Restoring Art Nouveau

Architectural Decoration in the Danube Region

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Architectural Decoration in the Danube Region

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László and József Vágó, Darvas-La Roche Villa, detail of the brass radiator enclosure, Oradea, 1909–12

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Foreword

The present volume is the result of special transnational cooperation.

The "Interreg. Danube Transnational Programme" cooperation framework created through European Union support launched a project in 2017 that introduces the collective Art Nouveau architectural heritage of the Danube River region.[1] The goal of the project was to draw attention to the role in the region's common artistic heritage played by this group of monuments, which have received little notice and therefore are endangered in many cases. Due to this, the partners participating in the project have striven to present a single freshly restored historic property or group of buildings of major significance in their immediate area. This created an opportunity on the one hand to draw attention to the importance of this work, and on the other hand to make recommendations or draw conclusions in connection with the particular tasks and problems presented, which could be of use in other similar professional projects.

This international endeavor, in which Slovenian, Bulgarian, Romanian, Croatian, Serbian, Austrian and Hungarian colleagues worked together, began with a workshop/roundtable discussion between the 9th and 11th of October 2017 and then there was an international conference and workshop held on the 6th and 7th of November in Budapest. There, the representatives of the participating institutions brought to light the parallel histories and lessons to be learned from the restoration of these buildings with common artistic roots through case studies brought from their own countries.

The essays found in the present volume are based upon the presentations that were given at this conference, but have been adapted in every case in accordance with the focal points of the publication. The aim of the volume was to provide through the essays published here a more detailed explanation, and in many cases a broader elaboration, of the problems brought up in the presentations. All in all, our goal was the creation of a publication that would contribute important information to the knowledge of Art Nouveau architecture in the Danube region that has been growing favorably.

In terms of the structure of the book, a thematic arrangement has been chosen. This has also made it possible for the sizable preponderance of bourgeois architectural projects (residences, apartment houses and mixed-use urban buildings) in the architecture of the era to become apparent, in addition to presenting restoration projects on emblematic Art Nouveau buildings of outstanding significance. This latter circumstance puts the spotlight on the urban middle class and elite: the people who typically commissioned and used these buildings, thereby becoming the ones that disseminated Art Nouveau architecture throughout the Danube region. Amongst these buildings, two stylistic trends can be distinguished. One uses geometrical shapes and draws on Viennese models; while the other is richer in floral ornamentations and motifs from local folk art. The first indicates the influence of Otto Wagner and his circle, the latter that of Ödön Lechner and his followers. The studies in this book represent both trends: Lechnerian Art Nouveau was most widespread in Subotica (in Hungarian Szabadka) and Oradea (in Hungarian Nagyvárad), and Wagnerian Secessionism was more common in Maribor, Zagreb and Botoşani.

The paper that leads into the essays of the volume is the study by László Czifrák on the Museum of Applied

1 The title of the project that runs between 01 January 2017 and 30 June 2019 is, "Sustainable protection and promotion of the Art Nouveau heritage in the Danube region"

Arts and the restoration of one section of the museum. This is one of the most famous buildings by Ödön Lechner, a founder of Secessionist architecture in the Danube region. The essay presents the restoration process of the entrance lobby, which is richly decorated with glazed pyrogranite ceramics. It points out that the poor condition of the cladding of this open lobby was not only caused by weather conditions, but also events that took place in the city in the recent past (the 1956 uprising and the construction of the subway in the 1970s). Here the restoration work was divided into two phases, the rescue, supplementation and replacement of the unique pyrogranite walls tiles, as well as the restoration of the ceiling made from the same material. The study in particular touches upon the special methods of restoring the damage to the elements, which for the latter is highly instructive from the perspective of the restoration of glazed terracotta elements, which are quite common in the region.

The next essay in the volume, by Aleksa Ciganovic, presents the restoration of one of the region's oldest Secessionist synagogues. The appearance within the city's architectural milieu of this sacred architectural work, which was designed in the modern architectural style of the time, in all certainty had an impact on the acceptance of Art Nouveau as an architectural style in the local society. Due to this it also had an influence on the modification of the overall stylistic appearance of private buildings. In connection with the Subotica synagogue, the author also touches upon the role of Art Nouveau in the architecture of Serbia at the beginning of the 20th century, while providing a detailed introduction to the outstanding Secessionist buildings designed by Marcell Komor and Dezső Jakab. The special characteristics of Secessionist synagogue architecture is discussed in particular, namely how Hungarian folk art motifs were employed as decorative elements in a form that was slightly altered and abstracted to a certain extent. In addition, the process of restoring the synagogue is presented in detail with particular consideration of the changes that took place during the individual phases of the project.

Through Gábor Dömötör's study of the Raichle Palace in Subotica, we are given an overview of the stages of the career of the architect Ferenc Raichle, and at the same time gain an insight into life in the social circles Subotica at the turn of the century. Dömötör, while placing the work within the Art Nouveau architectural trend defined by Ödön Lechner and Gyula Pártos as well as Marcell Komor and Dezső Jakab, provides a detailed formal description of the palace. The detailed history of the building's restoration brings to light difficulties caused by the differences in technology between the present day and the time of construction, which made it necessary to employ techniques equivalent to those used originally. The successfully completed restoration displayed the opportunities for cooperation that are being created in the region, which may also be of benefit in the future restoration of Art Nouveau buildings (Pécs – Subotica). To our deep regret, the author passed away not long before the publication of this volume.

Ramona Novicov emphasized the importance of preserving architectural monuments from the beginning of the 20th century that still define the architectural appearance of the city to a significant extent. She did this through the examples of restoration projects on two iconic buildings in Oradea, which has a rich tradition of Art Nouveau architecture. The study provides a brief art historical evaluation of the two buildings that are examined, the Black Eagle Palace and the Adolf Moskovits Palace, within the context of Oradea's Art Nouveau buildings. The Black Eagle Palace remains to this day one of the symbols of Oradea. Its restoration can serve as an example from the perspective of the future restoration of the other Secessionist buildings. Its elegant passage roofed with stained glass is an architectural curiosity, and represented a particular challenge from the perspective of restoration. The Adolf Moskovits Palace was the first example of the Viennese geometric Secessionist style in the city. The restoration of its façade ornaments and the reconstruction and replacement of missing elements using modern techniques represented an extraordinary task for the experts performing the restoration.

The Viennese buildings that Astrid Huber introduces in her study are also representative examples of the Art Nouveau heritage in the Danube region from an architectural perspective. In her essay, she presents the buildings of the early 20th century classified according to the materials used to clad the façades that were popular at the time. Plastering and cement, as well as materials of varying texture from different combinations of these two, were popular cladding materials at the

time, as were ceramics or brick. We can see examples of these on the works of such renowned architects as Joseph Maria Olbrich, Otto Wagner, Oskar Laske, Oskar Marmorek, Adolf Loos and Jože (Josef) Plečnik. Through the essay it is possible to gain a closer understanding of the Bundesdenkmalamt (Federal Monuments Authority) and the activities of its professional postgraduate training center, which on the basis of the experience it has gained in the restoration of walls and their cladding materials over several decades is today considered one of the most important professional organizations of its type in Austria.

The 19th century social and architectural backdrop of Maribor is placed in the forefront of David Mišič and Nina Nahtigal's essay presenting the city's elegant Art Nouveau building, the Baroness House. The detailed description of its architectural history properly points out the building's Viennese roots and the education of the architects in Vienna. The decorative elements that were imported from Vienna seem out of scale on this two-story apartment house that otherwise integrates into the urban fabric. The rehabilitation, which seems to have begun at the last minute from a structural perspective, was accompanied by additional architectural design work due to the building's new function. The revitalization and the building's integration into the life of the community called for it to be altered to accommodate the educational and research needs of the University of Maribor's Faculty of Electrical Engineering and Computer Science. On the one hand, alterations in line with its new function occurred on the interior of the building (the design of a glass-covered atrium with galleries), while the details of the interior were preserved (doors and windows) or restored (the stairwell). The exterior appearance also maintained the building's Secessionist style, which was even highlighted through special means (lighting).

The apartment houses presented by Eva Radolović fit in naturally with Zagreb's early 20th century modern milieu. The restoration of these buildings that have retained their original function was part of a local project that lasted more than a year, the goal of which was the revitalization of Zagreb architecture from the Monarchy and the early modern city. The stylistic introduction of the two urban apartment buildings (20 Đorđićeva Road and 80 Palmotićeva Road) is followed by a presentation of the restoration work. In this, a detailed description is provided about the difficulties that are represented by the reconstruction and remanufacturing of architectural decorations for buildings that have often had their ornamentation removed and archival sources necessary for the restoration are only partially available.

The next essay, the work of Iosefina Postăvaru, introduces early 20th century community buildings from two Romanian towns and their revitalization process. We learn of the construction and ownership history of an Art Nouveau villa building erected in Botoşani, as well as that of the Lutheran school built in Cinşor. The case studies of these buildings are informative beyond their histories, because they also show examples of how buildings that have lost their functions can be integrated into the present-day life of small towns in such a way that they are able to effectively shape a community through both proper use and the local history they embody. The building in Botoşani, now used as a Pastoral Cultural Center, and the one in Cinşor that is a conference center create a connection between the structures that are over a century old and the current users. The restoration of these buildings in these cases represented tasks that were related to the characteristics of local wooden architecture (treatment of dry rot and the recreation of decorations on tin roofs).

At the end of the book there is the presentation of an Art Nouveau building that is so renowned that today it has symbolic significance, and despite the fact that it is not part of the Danube region, there are two reasons that justified its inclusion within the project. The building in question is the Mackintosh School of Art building in Glasgow, which is an outstanding example of the world's architectural heritage. The work is at once a "sister institution" of the Museum of Applied Arts in Budapest that is coordinating the present project, or rather of the school of applied arts that was established with it at the same time. The educational structure of the Budapest institution shows many similarities with the institution from Glasgow. The Mackintosh School deserves particular attention from another perspective as well, because of the tragic events connected to the building. The building burned down twice, in May of 2014 and in June of 2018, creating historic preservation, architectural and restoration tasks and challenges the likes of which are not without precedent for colleagues working to preserve the vanishing architectural heritage from the turn of the last century. In Glasgow, the diffi-

culties of recreating spaces that have been completely destroyed or have only survived in traces and are only known from indirect sources, as well as remanufacturing individual wood, glass and metal objects in a form identical to the originals has placed special challenges before both the restoration experts and architects. The digital reconstruction also came to be of particular significance in the rehabilitation and reconstruction.

In conclusion, I believe that a volume of essays such as this can be a quite important product when considering the future as well. In other words, through the solutions provided for certain problems specific to an era or a genre, as well as through the consequences drawn from these, the project has created further possibilities for joint efforts in this direction. Hopefully, this will not simply end without some kind of continuation, and in the future there will also be organizations devoted to preserving the common European artistic heritage that provide the opportunity and space for inspirational cooperation of this kind.

Gábor György Papp

László Czifrák

Experience from the Conservation of the Zsolnay Architectural Ceramics in the Entrance Hall of the Budapest Museum of Applied Arts

The aim of this article is to highlight the exquisiteness and specific character of Zsolnay ceramics, which had become well-known by the end of the nineteenth century and were an important and expressive tool in Hungarian architectural decoration of the era. The uniqueness of these Zsolnay decorative ceramics originates from their high standard of craftsmanship, a great result of human ambition, zeal and empirical knowledge. It is more surprising, however, that this small family workshop took little more than two or three decades to reach the level of the large European porcelain and faience factories. In the beginning, their craftsmanship was mostly focused on the manufacture of porcelain faience and smaller decorative pieces. As market demands broadened and Zsolnay realized the opportunities in architecture, the production and development of architectural ceramics received additional focus from him as well. Zsolnay had a very close personal relationship with the great contemporary figures of Hungarian architecture, such as Frigyes Schulek, Ödön Lechner, Imre Steindl and others.[1] Some of these were good friends of his and even stayed at the Zsolnay factory as guests, which is verified by the memoirs of his daughter. The following quotation is taken from her memoirs:

"The architects lived with us. Our most frequent guests were Frigyes Schulek and Ödön Lechner, and this was the time when their lifelong friendship with my father and our family started."[2]

In the preliminary period, architectural ceramic decorations were first made of terracotta. The Italian term *terracotta* means "fired ground", and it means clay that is shaped and fired after a cleaning process. It is usually unglazed but sometimes is painted with engobe before firing, such as the ornamental ceramics of the Hungarian Parliament Building and the Opera House. In the history of architecture, the term architectural terracotta became popular in the nineteenth century for the fired clay made for exterior facings. Terracotta and majolica were preferred in both the Neo-Gothic and Neo-Renaissance styles due to the inspiration from these historic periods.[3]

However, following the initial experiences, the raw material of the traditional terracotta was altered, and thanks to additional material experiments, Vilmos Zsolnay and his team of experts developed their very own and unique raw material. This special ceramic type was given the name 'pyrogranite', and it was constantly being mass produced and further developed through research from 1890 forward. Due to this, he created a material that was suitable for durable building decorations. From the end of the nineteenth century, numerous buildings in Budapest and a significant number of cities in the countryside were decorated with pyrogranite.[4] Zsolnay pyrogranite proved to be a much more durable material for architectural decorations than those based on limestone, mortar or plaster, and mass production was also simpler since it used a set of negative forms.[5]

It is important to note, that over the period of more than one hundred years that has passed, these materials have also been damaged by the effects of weather, wars, and ever-increasing pollution. Because of this, by the end of the twentieth century the condition of these architectural ceramics had deteriorated to such an extent, that their restoration has today become increasingly urgent. However, due to the aforementioned sources of damage, there have been constant efforts at repair, but the methods employed were not always professional and so in certain cases their condition worsened even more drastically. This was because the earlier experts had not gained enough experience to develop appropriate techniques. Therefore, it is significant that since

WWII the maintenance of the surfaces was not appropriate. As a result of these problems, the decorations have been completely destroyed in many cases. Precisely due to this, it is essential to examine the previous restoration attempts, so that the faults and errors originating from procedures that were not as professional as today's standards might be fixed with a better conceived execution. It must also be mentioned that while these restoration projects were inadequate in many cases, they were fortunate in that they held the materials together in their original positions.

The reparation of the damage after the wars was complex, since in many cases not only restoration was necessary, but new elements had to be produced. As a result of the new pieces, the materials of the new and old items differed, so their ability to withstand damage (results of war, effects of weather and the environment, and mechanical damage) also varied. All these types of damage were characteristic of the decorative elements in the lobby of the Museum of Applied Arts in Budapest prior to the restoration work.

The phases for the restoration of the lobby of the Museum of Applied Arts

The restoration of the ceramics in the lobby was performed in two major phases between 2008 and 2010. (*Figs 1–2*)

First, in 2008, the side walls of the lobby had to be restored, because these ceramics had become detached from the surface due to water damage to such an extent that a collapse was imminent.

These decorative elements were made with a special glazing technique that was called 'ruby-colored luster glaze'. This is a unique type of eosin glaze that was devel-

1. The Museum of Applied Arts, Budapest

2. The lobby of the main entrance to the Museum of Applied Arts

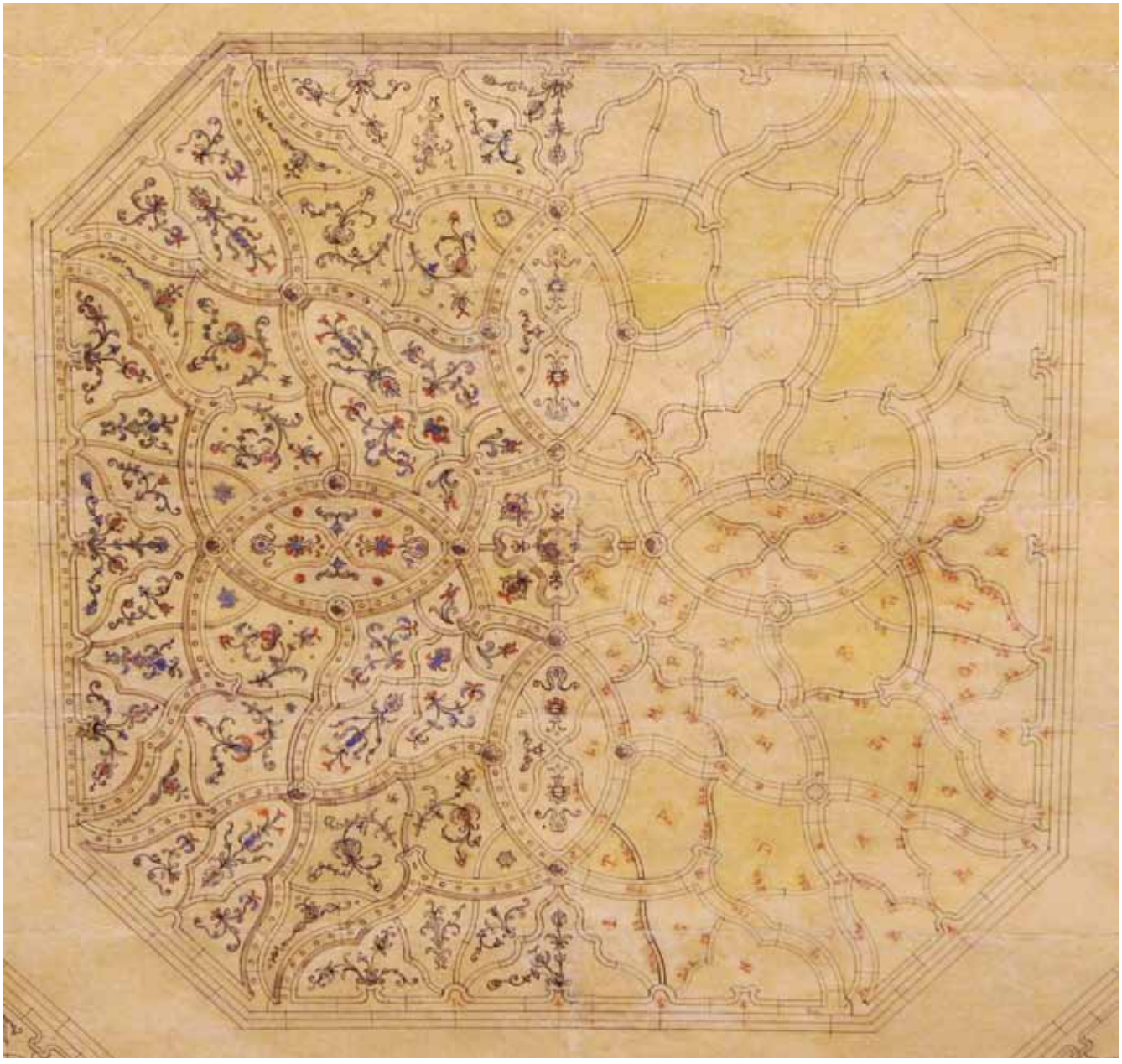
oped for the millennium of the Hungarian Conquest by Zsolnay and Vince Wartha – who was a great figure among Hungarian chemists. The special characteristic of this glaze is a prism effect that creates a rainbow shine with a ruby-colored luster (the "millennium Technique").

The idea of using this method comes from a famous master of ceramics from Gubbio – named Giorgio Andreoli – who became famous for applying this glaze along with many other ceramic techniques.[6]

These unique tiles were produced specifically for this lobby, so the expert restoration and maintenance of the original forms were essential. Unfortunately, they had begun to come loose, and as a result of this the ceramic tiles were pushed together. Because of this stress, certain tiles fractured or broke in half in the middle. This stress was so powerful that at certain points there was a good 5–6 cm between the tile and the wall itself. In order to avoid these tiles falling off, the first step was to temporarily stabilize the ceramics and to precisely pinpoint the number of the elements in need of restoration. Every element that had to be removed received a number because it was important that every single one had to be returned to their original place after the restoration. While performing the step-by-step removal, a safety net had to be put up, which prevented detached parts from falling and breaking. The removal procedure was done from top-to-bottom, in consistent lines. As a result of this line-by-line removal, it was possible to avoid having the lower pieces on the detached surface fall off. We performed the removal procedure down to the very last line of tiles.

The wall behind the removed ceramics was cleaned properly, and the level of moisture damage was examined. Because previously these walls had been dried from the inside, the water damage was not severe. This was important, because after the restoration, the tiles could only be replaced on a physically stable and clean brick wall surface. The pieces that had been removed, nearly 500 tiles, were taken to a workshop. (*Figs 4–5*)

Here, every piece was individually treated. During this restoration, the old mortar layer was removed, the



3. The plan for the ceiling in the main entrance hall

back side was cleaned, and a detergent-based cleaning procedure was used on the front side. After the cleaning, every broken piece was precisely adhered together, paying attention to perfectly match the glazed surfaces. We used a two-component epoxy adhesive, which ensured the original durability of the pieces. After the re-adhesion process, the replacement of the missing parts was the next step. These tiles were treated with a special glaze, called *ruby-colored luster* glaze that is extremely sensitive to mechanical effects. Because of this, we had to choose a material for the replacement that was easy to work with and did not harm the original glaze during the restoration process, such as during the sanding or polishing of the surface of the material of the rebuilt parts, which could have been harmful. If the sanding and polishing were too powerful and not performed properly, the original *ruby-colored luster glaze* could get scratched. Since the original glazed pieces were so sensi-

tive, the restoration process was quite long. This was made even more difficult because the painting of the rebuilt surfaces could only be done with an immeasurably thin layer of paint. A restoration process with such a thin layer of paint can only be performed using an airbrush technique. (*Fig. 6)* Because of the exquisiteness of the *ruby-colored luster glaze*, the colors are very different, so every single piece had a different, so-called prism effect. This is a unique and typical effect of the luster and the eosin glaze. As a result, it was necessary to mix a different tone of color for every individual piece. However, since this retouch technique uses a very thin paint layer, which is also very sensitive, it is important to treat the pieces with a protective coating. This

4. The ceiling in the main entrance hall, before restoration

5. Decorative elements with ruby-colored luster glaze. The types of damage: gunshots, mechanical damage, damage due to leaks and fractures due to tension

6. The numbered tiles during their removal

7. All the removed tiles were properly cleaned, and damaged tiles were taken to our workshop for further restoration processes

8. Broken pieces were glued together, and missing parts were recreated. Sometimes it was necessary to use an airbrush to create a thinner layer of paint

protective layer was a double component acrylic and polyurethane varnish. This layer is strong enough to stand up to mechanical and UV damage. After finishing the restoration of the damaged tiles in the workshop, we transported them to the building and replaced them in their original positions according to their numbers.[7] (*Fig. 7)*

In the second phase, in 2010, the ceiling of the lobby had to be restored. (*Figs 8–9*) In addition to structural damage, a great deal of mechanical decay had been caused on the surface of the ceramics during the Hungarian Revolution of 1956. This damage had been restored and they did not seem to be in a bad condition, but after up-close examination it turned out that the previous work and the ceiling were in a critical state. In addition to the natural signs of aging missing pieces and cracks were noted on numerous parts of the cladding of the columns in the lobby as well as on the ceiling.

It is quite difficult to precisely determine the origins of this damage, although it is a fact that after the construction work on the metro line near the building, numerous physical distortions were spotted in the structures of the ceramic casings, to which the constantly receding line of damp had an additional stretching effect. This structural damage was further exacerbated due to the freeze-thaw cycle in the winter season. The effects of the resonance of the urban traffic may have further worsened the state of the structurally damaged pieces. After the state of conservation assessment of the ceiling decorations in the lobby, we defined the precise procedure for local treatment. It was important to uncover all the preceding treatment efforts, in order to evaluate their static and structural status. However, to do this we first had to complete the cleaning process for the unglazed pyrogranite elements using the wet dolomite-blasting technique. Unlike a chemical based cleaning process, the wet dolomite-blasting cleaning process is an alternative that, if optimized to the target element's surface sensitivity, then an even and aesthetically pleasing result can be achieved that could otherwise not be guaranteed in the case of elements of this large a size.

9. The wall covered with ceramics after their conservation and reinsertion

The surface of the unglazed pyrogranite elements was affected by rather aggressive contamination due to the heavy traffic and air pollution along Üllői út in recent decades. The sooty, smoky, granular build up that has accumulated over decades on the surface allows the polluting substances to seep into deeper capillaries of the ceramics after a solvent-based moist treatment. In order to achieve an effective cleaning according to the test-

10. After the cleaning and the removal of the ceiling ceramics in bad condition, the problems turned out to be critical

cleanings, first a low-pressure wet dolomite-blasting technique was applied through a so-called Jos spreader which treats the surface gently and can be controlled, so the elements with varying levels of contamination and pollution could be cleaned easily, safely and at an even quality. The other very important aspect of the application of the dolomite-blasting technique in the determination of the cleaning process is that we were not able to use chemicals that were either too acidic or too alkaline. The absorption of these chemicals can also cause chemical damage to the structure of the ceramic in the long run. The dolomite-blasting mechanical surface cleaning was only performed in the case of unglazed pyrogranite elements, and in accordance with the test-cleanings we used a low-pressure wet dolomite-blasting procedure. Under constant supervision, this gently removed the strongly cured build up from the capillaries of the unglazed elements, but it did not cause any kind of damage to the outer structure of the pyrogranite, and so the original surface remained unscathed. Upon completing the cleaning process, we started removing the damaged surfaces. (*Fig. 10)* The structural damage to

11a–b The damaged surface before dismantling and after restoration

the ceiling, which in most cases was not limited to surface cracks but included actual cross section fractures, had also caused distortions in the levels of the flat surfaces in numerous cases. The structural status of the ceiling elements had been weakened because of this damage, and upon exploration we discovered structural damage that had been concealed before the restoration work. After the removal of the damaged ceramic elements from the ceiling, we discovered damage that lied behind the décor. (*Fig. 11a–b)* The spalling of the plasterwork was typical, so its treatment was also an important task before the reinstallation of the restored ceramic elements. However, this mortar spalling was not typical of all the surfaces, and even the brick structure behind them was in top quality. However, in order to allow the restoration process to continue without further disturbance, a thorough material and wiring study was necessary.[8] According to a professional suggestion coming from restoration experts, the Museum of Applied Arts hired additional professionals in order to determine whether the prospective restoration processes were feasible according to the plans without the full removal of the ceiling elements. Thanks to the precision and thoroughness of the examination results, the work processes were able to proceed undisturbed. The results of this progression are included in the appendix.

12. The main entrance hall after restoration

Appendix

The description of the dismantling and the restoration processes

At the points where the ceiling decorations were unaffected by mechanical damage, and where we didn't find structurally distorted or loosened elements, the structural state was favorable. Because of this, demolition was only justified in the areas where there was severe damage or additions alien to the structure. The reparation of these was necessary in order to achieve a professional restoration, and to reinforce structural integrity. On some parts of the ceiling, cement/mortar-like unpainted additions were visible. These subsequent substitutions were removed where necessary and were replaced with new, professional additions.

However, some of these subsequent reparations had so strongly bonded with the original material, that their removal would have endangered the remaining unharmed elements, so we put an even cement layer over them after a surface treatment. This cement layer could restore the original aesthetics. During the mechanical cleaning process, we removed the cracked, aged and fractured adhesions, mortars and additions. We injected Akepox 5000 epoxy resin into the cracks where we discovered dislocations, which served to solidify the cracks. The copper wiring that was removed was treated with the aforementioned substance, so future corrosion would not form on these surfaces originating from the forces of stress. After reinforcement and cleaning, the cracks between the unglazed pyrogranite elements were filled with a colored, hydraulic binding-based frost-resistant mortar (Ardex X7 G) to form a strong bond between the damaged elements.

In choosing the material appropriate for the replacement of the minor missing parts of the ceiling elements, we intended to choose a material that would closely resemble the mechanical characteristics of the original material and would be durable against environmental effects. It was also important that it should provide protection for the original parts of the object as well. In accordance with these considerations, we chose the Ardex X7 G substance for additions, which is a water-based adhesive mortar. This material has a slow binding time, minor shrinkage, and medium solidity, with hydraulic binding, delicate resin supplements and added

ground quartz flour, which provides excellent characteristics after drying.

