

Summaries

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SURVEY AND PRELIMINARY ASSESSMENT OF A BAROQUE VAULT FOR REFURBISHMENT PLANNING

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Keywords: baroque vault, non-destructive survey, mechanical response, load carrying capacity estimate

Care for the long-term sustainable preservation of a quality environment is increasingly arising interest in extending the functionality of existing buildings and their new use. Refurbishment and repurposing of buildings, together with maintenance, have accounted for almost fifty percent of construction production in the last twenty years in Europe. This trend is likely to grow, as it is estimated that by the middle of our millennium, eighty percent of the buildings occupied will be buildings standing today. Refurbishment has a number of advantages over new construction or demolition and rebuilding of structures. There are also potential disadvantages associated with refurbishment, which primarily represent requirements for design interventions that create a work structurally safe and robust. Here, the designer often encounters a lack of information about geometry, materials and construction details. It is therefore necessary to devote sufficient time and financial resources to comprehensive surveys using modern means of non-destructive or gently destructive testing which is very costly and time consuming. Hence, it is often useful to perform a preliminary cost-effective assessment of the feasibility of the intended project. This article presents a methodology and an example of such a preliminary survey and assessment of the mechanical response of a brick masonry Baroque vault of a former Jesuit College to the static load, initiated by an intention to change its use in selected areas and the indicative allowable load of the floor had to be estimated. The construction documents did not contain detailed data on the geometry of the vaults, there was no documentation of the thickness of the vaults or the height of the embankments and the dimensions and composition of the floor layers above the vaults. The material properties of the building materials used for the construction of vaults were also unknown. The analysis was preceded by local investigations, the aim of which was to survey the geometric shape and to non-destructively examine [by using georadar] the composition of inaccessible parts between the lower surface of the vaults and the upper surface of the ceiling. The geometry of the extrados and intrados of the vaulted ceiling is precisely determined by geodetic surveying. The internal composition is estimated according to the response of passing electromagnetic waves. The IDS type ground radar was used for the task and the slice software was used for evaluation. To visualize the reflections, the signal was linearly amplified with depth, an interval of displayed frequencies was selected and the distance between the antenna and the top was subtracted. To better visualize non-homogeneities and eliminate noises, the signal was "smoothed" by averaging over 3x3 boxes. From the course of hyperbolic reflections, the speed of signal propagation was retrospectively refined. Radargrams showed vault structures in all studied rooms. The density of the selected network allows them to be sufficiently described. In all rooms a concrete slab with reinforcement in both directions is probably

present. Material properties are estimated according to the experience of the authors with similar historical buildings and a literature search. The data obtained were used for the analysis. For the stress calculation in the vaults the radar estimated dimension of the vault thickness of 25 cm and the more likely dimension of 30 cm were used. In addition, radar-estimated thicknesses of embankments and floor layers were applied. For vaults, these have relatively complicated material properties with a rugged spatial geometry in which imperfections can have a significant impact on the stress distribution in the structure and the calculation should therefore ideally consider material and geometric nonlinearity. The demands on such a calculation are disproportionately high in comparison with the importance of the considered construction, for which reason the calculation using two simplified models was chosen. The first planar model considers a strip of barrel vault with a width of 1 m without taking into account the load from the transverse vault and is made according to the focused geometry taking into account geometric nonlinearity and excluding tension. The second model is a linear spatial model of the entire vault according to the geodetic survey. The calculation was performed with ANSYS 17.2 using SHELL181 and MASS21 finite elements. The spatial model considers the vault as a shell, transmitting even bending stresses, which were calculated in large areas of the vault. These stresses are considerable even when unloaded, and the model does not adequately reflect the actual behaviour of the vault, because there are no defects in it today. It is therefore very conservative. The calculated stresses in the vault from the effect of the considered live load of 5 kN/m² represented an increase in stress of approximately 25% compared to the stress from the dead load of the vaulted ceiling structure. The presented analysis does not replace a static calculation of vaults and must be understood as a highly qualified expert estimate of the behaviour of the structure on the acting and considered loads. Nevertheless, it helped to decide on the feasibility of the intention to adapt the building for a new use.

