works.

The scientific novelty of the article consists in the systematization of the little-studied neo-Gothic heritage and in an innovative systematic approach to the restoration of such objects, when an architectural monument is considered as a system integrity and is presented in the form of a model with a set of constituent elements, for each of which the problems of an emergency state and ways of solving them are systematized.

Using the example of the existing objects in Kiev, restored by the specialists of the "Ukrrestavrtsiia" corporation, the main reasons for their destruction were identified and the successive restoration measures and the materials and chemicals used were described.

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