The supplemented surfaces were not even in all places after the binding, so in order to achieve an even surface that could be retouched, an additional thin layer was still necessary. Using this thin layer, we were able to make the surface profile of the added elements identical to that of the original glazed elements. This was done with Kaim Dolomitspachtel; however, this material had to be treated with a thin protective polish before the retouching process, so the surface would have the necessary strength.

To repair and fill smaller damaged areas, imperfections and thinner glaze spots we used the same hydraulic repair paste, Kaim Dolomitspachtel, which can be easily polished and painted. During the retouching of the additions we worked according to the color hues of the original surfaces, so the ensuing reparations had a unified appearance with the original surfaces. We first applied a double component IMPA acryl-polyurethane copolymer protective polish onto the retouched surface. This has a good impregnating ability and also provides an adequate level of UV protection for the restored elements. After the drying of the polish, we made the entire surface hydrophobic. As a result, the restored surface received protection against air pollution.

The surfaces of the decorative tiles had a great deal of serious damage and it was necessary to repair and preserve each piece carefully and individually while keeping the undamaged original parts safe.

We continued the restoration process of the cleaned tiles with the adhesion and gluing of the broken pieces. We used Akepox 2010 epoxy glue to attach the broken pieces together. This provided adequate mechanical strength to the layers and is also durable over the long term against weathering as well as corrosive and harmful pollutants in the air and the environment.

The material used when repairing the damaged, unglazed pieces was the IMPA Canova product, which is a double component frost-resistant epoxy resin that is quite suitable for exterior cladding. The loaded epoxy resin has a mechanical resistance after the curing process

13. The ceiling in the main entrance after restoration

that is capable of repairing major damaged areas or cracks and also resists solvents and weathering. With the help of this replacement material, it is even possible to make the surfaces of the additions similar to the original. At the same time, this type of epoxy replacement material provides strong structural reinforcement for the damaged parts.

It was necessary to restore the structurally reinforced and supplemented decorations in order to achieve the original aesthetic appearance of these elements in a unified manner. For this, we used acrylic paints. We chose these because the bright color hue of the original glazed surface could be easily recreated with this type of paint and it would retain its color after the protective polishing. After drying, we used a double component IMPA acryl-polyurethane copolymer protective polish on the retouched surfaces that has a good impregnating ability and provides an adequate level of UV protection for the restored elements.

The layer that protects the restored surfaces is a modified silicone gel, which is 100% UV resistant and is also quite resistant to environmental effects in the long term. The surface treatment material provides constant protection against humidity.

Due to the high surface tension of the material, the moisture on the surface condenses into small drops and rolls off without leaving any kind of trace on the ceramics. The thoroughly cleaned surfaces were treated with the impregnating material by rolling and brushing, and then we wiped it again with a micro-fiber tissue in order to avoid spots.

For long lasting protection, the surface impregnation process should be repeated every three years, which will be possible to perform in 2–3 days using mobile scaffolding.

Conclusion

The ruby-colored luster glaze ceramic tiles and ceiling ornaments of the lobby of the Museum of Applied Arts in Budapest were made according to a unique design, and therefore they are very special and important amongst the types of Zsolnay architectural ceramics. *(Fig. 12)* The ornamental ceramics of the museum precisely represent Vilmos Zsolnay's brilliant and unique achievements and developments in architectural ceramics. *(Fig. 13)* The protection and professional restoration of these ceramics are a high priority and important duty for Hungarian cultural heritage in order to preserve them for posterity. The technique employed and the experience gained during this project fostered the proper planning of similar later restoration projects for architectural ceramics.[9]

NOTES

[1] Mendöl, Zs., 'Az építészeti kerámia szerepe a historizmusban. A Zsolnay gyár' [The Role of Architectural Ceramics in Historicism. The Zsolnay Manufactory], in Zádor, A. (ed.), *A historizmus művészete Magyarországon* [The Art of Historicism in Hungary], Budapest, 1993, 255–266; Papp, G. Gy. – Veress, K., 'A Zsolnay-épületkerámia a 19–20. század építészetében' [Zsolnay Architectural Ceramics in the Architecture of the 19th and 20th Centuries], *Magyar Iparművészet* 2001, no 1., 14–21.

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[9] Restoration Project team members: László Czifrák, Zsuzsa Herczeg, Krisztián Rajna, Zita Rostás, Zoltán Sipeki, Nóra Szatmári, Ildikó Szoliva, Lilla Szórádiné Heizer, and Gyula Tóth.

Aleksa Ciganović[1]

Decades of Restoring the Subotica Synagogue

Introduction

Art Nouveau as a stylistic and ideological movement is recognized as a cohesive factor of European continental culture. The Subotica (in Hungarian Szabadka) Synagogue occupies the most important position in the Art Nouveau heritage of Serbia. According to its architectural-compositional plan it belongs to the Neolog type of synagogue temple and due to the structural details of its steel frame construction and the plaster shells about 8 cm thick, it represents an avant-garde technical innovation. It was completed in 1902 by the architectural firm of Komor and Jakab. The original decorative accents are enhanced by a stained-glass window made in the workshop of Miksa Róth and unglazed terracotta made at the Zsolnay manufactory in Pécs, as well as roofing made of glazed tiles. First in 1996 and then in 2000–2002, the synagogue was listed as one of the 100 most endangered monuments in the world. This essay provides a description of the progress of its construction and artistic features as well as an explanation of the designated measures for technical historic preservation and conservation. According to the approach taken, the construction included the integration of modern materials that were related to the concept of prefabricated production and the installation of key structural elements and key elements of decoration in the building, through which they achieved an artistic expression of the subject.

The Government of Hungary declared the year 2014 – the 70th anniversary of the deportation of the Hungarian Jews – a Holocaust Memorial Year. The series of commemorations included a program for the restoration of synagogues. Along with synagogues in Hungary, there were several synagogues involved in the program that were located outside the territory of present-day Hungary, in areas where there had been Hungarian-speaking Jews, and one of these was the Art Nouveau synagogue in Subotica. In this case, the beneficiary of the Hungarian governmental aid was the Hungarian National Council in the Autonomous Province of Vojvodina in the Republic of Serbia. For this aid, in the form of a Hungarian governmental grant in an amount of about 1.6 million Euros, there was also a prerequisite that the restored monument should be used for public purposes and sustainability should also be guaranteed. In addition, a permanent exhibition will be installed in the vestibules of the southern and western entrance halls, which will commemorate the Jews of the region and which will occasionally host cultural events under the auspices of the Subotica Synagogue Foundation and Hungarian National Council.

In accordance with the legal authority provided by the Act on cultural property, the Republic Institute for the Protection of Cultural Monuments in Belgrade has prescribed technical preservation measures for the design of the project and the performance of construction and artistic work for both external elements (façades and graveyard arrangement) as well as interior restoration solutions. Supervision of work was also performed from the standpoint of conservation in accordance with the Act on the cultural property, as well as from the point of view of the enforcement of the Act on planning and construction. The specifications for all conservation projects related to the façades and architectural elements with a technical relation to the roof were performed in the period 2002–2005 at the Regional Institute for the Protection of Cultural Heritage in Subotica. Work on the main dome and the four other smaller domes on the corner towers, which involved the replacement of the roof tiles was completed in 2006–2010. Systematic annual restoration work began in 2016 within the framework of a general project prepared in the office of Mašinoprojekt Kopring a.d. from Belgrade, with successive supplementary projects for the façades and interior de-

sign elements. Since the 1st of November 2016, extensive work has begun on the interior design, as well as on the arrangement of the exterior public space and its plantings in order to finally define the space around the Synagogue as being for the purpose of culture, performing arts and the small permanent exhibition about the indigenous Jewish community.

Art historical context – a brief background of the artistic milieu of Art Nouveau

For Bela Duranci, an art historian from Subotica, the Subotica synagogue, along with the entire Art Nouveau style of eastern Europe, represents an act of dialectical artistic and social synthesis of ancient handcraft and architectural practices. There are differences in terms of the technology and the structure of society between western and eastern Europe but both areas saw great migration from rural areas to the industrialized cities. The disadvantaged new migrants were able to regain some of their liberty, dignity, autonomy and hope through the renewed value placed on handicrafts, and artists used this creative energy and manner of self-expression to change the traditional order. Bela Duranci, in his article "*Synthesis of Architecture, Art and Applied Arts from the Turn of the Century – Mischief and Pattern – Today*", writes how craftspeople – in the former sense when this word commanded decent respect – embodied creativity, ambition and responsibility and inspired awe in honor of their professions, which made them worthy partners with authentic creative artists and architects.[2]

Even before the Hungarian Millennial Exhibition (1896), there had been an occupation with folk art, and artists took this opportunity to show off the nation's *glorious past*. However, the concept of nationalism went further and became intolerant of the many national minorities in the state.[3] In contrast, the Hungarian variant of Art Nouveau led by Ödön Lechner (1845–1915), a marvelously descriptive architect who used decorative lines and ideogrammatic forms, did not follow the nationalist views of the conservative authorities, but was fascinated by the synthesis of folklore motifs within the environment of the specific materials of contemporary architecture.[4] By associating himself with the famous ceramics producer from Pécs, Vilmos Zsolnay (1828–1900), Lechner employed ceramic decorations inspired by national motifs, securing the attention of the world to Hungary's Art Nouveau architecture.

The first Art Nouveau building in Subotica was a synagogue, completed in the autumn of 1902 according to the designs of Dezső Jakab (1864–1932) and his associate, the architect Marcell Komor (1868–1944). This design was not part of an architectural competition.[5] The building exemplifies the influences of modern architecture, including structural innovation and prefabricated solutions. It employed iron pillars and beams to support the conservative but extremely complex wooden structure of the dome on a hexagonal drum. In the context of the cityscape and the lyrical character of the provincial but free imperial city of Subotica, the synagogue's powerful main dome with its four smaller corner tower domes appears like a baldachin with a broad canopy joined by classical turrets. It provided the Jewish quarter of the city with a prominent landmark through its presence and visibility.

In addition to the Wagnerian *Gesamtkunstwerk* and other common sources of the European fin de siècle, Viennese Secessionism and Hungarian Art Nouveau had another, less famous root. This was the synagogues in Pest in an Oriental style by Ludwig Förster and Otto Wagner, as well as many others.[6] The common denominator of Oriental styles (and actually Islamic architecture) and Art Nouveau was the use of a very decorative façade curtain, which was often structurally almost completely independent of the building itself.[7] This floating, independent layer is seen as a reflection of the Arab and Jewish spirit, as well as the antithesis of "Christian solidarity", a combination of ideas and forms originating from Greek philosophy.[8] In terms of Jewish contributions to modernity, Dr. Rudolf Klein points to the organic phenomenological non-unification of building elements characterized by Oriental sacral spaces.[9]

From 1902 until their only exhibition in 1909, the gradually developing art colony in Gödöllő, not far from Budapest, sought the magical formula of restoring the dignity of individuals in an industrialized world through the triad of art, work and life. For its founders and members, *nationalism* was already a fact, the starting point of modern aesthetic reflection on ornamental laws in the world of folklore that had already taken its final shape. This continued through to the next generation of architects (the "Fiatalok" or "Youths") whose leader

was the architect, book designer, and writer Károly Kós (1883–1977). The complex arrangement of the art of Art Nouveau had a strong social component in the spirit of the background forces of social theory. According to Árpád Dékáni, the situation arose in Halas (present-day Kiskunhalas) and other towns of Hungary[10] that due to an unfortunate economic situation, thousands of women were forced to support themselves or improve the living conditions of their families by getting jobs in workshops.[11] In the aforementioned sense, it is certain that the Subotica Synagogue itself has an active *role as a piece of memorabilia,* as a place around which knowledge is gathered and the concept of regional cultural heritage is codified.

Conservation context – the working environment and the synagogue as an example of a Serbian heritage property

There are only 12 left out of the total of 76 synagogues that were once in Vojvodina, and they often have completely different and inappropriate uses, which is unacceptable from the point of view of recognizing the architectural, cultural and historic value of these buildings.[12] In 1975 the Provincial Institute for the Protection of Cultural Heritage of Vojvodina declared that the Subotica Synagogue was a historical property. Then in 1989, UNESCO's World Heritage Commission proposed its inscription on the World Heritage List, but its nomination process was halted at the outbreak of the war in the former Yugoslavia. In 1990 it was declared a heritage monument of utmost importance to the Republic of Serbia. The dome was re-erected and reinforced between 1976 and 1980 by the municipality of Subotica, and the Jewish community transferred the ownership of the synagogue to the municipality of Subotica. The key events that followed included the synagogue being listed on the list of the 100 most endangered monuments in the world in 1996, and then in 2000 and 2002.[13]

Unlike most synagogues that were longitudinal, in particular the one in Szeged, Hungary, the Subotica Synagogue was designed with a central cruciform plan with eight steel columns that were chamfered along the edges at an obtuse angle.[14] These columns at the same time created the basis for the synagogue's exquisite structure. In the upper zone, the columns are connected to one another with 80 cm-thick steel horizontal beams, which were molded into a massive octagonal brick wall. Above the rim, there are star-shaped ribs about 50 cm high that provide its solidity and load-bearing capacity. The ribs of the dome, of which there are eight at its top, sprout out two by two, so there are a total of thirty-two ribs at the bottom.[15]

The dome had tilted from the vertical axis and was re-leveled and reinforced between 1975 and 1980. This work was carried out by a Subotica construction company under the guidance of the local structural engineer László Király (chief engineer, 1978–1990) and with the expertise of Dr. Oscar Hrabovski PhD. In the scholarly literature, Dr. Hrabovski points out his impression about the structural concept that defines the dome as a "true masterpiece and rarity of engineering and art in this region."[16] In December 1980, the curved roof structure of the central dome was lifted without disassembly by hydraulic presses into its original position and leveled, which prevented its further tilting and collapse. The octagonal dome is supported by the central plan of the ground floor with its center-axis vestibules and an octagonal steel structure. A particularly aggravating technical issue is vertical and diagonal stress (due to strong winds – Košava). Repair of the tin sheet flashing and profiles was performed by László Gubi and the carpentry of the roof structure was performed by Joseph Bognar.

Within the framework of this work, certain parts of the wall surface were replaced along with a few roof purlins and rafters, and the roof was covered with glazed and colored tiles. Also, during this work, the double cupola on the main dome was repaired and covered with copper sheets that were in all ways in accordance with the existing materials. In addition, the mortar of the dome was restored, as were the stained-glass windows in the dome and on the ground floor, along with the small windows on the gallery levels. The elements of the façade decoration on two side façades were made from pyrogranite exclusively in the Zsolnay manufactory in 1991, as were the tablets of the 10 commandments that are on top of the building on all four sides. The movable chandelier in the dome was restored in 1993, but in the meantime, it had been lowered and left to deteriorate and lose its significance.

The Regional/Municipal Institute for the Protection of Cultural Monuments in Subotica, which has al-

ways been small and insufficiently staffed, recorded technical conservation documentation in the period from 2004–2006 in order to provide information on this work as well as information on supplementary projects related to static-seismic rehabilitation and electrical, mechanical and fire alarm systems.[17]

The manner of the systematization of the technical documentation and the availability of chronological and material data about the building are typical for the general profile of most cultural monuments in Serbia. This information includes: (1) a timeline of work performed and analysis of the technical documentation and other technical information, but since the time of the most recent restoration, the restoration, reconstruction, adaptation and remediation of certain parts of the building as well as the installation of equipment have been performed without concurrent and systematized documentation; (2) a predominance of personal, subjective information about the work rather than explicit technical data; and (3) a lack of systemized technical documentation – there has been no unique technical documentation created for the entire facility containing the complete data on construction and installation work.

1. Detail of the terracotta on the synagogue's entrance portal

Conservation work – the character of the restoration work

The earliest work on the rehabilitation of the synagogue facility began in 1991, under the leadership of the Intermunicipal Institute for the Protection of Cultural Monuments in Subotica. This work included the first replacement of the elements of terracotta decoration on two opposite sides – the southeast and northwest façades of the synagogue in 1991, in consultation with the master plaster sculptor József Halas from the Zsolnay manufactory in Pécs (Hungary). During the dismantling of the decorations, it came to light that the cast elements of terracotta had been affixed with iron nails, directly through the relief without pre-defined holes, causing damage. This rather inexpert solution had been holding up the relief for 90 years since its construction. Due to its porous nature, some elements fell apart on touch. (*Fig. 1*)

After this, a complete technical recording of the details of the terracotta elements was performed and molds were made of them, which due to the technical process of making the new elements, had to be enlarged by about 8.50%. In order to avoid the vitrification of the reliefs that had large areas and masses, the inside of the clay positives was given reinforced walls and a certain percentage of baked fire clay was added into the refractory mixture. After drying, the first firing of the elements was performed at 1250 ^{0}C, after which they turned the white color of fire brick. The elements were given a glossy finish with the application of a terracotta-colored glaze on the matte red clay and then the firing was performed at 1020 ^{0}C.[18] (*Fig. 2*)

In the same year, the four separate tablets of the 10 Commandments were restored, which are located on the gables of all four main façades. The original tablets were placed in richly decorated frames with floral motifs

2. Northwest tower, restored in 1991

3. Northwest façade, restored in 1991

and were atop the ogee trefoil arch of the gable. This frame has a glossy yellow and green glaze. Because of its large surface area and the need for the new element to last, the panel was divided into two parts by an expansion joint along the axis of the element. These tablets were also cast in molds, which were enlarged by 8.50% due to the technical process.[19] (*Fig. 3*)

The most radical and most extensive conservation work was performed in the period from 2013 to the end of 2017 and aimed at finally giving the building a

year	work phase	financing	public procurement bid	contractors
1991–1993	Decorative ornaments – Zsolnay pyrogranite	City of Subotica	City of Subotica	Zsolnay/Regional Institute for the protection of Cultural Heritage, Subotica
2013	southwest façade, phase I	Provincial Secretariat for Culture	MZZSK Subotica June 2013	Javornik doo, Subotica
2013–2014	northeast façade	IPA project of inter-regional cooperation between Subotica-Szeged	City of Subotica, August 2013	'EXPRES-SERVIS' doo, Subotica, Atelier "Stanišić" Sombor
2013–2014	southwest façade, completion	Provincial Secretariat for Culture, City of Subotica	City of Subotica, November 2013	'EXPRES-SERVIS' doo, Subotica, Atelier "Stanišić" Sombor
2014	restoration of stained glass, northwest façade	Provincial Secretariat for Culture	City of Subotica, November 2013	Atelier "Stanišić" Sombor
2015	southeast façade	City of Subotica	City of Subotica	"KOTO" doo Belgrade, "AtelierMarinkovic Kruševac
2015	roof repair	City of Subotica	City of Subotica	"KOTO" doo Belgrade
2015–2016	restoration of stained glass, northwest façade	Provincial Secretariat for Culture	MZZSK Subotica	Atelier "Stanišić" Sombor
2016	northwest façade	City of Subotica	City of Subotica	'EXPRES-SERVIS' doo, Subotica, Atelier "Stanišić" Sombor
2017	Interior/roof repair	Government of Hungary/ City of Subotica		Yumol doo, Subotica Cooperating partners from Hungary (Mega-Logistic)

4. Overview of work phases on the Subotica synagogue and their chronology

public function. The base of the foundation was given a damp-proof course to avoid moisture in the walls about 6 cm from the supporting brick façade walls (height of 1.40 m). The restoration of the façade veneers and the ceramic pyrogranite profiles was completed. Also, the rest of the exterior façade woodwork has been restored, all according to the steps shown on the opposite page. (*Fig. 4*)

Under-floor heating was installed with the power supply from the courtyard auxiliary buildings. (*Fig. 5*) The concrete floor of the synagogue will receive a final treatment, finished in octagonal and square yellow clinker ceramic tiles. At the same time, moisture-proofing and thermal insulation have been installed around the foundation of the supporting steel pillars at a depth of about 1.20 m and a width of about 30 cm. This was a very important conservation measure because any absorption or penetration of moisture through capillary action or the air would damage the inner cement filling of the pillars and the external cement-plaster coating that is about 3 cm thick. (*Fig. 6*) The Mašinoprojekt Kopring a. d. company form Belgrade working on the project completed the general work along with all the supplementary projects related to structural/seismic rehabilitation and the installation of electrical, heating, ventilation, air conditioning, mechanical and fire alarm systems.[20]

Special consent was given by the Republic Institute for the Protection of Monuments, Belgrade, in a supplementary procedure in accordance with the Act on Culture Properties (71/1994) for commencing work on the wall paintings, interior woodwork and ironwork that was included in special sub-projects that were finally completed in Hungary.[21]

5. Under-floor heating through a system of pipes

Finally, the steel elements were covered with gypsum-lime mortar on top of 0.8–1.0 mm of wire mesh welded directly to the steel structure of the column and given a surface layer of plain plaster. The walls were rendered with two layers of mortar (the first rougher, with coarse granulation) while a single layer of lime-cement mortar was applied to the vaults (the aggregate is black stone with traces of quartz with granules of 0.5–7.0 mm). The segments of the apse were made with plaster painted to imitate stone. The decorative plaster

6. Cleaned iron pillar that supports the gallery and the dome, July 2017

elements were colorful for the most part except for individual decorative elements in the apse, which are painted a bronze color.

A stratigraphic analysis of *secco-color archeology* was conducted in order to identify all the layers of paint, and then a spectrographic analysis was made to determine the exact shades of colors of these layers. This analysis determined the exact shade of the first, original layer. The Hungarian painters took into account the reflection of the colors from the stained-glass windows, making the well-supported recommendation to use an acrylic paint alternative that had the visual characteristics of lime. For the painting of the decorative plaster forms, colors that would not visually disrupt their volume were recommended, as was the use of stencils for painting the wall ornaments.

According to the chronological work report submitted, color treatment of the walls had been performed on two occasions in the period between 1988 and 1992, which resulted in changes that deviated from the original tones. Lime tempera (secco technique) was used for the varied color treatment of the walls. Multiple layers were discovered, with the most authentic layer being a light green-grey color, on top of which layers of yellow

7. Gilt decoration, October 2017

8. Secco tempera wall decoration (The plaster shell under the dome is about 7–8 cm thick)

and orange had been subsequently applied. It was established that the colored ornaments on flat surfaces were applied using stencils, not a brush. The entire application of color was made on the surface of the lime hydraulic mortar and the walls with a tempera technique in accordance with the evidence from research and the fragments of the decorations.[22]

Due to the visibly granular texture of the gilding it was established that it had been applied in powdered form. (*Fig. 7*) The decorative plaster motifs on the columns were similar to the motifs in terracotta, and crudely colored using red oil paint similar to terracotta. The stained-glass windows were set in lead profiles and some of the pieces of the glass were replaced or reinforced with steel due to the weight of the glass. Each and every small piece of plaster relief combines to make an exceptional artistic composition in relation to the surface and the ornamentation made of other materials. Wavy series of leaf forms alternate with flowers and fruits on parallel axes. The forms are characteristic of the Hungarian version of Art Nouveau and are folk motifs derived from the basic shapes of roses, flax, peacock feathers and leaves. By the end of October 2017, the final painting of the interior using the tempera technique was completed. (*Fig. 8*)

According to the inter-governmental agreement between Serbia and Hungary on the financing, all conservation and restoration work on the synagogue in Subotica had to be completed by 31 December 2017, which has been achieved.

NOTES

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[8] Klein, R., 'Secession: „Gout juif?'", *MENORAH*, Belgrade, 2010, 133–174; Klein, R., 'Secession: 'un goût juif'? Art Nouveau Buildings and the Jews in some Habsburg Lands', *Jewish Studies at the Central European University* 5, 2005–2007, Budapest, 2008, 91–124.

[9] Klein, R. 'Oriental-Style Synagogues in Austria-Hungary. Philosophy and Historical Significance', *Ars Judaica*, 2, 2006, 147.

[10] Árpád Dékáni (1861–1931), a professor of drawing in Halas (Kiskunhalas, Hungary), founded a workshop and drew templates for the town's famous lace – a favorite item of apparel in the city that was quite renowned around the world. The first lace according to his designs was made by Róza Schreier in Subotica in 1902, where the painter and designer Henrik Emil Aczél (1876–1946) successfully popularized the local folklore design. (see: Németh, L. (ed.), *Magyar művészet 1890–1919* [Hungarian Art 1890–1919], Budapest, 1981, 417, 526.)

[11] *Ibid.*, 34, from: Koós, J., *Style 1900 – A szecesszió iparművészete Magyarországon,* Budapest, 1979, 107.

[12] Radovanovic, D. – Kojičić, B., 'Some Problems of Forming the Architectural Style and Identity of Religious Buildings in Vojvodina at the End of the 19th and the Beginning of the 20th Century', *Ideologies and Ideals – Contributions to the research of the 20th-Century Architecture in Vojvodina*, Novi Sad, 2010, 141.

[13] UNESCO's 100 Most Endangered Monuments in the World.

[14] Aladžić, V., *op. cit.*, 119.

[15] *Ibid.*, 119.

[16] Official documentation of the Regional/Municipal Institute for the Protection of Cultural Monuments in Subotica dated 25 October 1976, in Demeter, G. – Gabrić Počuča, V., *Sinagoga,* Zaštitar 1, Subotica, Medjuopštinski zavod za zaštitu spomenika kulture, Subotica, 2006, 233–234.

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[18] Gabrić Počuča, V., Restoration of façade's ornaments of pyrogranite on Subotica synagogue, Belgrade, *Glasnik.* The Society of Conservators of Serbia, no. 17, 1993, 195.

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[20] The decision for approval was from July 2015.

[21] The decision for additional approval was from September 2017.

[22] The exact colors of the walls were found in the summer months in 2017 during research on the walls and the removal of the existing layers of decorations from the eighties and nineties.

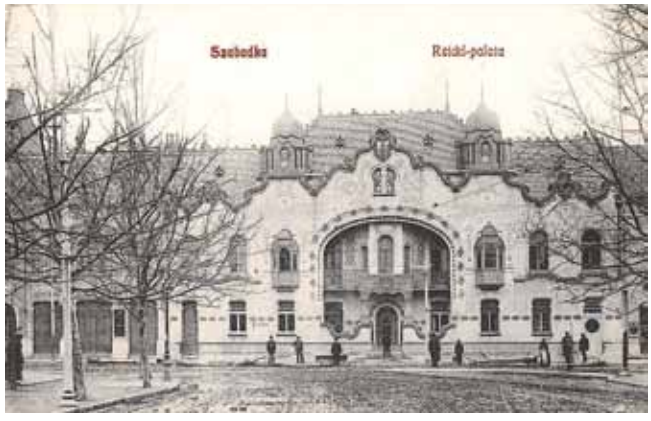
Gábor Dömötör

Restoration of the Raichle Palace in Subotica[1]

Introduction

Ferenc Raichle (1869, Apatin – 1960, Budapest) was already mentioned in 1895 as an architect in Subotica (in Hungarian Szabadka). After completing his studies in Budapest in 1891, a few years spent on professional study tours abroad and brief stays in Budapest and Szeged, he got married in Subotica to Ilona Varga, the daughter of Károly Varga, a member of its City Council and one of its wealthiest and most influential citizens. Ferenc settled down in the city as a young architect, building entrepreneur, art collector, and passionate gambler blinded by ambition. His father-in-law and the mayor Lazar Mamužić helped him achieve his ambitions through great commissions. His main works in Subotica and around Vojvodina County were created during a period of about a decade, between 1895 and 1906. These works included the renovation of the façade of the Hotel National (1895); the National Casino building (1895); the New Secondary Grammar School (1896–1900); the Austro-Hungarian Bank building (1901); the residential building of Sebő Medgyánszky (1902); his own family mansion – the Raichle Palace (1903–1904) and two rental buildings in its neighborhood (1904); the designs of a pig farm and a dairy (around 1906); the Fernbach Castle in Aleksa Šantić (1907); the Conen Villa in Palić (1900); two ground floor rental houses on 11–13 Vasa Stajić Street (1899); the City Hall in Apatin (1907–1908) and the Roman Catholic Church in Bačka Topola (1903). He also participated in some design competitions, such as the Subotica Synagogue competition (1900) and the new City Hall of Subotica.[2] Unfortunately, his success did not last forever. Raichle's extravagant lifestyle, several unsuccessful investments, and in particular the political changes of the time led him to bankruptcy. The construction and furnishing of the magnificent Art Nouveau family palace and two rental buildings on neighboring plots was a huge investment, which Raichle tried to cover through bank loans. Soon after 1906, when his finances collapsed, the failed architect was forced to leave the city, and in 1908 all his property was sold off at auction.[3] Raichle then settled in Szeged, and thanks to his talent and inexhaustible creative drive, he got back on his feet again. Now armed with his experience from Subotica and his own recognizable architectural language of Lechnerian Art Nouveau, he designed a number of buildings and magnificent, multi-story palaces that were erected in a short period of time, significantly enriching the architectural heritage of the city of Szeged. His most important buildings in the city are the Gróf Palace (1909–1910), the Raichle House and Apolló Cinema (1909–1910), the Faludy house (1909–1910), the Vastagh house (1911) and a dwelling house on 17 Bercsényi Street (1908).[4]

The Raichle Palace in Subotica (*Fig. 1*) was repossessed by the creditor bank. Despite Raichle's request that the house should be bought back by the city, the bank sold it off. This undignified fate of the building lasted until 1948, when it finally became the property of the town, which placed the Municipal Museum in it. It has housed the modern art gallery "Artistic Encounter"



1. Period photo of the Raichle Palace

from 1970 to the present day, which recently changed its name to the "Contemporary Gallery Subotica".[5]

The architectural opus of Raichle's work in Subotica was represented by the characteristic architectural styles of the era, including the Neo-Baroque and the Berlin and Viennese versions of Jugendstil / Secession. In the end however, in 1903 he suddenly had the creative impetus to turn to the "New Hungarian National Architecture". This was almost undoubtedly under the influence of the Ödön Lechner – Gyula Pártos design tandem and their followers, József Huszka's style of ornamentation and the work performed at the Zsolnay factory in Pécs. Through this he gained himself a recognized position amongst the architects of his time.[6]

The residential palace of Ferenc Raichle

Raichle was first introduced to "modern" Art Nouveau architecture through a fellow architect, Gyula Pártos, who was also born in Apatin and was an associate of the architect Ödön Lechner. Lechner was the originator of the idea of a "New Hungarian National Architecture" based on oriental and Hungarian vernacular archetypes.[7] Raichle instantly assimilated the new spirit of the times and started to design his own home. First he bought perhaps the most attractive lots in the city at that time for the site of his family palace and two neighboring rental buildings. The lots were located across from the Main Railway Station along the edge of the Maria Theresa Park, in the neighborhood of his friend and "business partner", the mayor Lazar Mamužić. This skillfully selected urban location still provides an exceptional setting for this magnificent, two-story palace that stretches leisurely before everyone walking from the train station to the city center. The stunned gaze of passers-by immediately focuses on the theatrical portal with a flat arc formed around the central entrance to the building. The primary façade is accented by two side-turrets made entirely of glazed Zsolnay pyrogranite and capped with tin sheet domes,[8] as well as two enclosed wooden oriel windows on the second story, which allude to Transylvanian wooden vernacular architecture.[9] Above the portal framed by mosaic floral motifs made of Mu-

2. The primary street view of the building before the façade restoration

3. An oriel window before the restoration

rano glass paste, there are two bean-shaped windows that turn towards one another. In the past these were glazed with stained glass. Unfortunately, only a reconstruction on the basis of indirect data (photographs) has been possible. The portal is framed by a series of glazed pyrogranite decorative elements. The entire length of the façade is crowned by an undulating glazed pyrogranite gable, which is interrupted by four round ceramic masks (of both men and women) with eyes opened wide and surprised expressions. A double-winged, open-work Art Nouveau gate made of wrought iron standing between two terraces invites passers-by into the palace's lobby. On either side of the entrance there is an articulated column carved of reddish marble from Siklós (Hungary). All of the windows have a characteristic shape that can be recognized later on Raichle's buildings in Szeged as well. The cozy mood of the street façade culminates in the undisturbed mosaic pattern dominated by bright blue tones and the roofs made from a combination of two shades of blue glazed Zsolnay flat tiles that crown this magnificent building. The Raichle palace was listed as a cultural monument in 1973, and in 1991 categorized as an immobile cultural property of great importance.[10] (*Fig. 2*)

Reconstruction of the oriel windows

Structural repairs to the oriel windows could no longer be delayed; their wooden structure was so rotten they had already begun to separate from the wall surface of the façade and threatened to fall on passers-by. Of course, the city's administration, which was the owner of the building, could not allow this danger to remain, so it agreed to finance the work. First, the experts from the Inter-municipal Institute for the Protection of Cultural Monuments of Subotica (hereinafter: the Institute) made a complete survey of the oriel windows, and all the details of their structures were carefully documented during the disassembly. The master carpenter was Ivan

4. An oriel window after the restoration

Čović, who had already demonstrated his abilities in making complicated windows with rounded, Art Nouveau shapes on a project on the courtyard façade of the building. The new oriel windows were made in his workshop, modeled after the originals in full detail, and constructed of dried, first-class black pine. The roofs of the oriel windows were manufactured by the tinsmith Marko Balažević from pressed tin sheets according to the original shapes and material. The windows were glazed with beveled 4 mm thick glass. The original color of the oriel windows was determined by Goran Bolić, a paint restoration professional and expert associate of the Institute. The project was completed in 2003, but since the new, successfully restored oriel windows contrasted dramatically with the generally deteriorated primary street façade, it presented a real opportunity for the overall restoration of the building. (*Figs 3–4*)

Restoration and reconstruction of the roof

In the meantime, the severe winter caused significant leaks in the attic and on the upper story. Therefore, it was urgent to start work on the replacement of the roofing and the tin-plate flashing on the entire roof surface, as they no longer met any standards or regulations and had also led to the deterioration of some of the structural elements of the building. The work proved to be complicated, as it is an extraordinary complex roof composed of 27 roof planes. The visible parts of the roof were covered with a combination of two types of glazed flat tiles produced by Zsolnay and the hidden parts with ordinary flat tiles. Three types of glazed, decorative ridge tiles were to be made, as well as the decorative rosettes of the roof ventilation openings. All of the original elements were in poor condition. The surface of the glaze was oxidized and had turned grey from constant dust and smog and in several places the glazing was peeling off. The material of the tiles was worn out, and thus their resistance to fractures and moisture penetration had weakened. Before starting the work, the laboratories of the Subotica Institute for Construction Material and Structural Testing (hereinafter: the Institute for Materials) examined the water absorption properties as well as resistance to deformation and impact of the original Zsolnay tiles and decorative elements. The conclusion according to the results obtained was that

5. The production of the rosettes at the Zsolnay factory in Pécs, Hungary, 2003

the old tiles and elements no longer met the demands of modern building regulations or standards (water absorption was 18–20% and the deformation resistance was 0.38 kN compared to the reference value of min. 0.6 kN). Therefore, they were no longer resistant to fracture and needed to be completely replaced with newly manufactured identical copies. A contract was signed with the Zsolnay factory in Pécs (Hungary) for this. Some molds were taken in situ and the samples were disassembled from the building and transported to the factory, where they started the production of the new tiles and decorative elements. (*Figs 5–6*) The production process was supervised by Gábor Dömötör. During

6. Special ridge tiles made of pyrogranite, before glazing

the manufacture, each element had to be re-modeled, considering the percentage of contraction during the drying and firing. Determining the colors of the glaze was also a complex process, since the original elements had changed shades over time depending on exposure to atmospheric influences. Of course, the quality of the newly produced pieces was also tested, and the results were very satisfactory. For example, the coefficient of water absorption was four times lower than the value obtained from the original elements, i.e. two times lower than the prescribed values (water absorption – 6.8%; deformation resistance – 1.6 kN). (*Fig.* 7) Besides the cladding of the roof, the damaged elements of the wooden roof structure and the complete roof lathing were also replaced. A vapor-permeable sheeting was placed over the entire roof. The iron sheet work for the production of the complicated Art Nouveau decorative elements was extremely complex, and the tin dome of a tower had to be manufactured as well. A large amount of metal sheet flashing for edgings, valleys, joints and gutters, etc. had to be made of galvanized metal. The roofing work began in 2003 and was completed in 2004.

Restoration and reconstruction of the courtyard façade

On the back side of the building Raichle did not have to stick to the street line, so he allowed free rein to his imagination and played with the massing through countless variations of Art Nouveau shapes. Unfortunately, the courtyard side of the building was in extremely poor condition before the intervention. This façade had been "modernized" in the "interwar period"

7. Detail of the roof after restoration

8. The courtyard façade before restoration

and thoroughly "purified" from "unnecessary" decorative elements. (*Fig. 8*) At the end of the 1970s, the golden yellow glass prisms, which had been used in the construction of the second-floor conservatory, were removed and replaced by ordinary, yellow, "Ornament" reinforced glass. Only one example of these special glass prisms has been preserved at the Institute, as a sample for eventual remanufacturing if an appropriate manufacturer can be found in the future. (*Fig. 9*) In 2004 the conservatory was partially reconstructed and glazed with yellow "Ornament" glass again, which is hopefully only a temporary solution. Previously, the *kibic fenster*[11] had been removed and replaced with two windows that did not belong to the original façade. Only a few samples of the blue-yellow glazed Zsolnay pyrogranite decorative elements remained, and the mortar along with the paint was falling off the monochrome olive-green façade. In the 1990s, this "spooky" courtyard had been abandoned to the weeds and its ownership had changed. Only public outcry and several critical newspaper articles prevented the new owner from

9. The only remaining special glass prism

constructing a commercial building on the site of today's billowy, Art Nouveau fence, which would have hidden the beautiful palace from the view of passers-by once and for all. In 2002, the new owner turned to the Institute with the goal to refit the yard and to use it for catering activities along with cultural events. The Institute gave its permission, but with the condition that the investor must financially contribute to the costs of the restoration of the courtyard façade. In 2004, the work on the courtyard began and was financed by the owner, while the restoration of the façade was through a form of a joint financing by the municipality and private funds. The work on the façade started with the surveying of the existing decorative profiles and the total removal of the layers of mortar. Due to the lack of data on the original state of the façade, the reconstruction had to be performed on the basis of a period photograph, in which Raichle can be seen as he sits in his backyard.[12] The designs of the courtyard façade and details of the profiles were made at a scale of 1:1 by Gordana P. Vujnović, an architectural conservation expert associate of the Institute who was the expert supervisor for the work on the back façade. Patterns for shaping the plaster fascia profiles were made of 3 mm thick steel sheets. The templates for shaping the undulating and other Art Nouveau forms were made by master masons under the leadership of Dušan Kadrijević. (*Fig. 10*) The *kibic fenster* was manufactured of black pine in the workshop of Ivan Čović, based on Vujnović's design drawings. The decorative elements of glazed pyrogranite missing from the façade were manufactured at the Zsolnay factory in Pécs under the continuous supervision of experts from Subotica.[13] The work on the courtyard façade lasted until 2005. In the meantime, the courtyard has been paved and properly furnished, finally providing the courtyard façade with an appropriate immediate environment and a worthy ambience that is commensurate with its significance as a cultural heritage property. (*Fig. 11*)

Restoration of the front façade

The next phase of the restoration was in fact the most complex one, since in addition to the rich sculptural plaster on this façade there were also large mosaic sur-

10. Restoration work on the courtyard façade using templates to make the undulating plaster forms

11. The courtyard façade after reconstruction and restoration

faces made of glass paste from Murano, a multitude of shapes and types of Zsolnay pyrogranite and elements of red marble from Siklós (Hungary). During the complex process of the restoration work, a team of experts helped Gábor Dömötör – the restoration supervisor – in making definitive decisions in all the strategically important issues. The team was composed of the architectural conservationist Gordana P. Vujnović, the sculptural restoration expert Vera Počuča Gabrić, and the painting restoration expert Goran Bolić. Regarding the general approach to restoration activities, the team of experts decided on the principle of preserving authenticity to the greatest extent possible. This decision excluded the possibility of completely removing the plaster, which would lead to dismantling all of the mosaics and decorative ceramics, as well as the replacement of all the original elements, even those with little damage, with newly manufactured ones. The accepted approach involved a combined application of material conservation techniques and reconstructive interventions during the restoration process. Prior to the start of the work, samples were taken from all of the original materials found on the façade as well as all materials that were intended to be employed, and these were submitted for analysis to the Institute for Materials. The main emphases of the research were to determine the coefficient of thermal expansion of the materials that would be installed side by side, as well as their degree of vapor permeability. The material analyses were initially performed by the civil engineer Petar Vukov and completed by József Huszár, who followed the work and aided in supervision with useful professional advice. Several glazed pyrogranite decorative elements were missing or were severely or partially damaged and had to be replaced. First, all original samples of the elements were dismantled. Due to their poor condition, four pieces of the continuous right-side gable and a round human face mask made of glazed ceramics had to be reproduced and replaced. (*Fig. 12*) Unfortunately, these elements could only be disassembled in fragments, as they had

already been repaired with cement mortar, had cracked into pieces and been embedded on the top of the gable. Each fragment was marked during dismantling and sketches were made as instructions for reassembly, and finally they were specially packaged and sent to the Zsolnay factory in Pécs. Some other elements with only minor surface damage and smaller cracks were restored in situ with a colored two-component epoxy resin, mixed according to the instructions of the engineer József Huszár. This protected the elements from further penetration of moisture and deterioration. At the same time, the surface of the façade was thoroughly examined, and it was determined which surfaces had to be completely removed, those that could be saved by injection, and those that should be retained without intervention due to the presence of decorative elements. The wall surfaces that had been repaired in the late seventies were uncovered. They had been re-plastered at that time with a repair mortar with a coefficient of thermal expansion (hereinafter: C.T.E.) of 1.456. These surfaces had begun to deteriorate most intensively, since the C.T.E. of the applied repair mortar did not harmonize with the C.T.E. of the original plaster or of the brick wall, so they had started to separate. Originally, Raichle's master builders had plastered the façade in three layers. The first layer of 25 mm was made with Danube River sand and had a C.T.E. of 1.068. The second layer was applied to the first in a thickness of 30 mm and had a C.T.E. of 1.115. The third layer was identified as a 4 mm thick scratch coat with a C.T.E. of 1.151. It was the color of butter due to brick powder from Raichle's brick factory, which he had added to it. That was also the finishing layer, indicating that the façade had not been painted originally, prior to the interventions in the late seventies when it received its characteristic yellow color. The sampled bricks had an identical C.T.E. as the finishing layer of the scratch coat. This method of plastering resulted in consistent behavior between all the layers of plaster through expansion and shrinkage at extreme temperature differences, while retaining vapor permeability. This was the principle that was to be followed during the restoration process when choosing a new repair mortar. (*Fig. 13*) A type of long mortar was chosen, with "Micropol" as an additive instead of slaked lime (see: calcium hydroxide). This had a C.T.E. of 1.10, and due to the micro-cavities it contained, it also had excellent vapor permeability. After 100 years the original mortar on the façade had become hard as stone, but in some places it had separated from its base – the brick wall surface. When the removal of the mortar had begun, it was noticed

12. Damaged round human mask made of glazed ceramics from the gable of the building

13. Layers of plaster on the primary street façade

14. Façade restoration work

that the bricklayers supervised by Adolf Gály from the Town`s Engineers Office had been negligent; they had not made the joints between the bricks deep enough (min. 3 cm deep), and therefore in these places the applied mortar had not adhered to the wall surface sufficiently, and had detached from it over time in large swathes. In fact, 80% of the mortar had to be removed as a result of the wall examinations, and where this was not possible due to the presence of Zsolnay ornaments or mosaics, it was necessary to inject the repair mortar through "needle pockets". The removal of the original mortar had to be performed very carefully, and this was made even more difficult by its exceptional strength. After considering the presence of capillary moisture in the wall above the marble base, it was repaired with "Hydroment" drying mortar, applied to the wall surface to a height of 1 m above the upper line of the base. (*Fig. 14*) In the meantime, the conservation of the Murano glass mosaics was also underway. Their stabilization was performed using a binder based on "Policem", and they were restored by replacing the missing pieces. The mosaics were first cleaned with a mild solution of alkaline cleaning agents. After this, the plaster was carefully removed around the mosaics to a width of 10 cm. Wherever necessary, a thin mortar containing "Micropol" was injected behind the concrete mosaic base. Finally, the restored mosaic surfaces were protected with "Melinex" adhesive foils in order to avoid any damage during the further restoration work on the façade. Only then was the plastering of the edges of mosaic surfaces begun. The conservation work on the mosaics was performed by Nenad Nastić and Nataša Stošić, applied arts craftspeople from Belgrade. In the meantime, the production of the glazed pyrogranite elements that had been ordered was underway in Pécs. Most of the problems arose during the manufacture of the large, interconnected elements of the gable. They first had to be compiled from pieces on the basis of sketches, so that positives could be modeled in gypsum plaster. The dimensions had to be enlarged to the extent that the ele-

ments would shrink during the firing. The final goal was to obtain the desired original measurements in the end. Negative molds were made on the basis of the positive models manufactured by hand. During the modeling, several questions and issues arose related to the joints between the elements and the geometry of the arcs, etc. When deciding on the dimensions of the elements, thorough technical experience was needed, since they are pieces that are continuously connected and need to be assembled and fitted in their original locations on the top of the gable according to specific dimensions. An error related to their size could only be identified after firing, or during installation, when it is too late. Because of the natural drying process, making corrected replacements would take too long and cause the construction deadlines to be missed. The sculptors who worked on the modeling of the decorative elements were Angéla Hofecker and her colleague from the modeling department of the Zsolnay factory. With the manufacture of smaller pieces there were fewer problems, except in the case of fragments that were supposed to replace the missing parts of some elements. Specification of the glaze color was also a complex task for technical reasons, since the result can only be seen after the final firing. Technicians from the Zsolnay factory's laboratory prepared several numbered pyrogranite pieces as samples with combinations of the desired shades of glaze, and each formula was recorded. After firing the samples, the resulting hues were compared to the original patterns, and it took a few attempts before the results were accepted by the restoration supervisor. The density/level of coverage of the glaze also had to be accepted. It was concluded that the glaze could not be applied with a sprayer, but instead had to be poured on the pieces or they had to be dipped into the glaze, otherwise it would remain transparent and not have proper coverage. Later, the assembly of the actual elements was also a complicated procedure due to their dimensions, their weight and the sensitivity of the glazed surfaces to impact damage. In some instances, the elements could be stacked, but pyrogranites and glaze without any unwanted damage were subjected to angle cutting. Before the start of the façade restoration work green stains of algae and moss were visible on the wall surface, in particular below the Zsolnay decorative elements.[14] This was the result of the elements lacking dripstones, which would have reduced the moisture on the façade surface below them. The search for a proper

15. The primary street façade after restoration

solution to this problem was a major challenge, since ignoring the issue or employing an unsuitable treatment would result in the reappearance of the unwanted algae on the wall surface. One of the possible solutions could have been the installation of tin hood molds under the elements, but that would have significantly affected the original appearance of the façade. A final decision was made to use a special façade paint that works like a lotus leaf, which, according to the manufacturer's recommendations and the results of the material testing, would repel all atmospheric water in the form of drops on the surface of the façade while not allowing moisture to penetrate into the wall surfaces, thus preventing the formation of the algae. In addition to this beneficial effect, the walls still retain their vapor permeability. The final work lasted two months, but the result was satisfactory. Conservation work ended in 2005 with a ceremony where a great number of residents of the city and representatives of its administration celebrated the solemn event. (*Fig. 15*)

NOTES

[1] This article is the expanded and revised version of a previous article: Dömötör, G., 'A szabadkai Raichl palota felújítása' [The Restoration of the Raichle Palace in Subotica], *Országépítő*, 2006, 1, 36–39.

[2] Gerle, J. – Kovács, A. – Makovecz, I., *A századforduló magyar építészete*, Budapest, 1990, 161–162; Vujnović, P. G. – Ninkov, K. O., – Demeter, G. – Mačković, S., – Halas, T. – Segedinčev, T., – Jeftić, A., – Rakočević, Cvijanov M., *Gradska kuća Subotica – Városháza Szabadka 1912 – 2012* [The City Hall in Subotica], Szabadka/Subotica, 2012.

[3] Duranci, B., *A vajdasági építészeti szecesszió* [Art Nouveau Architecture in Vojvodina], Újvidék/Novi Sad, 1983, 47.; Duranci, B., *A vajdasági építészeti szecesszió*. [Art Nouveau Architecture in Vojvodina], Szabadka/Subotica, 2005.

[4] Gerle et al. *op. cit*. 161–162; Bátyai, J., *Raichle és Szeged*. [Raichle and Szeged] 7 *Nap*, 12 July 1985, 26.

[5] Vujnović, P. – Gordana, Aladžić V. – Grlica, M., *Gradotvorci I – Városteremtők I. Szabadkai lakóépületek barokktól modernizmusig* [Creators of a city I. Subotica residential buildings from the Baroque to Modernism] Subotica/Szabadka, 2008, 92–93.

[6] Vujnović, P. – Gordana Aladžić V. – Vass, G., *Raichl Ferenc Szabadkán és Szegeden* [Ferenc Raichl in Subotica and Szeged], Szabadka, 2014, 107.

[7] Bakonyi, T. – Kubinszky, M., *Lechner Ödön*, Gyoma–Budapest, 1981; Gerle, J., 'Stilski pravci na prekretnici vekova', *Rukovet* XLV, no. 5–8 (2000), 29–38.

[8] The sources related to the Raichle Palace in the so-called Form Books in the Archives of the Zsolnay Factory are entirely missing.

[9] Martinović Cvijin, K., *Subotički opus Ferenca J. Rajhla*, Subotica, 1985, 20; Vujnović, et al., *op. cit*. 89.; Aladžić, V., 'Još jedan osvrt na Rajhlov opus', *Rukovet* XLIII, no. 4–5–6 (1998), 60–64; Bori, I., 'A szecesszió szabadkai építésze, Raichle J. Ferenc, A Raichle-palota' [The Architect of Art Nouveau of Subotica, Ferenc Raichle J. The Raichle-Palace], in *Ezredéve itt,* Újvidék, 2004, 209–213; Iby, P., 'Az örök bohém – Raichle J. Ferenc és palotája' [The eternal bohemian – Ferenc J. Raichle and his Palace], *Gradsubotica*, 22 July 2015 (http://www.gradsubotica.co.rs/az-orok-bohem-raichle-j-ferenc-es-palotaja/); Sisa, J. (ed.), *Motherland and Progress. Hungarian Architecture and Design 1800 – 1900*, Basel, 2006, 627.

[10] The archives of the Inter-municipal Institute of Monument Protection Szabadka/Subotica.

[11] Oriel window.

[12] Prokes, Sz., 'Collection of old postcards of Szabadka and Palić', in *Odnekud se znamo, zar ne?…Régi ismerősök vagyunk, ugye?…* [We are old acquaintances, are we not?], Subotica, 1989, 12.

[13] The surface of the façade was finally painted with a special German made façade paint with a water resistant/"self washing" effect that is also vapor-permeable.

[14] When shade is combined with cool temperatures and rain, algae and moss will start to form on walls, roofs or other surfaces.

Ramona Novicov[1]

Lost Beauty Rediscovered

The Black Eagle Palace and Adolf Moskovits Palace, Examples of Good Practice in Restoration

Of all the Art Nouveau buildings in Oradea (in Hungarian Nagyvárad, in German Großwardein) we have selected two iconic examples: **The Black Eagle Palace**[2] (*Fig. 1*) and **the Adolf Moskovits Palace** [3] (*Fig. 2*) that are currently being subjected to a complex rehabilitation process. This presentation covers the elaborate work being performed on the Black Eagle Palace, namely the rehabilitation of the glazed pedestrian passage built between 1907 and 1909. The entire ensemble is the work of the architects Marcell Komor and Dezső Jakab and bears the strong stylistic influence representative of Ödön Lechner's vision. This paper highlights the rehabilitation of the masonry and plaster surfaces of the glazed passage, the results of the process of deterioration, the way in which the remaining original painting has been preserved and how the decorative motifs have been restored. The preservation of the artistic components at both the Black Eagle Palace (restored in 2015) and Moskovits Palace (which is still under restoration, a project that began in 2013) has been constantly ensured. The Moskovits Palace is the work of the architects László and József Vágó and was built

1. Marcell Komor and Dezső Jakab, the Black Eagle Palace, Oradea, 1908

2. László and József Vágó, Adolf Moskovits Palace, Oradea, 1910–11

3. László and József Vágó, Adolf Moskovits Palace, Oradea, 1910–11

between 1910 and 1911. Here it can be noted that there is a completely new architectural vision, which is in the avant-garde of the geometric Art Nouveau[4] that is actually the very opposite of Lechner's vision. The façade and attics of this building have been restored. The Zsolnay ceramic plate decoration was also restored, as well as the semi-sgraffito at the cornice. (*Fig. 3*) At present, the building has regained its original appearance for the most part.

This paper presents the recent restoration work on two buildings representative of the architecture in Oradea in the 1900s: The Black Eagle Palace[5] (*Fig. 4*) and its most spectacular component, its stained-glass passage, and the Adolf Moskovits Palace.[6] Both buildings are extremely valuable from a stylistic point of view. They illustrate two opposing trends[7] in the modern architecture of the twentieth century, bringing to Oradea two stylistic directions from differing sources, Budapest for the former and Vienna for the latter. That is to say, the Art Nouveau curvilinear style with national influences is evident in the case of the Black Eagle Palace, while the Art Nouveau international geometric style is apparent in the case of the Moskovits Palace.

The Black Eagle Palace embodies the artistic ideal of the Hungarian national style illustrated by Ödön Lechner, ideally centered on the idea of the rebirth of the ancestral sources of Hungarian architecture. (*Fig. 5*) On the opposite end is the Adolf Moskovits Palace, built on the principles of the international style, totally lacking personalizing variations or accents interpreted in a national tone. The palace provides an artistic expression of a minimalist spatial and formal geometry expressed clearly and absolutely, firmly and coherently in the spirit of the Viennese Secession.[8] (*Fig. 6*)

Oradea is rightly considered an open-air Art Nouveau architectural museum due to the many structures that bear the imprint of this trend. The city has earned its name as the Capital of Art Nouveau in Romania through

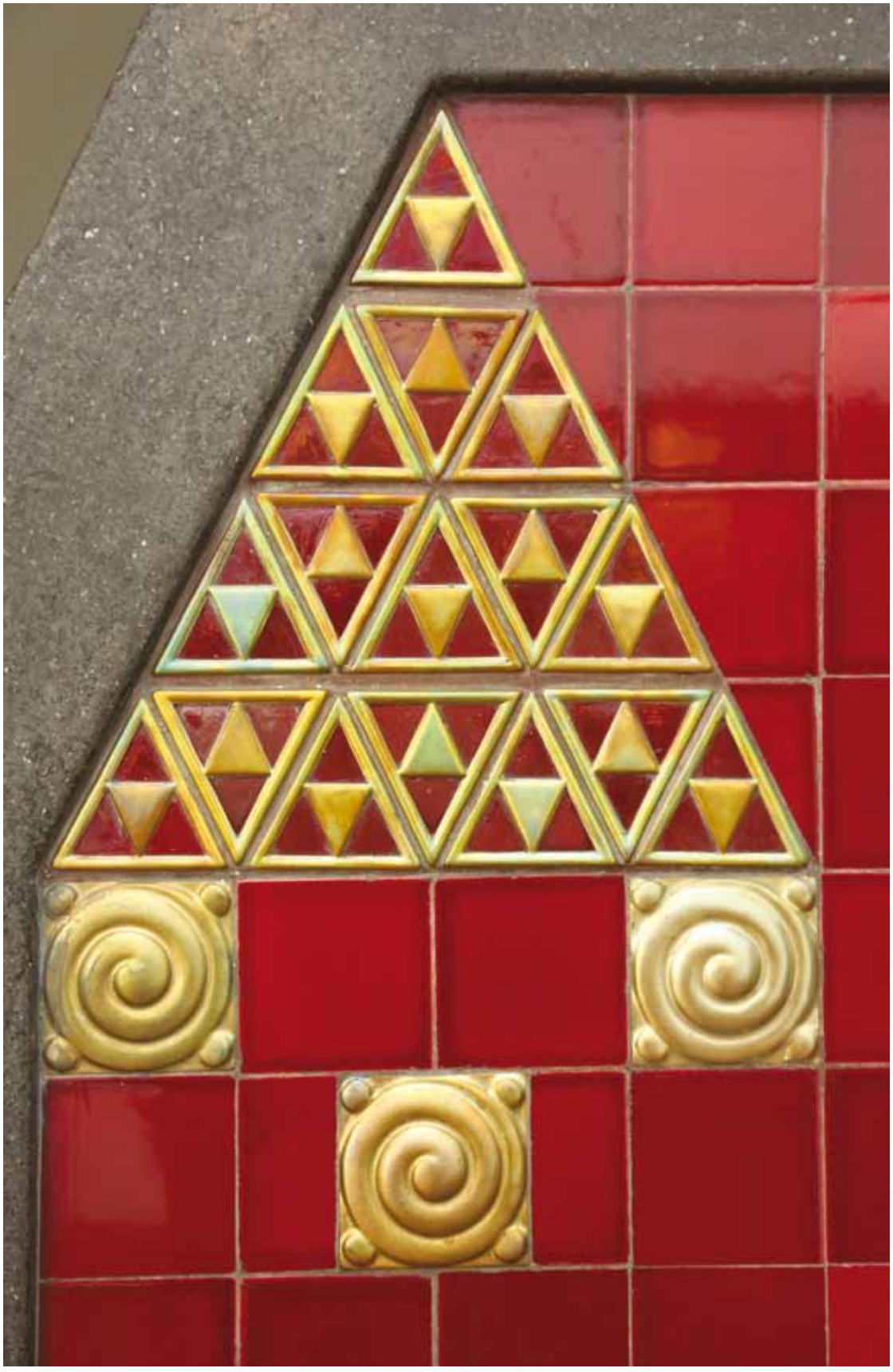
4. Marcell Komor and Dezső Jakab, the Black Eagle Palace, the great stained-glass passage, 1908

5. Marcell Komor and Dezső Jakab, the Black Eagle Palace, detail of the mural painting, Oradea, 1908

6. László and József Vágó, Adolf Moskovits Palace, modular surface, Oradea, 1910–11

7. Franz Löbl, Ullmann Palace, detail with the Menorah, Oradea, 1912

8. László and József Vágó, Darvas-La Roche Villa, Oradea, 1909–12



9. László and József Vágó, Darvas-La Roche Villa, detail of the inner fountain, Oradea, 1909–12

10. László and József Vágó, Darvas-La Roche Villa, detail of the brass radiator enclosure, Oradea, 1909–12

the presence of a constellation of buildings that are representative of architecture in the 1900s, born after a real economic boom generated by the industrial revolution.

Here, we are briefly reviewing only a few of the buildings that have given Oradea a cosmopolitan air that is preserved to this day and are the raw material for contemporary cultural interest. Notable amongst these on the canvas of time are the Miksa Moskovits Palace, built by the architect Kálmán Rimanóczy Jr. between 1904 and 1905 in the curvilinear Art Nouveau style typical of Jugendstil; another imposing palace nearby, the Apollo Palace, built by the same architect; the Sztarill Palace (built in 1902 and expanded in 1906) located near the Municipal Theatre; the Adorján Houses, designed between 1903 and 1905 by the same team of architects from Budapest, Marcell Komor and Dezső Jakab, who would build the Black Eagle Palace five years later (Adorján House I was their first work in Oradea); Stern Palace, also designed by them between 1904 and 1905; and Poynar House, built in 1907 and spectacularly located at the beginning of the so-called Corso promenade.

In the first decade of the twentieth century, the economy and culture of Oradea were fashioned by the presence of remarkable Jewish industrialists, bankers, lawyers, urban intelligentsia and merchants.[9] In 1912, the Jewish quarter received a representative landmark, the Ullmann Palace. Intimately affiliated with the prestige of the Jewish community, the Palace has a menorah flanked by Nubian lions molded in precious Zsolnay ceramics at its oriel windows.[10] (*Fig. 7*) The Ullmann Palace is in the vicinity of the first Art Nouveau building in the city, the Fuchsl Palace, built between 1902 and 1903 by the architects Lajos Jámbor and Zoltán Bálint. Another exceptional example of the architecture of Oradea is the Darvas-La Roche House, which bears the imprint of avant-garde modernity. (*Fig. 8*) It was the Vágó brothers who brought the vanguard of architectural expression specific to the Secessionist vision from Vienna to Oradea through Darvas-La Roche House, the Moskovits Palace and the Gendarmerie School.[11] (*Figs 9–10*) The Róth House designed by the young architect Valér Mende in 1912 is a remarkable example of this new style of avant-garde modernity that was sensitive to the influence of industrial architecture.[12] These few examples of outstanding buildings that were part of the vast and diverse architectural landscape of Oradea illustrate the spirit of modernity that was fully present in the city in the first decade of the twentieth century. After a hundred years, these buildings are in dire need of conservation and restoration, a process that has been promoted in Oradea in recent years and continues to be supported. The present project entitled "Sustainable Protection and Promotion of the Art Nouveau Heritage in the Danube Region" strongly supports this endeavor.

The Black Eagle Palace

This building complex is an important work along the axis connecting Budapest, Vienna and Milan and has retained its privileged position as the most spectacular monument of the city's built heritage. Its architecture is typical of the modern era and illustrates the aspirations of the cosmopolitan society of Oradea at the beginning of the twentieth century. Our work is emphasizing the fact that the Black Eagle Palace is the most stunning piece of modern architecture in Oradea. It is part of a prestigious gallery of international buildings illustrating the new concepts of *Glasarchitektur*, the architecture of light and of volatile, fluid and transient spaces open to the general public everywhere. The people who commissioned the building, the Jewish lawyers Emil Adorján and Ede Kurlaender, were impressed during their European travels, in particular by the Vittorio Emanuele Art Nouveau Gallery in Milan.[13] They wanted to have a great urban attraction of this like in their city as well, which is why they had the famous architects Marcell Komor and Dezső Jakab build a genuine palace of the modern era in the city center in accordance with their dreams between 1907 and 1908.[14] From a stylistic point of view, the entire building bears the imprint of Ödön Lechner's architectural and decorative vision, a vision that surrounds us in this place. We now can see the ceramic decorations of the façade that have been brought back to their original appearance following the extensive restoration work of 2015–2016.

Layered artistry. Contemporary restoration interventions at the Black Eagle Palace

It is the mural painting of the vast glazed passage that was rehabilitated through project no. 48 of 2015.[15] The research into the surface of the wall layers re-

11. Restoring the Black Eagle passage, frame 3, 2016

vealed the existence of original wall paintings, consisting of repetitive floral motifs and rosettes adapted to the type of surface support. (*Fig. 11*) The documents and photographs of the period were analyzed and the original decoration with motifs inspired from Hungarian folk art was faithfully reconstructed. The method of highlighting the screed surfaces was chosen because the surfaces were very large. The transparency of the method gave maximum credibility to the restoration operations. Great attention was paid to the preservation of the metal sheets in the original restoration stages. To get to the original paint layer, successive layers of paint and plaster had to be removed. After thorough scraping, a better-preserved surface was chosen. This was a difficult operation because the original paint layer was scraped, so it was barely preserved, and it had become fragmentary and powdery. The decorations were like gems in a field of ash. The selected surface was cleaned, and this was supplemented by other specific methods, including UV rays. The sizes of these areas, preserved as screeds, are between 1 and 2 square meters. Templates were made based on these patterns for the newly restored surfaces. The painting was made on a coat of lime-based plaster (*kalkglett*). The colors used were also lime-based (*al fresco*). All repairs to the plaster were made using lime-based mortars without any cement.[16]

The original decoration was transposed onto tracing paper. Templates for the reconstituted surfaces were made based on these drawings. They wished to have a balanced, credible dialogue between the screed-surfaces and the reconstituted ones, in line with the requirements of contemporary aesthetics. Together, these complementary methods of highlighting the beauty of the palace have led to aesthetically remarkable results, while preserving the value of the historical edifice.[17]

Moskovits Palace: elegant geometry

The second historic building whose restoration is an example of good practice is the Adolf Moskovits and Sons Palace. This building is the work of the Vágó brothers and it was built between 1910 and 1911. Its Secessionist (Viennese Art Nouveau) style is characterized by rigorous geometry and modular-type decorations specific to their avant-garde vision. Due to this modular decoration made of ceramic tiles, the restoration of the wall

12. Adolf Moskovits Palace, the new plastering is made even with the slabs bearing the ornaments

façade was quite difficult.[18] It must be noted that Secessionism's purist geometric vision entered Oradea thanks to the architects László and József Vágó and Valér Mende, who gave the city a spectacular Viennese element.[19] The vision of Peter Behrens, Otto Wagner and Josef Hoffmann was adapted to the urban scale of the city and to the demands of the people who commissioned it, and this shaped its appearance. The Darvas-La Roche House, Adolf Moskovits Palace, Róth House and The Gendarmerie School (present-day University campus) are iconic examples of the Secessionist avant-garde.[20] The imprint of this new type of architecture, contrasting with the curvilinear Art Nouveau vision or Lechner style, is provided by a refined geometry of luxury and elegant functionality, freed from pompous ornamentation. Their architecture was a eulogy to geometry, and the restoration had to emphasize this spirit.

At the Adolf Moskovits Palace, the incorporated ceramic modules accentuated the degradation of the wall façade. The ceramic plates were removed and carefully conserved. Special silicone casts with catalysts (HT 33) were taken of all the stucco decorations. Top-quality modeling plaster was poured into all the casts. The plaster was removed down to the brick using a wire brush and pressurized water jets. A new coating was prepared with only lime (lime paste) and sand, according to the traditional cement-free method. First a watery base was applied in order to help it adhere and then a 6–8 cm thick coat of plaster. The plaster was affixed using Rabitz wire. The images clearly show how the ceramic plates have been integrated into the new wall façade. (*Fig. 12)* Polystyrene tiles were inserted at the precisely marked places in relation to the thickness of the plaster. After application, these plates were removed, thus preparing the spot for the re-positioning of the ceramic modules. In turn, the ceramic pieces were recomposed on individual plates, which were then embedded in the plaster. The last layer of plaster was a lighter, high quality coat that put the decorated surfaces at the same level as the wall surface. The result is impeccable. All the

chemical compositions were based on water, not solvents, in accordance with European standards.

The broad frieze with rural motifs beneath the cornice required particular attention. The drawing was made in semi-sgraffito with a shallow depth. The pattern was copied on tracing paper, and then redrawn identically on the new plaster. (*Fig. 13*) Despite its modest, but still remarkable dimensions, the inner courtyard illustrates the vision for an urban garden by the Vágó brothers, whose buildings are always inspired by nature.[21] The ironwork of the building is remarkable for its exceptionally rigorous geometric spirit of Art Nouveau, restored to the attention it deserves. Also, the original lift, of which only the housing has been preserved, will undergo restoration and will become a representative piece of the industrial era.

The roof of the palace was a real challenge. The roof truss was reinforced, and concrete bands were cast in order to create a modern attic. The slag filler of the floor was removed and the floor was reinforced with metal bars and clad in sheets. This metal structure is the basis for the installation of a floating slab on independent pillars that allows the creation of a unitary space, open to a flexible modular arrangement. Building an attic loft using this technology brings the emphasis of quality contemporary architecture into the Art Nouveau universe of the venerable Moskovits Palace.

It is very important that the strict quality of the restoration remain without being destroyed or altered through conventional "modernization" that wastes the charm and significance of the details of the stucco, wood and ironwork. One must respect and, when possible, entirely restore the work of these great architects, from the overall appearance to the minutest detail, because everything is closely connected to a unique vision and each structural or decorative component hearkens back in an organic and unified way that cannot be ignored. Works of architectural heritage function like a living organism and any thoughtless intervention is like a rape or an amputation, destroying the concept of a total work of art, which the architects of contemporary Central Europe referred to as *Gesamtkunstwerk*, looking towards the open spiritual horizon.

13. Adolf Moskovits Palace, sgraffito, after restoration

NOTES

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[2] Paşca, M., *Palatul Vulturul Negru* [The Black Eagle Palace], Oradea, 2007, *passim*; Várallyay, R., *Komor Marcell, Jakab Dezső,* Budapest, 2010, *passim*; Gerle, J. – Kovács, A. – Makovecz, I., *A századforduló magyar építészete* [Hungarian Architecture at the Turn of the Century], Budapest, 1990, 84–90.

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[4] Novicov, R., *1900 – Arhitectura orădeană, arhirtectură europeană – Trasee avangardiste/Nagyváradi építészet, európai építészet – avantgárd irányvonalak* [1900 – Architecture in Oradea, European Architecture – Avant-Garde Trends], Oradea, 2011.

[5] LMI code BH–II–m–B–01026, Technical Project no. 48/2015, archive of Oradea's City Hall.

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[9] Hochhauser, R., *Contribuţie la o istorie a industriei de fabrică la Oradea în perioada 1848–1948* [Contribution to the History of the Manufacturing Industry in Oradea in the 1848–1948 period], Oradea, 2010, 133–142.

[10] Paşca, M., *op. cit.*, 5–19.

[11] Novicov, R., *op. cit.*, 20–22.

[12] *Idem*, 40–43; Paşca, M., *Arhitecţi budapestani în Oradea anilor 1900,* [Budapest Architects in Oradea in the 1900s], Oradea, 2013, 34–44.

[13] Borcea, L., *Memoria Caselor* [The Memories of the Houses], Oradea, 2003, 135.

[14] Paşca, M., *op. cit.*, 162–163. "Actual construction commenced on the 6 April 1907. In November 1907 the building was roofed, and the grand opening was slated for the 16 November 1908, the works being completed in December 1908. The plans for the Black Eagle Palace exist in several versions which nonetheless conserve the same basic concept regarding its functionality and design. […] The plan of the building follows the layout of the interior gallery, the two arms of which intersect in a 90-degree angle under a large cupola with a third arm in extension communicating with Vasile Alecsandri Street (executed by Ferenc Sztarill in October 1908).

[15] The general designer was S.C. 9 Opţiune SRL Baia Mare. The chief of the project was arch. Ildiko Mitru, and the specialized designers were S.C. 9 Opţiune, S.C. Art gothic SRL Vlad Popescu. The study of the surface of the wall was conducted by Loránd Kiss from S.C. Imago Picta SRL, Târgu Mureş and the execution of the work was performed by S.C. Irnik Keramia SRL, led by Csaba Bálint.

[16] *Cf.* The documentation mentioned in Project no. 48/2015 is archived at the City Hall of Oradea, Direcţia Patrimoniu Imobiliar, Oficiul tehnic.

[17] A short video, filmed on the building site by Digi24 Oradea TV, captures the stages of the restoration work live.

[18] The firms that carried out the project were "NOVARTIS", the architect Cristian Puşcas and SAMAC EUROPA, which is headquartered in Oradea.

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[20] Novicov R., *op. cit.*, 81–85.

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Astrid Huber[1]

Architectural Surfaces and Plaster Façades around and after 1900 in Austria

Introduction

The Art Nouveau period is perhaps the most interesting time of all concerning the variety of materials used for architectural surfaces. The artistic treatment of façades around 1900 was shaped by the many new materials and technologies of the period. The façades consisted of decorative plasterwork that was given varying treatments as well as stucco, ceramic tiles, metal cast ornaments, stone or terracotta elements, and exposed brickwork. In departing from the original intentions of Historicism, the architecture of Central Europe at the turn of the century went beyond reflecting a new style and a new decorative vocabulary; the incorporation of new, increasingly industrially prefabricated products introduced a fresh architectural aesthetic, which in general can be perceived in the treatment of every surface and therefore in the overall appearance of the buildings. Whereas in the second half of the nineteenth century plasterwork and other materials on façades had been painted over, by 1900 the visual quality of natural plaster was considered appropriate for contemporary buildings. The production of special Art Nouveau plaster patterns as well as prefabricated cast elements was made possible by the development of new (hydraulic) binder materials for decorative renderings and stucco.

In the following pages, I will examine the new binder materials of 1900 through the examples of different buildings in Vienna and its vicinity. During this overview, I will focus on natural plasterwork, ceramics, the combined technique of ceramics and plasterwork, the different variations of plaster, brickwork cladding and Roman cement. This latter material had been in use since the end of the eighteenth century. This first hydraulic binder was patented in 1796 by James Parker in England, where it was used primarily for structures in which masonry was subjected to moisture and an extremely strong binder was needed.

Based on case studies of Art Nouveau façades in Vienna, I will provide an insight into these different materials, including the new materials that came on the market around 1900, such as Roman cement. The new style of Art Nouveau with its decorative vocabulary was strongly influenced by new materials and techniques, and their combination.[2] I will concentrate on plasterwork, because these surfaces are the most endangered elements of façades, since they are often not respected, and have been painted over, remodeled or even destroyed in recent decades. During the nineteenth century, it was typical for plasterwork to be painted. This changed by 1900, when the visual quality of natural plaster and other materials was considered appropriate for contemporary buildings. In my studies, it is often the least known or even anonymous buildings that are the most interesting because the probability of finding the surface of the plasterwork in its original state is even higher. In these cases, often the plasterwork has not been painted or covered with other organic plasters that have been sprayed on later, which can contribute to the loss of transparency in the original material.

Natural plasterwork

Vienna has always been a city of plaster architecture. Since the Renaissance, a variety of techniques have been developed to achieve different surface finishes or, beginning in the second half of the nineteenth century, to further enhance surfaces with integrated cast decorative elements. One of the most important buildings in Vienna from around 1900 is the Vienna Secession, built by Joseph Maria Olbrich in 1889.[3] Its façades are composed of plasterwork with varying finishes, including

actual layers and structural cast elements, stucco and gilding. Fortunately, the information recorded about the intended effect of the plasterwork and component materials has survived. *"As we were forced to use cheap render, we wanted to leave it with its natural color. We pestered the building contractor until he relented. Instead of the more usual Danube sand, such as had been used on the new façade of the Imperial palace, he agreed to use sand from the old pit at the Türkenschanz, which had so well served the old Viennese Baroque buildings. However; it was not possible to obtain an ideally spotless, even blend. Therefore, it was decided to spray it with whiting (limewash) and to soak the façade with isinglass."*[4] So the initial intention of Joseph Maria Olbrich was to show the visual quality of the natural plasterwork. Of course, famous buildings like the Secession have been treated numerous times in recent decades, with the plasterwork having been restored, remodeled and even replaced. (*Fig. 1*)

Ceramics

The Otto Wagner building at the "Naschmarkt" in 1060 Vienna, the so-called Majolica House built in 1889/99, is an example of the use of flat ceramic materials on a façade. This was a new material that emerged with the expressive design of Art Nouveau.[5] Alois Ludwig created the design for the façade tiles. While here the overall impression of a bright Jugendstil textile results from the numerous handmade tiles, Max Fabiani came up with a much easier solution for his "Portois & Fix" Building at 59–61 Ungargasse in the 3rd District of Vienna, which was erected at about the same time, between 1897 and 1901.[6] He used the orthogonal network of the tile joints combined with a two-tone color scheme to attain a severe geometrical ornamentation with a continuous repeated pattern. Although these models did not set off a boom of tile-clad buildings, the

1. Joseph Maria Olbrich, Secession, 12 Friedrichstraße, 1010 Vienna, 1898

followers of Wagner and Fabiani created several buildings where a tiled background is combined with plastering or other decorative elements. (*Fig. 2*)

2. Max Fabiani, "Portois & Fix" Building, 59–61 Ungargasse, 1030 Vienna, 1897/1901

Combined materials

The "Florahof" at 88 Wiedner Hauptstraße, 1040 Vienna, designed by Oskar Laske in 1901,[7] shows the variety of different materials on Art Nouveau façades. There are ceramic tiles at the balconies and decorative elements in the plasterwork. This plasterwork is finished in various ways, such as rough-cast or combed, and includes cast elements made of Roman cement. This building has been renovated in recent years, but it was quite a bit more interesting previously. A picture from the 1990s shows the surface without any retouching, later painting or coverings, thus at that time still authentic. It demonstrates that the original intention of the Art Nouveau architects was to present the visual quality of the natural plaster with its fine texture and slightly yellow-brownish colored sand. Today the façade is covered by a thick, white coat of paint, which has changed the original appearance significantly. (*Figs 3–4*)

Plaster with varied finishes

A similar approach can be observed in Hietzing, at the so-called "Galileihof" at 3–5 Lainzer Straße by the architect Emil Reitmann in 1895.[8] The façades are dominated by a combination of plaster finished in various ways and ceramic tiles, complimented by elements of brickwork cladding. These façades have been restored over the last ten years. Until this intervention, the surfaces had never been touched and preserved the original visual quality of the natural plaster without any more recent coatings. In particular the different finishes of rough-cast, smooth and so-called "squeezed" plaster, (*Quetschputz*), a decorative plaster achieved through pressure and suction, are easily identifiable on a photo from the 1990s. Obviously also in this case, the goal of the restoration was not to preserve the authenticity and its special surface qualities, but to paint it white, which it never had been previously. Moreover, the strong contrast today between the glossy white plaster and the other elements, like ceramic tiles or brickwork cladding, does not correspond with the original effect of the façade. (*Figs 5–6a–b)*

Besides rough-cast and squeezed plaster, combed plaster executed using various techniques and consistencies was a consciously used decorative element in particular of the Art Nouveau style. In 1905, Friedrich Ohmann used a rough, "trickled" version of combed plaster at the Vienna River engineering structure at the city park in the 1st District of Vienna.[9] A very precise form of combed plaster applied in waves characterizes the façades of the "Rüdigerhof" at 20 Hamburgerstraße, 1050 Vienna, by Oskar Marmorek in 1902.[10] (*Fig.* 7) To get an impression of the original effect of Art Nouveau plasterwork, it is also worthwhile to study an anonymous building from this period in Vienna. There are only a small number of façades left in Vienna that still preserve their authentic appearance, such as the standard apartment building at 138 Margarethenstraße, 1050 Vienna, built around 1910. The combed plaster

3–4. Oskar Laske, "Florahof", 88 Wiedner Hauptstraße, 1040 Vienna, 1901, before and after renovation

elements are so finely and delicately executed that even a thin coat of paint would alter the effect of this decoration. (*Fig. 8*) One of the apartment buildings by Carl Wenz and Josef Leiker, at 19 Neulinggasse, 1030 Vienna,[11] similarly has not yet been restored and covered with later paint so far. The façades are decorated by natural plasterwork with various finishes and cast elements with volute and egg forms made of Roman cement. In particular the combed plaster in the upper parts of the façade creates a special, lively surface through its original visual quality. (*Fig. 9*)

5. Emil Reitmann, "Galileihof", 3–5 Lainzer Straße, 1130 Vienna, 1905

The most remarkable Art Nouveau plasterwork façade in Vienna, which fortunately retains its original appearance, is the "Villa Langer" by Josef Plečnik at 30 Beckgasse, 1130 Vienna.[12] Floral rose motifs move in waves over its façade, and it is worth studying not only for historic, but also for technical reasons. The rose motifs are cast elements made of Roman cement, connected by curved lines that were molded into the fresh plaster. The areas between the floral motifs were covered with a fine "squeezed" plaster. The façade has never been treated up to now and still shows the authentic visual quality of the various finishes. Because of the changes due to age and its patina, it is possible to discover the differences in materials and techniques. The rose elements, made of nearly pure Roman cement, were cast in models and mounted on the façade. The smooth surface still shows its characteristic color, the light brownish-red of the Roman cement in Vienna, which was also called "Viennese Hydrauer". The directly applied plasterwork is a mortar made of lime, Roman cement and sand. Plečnik designed this façade al-

6.a–b Emil Reitmann, "Galileihof", 3–5 Lainzer Straße, 1130 Vienna, 1905, before and after renovation

most exclusively with plasterwork; only the main cornice and the window sills are made of light green ceramic tiles and on the back side of the building, at the garden entrance, it is possible to find elements of brickwork cladding. (*Fig. 10*)

Brickwork cladding

Brickwork cladding was rediscovered as a facing material in the middle of the nineteenth century in Vienna. At the beginning of this trend, it was used on fortified buildings like the Arsenal complex containing the monumental building of the Museum of Military History, designed by Theophil Hansen in 1849–56. He took full advantage of the great variety of decorative effects that could be achieved with bricks of different colors to create a carpet-like patterned surface for this monumental edifice. While many monumental buildings along the Ringstraße utilized decorative brickwork in the 1860s and 1870s, by 1900 brickwork cladding was mainly seen as a partial supplementation to other materials or a material for industrial architecture. One of the most

7. Oskar Marmorek, "Rüdigerhof", 20 Hamburgerstraße, 1050 Vienna, 1902, combed plaster

8. Apartment Building, 138 Margarethenstraße, 1050 Vienna, around 1910

9. Carl Wenz, Josef Leiker, 19 Neulinggasse, 1030 Vienna, 1911

remarkable examples is the "Hammerbrotwerke" in Schwechat near Vienna, a former bread factory designed in 1908–09 by students of Otto Wagner, Hubert and Franz Gessner.[13] (*Fig. 11*) In September 2017, the Federal Monuments Authority of Austria's (Bundesdenkmalamt) Information and Training Centre for Architectural Conservation at the Kartause Mauerbach organized a one-week workshop for conservation/restoration experts, craftsmen and architects at the Hammerbrotwerke in Schwechat dealing with the restoration of brickwork cladding and rough-cast plaster. This unique Art Nouveau building complex has preserved the original visual quality of its brickwork and natural plaster. The challenge was to restore the façade without losing the value of age and the patina of the brickwork and treated plaster forming a relief pattern. Brick additions were made with pigmented Roman cement mortar and the recessed joints were re-pointed with lime mortar that had equivalent material properties to the original mortar.

Information and Training Centre for Architectural Conservation

The conservation of architectural surfaces, especially plasterwork, is one of the major topics at the Information and Training Centre for Architectural Conservation of the Federal Monuments Authority of Austria (Bundesdenkmalamt) based at the Kartause Mauerbach near Vienna. They have been able to acquire a wide range of experience in the conservation and restoration of medieval and Baroque rendered façades as well as of plasterwork from around and after 1900, especially examples made using Roman cement. Indeed, around 1900 there was a tendency towards individual experimentation, which resulted in numerous different innovative techniques for architectural decoration. Since 1999 the Kartause Mauerbach has cooperated in several EU projects dealing with plasterwork from around 1900, including RENDEC on decorated renders from around 1900 in Europe, and two projects dealing with Roman cement, ROCEM in 2003 and ROCARE in 2008. (*Fig. 12*) The main tasks of the department at the Kartause Mauerbach today are the investigation of traditional building techniques, such as lime burning in an experimental kiln, direct slaking, handmade bricks and stone varieties, and traditional materials, like natural sands, lime and hydraulic binders. A further task is the testing of innovative methods of conservation and res-

10. Josef Plečnik, "Villa Langer", 30 Beckgasse, 1130 Vienna, 1900, detail

11. Hubert and Franz Gessner, "Hammerbrotwerke", 28 Innerbergerstraße, 2320 Schwechat, 1908–09, general view

12. Kartause Mauerbach, Information and Training Centre for Architectural Conservation

toration and consultation for historic property owners, conservation experts and architects. The dissemination of this special knowledge to craftsmen, conservation/restoration experts and architects takes place within the context of conferences, seminars and practical courses, while the Kartause Mauerbach itself functions as the training site. Due to this, the former monastery with its historic surfaces and architectural details, such as its windows and floors, is being restored step-by-step in an ideal way and demonstrates an example of best practice for architectural conservation. The courses for blacksmiths, engravers, stonemasons, painters, masons and carpenters focus on traditional crafts and raise awareness and respect for original materials and their preservation. The approach to historic preservation and the educational content of the courses and seminars in Mauerbach are summarized in the "Standards der Baudenkmalpflege", a guideline for architectural conservation in Austria.[14] Special courses for conservation/restoration experts and masons at the Information and Training Centre for Architectural Conservation deal with decorative plasterwork from around and after 1900, the varying compositions of mortars, including the use of Roman cement or Portland cement for plaster that imitates stone, and the techniques for their application. (*Fig. 13*)

Roman cements

This first hydraulic binder was patented in 1796 by James Parker in England, where it was used primarily for structures in which masonry was subjected to moisture and an extremely strong binder was needed. By 1900 Roman cement was also used for rendering façades and in particular for the production of cast elements. By the beginning of the twentieth century the use of Roman cement gradually declined as Portland cement became the predominant binder for hydraulic mortars and plasters. During this transitional phase from renders that were based on Roman cement to those based on Portland cement, mortars were often made from a combination of the two.[15] Unfortunately, these highly hydraulic

lime mortars containing Roman cement have today been largely displaced by modern cement-based products. However, it was these particular materials and their attendant methods of specialized usage that enabled craftsmen to develop the independent formal language of Art Nouveau that is so admired today – both for its artistry and its craftsmanship.

Roman cements are natural cements fired from marlstone, which is limestone containing significant amounts of silica and clay. Firing temperatures range between 800 and 1000°C, below the temperature for sintering, and contain evidence of incomplete calcination of the raw marlstone. After calcination, the burned cement clinker is ground into a fine powder. The principal characteristic of this natural cement is that it sets quickly even under water, in no more than 15 minutes, and then develops further strength over the following months and years. The color varies considerably between tones of light yellow to brown, and sometimes slightly reddish or darker brown. Roman cement was first developed and patented in England in 1796 by James Parker and was known as "Parker's" or "Roman" cement. The composition of Roman cement or natural cement is very different from the *opus caementitium* used in the Roman Empire that had pozzolanic additions like crushed bricks or volcanic sands in lime-based mortars. The name "Roman cement" was given because this cement also sets under water, just like the Roman *opus caementitium*. Roman cement was the first hydraulic binder available for civil engineering, followed later by Portland cement. The production technology was transferred rapidly from England to continental Europe and starting in the 1850s was widely used in the Austro-Hungarian Monarchy, known by the name of "Wiener Hydrauer".

First used for engineering work like the construction of tunnels, arches, sewage channels or fortresses, it was rapidly adopted for the stuccoing and rendering of buildings. The short setting time, yellow to brown colors that imitate stone, little shrinkage, water permeability and durability made Roman cement the favored material for the manufacturing of prefabricated cast ornaments for façade decoration. Architects in the periods of European Historicism and Decorative Art Nouveau used these prefabricated cast ornaments, which allowed for quick construction of their decorated façades. In accordance with the concept of materiality, Roman cement was also used by the Secessionist architects up to the early twentieth century, showing the aesthetic of the building material itself without coatings or paint covering it up. After 1920, Roman cement was replaced in the market by Portland cement, which was cheaper

13. Kartause Mauerbach, practical course, cast elements made of Roman cement

to produce. Roman cement was rediscovered in Austria in the context of the EU ROCEM project and is used for conservation and restoration work today.

Conclusion

Unfortunately, a critical survey of the current trends of preservation today show us that in most cases the original quality of the architectural surfaces, replete with colored and artistic treatments, is ignored in practice. Sensitivity to these subtle expressions of architectural form and vision is hard to find, and so often a covering of some coloration is considered sufficient preservation in itself. In Vienna important examples from around 1900 of this plastered architecture displaying its natural color have been so extensively altered by applied coatings and superimposed color in the last 20 years that their original artistic and decorative intent can no longer be understood, and it is nearly impossible to explain the significance of this loss. Today it is of the utmost importance to increase the awareness of the original surfaces, especially plaster surfaces with their authentic visual quality, their structure, texture and natural color, and to accept the traces of history and usage as an important part of a historic building's age value.

NOTES

[1] Federal Monuments Authority of Austria (Bundesdenkmalamt), Information and Training Centre for Architectural Conservation at Kartause Mauerbach.

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The Baroness House in Maribor

Sustainable Protection and Promotion of Art Nouveau Heritage in the Danube Region

The appearance of Maribor at the turn of the century

The Baroness House was built in the former suburb of Koroška located to the west of the heart of old Maribor. In order to better understand the history, origin and design of the Baroness House, we must first examine its broader spatial, historical, architectural and stylistic context.

From the middle of the nineteenth century until the World War I, Maribor developed – in terms of its social, economic and urban-planning aspects – from a minor provincial town into the largest and the leading town of Lower Styria.[3] Architecturally, this period was undoubtedly one of the most prolific periods for Maribor. One of the key contributing factors was the construction of the Vienna–Triest railway line in 1846, as well as the transfer of the Lavantine Diocese to Maribor in 1850 and the administrative annexation of the suburbs of Koroška, Graz and Magdalene to the town of Maribor.[4] In the 1870s the town started to expand rapidly in all directions outside its walls. First, new buildings were erected among the already existing old ones in the immediate vicinity of the heart of town. The development of square blocks of buildings ensued. Villa districts where the wealthiest bourgeoisie constructed stately, luxurious homes sprang up on the northern edge of the town to the west and east of the town park beneath Piramida and Kalvarija hills. In the second half of the nineteenth century the suburb of Koroška was known as the slowest developing area compared to the suburbs of Graz and Magdalena. The 1885 regulatory plan divided the Koroška suburb into three areas. The area extending from the Drava River to Koroška Road was built up with one or two-story buildings. Apartments and businesses for merchants and craftspeople were prevalent. The central area between Vrbanska, Mladinska and Strossmayer Streets was intended for a cemetery and recreational areas. At the foot of Kalvarija Hill there were orchards and groves. In 1871 a school for winemakers and fruit growers was established here.[5]

In the mid-nineteenth century many architects, builders and carpenters were still constructing buildings in the Neoclassical style, which was gradually abandoned due to the influence of the works of Josef Hasslinger, Anton Janez Wagner, Janez Jurij Nafz and others.[6] Best known amongst these are the current Maribor Art Gallery at 6 Strossmayer Street by J. Hasslinger and The House at 2 Main Square by A. J. Wagner.

Neoclassical architecture was replaced by Historicism, which enjoyed increasing popularity amongst Maribor's bourgeoisie. By the end of the nineteenth century, Rudolf Kiffmann, Ubald Nassimbeni, Andrej Tschernitschek, Adolf Baltzer, Jurij Glaser and Fritz Friedriger[7] were among the most active architects. The former building of the Community Sparkasse at 15 Slomšek Square, today managed by the University of Maribor, was planned by Adolf Baltzer and Franz Derwuschek and is known as one of the most representative Neo-Renaissance buildings in Maribor.

In addition, the most famous foreign architects working in Maribor in the second half of the nineteenth century and at the turn of the twentieth century were Richard Jordan from Vienna, Professor Leopold Theyer from Graz, the Czech architect Jan Veyrich and the German architect Wilhelm Buecher. These architects were strongly influenced by Austrian architectural principles and brought the impact of the new styles from Vienna and Graz to Maribor. Leopold Theyer designed the building of Scherbaum Villa now located on Heroja Tomšiča Street. Richard Jordan planned the great Neo-Romanesque Franciscan Church and Monastery. The engineer Karl Freymuth was a building supervisor for the present-day Municipal Authority building, constructed for the Maribor district board building. In 1897

Jan Veyrich planned the Neo-Renaissance building of the National Hall (Narodni Dom). Wilhelm Buecher designed the State Grammar School, known today as Prva Gimnazija Maribor.

Lively development following the model of big cities such as Vienna was most likely the reason for the development of urban concepts, including the regulatory plan for the part of the town on the left bank of the river dating from 1876. This regulatory plan is still considered a standard for regulation for square blocks of buildings. Furthermore, this phenomenon coincides with the fact that between the years of 1880 and 1910 the number of apartment buildings increased in the town of Maribor by 50%. The statement that the urbanization and industrialization of the second half of the nineteenth century essentially brought the people of Maribor into more densely populated buildings seems to be true. This was certainly fostered in part by the construction of a new type of residential building.[8]

These new buildings had a considerable number of rental apartments located on several stories, and Fritz Friedriger modelled the Baroness House on this type. At the end of the nineteenth century most residents of Maribor lived in small rental apartments. These apartments were most frequently made up of one or two rooms and a kitchen, and sometimes the so-called room with a stove was the only room of the apartment. The well-off lived in larger apartments, usually above the ground floor premises. These contained four or five rooms, a kitchen and a pantry.[9] The richest people lived in their own houses – villas named after their families. These villa districts grew mainly in the north-east and north-west part of the town below Piramida and Kalvarija hills. In the heart of the old town all the buildings had a similar layout, with various businesses on the ground floor and the residential premises upstairs. The windows of the bedrooms, children's rooms and living rooms faced the street and were considered to be the best locations, while the windows of kitchens, studies and, later on, bathrooms as well as rooms for servants faced the interior courtyard and skylights, which was considered a less desirable location. The windows facing the street were of double frame construction with two-sash casement interior and exterior windows. In winter the exterior window frame improved the thermal insulation of the windows whereas in summer they were removed and replaced by window shutters and ventilation for the living quarters.[10]

Maribor enjoyed a vibrant industrial and social period at the end of the nineteenth century. Slowly some old field paths were regulated and later became streets and small boulevards, including the present-day Trubarjeva, Smetanova and Gregorčičeva streets, and this defined Maribor's new form. The former cemetery, public orchard and military training field were urbanized into an exclusive residential area – the *Villenviertel*. The work of Fritz Friedriger not only influenced the cityscape through important buildings, which introduced the vivid art of the Vienna Secession, but also through new principles for town planning, the identifiable architectural style of the awakening modern movement and new residential standards.

These new principles represented a departure from classical styles. Rapid economic growth and the second Industrial Revolution promoted the liberal views of academics and artists, which are nowadays known due to movements and organizations rather than individuals. In France and Germany, this style of art is known as Art Nouveau or Jugendstil. Although these are two separate movements, they are commonly referred to as Secessionism both in Slovenia and in Austria. Industrial progress was not only expressed by the dynamic character of the works by the Art Nouveau artists, but also in the close cooperation between design and industry. Limits no longer existed. Painters looked towards architecture, while at the same time becoming enthusiastically aware of the application of new materials and industrial processes that opened new possibilities in the field of architectural construction. These emerging possibilities were interesting for two reasons. On the one hand, the fact that painters entered the field of architecture marked buildings with decorative ornamental embellishment, and on the other hand, cooperation with industry enabled the creation of interesting design solutions and structural possibilities that put an end to the tradition of the basic square or rectangular ground plan.[11]

Due to this a new architectural movement came into being that cannot be in any way whatsoever connected with painting and sculpture in the operation of fine arts activities of that time. In this period there was a much stronger link between architecture and small crafts, applied arts and industry. It is due to this character that Art Nouveau became a multilayered and important phenomenon that was not only defined by the accomplishments of individual elites but marked art in its

entirety. Art Nouveau opened the doors of architecture, industrial design, graphic design, applied arts and scenography to art and blended them into a functioning whole. In a nutshell, the trait of the best Art Nouveau creations is that they are the so-called comprehensive works of art.[12]

Art Nouveau – under the influence of Vienna and above all, the federal state capital of Styria, Graz – was first introduced to Maribor in the first decade of the twentieth century and was intertwined with historical styles. Art Nouveau did not gain considerable popularity in Maribor because the bourgeoisie, who were rather traditionally oriented, preferred Neoclassical revival styles such as the former classical secondary school proposed by Andreas Tschernitschek in 1892 (9 Mladinska Street) or the Škapin Villa located at 11 Trubarjeva Street and designed by an unknown architect and Adolf Baltzer. Maribor as well as other Slovenian towns of the time were characterized by the construction of rental apartment buildings and villas, which gave entire urban districts their character.

In Maribor, the new trend of Art Nouveau architecture did not gain recognition through public contracts. Only a minor portion of Art Nouveau buildings constructed during this period were used for public purposes. However, the new style was warmly welcomed by private investors. They wanted to prove their subtle taste for a new fashion, a fashion that was so popular among the rich of Vienna. Consequently, it is not surprising that the great majority of Art Nouveau buildings were intended for private entrepreneurship or apartments.[13]

The architect Fritz Friedriger and Maribor

Fritz Friedriger – together with the architect Max Czeike – was one of the most important architects working in Maribor in the late nineteenth and early twentieth centuries. This period coincides with Maribor's prosperous era of construction. Together they had a strong impact on Maribor's cityscape up until the outbreak of World War II.

Friedriger was born on 2 August 1859 in Schäßburg in Transylvania (now Sighişoara, Romania) to parents of German origin. In his native town he was schooled to be a master craftsman in construction, and in the years 1883–1885 he studied at the Academy of Fine Arts in Vienna under Professor Theophil Edward von Hansen. He received a graduate diploma in architecture as one of the best of Hansen's students. In 1894, he moved to Maribor from Körmend (Hungary), located 100 km away, and in the same year he started his craft business together with his partner Robert Schmidt.[14] Later he established another company and was joined by a young apprentice named Max Czeike, a talented young architect who would become Friedriger's partner in the company in 1910.[15] In terms of construction, he was active in Maribor for 20 years (from 1894 to 1913). Due to the redrawing of the borders in 1918 and under the influence of later events, Friedriger and his family moved to Graz in 1920. He died in 1922 at the age of 63.[16] Following his demise his partner Max Czeike ran the business under the name of Freidriger and Czeike.

Fritz Friedriger was not only an architect, construction engineer and builder. In Maribor, he was also engaged in town planning as chair of the construction regulatory board and as a town councilor. As a correspondent for cultural heritage preservation to the Imperial and Royal Central Commission for research and preservation of art and historical monuments, he strove strenuously to preserve the architectural heritage in Maribor. Among other actions, he prevented the ceiling of the knight's hall in Maribor Castle from being destroyed and he put forward the proposal to rehabilitate the castle for the requirements of the municipality and as a museum. In the years from 1902 through 1911 Friedriger was committed to the improvement of the Magdalena suburb, the implementation of a new construction ordinance, the implementation of a new regulatory plan and the enhancement of the Drava River banks and the town sewer system. In 1912, due to opposition to his plans, Friedriger publicly resigned as the head of regulatory planning board and from his position as a town councilor.

In his early Maribor period, between 1894 and 1900, he designed buildings in the Historicist style influenced by the Vienna Academy of Fine Arts and Professor Hansen. After the turn of the century (1900–1910), his works were influenced by elements of the Vienna Secession. When the Secessionist trend gradually faded out, it disappeared from Friedriger's work as well. He only maintained certain individual elements that he held dear. In his final period, the independent architect shaped his

1. The Baroness house after the renovation, 2015

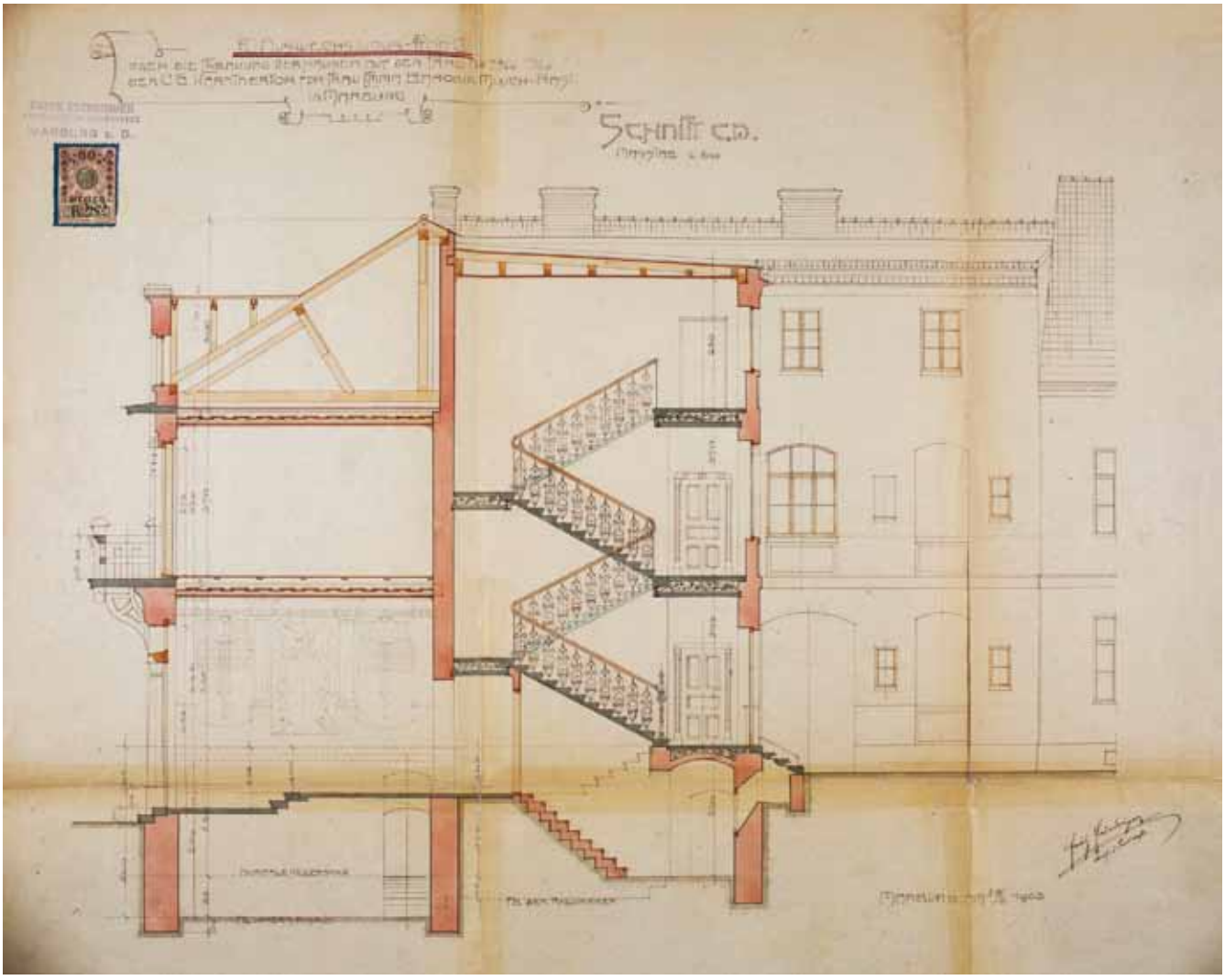
own style through reflection on the architectural trends of his time and from his own ideas. He was active in Maribor during the period from 1894 to 1913 and his body of work is extensive and diverse. He designed buildings throughout the entire city, although most of them are located in the suburb of Koroška, and he designed both private and public facilities. After 1901 Friedriger found his market niche in the new Art Nouveau style, and due to this, three of his designs were realized in the following year. These were the conversion of the façade of an older house at 6 Koroška Street, a new apartment house at 16 Kneza Koclja Street, and an apartment house for Baroness Emma Mixich Rast. All three are among the "purest" examples of the new style in Maribor. Their designs were clearly aimed at satisfying the desires of the clients for novelty, so they copied individual motifs from architectural magazines.[17] He constructed over seventy buildings in Maribor, the majority of which are apartment houses, or one- or two-family homes available for rent.

Owing to the high density of his villas in some areas of the suburb of Koroška, Friedriger succeeded in creating a characteristic *genius loci*, or spirit of place. In addition, with the exception of less ambitious rental buildings, the designs for the arrangements of the buildings offered the inhabitants sufficient comfort, since functionally different apartment types were added that commonly included a toilet and even a bathroom, which at the time was a novelty (and also a rarity). The level of his aesthetic solutions for the exterior façades of apartment buildings was rather high and followed the trends of the period, which particularly in Maribor were more traditional than progressively oriented. In addition, they did not only reflect the architectural motives of the bourgeoisie, but also mirrored their tastes at the time.[18]

Friedriger designed housing for both middle-class and wealthier clients, such as Baroness Emma Mixich Rast. He has had a considerable influence on the urban planning and architectural image of the suburb of

Koroška and Maribor through his buildings and spatial concepts. Furthermore, Fritz Friedriger had a great influence on the process of defining a new urban fabric throughout Maribor where he designed his building plan. His concepts defined the density of the urban landscape, determined building shapes and new guidelines for future development at that time. Architects not only shape our space by providing important spatial emphases to key locations, but most importantly also shape the commonplace architectural fabric that is far more pervasive than certain highlighted architectural works.[19]

As has already been mentioned, Fritz Friedriger established a company in Maribor at the beginning of the twentieth century, and he was joined by a young apprentice named Max Czeike, a talented young architect who would become Friedriger's partner in the company in 1910.[20] Max Czeike, an architect of German origin, was born in 1879 in Nový Jičín in Bohemia, and according to the information currently available he was educated at the Vienna Academy of Fine Arts under Otto Wagner. This architect, who was oriented towards Historicism, left about forty buildings to Maribor, the major portion of which are family villas and apartment buildings. In addition to the residential building industry, Czeike also took aim at solving technical and urban issues as well as designing furniture, ceramic stoves and burial vaults. At the end of May or beginning of June 1945, partisans took the 65-year-old Max Czeike from his home to be executed along with the rest of the ethnic German inhabitants. Even though older inhabitants of Maribor still

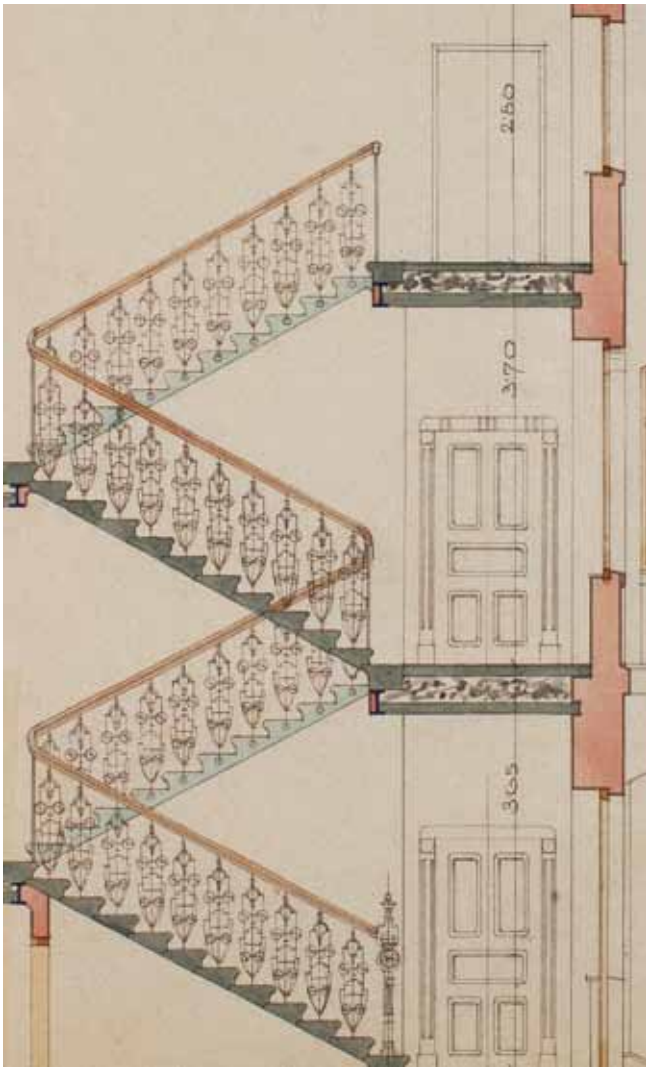


2. The Baroness house, section plan, 1902

remember him, there has been no one since the war who is willing to talk about Max Czeike's fate.

The time of and the reason for Czeike's arrival in Maribor are unknown. The first trace is his initials on Fritz Friedriger's perspective and façade drawings of buildings between 1902 and 1903. Czeike was granted a concession as a master builder on 8 May 1910 and two years later Friedriger and Czeike started working together under the name Friedriger u. Czeike, Architekten u. Baumeister. In 1913, Friedriger stopped working due to political pressure, and consequently Czeike took charge of the studio. One reason why Max Czeike came to Maribor might have been the fact that he knew Jože Plečnik personally, socializing and working with him, and another reason might have been that Czeike's cousin Heinrich had known the Maribor architect Fritz Friedriger personally since their student years under Hansen. When Czeike, who was Friedriger's junior by twenty years, got a job with him, the latter was chair of the town construction office, a town councilor and chair of the regulatory plan for the suburb of Magdalena among other positions, and therefore was undoubtedly the most influential architect in Maribor at that time.

Czeike must have held Friedriger in high esteem, since for several years after Friedriger's death he continued using the seal of the Friedriger and Czeike studio. This is precisely why research has been so difficult; even after Friedriger's demise in 1922, the records of the Regional Archive of Maribor show that Czeike's structures feature the names of both architects.



3. The Baroness house, section plan (detail). Stairway with inventively shaped wrought-iron railing with Art Nouveau motifs, 1902

Significance and construction history of the Baroness House

The Baroness House belongs amongst the most beautiful and best preserved Art Nouveau buildings in Maribor. *(Fig. 1)* Designed with remarkable ambition, the rich composition of its architecture dominates the building's wider surroundings. Its qualities place the Baroness House amongst the most important buildings of its time in Maribor. The Baroness House rental apartment building was constructed on two lots at the intersection of Garten Gasse and Mozart Strasse – the present-day Prežihova and Smetanova Streets. At the beginning of the twentieth century, buildings such as this were rare in this part of the suburb of Koroška, where pathways from the fields were being turned into streets and development was gradual.

The building used to be a typical rental apartment house set in a suburban area that was still unfashionable. Its value must have been boosted by the design of its exterior in the latest Viennese style. Despite all the effort that the architect invested in the design of the Baroness House, there is a predominant impression of overcrowding and disproportion. The masks, corbels and capitals are too large for a two-story building. One cannot avoid the impression that the architect obtained the molds for these from a sale at some Viennese stucco workshop, because the decorations were designed on a

scale suitable for the wide circular roads of Vienna and five-story apartment blocks.[21]

The construction work performed by the construction company of the Maribor architect Fritz Friedriger started in 1903. The building was built for Baroness Emma Mixich Rast, and originally named after her. Emma Mixich Rast was born to Freiherr Ferdinand Georg von Rast and Edler Maria Sophia von Rast in 1840. She was married to Koloman Ljudevit Mikšić de Donji Lukavec and gave birth to Ferdinand pl. Mixich de Also Lukavecz, Nikola pl. Mixich de Also Lukavecz[22] and Leona Mikšić od Donjeg Lukavca. She died on 25 May 1912 in Zagreb. As the construction work for the Baroness House started, Emma Mixich Rast was already a widow living in Zagreb.[23] It is evident from archival plans that Fritz Friedriger had first, in 1902, designed a much more monumental and statelier house for the Baroness Emma Mixich Rast with façades segmented with late Historicist elements. However, for unknown reasons, he prepared a completely reworked plan for the building later the same year, and it was then built according to this new design. *(Fig. 2–3)*

The northern and western façades of the building are particularly interesting. Friedriger devised the ornaments on them in accordance with the latest Viennese fashions and made use of architectural magazines in designing them. The poor state of conservation had obscured the ornaments and their design origins, which is why it made sense to first review the plans. Friedriger devised the northern and western façades as a uniform horizontal with three shallow projecting sections dividing it. On the axis of the projecting section to the left, on the northern façade, he planned the entrance to the courtyard, which would be ornamented with decorative rectangular floral and geometric motifs. The top of the projection would have been highlighted by a low rectangular gable ornamented with transverse rectangular fields and would have extended over the edge of the roof. While the decorative ornamentation was actually completed, there is no trace of the planned low rectangular gable on the building. The central projection was designed with motifs similar to those on the projection on the left-hand side, but it was to have two angles, thus adapting to the clipped corner of the building. Its gable and decorative ornamentation were made according to the plan, except for the two rectangular extensions at the roofline next to the lunette. Friedriger planned a stately main entrance to the building on the central axis of the projecting section to the right, on the western façade. The design and the current condition of the building match to a large extent in this section. Only the door openings next to the main entrance have been modified and the rectangular gable at the roofline is absent altogether. The gable was designed to be similar to the one on the northern façade, but it was additionally enriched with a segmented central section. It is likely that this gable was never built.[24]

The house has an L-shaped ground plan. A tile roof covers its street-front sides, while the courtyard side is covered with a flat tin roof. The corner of the building is truncated and highlighted with a segmental gable, which has a large semi-circular lunette topped by a female head. Each of the two street-front façades has an entryway with double wooden doors. *(Fig. 4)* On the western façade along Prežihova Street, there is a cor-

4. The projecting section on the northern façade, ornamented with decorative rectangular, floral and geometric motifs

5. The façades and individual details are entirely decorated in the Art Nouveau style

belled balcony with an openwork ornamented railing above the portal.

The façades and individual details are entirely decorated in the Art Nouveau style. There are several types of Art Nouveau ornamentation on the façades – geometrical, floral and figural. The bands of yellow ceramic tiles and ceramic circles above the windows are also typical of the Art Nouveau style. Female figural masks provide the main decorative emphasis on the façade, and the architect used them to decorate the capitals of the pilasters, the corbels under the eaves and the top of the lunette. *(Fig. 6)* The window and door frames and the balcony are also richly decorated with both geometrical and floral ornamentation. *(Fig. 5)*

The building interior is entered through entryways on either street and through their corresponding entrance halls. The floors are connected by a stairway with an inventively shaped wrought iron railing with Art Nouveau motifs. A corridor paved with terrazzo connects the rooms on each floor. Each room is accessible through an Art Nouveau door highlighted with a geometric pattern of circles and squares. There were two larger and four smaller apartments on each floor of the building, which is why it can be said that it was a typical urban rental apartment house.

6. Female figural masks provide the main decorative highlights of the façade

Conservation and architectural challenges

The Baroness House was rehabilitated in 2015. Funds were provided for its rehabilitation by the University of Maribor, the Ministry of Education, Science and Sport of the Republic of Slovenia and the European Union through the European Regional Development Fund. Since the 1970s, the building had become run down because of the lack of maintenance and unsuitable interventions. The state of the Baroness House before the rehabilitation was described expressively in the book *Secessionist Architecture in Slovenia*: "It seems only the stucco decorations and ceramic cladding are keeping the building together and preventing it from collapsing". The plaster gradually came off, and the ornaments and the architectural carpentry and joinery had deteriorated due to a lack of maintenance. The residents made arbitrary and unsuitable alterations, with almost all the original windows on the front façade being replaced, and some of the openings that were intended for windows were transformed and equipped with doors or vice versa. Inappropriate alterations to the courtyard façades and the interior were also performed.

The façade was slowly separating from the building. The main walls were not adequately waterproofed, or the waterproofing had already stopped functioning. The basement walls contained excessive moisture. During previous maintenance activities, inadequate vapor-impermeable painting materials were used on the façade. On the base of the façade there was no vapor or hydrophobic protection against pollution from vehicles. There was no contact between the peripheral walls and the pavement, which caused the building to decay. Inadequate façade painting materials caused carbonization in the binder. The plaster on the basement walls was heavily damaged by moisture and mud. The staircases were damaged, and parts of the railings were missing.[25]

The main goal of the rehabilitation was to preserve the building and to re-establish the primary visual and material appearance of the monument – in its totality and also in the quality details of its exterior and interior. One of the major objectives was also the rehabilitation of the building to fulfill contemporary needs and standards and to provide it with a new function – the building is being utilized for research and study activities by the Faculty of Electrical Engineering and Computer Science. During the rehabilitation, process meetings were held to harmonize the requirements of heritage preservation professionals, the vision of the architect and the requirements related to the new intended purpose, which is – from the point of view of conservation – undoubtedly more appropriate for a historic monument such as this.

Conservation-related challenges

The conservation approach that was employed was based on a comprehensive, in-depth analysis of the building's historical significance, its role in its environment and its historical forms, materials and construction. Based on these analyses, the architects identified both elements that were to be preserved and parts of the building requiring a more modern touch.

The wooden roofing was replaced by a steel structure, the plastering on all the façades was removed, and the architectural carpentry and joinery was replaced. In the interior, all ceiling sections that had deteriorated have been partially replaced with reinforced concrete. In addition, the ceiling has been renovated in part and some of the partitions have been removed. All interventions were needed to transmit additional static load and to provide secure structural stability. *(Fig. 7)*

New elements required for the intended purpose have been added, in particular the glass atrium with a gallery in the courtyard area. The construction of the atrium was required in order to ensure additional space and communication between the Baroness House and the neighboring G2 building. The proportions of this new element are in accordance with the entire appearance of the historic property and the façades are visible through its glass structure. The former courtyard garden has been preserved by the architect in a highly innovative manner – as a vertical element with a green wall integrating Art Nouveau elements in a modern way. *(Figs 8–9)*

Despite these alterations, all the important elements of the historic property have been preserved and some of them even highlighted. Based on the initial research on the façade and the architectural carpentry and joinery, the primary shade of the façade was determined. The entire façade profile and ornamentation has been restored, and the architectural carpentry and joinery have been replicated – except for the entryway on the

7. The edge of the roof structure

western façade. The original window and door openings have been restored and the roof has been covered with tiles and tin. In the interior, the stairs, railings and the terrazzo paved hallways and staircase have been restored. In addition, all interior doors have been preserved, restored or replicated.

From a conservation perspective, the rehabilitation of the Baroness House can be considered a great success, since its value as a witness to history increased substantially due to the carefully planned restoration work. The rehabilitation required the close cooperation of the owner (user), the architect, and the con-

8. The entire basement level has been deepened and extended in order to incorporate the courtyard

tractor as well as the conservation and restoration professionals of the Institute.

Both the investor, the University of Maribor, and expected user of the house, the Faculty of Electrical Engineering and Computer Science, were aware of the building's value and architectural quality. They carefully monitored the progress during rehabilitation. The rehabilitation would not have been as successful without the architecture and conservation experts and their the head conservator defined not only the parts which were most important from the point of view of historic preservation, but also those suited for a more modern approach to the rehabilitation as well. From the point of view of conservation, the renovation has also been successful because the objectives set prior to the rehabilitation have been carried through.

Firstly, an important cultural monument has been saved and rehabilitated and its original appearance has

9. The courtyard connects the basement level, ground floor and second floor

subtle relationship with cultural heritage. Furthermore, it could not have been such a success without their knowledge that included and integrated a creative architectural vision with the requirements and principles of conservation.

Conservation consultant Nina Nahtigal addressed the renovation of the monument through a comprehensive and in-depth revision of its historical significance, its role within its surroundings, and its historical forms, materials and structure. Based on these analyses, been revived after it had been nearly condemned to ruin. Secondly, independent and proper conservation decisions have been made when, how and to what extent to let the new architecture and uses merge with the noble and distinctively monumental creation of the architect of this Art Nouveau gem in Maribor.

Taking into consideration the almost completely dilapidated and pathetic outward appearance of the building due to alterations, there is no doubt that the most important achievement of the building's renovation is

10. Interior of the new attic level

the reestablishment of its authentic Art Nouveau style that matches its appearance at the time of its construction. Thus, the rehabilitation has preserved all the important elements of the exterior and interior of the building. The entire relief decorations and ornamentation of the façade have been restored. In making decisions concerning interventions related to the restoration, the cooperation of the conservation/restoration consultant, Mr. Bine Kovačič, M.Sc, was indispensable. The comprehensive restoration of the Baroness House under the authority of the conservation consultant Nina Nahtigal has been very successful from the perspective of conservation due to appropriately planned and executed interventions, and the value of the Baroness House as a witness to history has increased. In addition, the rehabilitation was a success in blending the viewpoints of professional cultural heritage preservation and the architect's vision.[26]

Both the investor and user of the building were aware of its value and quality. They carefully monitored the progress during rehabilitation. The rehabilitation would not have been as successful without the architect David Mišič and his remarkably subtle sense for cultural heritage and comprehensive knowledge that goes far beyond the context of architecture, as well as his ability to not only merge a creative architectural vision with the requirements and principles of the conservation profession but also the old and the new into a homogenous and harmonious whole.

Architectural challenges

Compared to new buildings, the rehabilitation process of older buildings focuses on the relationship between the existing material and function. This relationship represents a compromise between the evaluation of the

11. Interior of the formal hallways

needs of historic structures and their users, which requires builders and architects to invest great effort to reach responsible decisions. *(Figs 10–11)*

The rehabilitation of a historic building such as the Baroness House encourages a deep awareness of the understanding of basic human needs at the time of its construction. In the process of its revitalization and restoration, the Baroness House has encouraged the architects to carefully deliberate and reflect on basic architectural elements. These findings sharpen the perspective of time, assimilating the past and exploring our present.

The architecture of the Baroness House, which hides a forgotten and varied sense of beauty, must be read in such a manner. Each element – be it the doors, staircase, windows, balcony, paving or façades – has its own stylistic, aesthetic and technological approach. During the rehabilitation, each element was subjected to stylistic reinterpretation, bridging the gap between the historical and the modern. The rehabilitation followed the principle of preserving original materials along with their forms, colors and textures. The building thus encompasses its elementary materials, such as stone, wood, brick, concrete and glass. The main rehabilitation principle was the stylistic harmonization of all the elements in service of their new use and the subjection of their forms and structures to new functional elements, such as the elevator, interior glazing, courtyard circulation and garden, as well as a stylistic refinement that ensures timelessness.

The southern façade of the Baroness House provides direct support for the G2 building of the Faculty of Electrical Engineering and Computer Science built in 2004. Their fusion at Prežihova Street creates a closed street wall. The buildings are joined by a deep façade caesura "softened" by the "padded" façade of the G2 building. The buildings will be connected, both in terms of program and function. Their communication link was the key task of the new architectural solution. A cleverly designed courtyard with landings, balconies and terraces connects the basement level, ground floor and first floor. The entire basement level has been deepened and extended in order to incorporate the courtyard, which means that natural light can illuminate the basement level. An eight-meter high atrium covered with a glass roof will extend above the deepened courtyard. A gallery passing through the atrium connects the ground floors of both buildings (the Baroness House and G2 building). A vertical garden with intensive greenery functions as the retaining wall of the deepened courtyard. By means of a varying gradient, it introduces a specific dynamic and a hint of the aesthetics of the former courtyard garden.

The rehabilitated Baroness House precisely replicates the floor plan of the former bourgeois building with large adjoining rooms and anterooms bordering a shared hallway on the courtyard side. The structure and color of the new stone and concrete terrazzo replicates the distribution of the former walls and dividing lines between the private and shared parts of the house. Interior doors and windows with stylistically identifiable shapes and frames have been partially restored. The elevator is located in the area of the former shaft. The transparent shaft of the elevator supplies natural light from the attic lobby. In the attic area, the opaque roof above the central part of the hallway and lobby has been replaced with a glass roof illuminating the interior through a secondary ceiling. The motif of the transparent ceiling is a reinterpretation of the lobby of Otto Wagner's Austrian Postal Savings Bank constructed in 1904 in Vienna. Lighting elements are geometrically shaped and evoke an emotional memory of early modernism and the beginnings of industrial design by Josef Hoffmann.[27]

NOTES

[1] M. Arch.

[2] Conservation Consultant, Institute for the Protection of Cultural Heritage of Slovenia.

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[13] *Ibid*.

[14] Perše, M. – Premk, A. – Zanoški, N., 'Gradbena dejavnost Fritza Friedrigerja in Maksa Czeikeja v Mariboru' [Civil Engineering Activities by Fritz Friedriger and Maks Czeike in Maribor], *Zbornik za umetnostno zgodovino (Nova vrsta),* 49 (49), 2013, 204, 227.

[15] Fritz Friedriger v Mariboru 1894–1920, razstava [Fritz Friedriger in Maribor 1894–1920, exhibition]. UGM Umetnostna galerija Maribor [Maribor Art Gallery], 3–27 June 1999.

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[18] Perše, M. – Premk, A. – Zanoški, N., *op. cit.*, 203, 227.

[19] *Ibid*.

[20] See note 15.

[21] See note 17.

[22] Formerly Alsó Lukavec (now Velika Gorica).

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Eva Radolović[1]

Renovation of Two Zagreb Residential Buildings

Comparative Analysis of Two Façade Restoration Projects

Zagreb is the capital of Croatia and its largest city, with about 1 million inhabitants. The oldest parts of the city are the Gradec and Kaptol areas, which are located on the southern slopes of Mount Medvednica. This part of the city is called the Upper Town. In the second half of the nineteenth century, the city began to spread towards the south, towards the valley of the Sava River. The growth of the city was carefully planned by architects and municipal authorities.[2]

In the next seventy years, the Lower Town was developed with a mainly orthogonal system of streets and city blocks. The most significant part of the Lower Town is known as the Green Horseshoe.[3] This is a rather unique ensemble of squares and parks, which are arranged in such a way that together they form the shape of a green horseshoe when seen from the air or on a map. It is considered to be the most beautiful and most distinguished part of the Lower Town, around which the most important public and residential buildings were built.[4] It is certainly one of the most frequent images appearing on postcards and photographs of Zagreb. One of the most significant public buildings, the National and University Library (today the Croatian State Archives), was built in 1911–13 in Art Nouveau style by one of the most renowned Croatian architects of the time, Rudolf Lubynski.[5] This section of the city is highly valued and preserved as part of the protected historic city center due to its historical significance and the quality of its architecture and urban planning solutions.

Most of these highly significant buildings are well maintained and their façades are in good condition. Since they are public buildings, financing for their renovation is always provided. However, privately owned residential buildings are often poorly maintained due to the relatively modest financial capabilities of their owners, and their façades are quite often in very bad and dilapidated conditions.

This situation has been recognized by the municipal authorities as a huge problem and they have attempted to find a suitable solution. In the past twenty years, the City of Zagreb has started to co-finance the renovation and restoration of façades and roofs of residential buildings. Today, it is finally possible to notice the change, and the appearance of the city has improved. The rehabilitation of residential buildings is co-financed by the Monument Annuity Fund.[6]

This article will provide a brief glimpse into the process of rehabilitation through the examples of the restoration of the main façades of two residential buildings in the historic center of Zagreb. The first building is located at 20 Đorđićeva Street and was built in 1909 by the architects Aleksandar Seć[7] and Jaroslav Kralik.[8] The second building is located at 80 Palmotićeva Street and was built in 1909 by Rudolf Lubynski. In the original documentation in the State Archives in Zagreb, the project documentation for 80 Palmotićeva Street from April 1909 is signed by Rudolf Lubynski. However, the main façade was altered from the original concept and was built according to a drawing from June 1909. This cannot be attributed with certainty to either Rudolf Lubynski or any other architect, since the signature is not legible. Both buildings are located in the city's Lower Town, close to the aforementioned Green Horseshoe.

The procedure is as follows: owners can apply for the co-financing of the renovation work only if all the co-owners agree to the rehabilitation and if all of them are willing to contribute to the project's financing. The most common situation is that a building does not have just one owner, but that every flat/apartment is owned separately. A loan is usually necessary for the renovation work. They must also hire an architect to design the project and to estimate the renovation costs. After this, they can apply for the co-financing that is announced annually by the municipal authorities.

1. 20 Đorđićeva Street: Façade after the restoration

2. 20 Đorđićeva Street: Façade before the restoration

It is very difficult to estimate the costs accurately in advance, before erecting a scaffold on the construction site and performing the necessary conservation and restoration research. The real condition of the façade is often much worse than was initially assumed. Therefore, the total expenses of the renovation are usually higher than estimated in the project budget.

This is one of the major problems that occurs on almost every occasion and at every construction site. Unfortunately, due to the co-owners' limited financial capabilities, it is not possible to perform detailed conservation and restoration research during project planning.

For example, for the roof and façade renovation at 20 Đorđićeva Street, (*Fig. 1*) the architect who designed the project and all the necessary documentation for it assumed that most of the cast elements (decorative stucco elements) were in good condition and well preserved. When the construction scaffolding was set up and the research started, we found that most of the stucco elements were in extremely bad condition and almost all of them had to be remade, which incurred additional costs. It was necessary to provide additional funding to be able to complete the renovation of the façade, but the budget is always strictly limited, and it is very complicated or almost impossible to do so. In the end, the money was obtained, but the procedure took almost two years.[9]

The façade of 20 Đorđićeva Street was in very bad condition. The entire façade was dark gray due to pollution and many layers of dust and dirt. These were not only on the surface of the façade but had also penetrated deep inside the plaster and stucco elements. (*Fig. 2*)

The original plaster and stucco decorations on the street façade had been preserved, but they were in very

3. 20 Đorđićeva Street: Stucco laurel wreath after removal from the façade

poor condition. The plaster had lost its primary integrity and had partially decayed. (*Fig. 3*) Therefore, the plaster and most of the decorative elements had to be remade based on templates that were made from imprints of the originals. Before removing the original historic plaster, all the data was documented and analyzed in detail. For the restoration of the decorative plasterwork, the restoration experts made stencils that enabled them to restore the missing parts in the same way as the original plasterwork had been made and by using the same technique.

The flat surfaces of the walls were made of plaster that contained small grains of stone with varying levels of granulation (rough-cast plaster).[10] This was traditionally made manually and applied to the façade with a trowel, demanding special knowledge for preparing the right mixture and for its proper application. First, a few samples were made with different mixtures of grain size, and in the end, we chose the sample that was closest to the original. (*Fig. 4*)

4. 20 Đorđićeva Street: Recreating the special plaster surface

5. 20 Đorđićeva Street: Stucco decoration around the main entrance, before the restoration

The condition of the decorative cast stucco elements varied. The beautiful decorations around the main entrance had been made with high-quality materials so they only required cleaning and remediation carried out in situ. (*Figs 5–6*) Unfortunately, the rest of the cast decorations were in extremely bad condition and only the thin layer of surface impurities kept them from decomposing into dust. Another problem was the fact that the stucco elements had been attached to the façade with iron pins, and most of these were damaged due to corrosion. Therefore, they were all carefully removed from the façade and brought to the restoration workshop, where they were repaired and cleaned. Finally, restoration experts cast accurate copies of these existing stucco elements.

Another decorative element was almost permanently lost. When the construction scaffolding was erected, some parts of the former decorative elements made of metal were discovered just beneath the roof cornice. It was difficult to reconstruct the original forms merely from the remains found in situ. We managed to find two photographs from 1956, which helped us to understand their former appearance. Later, we discovered one more photograph taken in 2006 that included the last surviving portion of this decoration still in place, hanging on the top of the façade. Due to this, we managed to reconstruct the missing parts of this metal decoration. It was comprised of six elements in total, and each of these consisted of three main parts: two metal plates and a tube/pipe. (*Fig. 7*)

There are stone blocks at the bottom of the façade. It is a type of sedimentary rock called Bizek,[11] typical in Zagreb and its surroundings. It was cleaned and conserved.

Unlike 20 Đorđićeva Street, which was in poor condition but mostly preserved its original design, the main façade of the residential building at 80 Palmotićeva Street was not only neglected but had also suffered damage in places due to a series of inappropriate interventions. It was built in 1909 by the architect Rudolf Lubynski. (*Fig. 8*) A part of the main façade had been altered in 1923 when the basement was remodeled into

6. 20 Đorđićeva Street: Stucco decoration around the main entrance, after the restoration

7. 20 Đorđićeva Street: Reconstructed metal pipe under the roof

8. 80 Palmotićeva Street: Façade after the restoration

a small pub. One of the basement windows was transformed into an entrance for this pub, but it has been closed and abandoned for decades and its entrance was blocked off with simple wooden planks.

Apart from this, the tenants themselves had performed many inappropriate interventions on the façade, which included a ventilation pipe being put through the wall beneath a window on the second floor, two wooden windows being replaced by plastic windows, and plastic roller shutters being put on all the windows. Even worse, the shutters were of different types and colors, so each window looked different. (*Fig. 9*)

9. 80 Palmotićeva Street: Façade before the restoration

When the construction scaffold was set up and we started the research process, it became more and more evident that despite all the inappropriate interventions made over the decades, the façade could still be appropriately repaired and that its original beauty had not been permanently lost, as it had appeared in the beginning.[12]

10. 80 Palmotićeva Street: Original stucco elements on the façade before the restoration

Surprisingly, most of the stucco elements were in relatively good condition. (*Figs 10–11*) However, the plaster was mostly ruined and falling apart, so it had to be completely removed from the wall. Some ornaments were also made from thin plaster and were originally hand-modeled in situ. Restoration experts made stencils of each of the decorative plasterwork elements and restored all the missing parts in the same manner as the original plasterwork had been made. The type of plaster varied from extra fine on the decorative plasterwork elements to quite rough on the flat parts of the walls, with sharp stone grains 1–8 mm in size. Only the series of oval elements beneath the main cornice were made with rough plaster. (*Figs 12–14*)

In the end, the original appearance of the façade was restored. The door of the former pub was reconverted into a cellar window. Plastic windows were removed, and new wooden windows made according to the original design were installed in their place. The plastic roller shutters were removed from all the windows.

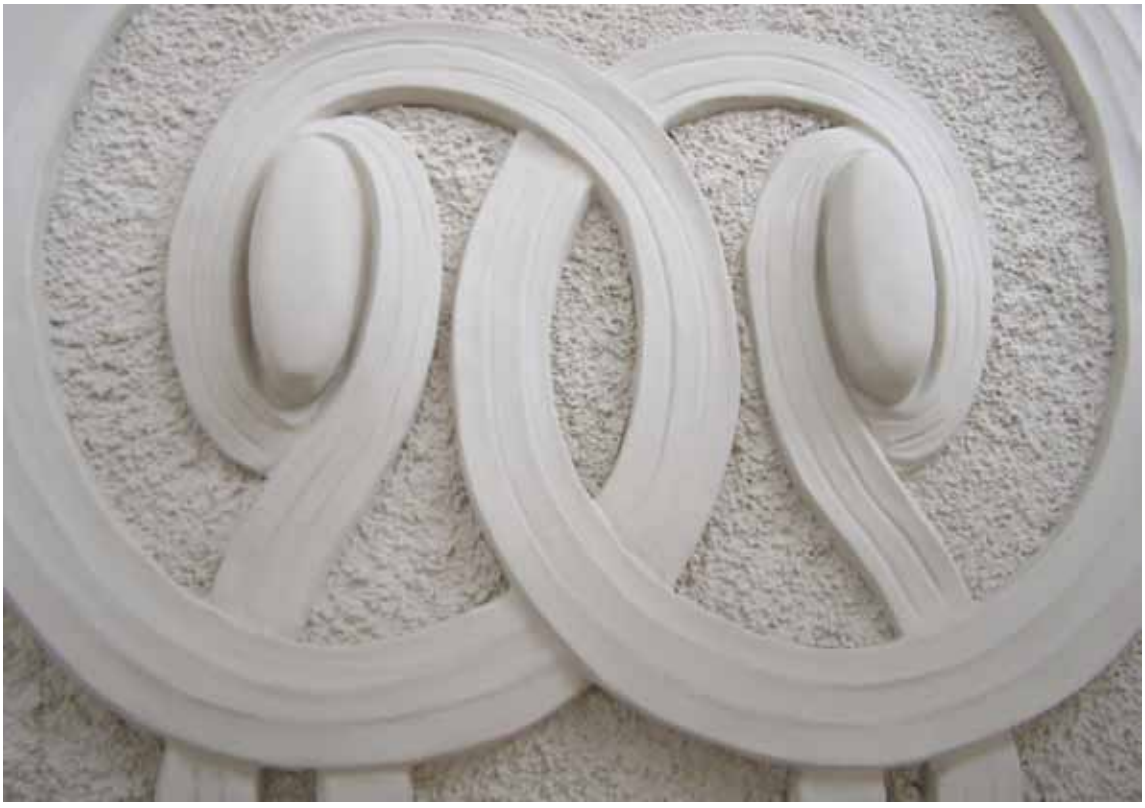
After the renovation was completed, the residents became more aware of their need to provide more responsible care for the building they lived in.

These two examples of residential buildings in the Lower Town of Zagreb are not at all the most distinguished buildings of the Art Nouveau period in the city. The author's intention was to describe the issues that she most frequently faces in everyday practice as a conservation supervisor. The condition of the façades is often very bad, and many buildings have never been renovated. In fact, in most cases they have just been repainted, or worse,

11. 80 Palmotićeva Street: Original stucco elements on the façade before the restoration

sprayed over with pigmented cement-based plasters of rough composition and this has contributed to the accelerated degeneration of the original façade layers.

Since the façades of residential buildings are often in very bad condition due to poor or no maintenance, the challenges are even greater for those of us who partici-



12. 80 Palmotićeva Street: Remodeled stucco elements after the restoration

13. 80 Palmotićeva Street: Remodeled stucco elements of the windows during the restoration

pate in their renovation, including not only conservationists, restoration experts and construction workers, but also the producers of plaster, pigments and other materials used in restoring these buildings. We are aware of the privilege it is to be able to research original plasters and colorations that are over one hundred years old. Unfortunately, even today the circumstances are not ideal, mainly due to limited resources. Therefore, we have a great responsibility to research the original elements to the best of our abilities, document them, preserve them and renovate them to professional standards within the existing conditions.[13]

14. 80 Palmotićeva Street: Remodeled stucco elements of the entrance during the restoration

NOTES

[1] Dipl. Ing. Architect, City of Zagreb, Municipal Institute for the Conservation of Cultural and Natural Heritage.

[2] See: Barbarić, D. (ed.), *Fin de siècle Zagreb – Beč*, 1997; Laslo, A., 'Lica moderniteta 1898–1918. Zagrebačka arhitektura secesijske epohe' [Faces of Modernity 1898–1918. Zagreb Architecture in the Age of Secession], in Galić, A. – Gašparović, M. (eds.), *Secesija u Hrvatskoj* [Art Nouveau in Croatia]. Exhibition catalogue, Zagreb, Muzej za umjetnost i obrt, 2003, 22–41.; Kraševac, I. – Vugrinec, P. – Alujević, D. – Bagarić, M., *Izazov modern. Zagreb – Beč oko 1900.* Exhibition catalogue, Zagreb, 2017.

[3] Knežević, S., *Zagrebačka zelena potkova* [Zagreb Green Horseshoe], Zagreb, 1996.

[4] For example: the Croatian Academy of Sciences and Arts (Friedrich von Schmidt, 1877–1879); the Art Pavilion (Hermann Helmer & Ferdinand Fellner, 1897–1898); the Croatian National Theatre (Hermann Helmer & Ferdinand Fellner, 1894–1895); the Museum of Arts and Crafts (Hermann Bolle, 1887–1892).

[5] Rudolf Lubynski (1873–1935), a distinguished Croatian architect, was born in Zagreb and studied at Technische Hochschule in Karlsruhe. Several articles and scientific papers have been published about Rudolf Lubynski (Laslo, A., 'Rudolf Lubynski – prilog definiciji stambenog tipa', *Arhitektura* XXXVII–XXXVIII (1984–1985), no. 189–195, 169–197; Novina, A., 'Vila Wasserthal u Zagrebu – prilog istraživanju opusa arhitekta Rudolf Lubynskog' [Villa Wasserthal in Zagreb – A Contribution to a Study of Rudolf Lubynski], *Peristil* 49 (2006), 151–161; Fabijanić, N., 'Combining Secession, Neo-Classicism and Modernism Rudolf Lubynski's University Library in Zagreb', *Prostor* 18 (2010), 1 (39), 2–25., etc.

[6] The Monument Annuity was introduced in 2003. It is regulated by the Act on protection and preservation of cultural goods (OG 69/99, OG 151/03; OG 157/03 Correction, OG 87/09, OG 88/10, OG 61/11, OG 25/12, OG 136/12, OG 157/13, OG 152/14, 44/17 and 90/18). For more details on the Monument Annuity, see: Antolović, J., *Spomenička renta – od teorije do hrvatske prakse / Monument Annuity – from theory to Croatian practice*, Zagreb, 2006.

[7] The architect Aleksandar (Šandor, Škender) Seć (1857–1918?) was the designer of numerous residential buildings around the city of Zagreb. Seć is mentioned in professional and scholarly literature that deals with the architecture of the late nineteenth and the early twentieth centuries. In the article by Jurić, Z., 'Arhitekt Martin Pilar – zagrebački radovi 1889–1900' [The Architect Martin Pilar and His Zagreb Works 1889–1900], *Radovi Instituta za povijest umjetnosti* [Journal of the Institute of the History of Art], no. 18 (1994),153–167, Aleksandar Seć is mentioned as one of many architects who "as designers have clearly shaped the architecture of high Historicism in Zagreb between 1880 and 1900" (p. 165).

[8] Aleksandar Seć and Jaroslav Kralik often worked and signed projects together. Aleksandar Seć and the entrepreneur Jaroslav Kralik are often mentioned together in the article: Laslo, A. *op. cit.* Jaroslav Kralik, along with Aleksandar Seć, signed the projects for numerous residential buildings in the Lower Town between 1908 and 1910, including 20 Boškovićeva Street, 18 and 20 Đorđićeva Street, 7, 10, 12 Mrazovićeva Street (according to the Collection of building documentation of the State Archives in Zagreb, 29 Opatička Street). Aleksandar Seć's and Jaroslav Kralik's works have not been researched in academic detail up to now.

[9] The renovation of the façade of 20 Đorđićeva Street (2014–2016): Contractor: TEH GRADNJA d.o.o., Zagreb. Restoration experts: ŠPATULA d.o.o., Zagreb (stucco); FERRUM d.o.o., Zagreb (metal).

[10] The most common name used for rough-cast plaster is *Kehlspritz*.

[11] Bizek is the name of an old village located on the hill above Podsuded near Zagreb. There was once a quarry near Bizek, located on the western section of Mount Medvednica. Today it is abandoned, although at one time when it was active, it served as a source of raw material (marl) for the similarly abandoned cement factory in Podsused. The stone from the quarry was often used for buildings in Zagreb.

[12] The renovation of the façade of 80 Palmotićeva Street (2015): Contractor: TA-GRAD d.o.o, Zagreb. Restoration expert: TERRACOTTA d.o.o., Zagreb.

[13] Sources: State Archives in Zagreb, Collection of Building Documentation, Zagreb, Opatička 29; City of Zagreb, Municipal Institute for the Conservation of Cultural and Natural Heritage, Zagreb, Kuševićeva 2; The Zagreb Municipal Museum, Zagreb, Opatička 20. Web: Židovski biografski leksikon. "Lubynski, Rudolf (Lőwy, Lubynski)," accessed 20 February 2019, http://zbl.lzmk.hr/?p=1150; Zagrebačka infrastruktura prostornih podataka. *Zagreb* [map]. 1:64000. "GeoPortal."https://geoportal.zagreb.hr/Karta (20 Feb 2019).

Iozefina Postăvaru

Restoring Art Nouveau Buildings throughout Romania

The Lutheran School in Cincşor and the Sofian House in Botoşani

Introduction

This paper describes the multi-faceted flourishing of the Art Nouveau style in the territory of Romania by comparing and contrasting two restoration project case studies, the Sofian House in Botoşani and the Lutheran School in Cincşor.

The town of Botoşani, where the Sofian House was built around 1894, is located in the far northeastern corner of Romania, demonstrating the wide territorial coverage of the Art Nouveau style in the country. Since it is not only the first, but also one of the most masterful manifestations of the new style in this area, the Sofian House expressed its builder's cosmopolitanism as well as his economic power.

Cincşor (in German Kleinschenk and in Hungarian Kissink), where the Lutheran School was rebuilt in 1910, is centrally located within the country but is a relatively small rural community, demonstrating the deep penetration of the Art Nouveau style into the culture. Here, the Saxon community (the descendants of German colonists in Transylvania) resorted to the Art Nouveau style in order to express their identity as a nationality when modernizing their denominational school.

Aspects of the restoration processes, which is still in progress in Botoşani and has been completed at Cincşor, are outlined below.

The Sofian House in Botoşani

Botoşani was first documented in manuscripts of the Saint Mary Armenian Church dating back to 1350. Standing at the intersection of main commercial roads, it was a thriving center of trade and a beacon of craftsmanship in the historical Romanian province of Moldavia between the fourteenth and the nineteenth century. Starting in 1870, the city began to lose some of its economic influence as it was not on the main route of the new railway extension from Lwow/Lemberg to Suceava. Since then the city has been focused on an agricultural economy, mostly through the production of large estate farms.[1]

One of the most important estate owners of the time was Neculai Sofian, the last descendant of a Greek family in Botoşani in the late eighteenth century. He was granted several noble titles and became mayor of the city in 1891. He was one of the supporters of the Union of the Romanian Principalities, Wallachia and Moldavia, which was accomplished in 1859 and which led to the establishment of the modern Romanian state. He had no descendants and he left his entire fortune to the public good, becoming one of Moldavia's greatest philanthropists.[2]

The economic power of the city of Botoşani was clearly expressed through its stately buildings, which were erected in accordance with European cultural values. However, Classical Historicism was predominant amongst the various European styles displayed by the town's new buildings.

This was the architectural environment of Botoşani around 1894, when the Art Nouveau style made its first appearance with the construction of Neculai Sofian's house.[3] *(Fig. 1)* It is obviously a work of its time, showing many elements of great innovation. These were introduced, of course, at the request of a customer who was aware of the latest trends in Europe, since what we generically call Art Nouveau appears as a clearly defined artistic movement only in 1895. This may also explain the mix of revival styles (Neoclassical, Neo-Baroque, Neo-Rococo, Neo-Renaissance) with the Art Nouveau style. In Europe, these architectural styles were disjointed as approaches, as Paul Constantin, the best-

1. The Sofian House, Botoşani, postcard, ca. 1920

known Romanian theoretician on the art of 1900,[4] emphasized, "The 1900 movement *ab initio* excluded Academism as well as any kind of pastiche."[5]

These styles co-exist harmoniously in the Sofian House, perhaps because the architecture of Romania had not yet had time to become saturated with the different variants of the Historicist styles. Beyond the purely Art Nouveau architectural decorations, the entire architectural conception, plan and volume embodies Art Nouveau characteristics, such as spatial flexibility, asymmetry, penetration of light, plasticity, organic implantation in the ground and context.[6]

This beautiful architectural and urban synthesis explains the classification of the Sofian House in Group A

2. The Sofian House, Botoşani, roof restoration, 2016

(of national and universal value) on the List of Historical Monuments in Romania.[7]

In his will dated in 1899, Neculai Sofian left the building to the "Neculai Sofian Institute", his universal legacy. The Institute managed the estates of Hăvârna, Liveni, Pelipăuţi and Zosim, set up a practical agricultural school in Hăvârna and Liveni and a hospice for nurses and old people in the Sofian House in Botoşani. The Institute operated in this building until 1947, after which, during the communist period, it was assigned to an orphanage, then to a vocational school and then to a children's placement center.[8] Despite poor maintenance, the Sofian House continued to be a landmark of the city of Botoşani, expressing its affiliation with Art Nouveau in literature and on postcards. However, decades of inappropriate use and then abandonment led it to ruin.

When in 2003 the Sofian House became the property of the Metropolitan Church of Moldavia, with the intention of it being restored and converted into a modern Ecumenical Cultural Center, the most important institutional and financial forces in Romania were involved in its restoration process. These included the Ministry of Culture and the National Heritage Institute, which has provided funding through the National Restoration Plan. The restoration process has been moving forward at full speed in particular since 2012, when the project was enlarged and the National Investment Company took over financial support.[9] By 2016, the structure had been reinforced 95.00%. Diagnosis by Serpula Lacrymans called for a thorough, one-year long disinfection treatment, and then the replacement of the wooden floors and interior plastering (samples of plaster decorations were removed, in order to be replicated). The roof was completely restored, receiving a fireproof and antiseptic treatment. The roofing has been 90% completed with slate coming from France. *(Fig. 2)* The zinc coated elements were replaced in their original forms with titanium zinc sheets and the source of the original zinc sheets was identified.[10] *(Fig. 3)*

Two Romanian companies, recognized for the quality of their restoration of historical monuments, SC "PROGANEX 2005" SRL, Iaşi, and SC "RESTACO" SRL, Suceava, performed the restoration process with professionalism, determination and passion and provided priceless information.[11]

Equally valuable information was provided by the SC "ORNAMENTIKA" SRL Company, Gheorghieni,[12] which is dealing with the restoration of the titanium-zinc sheet flashing of the roof. The floral, fluid roof ornaments, molded from metal sheets are probably the purest Art Nouveau elements of the Sofian House in Botoşani. *(Figs 4–5)* The original zinc sheets of the roof's flashing and ornaments have undergone a corrosion process caused by contact with airborne chemicals and vapors common in large urban areas such as Botoşani. In the first phase, the patina (the first layer of oxide formed on the surface of the material) protects the

3. The Sofian House, Botoşani, original zinc sheet with the producer's mark

zinc sheet against corrosion. The oxide formed on the surface of zinc is very resistant and will not stick to a soft metal mixture. The oxide cannot be removed with chemical materials. In the best case, when the material has not yet completely oxidized, the oxide can be mechanically cleaned. However, the result is a sheet only a few microns thick that cannot withstand the temperature required for soldering with a soft metal mixture, so it is not possible to carry out the quality bending processes.

It is possible to recognize the corroded, highly oxidized material because when it is warmed and bent, many very thin cracks result due to the expansion process. More serious problems arise when the material does not have the proper thickness and is not correctly mounted on the wooden support that provides the necessary rigidity against movements caused by expansion. Simply due to the lack of support, many of the zinc decorative elements of the Sofian House have contracted, tightened and cracked with time.

4. The Sofian House, Botoşani, Art Nouveau roof ornaments made of zinc sheets

A zinc sheet of the proper thickness and composition can last on a roof up to 80–120 years (less than the age of the Sofian House). In addition, because of the necessity of repairing the roof structure (lathing included) it has been necessary to dismantle the metal sheet flashing and ornaments. The restoration of these ornaments, if it were possible, would cost more than the manufacture and installation of new replicas, and the result would last only a short time (only 5 to 10 years). The conclusion was that these types of decorative elements should not be restored, but instead replicated.

During the restoration, the zinc sheets were replaced with the more durable titanium-zinc sheets. The new flashing also solved the problem of the old, which had no expansion joints (the metal flashing is meant to withstand a temperature difference of up to 100 degrees Celsius, in which case expansion would be 2.2 mm / meter). Installing the new elements on the prepared lathing started from the bottom to the top, in the opposite direction of the flow of water. As for the ornaments, when they could not be mounted on a support, the chosen thickness was 0.7–0.8–1 mm (determined by the surface tension). The replicas were made in the workshop, including the following steps after dismantling the original pieces: (1) shaping, casting, and embossing (stamping), then molding the elements; (2) manufactur-

5. The Sofian House, Botoşani, Art Nouveau roof ornaments made of zinc sheets

ing and preparing the embossed elements; (3) constructing support frames and skeletons; (4) manufacturing the required items by pressing, stamping and cutting; (5) adjusting the joints. The producer of the new sheet metal elements has guaranteed a visual similarity 99% true to the originals. *(Fig. 6)*

Unfortunately, the restoration of the Sofian House has stalled.[13] Ironically, discontinuing funding at a time when the restoration process is so far along is even more dangerous, because it jeopardizes both the historic monument's existence and the considerable investments in labor and financing of the last 20 years.

6. The Sofian House, Botoşani, Art Nouveau roof ornaments replicated from titanium zinc sheets, 2016

The Lutheran School in Cincşor

Cincşor is a small village founded by the Saxon colonists in the south of Transylvania, on the right bank of the Olt River. The first records of it date back to 1332 from the Papal tax lists, under the Latin name of Parvo Promontorio. The church was built in the thirteenth century in Romanesque style, was converted into Gothic style at the beginning of the fifteenth century, and then fortified against Tartar and Turkish attacks with walls and towers. It is one of the best preserved of the approximately 150 fortified Saxon churches left in Transylvania.

In the immediate vicinity of the church stand the edifices of the traditional institutions of Transylvanian Saxon communities: Lutheran parish house, Lutheran school and the Cultural House, all dramatically abandoned by their original functions and occupants.

The building of the former Lutheran school in Cincşor has an expressive volume and exhibits a plan with an east-west orientation along the axis of the church. During the Romanian-German Program to inventory the cultural heritage of the Transylvanian Saxons (1992–1998),[14] our team from the National Institute of Heritage registered the Art Nouveau characteristics of this unusual, elegant building. *(Fig. 7)* The general state of conservation of the school along with the entire village was critical because of the drastic decrease of the Saxon community after the World War II deportations and post-1989 emigration.

7. Former Lutheran School and Fortified Church in Cincşor, 1992

Mrs. Carmen Schuster is a well-known former banker. Born in Cincşor, she was forced to leave Romania together with her family during the communist era, seeking freedom in Germany, like most of the Saxons. There she built a successful career, helping to consolidate the banking system in East Germany, but after the Revolution in 1989 she returned to Romania and visited Cincşor. There she found a village in ruins, with only a few Saxon inhabitants left, who could no longer support the community's cultural heritage. The fortified church was in a deplorable condition and so was the Lutheran school, where she had once been a pupil, and which she remembered as an elegant Art Nouveau building. This was the moment when the course of her life changed, and she decided to return home. Now, through Mrs. Carmen Schuster's care[15] the buildings of the historical institutions of the Saxon community in Cincşor have been restored and are living a new life.

But why was there an Art Nouveau school in a small, isolated village? Cincşor had always belonged to the Saxon Seat of Cincu (Groß-Schenk/Nagysink)[16] until its dissolution in 1876. The integration of Transylvania to Hungary within the Austro-Hungarian Empire in 1868 and the reorganization of the state brought progressive ideas and the glorification of the national spirit. Due to this, the state set up schools for the various national communities.[17]

The Saxon Lutheran Church wanted, nevertheless, to demonstrate that it remained the main supporter of Saxon schools in Transylvania. In order to try to meet the new quality requirements regarding school buildings, it hired Transylvanian Saxon architects that had studied in German universities.

Under the influence of the *Heimatschutz* (1897)[18] and *Werkbund* (1907)[19] movements, these architects created a series of remarkable buildings in Transylvania in the decade before the World War I. The synthesis between preservation and renewal largely corresponded to the Saxons' state of mind: on one hand, their heightened attachment to history compelled them towards tradition, while on the other hand, the reconsideration of functionality and practical aims as well as the abandonment of superfluous ornaments was attuned to their newly acquired self-directed, performance-oriented consciousness. In many ways these buildings can be considered representative of the Saxons' contribution to the overall image of this region.[20]

The architect Friedrich Albert Balthes was involved in the reconstruction of the Lutheran school in Cincşor and in the building of many other schools, parish houses and cultural institutions of the Saxons in the old seat of

Cincu of the C.A. Lutheran Church.[21] Born on 20 June 1882 in Sighişoara, he studied at the technical universities of Berlin-Charlottenburg, Munich and Karlsruhe and obtained recognition of his German diploma in Budapest in order to open his own architectural office in Sighişoara in 1909.

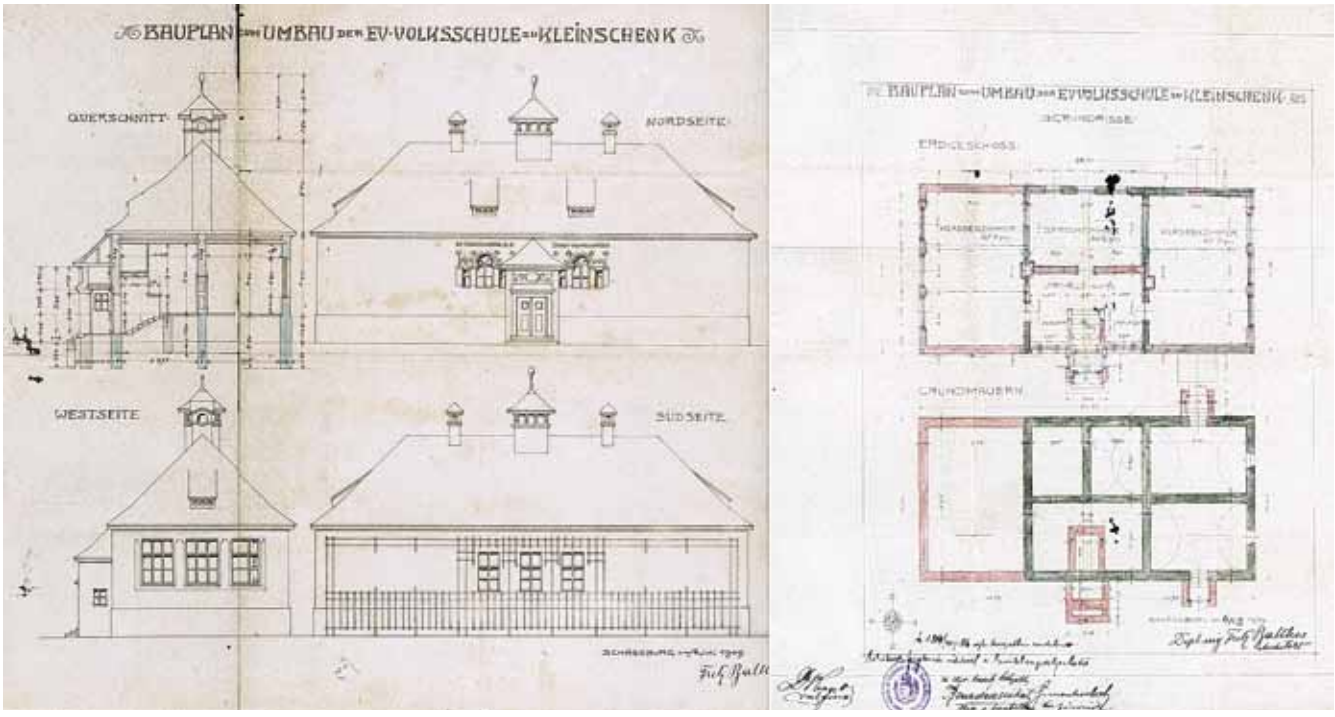
He published on the preservation of the built environment and on the promotion of Transylvanian Saxon heritage. He died at the age of 32 in 1914, as a reserve lieutenant in the Imperial and Royal army. Friedrich Balthes was widely celebrated in 2014 with exhibitions and publications[22] as well as having his works listed as historic monuments.[23]

Friedrich Balthes conceived of architectural creations as complete works of art, which is an Art Nouveau view. He described his project for the Lutheran school in Cincşor, built in 1910–1911, as follows, "The classrooms receive the light from East to West through three large windows, 1.80 m wide and 2.60 m high, close to each other as far as possible and up to the ceiling. The surface of the windows is approx. 1/5 of the floor surface. The parapets are fixed at 1.40 m high, so that the pupils are not disturbed by external stimuli."[24]

Balthes's project received the approval of the Royal School Inspectorate of the Royal County Târnava Mare/ Nagy-Küküllő, "Execution can be authorized subject to conditions detailed in the final decision no. 1807/ (1)909." Signed by the village's head physician, and Royal school inspector, Royal chief engineer.[25] *(Fig. 8)*

The building is oriented East-West along the axis of the church and has an expressive volume, provided by the accentuated slopes of the roof and by the school bell tower on its top. The two classrooms are illuminated by three tall, three-leaf windows, similar to those designed by the architect for other schools.[26] They provide both a uniform illumination of the interior space and a visual contact from the inside with the church (to the East) and with the Cultural House (to the West). The windows are equipped with remote opening systems for ventilation. The overall appearance of the school building is devoid of rigidity, which is one characteristic of the Art Nouveau style and is encountered in all the architect's works.[27]

Unfortunately, during the communist era, the drainage and ventilation system that were designed for the building were neglected. Therefore, relative humidity increased in the cellars, and the condensation led to the deterioration of the masonry and plaster. Missing tiles and gutter segments caused the partial destruction of the decorations and bowls on the façades. *(Fig. 9)*



8. Lutheran School in Cincşor, Friedrich Balthes's original plans

9. Former Lutheran School in Cincşor in 2008, detail of deteriorations

The restoration took years of hard work, during which great efforts were made to preserve the authenticity of the building. For this, Carmen Schuster commissioned two gifted architects, Silvia Demeter-Lowe[28] and Gabriel Tudor.[29] The restoration of the former Lutheran school and its conversion into a "Conference hall, information center for rural tourism and guest house" began in 2009 and ended in 2013.

During the restoration process, the problems were successfully resolved. The cellars were rehabilitated, and horizontal damp-proof barrier injections were made to control the rising damp in the masonry. The roofing and drains were completely repaired, after which the façades were restored. Recipes of lime-hydraulic and lime-brick-sand powder were used for the plastering. Particular attention was paid to decorations, window frames and cornices. Roman Cement (natural hydraulic lime mortar) and epoxy resin were used as materials. For the cornices, a metal sheet pattern was attached to a wooden frame. Rail guides were fastened on the wall to draw the patterns uniformly. For decorations, patterns were drawn of the original shapes at a 1:1 scale. After applying the material, with a palette knife, the small gaps in the material were corrected, and the edges were then brushed smooth. *(Fig. 10)*

The old Lutheran school in Cincşor has been turned into a Conference Center and again brings together the Saxons as well as many other visitors. It is also one of the most beautiful and appreciated guest houses in Romania and displays anew its discreet Art Nouveau elegance. *(Fig. 11)*

10. Former Lutheran School in Cincşor, now a conference hall, information center for rural tourism and guest house, restored Art Nouveau plaster decorations, 2017

11. Former Lutheran School in Cincşor, now a conference hall, information center for rural tourism and guest house

Notes

[1] For the economic, social and cultural history of the city, see Greceanu, E., *Ansamblul urban medieval Botoşani. Botoşanii care s-au dus*, [The Medieval urban ensemble of Botoşani. The Botoşani That Is Gone], Iaşi, 2009, with French and English versions of the Foreword and Abstract. http://www.cimec.ro/Biblioteca-Digitala/Greceanu-botosani/GRECEANU-Ansamblul-urban-medieval-botosani.pdf

[2] Greceanu, *op. cit.*, 46.

[3] Greceanu, *op. cit.*, 97: "Limited in most cases to carpentry or interior decorations, Secessionist architecture (Art Nouveau, Jugendstil) is represented in Botoşani by two examples, one of which is of international value, the Sofian House, 59, I.C. Brătianu Boulevard" (author's translation; the second example mentioned is the Silion House, 18, I.C. Brătianu Boulevard).

[4] Author of *Arta 1900 în România*, Bucureşti, 1972.

[5] From the preface to the Romanian edition of Tschudi-Madsen, S., *Art Nouveau*, Bucureşti, 1977, 12. For the general context of manifestations of Art Nouveau in Romania, see also: Popescu, C., 'Digging out the Past to Build up the Future. Romanian Architecture in the Balkan Context 1859–1906', in Geary, P. J. – Klaniczay, G. (eds.), *Manufacturing Middle Ages, Entangled History of Medievalism in Nineteenth-Century Europe*, Leiden, 2013, 189–215; Popescu, C., *Le Style national Roumain. Construire une nation à travers l'architecture 1881–1945*, Rennes, 2004; Voiculescu, D. – Manafu, A. (eds.), Stefănuţ, A., *Arta 1900 în România* [Art Nouveau in Romania], Bucureşti, 2008.

[6] Tschudi-Madsen, *op. cit.,* 113–119. About flexibility, asymmetry and light in Art Nouveau architecture, see also: Sandrolini, F. – Franzoni, E. – Varum, H. – Niezabitowska, E., 'Materials and technologies in Art Nouveau Architecture. Façade Decoration Cases in Italy, Portugal and Poland for a Consistent Restoration', in *Revista Informes de la Construcción* 63 (524), 5–11, October 2011; *A Strange World. Hybridisation in Art Nouveau and Symbolism*, Catalogue to the exhibition "Nature in Art Nouveau", Riga, 2014.

[7] *List of Historical Monuments*, published in the Official Journal of Romania, no. 113 bis / 15 February 2016, https://patrimoniu.ro/images/lmi-2015/LMI-BT.pdf, 370.

[8] Greceanu, *op. cit.*, 85.

[9] *Restoration Work at the Sofian House, presently the Ecumenical Cultural Center.* General Designer – SC "PROGANEX 2005" SRL Iaşi, project manager PhD. arch. Ioan Sasu. General contractor SC "RESTACO" SR. Suceava, eng. Mihai Bradu, arch. Cozmin Bradu.

[10] Delivered by the Firm of *Wolf Netter & Jacobi, Berlin. Supplier of the Royal House of Romania* (see Fig. 3).

[11] Special thanks to arch. Mr. Ioan Sasu, SC "PROGANEX 2005" SRL, Iaşi and arch. Mr. Cozmin Bradu, SC "RESTACO" SRL, Suceava who shared the problems and achievements of the restoration process and kindly provided us with the project documentation (see note 9), photographs and sensitive reports about the history and the evolution of the historical monument.

[12] Special thanks also to Mr. Dezső Ferenczi, manager of the SC "ORNAMENTIKA" SRL Company, who did not hesitate to share the secrets of his profession and with whom we lamented the lack, in Romania, of restoration-related certificated crafts and craft schools. The description of the titanium zinc coating process and the illustrative photographs that accompany it are thanks to him.

[13] Since 2016, historical monuments that belong to religious denominations can no longer be financed through the National Restoration Plan.

[14] The project (1992–1998) was coordinated based on the protocol concluded between the Romanian National Commission and Directorate of Monuments, Assemblies and Historical Sites (CNMASI and DMASI), the German National Committee of ICOMOS, and the Cultural Council of the Transylvanian Saxons in Gundelsheim, Germany, involving several institutions of the Romanian Academy, Ministry of Culture and Ministry of Education. The inventory in Cincşor (Kleinschenk) was carried out by a team from the DMASI (today partially integrated into the National Institute of Heritage) of which I was a part, along with historian Ioan-George Andron and photographer George Dumitriu.

[15] SC "Kultur Project" SRL Cincşor.

[16] Teutsch, F., 'Der Gang der Besiedlung des alten Landes', in *Korrespondenzblatt des Vereins für Siebenbürgische Landeskunde*, Vol. 24, 1901, 107.

[17] Education Low XXXVIII/1868. See: Kelemen, E., 'Brief history of the administration of education in Hungary', in *History of Education & Children's Literature*, V/2 2010, 183–198. https://www.academia.edu/17166819/Brief_history_of_the_administration_of_education_in_Hungary

[18] For the *Heimatschutz* [homeland protection] movement, see Bickle, P., *Heimat. A Critical Theory of the German Idea of Homeland,* Rochester, N.Y, 2004.

[19] For the *Werkbund* movement see Campbell, J., *The German Werkbund. The Politics of Reform in the Applied Arts*, Princeton University Press, 2016. (First edition: 1978).

[20] Summarized from Fabini, H., 'Architektur', in Göllner, C. (ed.), *Die Siebenbürger Sachsen in den Jahren 1848–1918*, Köln–Wien, 1988, 428.

[21] Evangelical Church of Augustan Confession.

[22] Exhibition (and brochure): Rudolf, G., *Patrie Zidită. Arhitectul Fritz Balthes 1882–1914* [Built Homestead. Architect Fritz Balthes 1882–1914], organized by the Friedrich Teutsch Center for Dialogue and Culture of the Evangelical Church C.A. in Romania, Sibiu, 2014 http://www.teutsch.ro/ro/patrie-zidita-arhitectul-fritz-balthes-1882-1914/

[23] See the "Monumentum" Association's Project: *Fritz Balthes. A Pioneer of Contextual Design* http://asociatiamonumentum.ro/cms/fritz-balthes-publicatie-online-2/

[24] Balthes accompanied his architectural projects with such clarifications. His projects carried out for the Lutheran Church are kept in the Central Archive of the Evangelical Church C.A. in Romania. We are publishing Balthes' Project in 1909 for the Lutheran school in Cincşor for the first time (code: ZAEKR 400 / 101–321).

[25] Notes in ink on Fritz Balthes's project: *Az 1807/909 véghatározatban részletezett kikötések figyelembe vételével a kivitel engedélyezhető / a kir. tanf. helyett Benedek Mihály kir. s. tanfelügyelő / Dr Kraus (?) főorvos / Simon Norbert kir. főmérnök*. Many thanks to arch. Kázmér Kovács for the transcription and translation of this inscription into Romanian.

[26] Stephan Ludwig Roth High School (1909–1912) in Medias / *Mediasch / Medgyes*.

[27] Lutheran Cultural House (1910–1912) in Şomartin / *Martinsberg / Mártonhegy,* Lutheran Cultural House (1910–1912) in Veseud / *Zied / Szászvessződ,* "At the Green Crown" inn and cultural house of the officers (1908–1909) in Dealu Frumos / *Schönberg / Lesses,* Lutheran parish house (1912–1913) in Netus / *Neidhausen / Netus*, "Golden Star" Hotel (1912) in Sighişoara / *Schäßburg / Segesvár*, Transylvania Savings House Bond Institution (1913), in Mediaş / *Mediasch / Medgyes*, Students' Memorial (1912) in Feldioara / *Marienburg / Földvár.*

[28] Special thanks to arch. Mrs. Silvia Demeter-Lowe, manager of the SC "Context' SRL company, Braşov who kindly provided us with the *Report on the state of the Evangelical School building in Cincşor / Kleinschenk, Braşov County*, 2007, and *Conversion Project. Evangelical School in Rural Tourism Information Center and Guest House*, 2008.

[29] Special thanks to arch. Mr. Gabriel Tudor, manager of the SC "Buildart" SRL company, Sibiu, who, by his informal narrative report (2017) provided us a general view as well as significant details on the restoration work he had led (2009–2013).

Peter Trowles[1]

The Restoration and Redecoration of the Glasgow School of Art

Interest in the heritage of the Glasgow School of Art and the work of its celebrated architect Charles Rennie Mackintosh is still a relatively new phenomenon.[2] As recent as the late 1970s trying to find someone to speak with any degree of authority about Mackintosh's contribution to the modern movement in architecture and design at the beginning of the twentieth century would have been surprisingly difficult. Like so many involved in the multiple-facets of Art Nouveau, Mackintosh's reputation and influence is still being evaluated and it is this perception of what we know or what we think we know about Mackintosh and the construction and history of Glasgow School of Art that is going to be a reoccurring theme here. In 2014, the Hunterian Art Gallery at the University of Glasgow completed the first authoritative survey of Mackintosh's architecture; the resulting on-line resource bringing together the largest collection of drawings and associated documentation ever assembled.[3] Meanwhile, detailed analysis of Glasgow School of Art's extensive institutional archive has provided a unique insight into how the School's celebrated Mackintosh Building has been modified over the years to meet the changing needs of its staff and students.[4]

1. The fire-ravaged Mackintosh Building, 23 May 2014

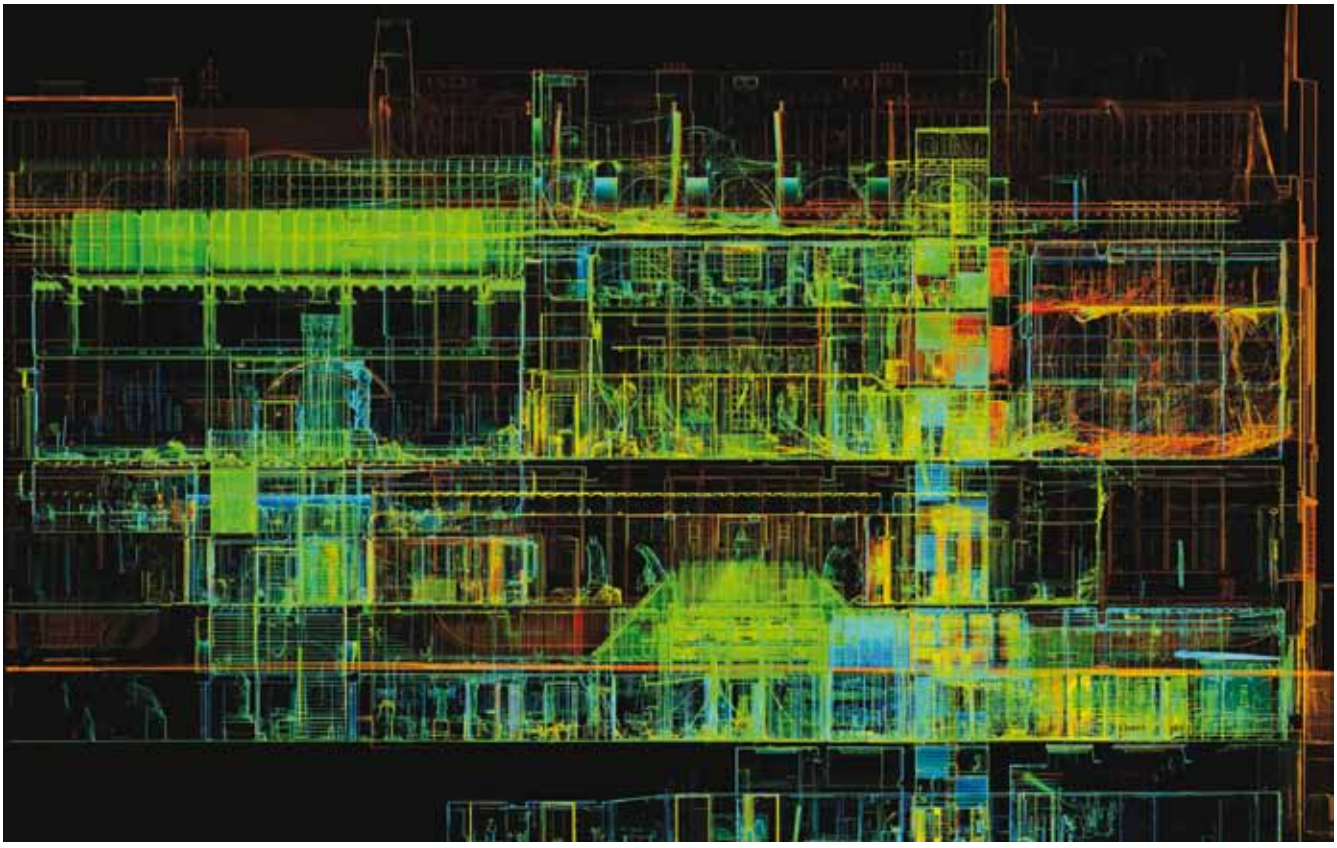
As Curator of Glasgow School of Art's Charles Rennie Mackintosh Building for over twenty-five years I was pretty confident about what I knew about the building. I had after all walked along every corridor, climbed every stair, opened every door and peered into every corner of the building and during past periods of restoration had accessed scaffolding to view the original construction and condition of the roof, walls, windows and even the external ironwork. However, that confidence was severely questioned when on 23 May 2014 the Charles Rennie Mackintosh Building suffered a catastrophic fire, a tragic event that made news headlines around the world in the same way that the devastating blaze at Windsor Castle in 1992 attracted global attention. Sadly such disasters are far from uncommon and in 2015 the UK's National Trust were faced with a similar tragedy when Clandon Park, an eighteenth-century Palladian mansion in Surrey, south of London, suffered a serious fire which left the building as little more than a burnt out shell. (*Fig. 1*)

Following a detailed investigation, it was confirmed that the Glasgow School of Art fire was a complete accident caused by circumstances that saw a slide projector being used to aid a graduating student's art installation ingest some expandable foam which then ignited. Within seconds flames had spread to the immediate vicinity of the basement studio where the student was working and eventually through much of the building and all in a matter of a few minutes. Thankfully the School was able to evacuate all staff and students out of the building in an orderly manner and without death or injury. Unfortunately, the ensuing fire took a heavy toll on the west half of the building (built as part of second phase of construction between 1907 and 1909) with the celebrated two-storied library being completely destroyed along with its impressive collection of books and journals and all the original Mackintosh-designed library furniture.

Remarkably the majority of the School's institutional archive and its art and design collection survived unscathed. The archive and collection was mostly stored in the east half of the School (built as part of the first stage of construction between 1897 and 1899) and although this area of the building was unaffected by the fire itself a number of rooms suffered severe water damage. It is worth mentioning that whilst the fire was truly horrific, over 60% of the building was completely untouched by the flames. A further 30% of the building's structure was damaged to a greater or lesser extent and less than 10% was actually destroyed. The Scottish fire and rescue service did an amazing job in limiting the damage to the building and the School will be forever grateful for their remarkable professionalism in what proved to be a particularly difficult fire to extinguish.

The morning after the fire I joined the School's director (Professor Tom Inns) and chair of its Governing

2. Basement corridor, Mackintosh Building, 24 May 2014



3. Digital scan of the interior of the Mackintosh Building, post fire, 2014

Board (Muriel Gray) on a tour of the building in the company of the fire chief to find the building in darkness, still smouldering in places and with water absolutely everywhere. But by the end of that first weekend Glasgow School of Art had gone out to the media to say that tragic as circumstances were, the School would be rebuilt and that the rebuilding would honour its original architect Charles Rennie Mackintosh. (*Fig. 2*)

Now just over three years on from the tragic day the School is well on the way to honouring that commitment although work will take some time to complete. The restoration of the building is likely to be finished early in 2019 with importantly, students reoccupying the building in time for the start of the academic year in September 2019. So how has the School gone about this rebuilding work and what have been the practical decisions it has had to take along the way? Within a matter of a few weeks after the fire the consensus was that the building would be restored back, where possible, to how it looked when it first opened in December 1909 whilst ensuring that it would be suitable for the needs of a modern, working art school. This approach to the planned restoration was further discussed at an international seminar organised by the School and staged at the Querini Stampalia as part of the Venice Architecture Biennale in October 2014.[5]

Of course such a bold promise is one thing but the practicalities of restoring a late nineteenth-, early twentieth-century building with all its historic connotations and making it fit for the rigours of a twenty-first-century art school is quite another. Importantly, the decision was taken by the School's management that the entire building would be considered for repairs and improvements. Whilst it would have been relatively easy to rebuild what was destroyed and to simply replace lost services such as heating and lighting in the fire damaged areas, here was an opportunity to upgrade the whole building and save on the expense of further investment in just a few years' time. Meanwhile the building remains empty as work continues apace with displaced staff and students relocated to various temporary locations across central Glasgow.

4. First floor painting studio, Mackintosh Building, c. 2005

Within a matter of a few months of the fire the School had started on the process of tendering for a sympathetic architectural practice to lead on the rebuild. In the event the decision was taken to appoint a local, Glasgow-based company Page\Park Architects[6] with an enviable reputation for sympathetic heritage restoration and importantly a company that had worked with the School on a number of more minor refurbishment projects for almost 30 years. In addition, Page\Park were the architects behind the renovation and extension of Mackintosh's Glasgow Herald building which in 1999 opened to the public as The Lighthouse (Scotland's Centre for Design and Architecture). Page\Park's approach has been very much based on identifying exactly what is known about the building's past and how it has evolved over time. Physical changes to the building's structure over the past 100 years have been noted and where practical, some of the more contemporary additions to the interior have been removed returning spaces back to their original 1909 layout. From this standpoint, Page\Park have put forward proposals that not only honour Mackintosh's original intentions for the building but satisfy the needs of the School going forward into the twenty-first century.[7]

In the immediate aftermath of the fire one of the School's own departments, the School of Simulation and Visualisation (formerly the Digital Design Studio) took responsibility for digitally capturing all of the building's interiors, something that rather surprisingly had not been done before; there again no one imagined that the building would ever be partly destroyed. These remarkable digital scans provide a level of detail not previously possible and have themselves been exhibited as artworks in the own right.[8] (*Fig. 3*) The School then started to look at its surviving collection of photographs of the building and to the related building and committee papers held in the archive. This resource provided further valuable evidence as to where physical alterations had been made to the building as the needs of a working (and growing) School over the past century had dictated. The School is certainly fortunate that the earliest and most useful photographic records it has of the building were taken within months of its opening and these date from early 1910. The problem is that these images, by celebrated photographer Bedford Lemere, were chosen to show the building at its very best so only the most impressive interior spaces were ever captured and each one is completely devoid of people. The other obvious problem of course is that these early images are in black and white and remarkably the School has almost no colour interior photographs in its possession before the 1970s. This has proved particularly frustrating as the School's surviving institutional archive frequently

notes that different parts of the building were being repainted on an almost annual basis. (*Fig. 4*)

Meanwhile in today's art studio or atelier environment the fashion has long been to paint every available wall white in keeping with the coolest of contemporary art galleries and it is a trend that can be seen in art schools worldwide. However, there is plenty of evidence to confirm that late nineteenth-, early twentieth-century art school studios were far from white interiors. A hundred years ago a white cotton drape or curtain might have been used as a backdrop to a posing artist's model, otherwise studio walls were drab and mostly brown or dark green in colour and lighting provision was crucial.[9] Recent paint analysis has revealed good examples of these early coloured walls with some samples dating back almost a century. Whilst the evidence is indisputable, the question remains whether today's art students would be willing to learn in an environment that is now perceived as being so outdated?

However, what has continued to amaze the School and all those involved in the painstaking restoration is the evidence that the fire itself has presented. Although most of the studios in the building survived undamaged by the fire, since then the School has spent a considerable amount of time and money in stripping out all the extraneous walls and partitions that have been added over time; mostly sheets of chipboard, painted white, onto which students would frequently hang their work onto a nail – the use of the traditional artists' easel becoming an increasingly rare sight. Up until the fire partition walls were mostly nailed into place to divide the larger studios into smaller, multiple spaces. Recent investigation has however confirmed that Mackintosh's original scheme of sub-dividing these rooms was managed by a series of sliding wooden panels, in places still in-situ; a simple and effective scheme but one seemingly unused for many decades.

The loss of original timber panels in various locations across the building has also exposed previously hidden structural elements that were last seen over a century ago. Elsewhere, there is evidence of the impact of heat on other parts of the building. The wood-lined corridor leading to the destroyed library survived remarkably intact but the impact of extreme temperature is all too apparent. Here the more recently overpainted wooden panels are blistered and bubbled to the extent that the original timber, with its reddish/brown grain, is now partly exposed. (*Fig. 5*) What is now known from detailed paint and stain analysis taken from this area is that the colour of these walls pre-fire is completely wrong. Therefore, the plan is to restore this wooden panelling back to what it would have looked like originally. So whilst it will be noticeably different, it will be historically correct and although some people may question or object (based on what they remember the walls looking like) the School now has the evidence to prove otherwise.

5. Blistered timber panel, first floor corridor, Mackintosh Building, May 2014

6. The Mackintosh library, completely destroyed, May 2014

That said the dilemma faced with deciding what colour or how dark a particular wall should now be is of minor consideration when compared to the task of completely rebuilding the celebrated Mackintosh library. This has and continues to be the School's biggest challenge and one which continues to attract widespread interest from heritage and conservation professionals worldwide.[10]

The Mackintosh library was one of the most celebrated architectural interiors of the twentieth century. Built as part of the second phase of the School's construction (1907–09), the library dominated the west façade of the building with three large oriel windows extending over 7m high. It was a complex yet subtle construction, almost exclusively in wood, connecting three distinct spaces – library (at entrance level), cantilevered balcony and store room above.[11] It had featured in multiple books and journals and despite its primary function as a working library had been used extensively as a backdrop to television programmes and even feature films. It was also one of the main reasons why the building attracted over 25,000 visitors to the School each year making it one of Glasgow's (and Scotland's) most important tourist attractions. However the task of balancing the needs of the School as an educational resource, as a world renowned architectural monument and as an important visitor attraction was always a difficult act.[12]

The real tragedy is that this one room suffered the greatest damage; in fact, almost total destruction, leaving just the four outer walls standing. A balcony around three sides of the library had all but disappeared. In addition, the intensity of the fire was so great that the famous metal-framed oriel windows on the west elevation were so twisted and contorted that they had to be removed and the load-bearing stone piers in between the windows had also crumbled leaving behind a mass of dusty fragments. Above the library, a large store room containing paintings and other examples of Mackintosh furniture was ravaged by the fire and eventually the

floor of this room collapsed and its burnt contents simply ended up on the library floor below. In total, a pile of charred debris almost 1.5 m high consisting of books and magazines, furniture, light fittings torn from their ceiling mounts and bits of concrete, plaster and wood were all heaped together in a soggy mess. (*Fig. 6*)

In time the library debris was thoroughly excavated as part of a detailed archaeological excavation, recording where things had been recovered. Everything was documented and labelled and anything remotely of interest kept. From the recovered fragments of the room's interior the architects and restoration team (including architectural historians and conservators with expertise in wood and paint analysis) have spent months methodically sorting through every piece to the extent that they are confident that they know how the library was originally constructed. They know how the timber was jointed and even how the interior was nailed together. With little previous archival evidence available, this detailed new knowledge has proved to be of immense value and continues to support the School's wish to oversee a restoration project that is as authentic as it can possibly be.

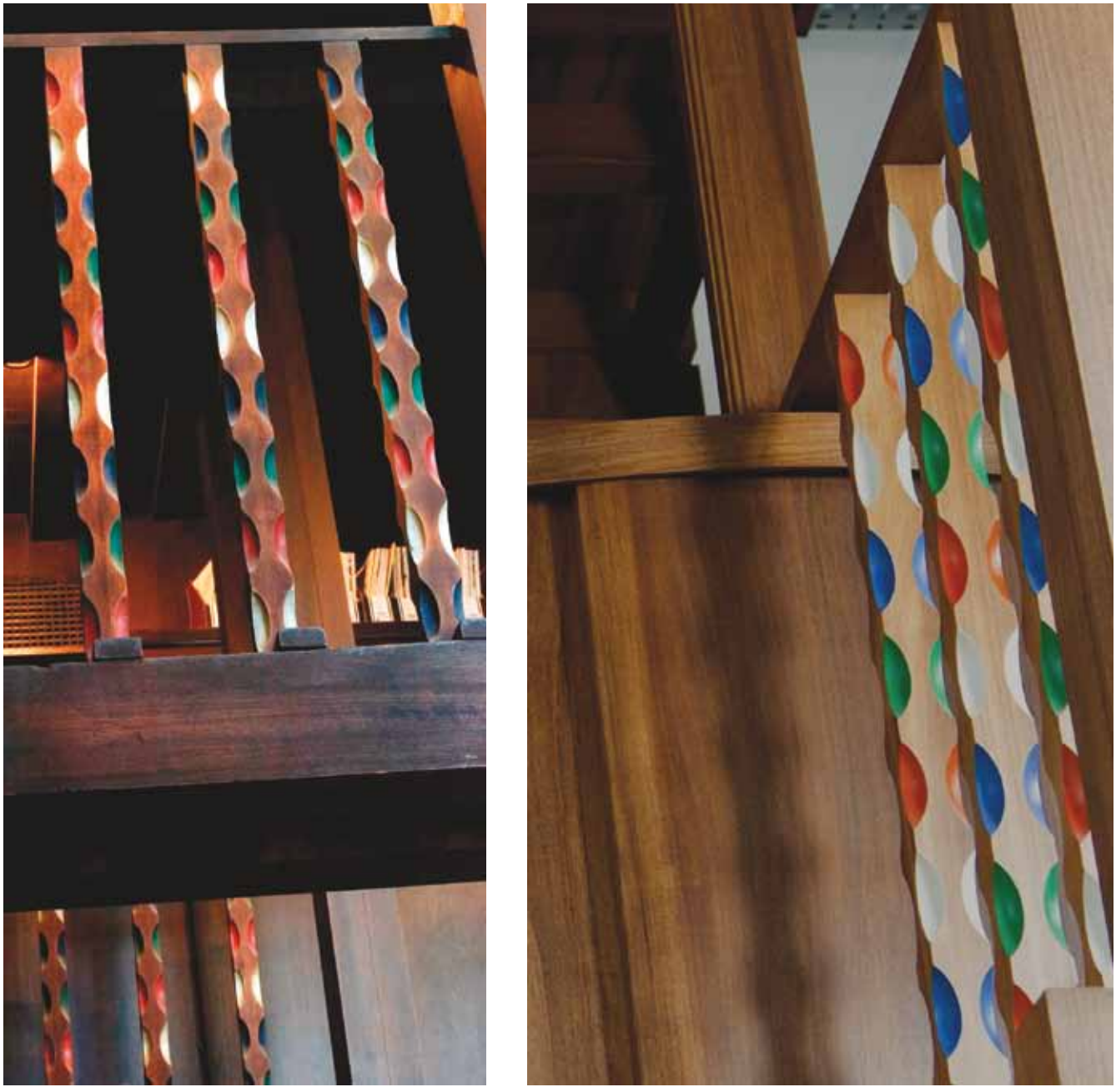
This new 'working' knowledge has been used alongside established documentation – period photographs over the last 100 years, Mackintosh's original drawings (produced between 1896 and 1910), along with much later measured drawings undertaken in many instances by former students (as part of their own studies).[13] Armed with this extensive, complex resource, Page\Park as restoration architects have produced the first complete digital model of the library and all to within a few millimetres of accuracy. The availability of this model has been critical to the recent construction of a full-size prototype of one of the lost library bays.[14] (*Fig. 7*)

The appearance of the library prototype has generated much debate, centred almost exclusively on the colour of the wood, with some people concerned that it was far too light in tone.[15] However, recent analysis by Crick-Smith, one of the UK's leading experts in historic paint and decorative finishes, proved otherwise. They had been able to test two small wooden samples collected from the bottom of one of the supporting columns in the library and from a single shelf from one of the library bookcases.

Crick-Smith's conclusion was that the original timbers (made mostly from tulipwood which was another new discovery) had been stained with oil-based artist paint and then rubbed with beeswax and it was thought that a burnt umber colour was the closest match. Crick-Smith's view was that the original colour had darkened naturally over time and that this colour change had been exacerbated most probably by air pollutants such as sulphur (Glasgow was a highly industrialised city throughout most of the twentieth century), and even nicotine would have had an impact. It is all too easy to forget that smoking in the building was endemic for over 80 years until a ban was finally implemented as late as the 1990s. Not surprising then that just about every interior surface would have been affected in some way. (*Figs 8a–b*)

A similar scientific approach has also been taken with the brightly coloured chamfered spindles which adorned the library balcony. Although only one small, badly damaged fragment survived the fire, the School had extensive (and recent) photographic evidence to

7. Prototype model of the Mackintosh Library, manufactured by Laurence McIntosh, Edinburgh, 2017



8a–b Detail of chamfered spindles, Mackintosh Library balcony (left: pre-fire c. 2012; right: Laurence McIntosh prototype model, 2017)

confirm that these spindles had been decorated in a strict sequence of bright blue, green, red and white.[16] Now seen against the lighter coloured timber of the library prototype, these 'spot' colours are even more dramatic. Discussions are still at an early stage as to how the library will be populated with new replica furniture as everything in the room was destroyed. This included a large, central periodical desk decorated with coloured glass insets.[17] Early in 1910, Mackintosh designed a small Windsor chair to be used in the library but over the years these proved unsatisfactory. The chair was particularly delicate, susceptible to damage and ergonomically much smaller than one would expect of a library chair today. The task of replicating these chairs as authentically as possible yet making them fit for the twenty-first century is proving to be difficult but a solution will be found even if subtle changes to the original construction methods have to be implemented.

Elsewhere however there has been considerable success in rebuilding the iconic library lights. The School was originally designed to take mains electricity and was one of the first public buildings in Glasgow to benefit from this new technology. In the library Mackintosh introduced a series of 'boxy' light shades including an impressive central cluster. At the time of the fire there were forty-eight shades in situ – of three slightly different designs and all had been overpainted at some point in the School's history. (*Fig. 9*)

Made from antique brass with coloured glass insets these shades fell onto the floor of the library amongst all the other debris when the wooden ceiling and balcony they were attached too collapsed. Constructed of multiple parts and held together by small amounts of soft solder, the impact of the fall sent the shades into hundreds of pieces. However, following the thorough archaeological excavation of the library, over 630 individual fragments were recovered of varying shapes and sizes and these were all tagged, sorted and photographed. (*Fig. 10*) After much searching, the School identified a traditional metalsmith based in Edinburgh, Rodney French (of Lonsdale and Dutch) who was confident that once cleaned and flattened (as many of the pieces had been badly twisted as they fell), these fragments could be reassembled into new light shades. His opinion was that there were enough recovered pieces to rebuild in the region of twenty-eight shades in full.[18] A further seven shades could be rebuilt using a majority of original fragments but with some new parts added, and the remainder would have to be made completely new. (*Fig. 11*) Given the scale of the disaster and the total destruction of the library, it is remarkable that so many pieces were not only recovered but that these fragments can be faithfully reused. It is a time-consuming task but the early results are stunning and not surprisingly the School has learnt much from the process. There was clear evidence that the shades had been crudely overpainted but quite why and when this happened is still unclear. Early photographs of the library were examined in great detail and it would appear that the original shades were installed in their

9. Detail of central light cluster, Mackintosh Library, c. 2012

10. Fragments of the Mackintosh library lights, 2014

11. Two of the rebuilt Mackintosh library lights, 2017

original antique brass finish. It is now recognised that this paler tone of metal would have been more appropriate given the new lighter coloured timber that is now thought to have existed in the library from the outset.

A restored, re-opened Mackintosh Building in 2019 will be a significant event and it is hoped that the approach taken by the School in pursuing the most authentic look possible will be widely appreciated. Whilst some of the resulting actions and outcomes might be perceived, at first, as being a little difficult to accept, Glasgow School of Art will at least have both historical and physical evidence to support its every decision.

Author's note

On 16 June 2018 (some months after this article was first written) the Mackintosh Building at Glasgow School of Art suffered a second devastating fire which completely destroyed the building and wiped out all the restoration work that had been undertaken since the first fire in May 2014.

As of January 2019, the cause of this second catastrophic fire has not been made public and is subject to a report by the Scottish Fire and Rescue Service. Glasgow School of Art has stated publicly its desire to see the Mackintosh Building rebuilt but no further details have been released.

NOTES

[1] MLitt., FRSA. Formerly, Mackintosh Curator at Glasgow School of Art.

[2] Trowles, P., 'The Mackintosh phenomenon. The rise of Charles Rennie Mackintosh as cultural icon, cultural superstar!' in *Art Nouveau and Ecology. Miscellany,* Réseau Art Nouveau Network/ Ministry of Brussels-Capital Region, Brussels, 2015, 80–84.

[3] http://www.mackintosh-architecture.gla.ac.uk

[4] http://radar.gsa.ac.uk/3777/1/GSA%20Governors%20minutes%20 1909-1949.docx

[5] https://www.theguardian.com/education/2014/sep/03/glasgow-school-of-art-symposium-venice-rebuilding-fire-mackintosh-library

[6] http://pagepark.co.uk/cog/heritage

[7] These proposals were never shared publicly and were seen as 'internal' documents.

[8] http://gsapress.blogspot.co.uk/#!/2016/10/public-get-first-opportunity-to-see.html; http://riba.sirsidynix.net.uk/uhtbin/cgisirsi/?ps=or62aDYAW6/MAIN_CAT/X/9

[9] Winters, T., *Atelier. Building the Visual Arts Studios of the 21st Century*, Charleston, 2014, 51–70.

[10] https://www.heraldscotland.com/news/13194309.build-a-new-library-at-mackintosh

[11] Buchanan, W. (ed.), *Mackintosh's Masterwork. The Glasgow School of Art*, London, 2004, 117–121.

[12] Trowles, P., 'Cultural asset or cultural liability? The business of managing architectural heritage', in *Art Nouveau and Ecology. Multilateral Exchange 3: Art Nouveau Architecture; building protection and restoration policies*, 4 Oct 2013, Helsinki, 2013.

[13] The Glasgow School of Art's extensive archive is accessible to researchers and academics by appointment only. Details at http://www.gsaarchives.net

[14] http://gsapress.blogspot.co.uk/#!/2017/09/back-to-future-glasgow-school-of-art.html

[15] There has not been any published papers on this. The topic was mostly covered in press articles centred around the construction of the prototype. See previous footnote.

[16] These photographs form part of the overall Restoration project, held currently by the Architects. In time this extensive project file will transfer to the Glasgow School of Art archive but is currently not accessible to the public.

[17] The periodical desk is referenced in Roger Billcliffe's, *Charles Rennie Mackintosh: The Complete Furniture, Furniture Drawings and Interior Designs,* Moffat, 2009, 257.

[18] A report was submitted by GSA and published by the Archives and Records Association UK & Ireland in their monthly magazine. However, content for this article is accessible to Association members only and not otherwise publicly accessible.

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