NEW MOORISH ARCHITECTURAL IDENTITY IN TLEMCCEN, ALGERIA

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Keywords: Moorish-style, revival, authenticity, identity, contemporaneity

In Algeria, the city of Tlemcen is home to 60% of the country's Arab-Islamic architectural heritage. This heritage is also known as Moorish. During the French colonization, the rich Moorish historical and architectural heritage was largely erased and destroyed. The architecture of Tlemcen's historic old town was gradually replaced by classical architecture in the early days of colonization, and then by modern architecture from 1940 onwards. After 1962, the year of the country's independence, the city was faced with a succession of emergencies and has carried out huge programs of building facilities and new housing, based on the principles of modern architecture. In 2011, Tlemcen was designated a Capital of Islamic Culture and, in preparation for this international cultural event, new cultural facilities and hotels have been built, inspired by Moorish heritage. Given the heterogeneity of references and in particular the identity crisis ensuing in architecture in Tlemcen, the international Islamic cultural event was the key moment for validating a stylistic choice, which directly recounts the history of the city. The question is: what authenticity is expressed by the current use of the Moorish referent? Is it technical and material authenticity, or merely symbolic and cultural genuineness? This article looks at the question of identity in architecture. It analyses the new Moorish-style buildings in Tlemcen and highlights their contribution to the quest for a local identity and the ambition to produce local architecture. This article supports the hypothesis that architecture is an effective means of expressing identity, and that it has always had, and continues to have, a close relationship with memory. The methodology adopted for this study is based on a combination of several investigative tools: surveys, photographs and archive consultation. These tools helped develop a building analysis grid, which serves as a repertory for describing the buildings, according to two levels of reading of the architectural work: firstly, the basic principles of Moorish architecture which are geometry, light, architectural elements, unity on the inside versus expressiveness on the outside and, finally, introversion. Secondly, the decorative elements of Moorish architecture which are the building materials, the use of colour, the calligraphy, and the plant and arabesque elements. For our study, we have chosen three Moorish buildings (The Great mosque of Tlemcen, Sidi Belhacen

mosque and Sidi Boumediene mosque) and four contemporary buildings (the Andalusian Studies Center, the Abdelkrim Dali Palace of Culture, the Mohamed Dib regional library and the Marriott hotel), to which the different criteria of the analysis grid are applied. The results of the analysis of the new buildings inspired by the Moorish style show that there are both similarities and differences observed between the design of contemporary buildings and the Moorish architecture. The decorative registers used on the exterior of the buildings are sober and faithful to Moorish tradition. All the decorative richness was introduced inside the buildings. Nevertheless, calligraphic inscriptions are virtually absent in the Mohamed Dib library, and new materials and construction techniques have been used in their architectural expressions. The architecture of three of the four buildings studied is extraverted, which goes against the logic of the introverted Moorish buildings of old Tlemcen. What is more, the three contemporary cultural buildings are public facilities for study, reading and meeting. These functions require a high level of visual comfort: hence the need for a high level of illumination, enhanced from the presence of large glazed openings. The buildings maintain a high level of brightness in keeping with their functions. The results of analysing the new Moorish style-inspired buildings show that, in a way, they have enabled to establish continuity and dialogue with the Moorish heritage, and above all to forge an orientation for architectural practice in Tlemcen, until then variable and very open to all kinds of foreign influences. Through these contemporary buildings, the architects have adopted an architectural style that rehabilitates the Moorish tradition. The architects have expressed their desire to break with colonial and post-independence traditions, which reproduced imported occidental models, and to reclaim a prestigious past dislocated by the colonial enterprise. Tlemcen must be able to fully embrace its new Moorish architectural identity. To achieve this, a number of measures need to be taken. Among other things, a corpus of Moorish architecture needs to be drawn up, identifying all the reference elements to be used. This corpus will serve as a dictionary of local architecture. It will have to be integrated into architects' training programs. To answer the initial question, we believe that the authenticity expressed by the current use of the Moorish referent in contemporary buildings in Tlemcen is not a technical and material authenticity –the use of new construction techniques and materials–, but only a symbolic and cultural one. These contemporary creations are a rewriting of Tlemcen's prosperous Moorish past. Their architectural identity has been drawn from Moorish heritage.

APPRAISAL OF THE HISTORICAL IMPACT OF NEGLECTED, MODERNISED SMALL-SCALE ARCHITECTURAL OBJECTS BY RUDOLF FRIČ

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Keywords: Frič, interwar Czechoslovakia, gas station, tram shelter, tomb, mausoleum, small-scale architecture

The paper observes the small-scale architecture of the Bratislava builder Rudolf Frič (1887–1975) in the context of the Czechoslovak interwar architecture. It also shows that his portfolio is more complex than the Slovak historiography presents. The problem of small-scale architecture is its undervaluation due to size, utility, multiplicity, or related momentariness, and automatic consideration of its banality. Therefore, the architectural value of the Frič's small designs, tram shelters, gas stations, mausoleums, and small detached houses, is being examined in confrontation with the work of other architects of the same typology and approximate architectural and structural characteristics within the Czechoslovak interwar context. On the other hand, we notice that it is the scale and ephemerality conditioned by the utility character, which are the crucial reasons behind their undervaluation. This is especially crucial in transport architecture, whose origin and demise were both conditioned by a dynamic process. The asymmetric position of the Slovak situation compared to the Czech is observed, particularly in transport architecture. The presented works characterise Frič's style based on high-quality craftsmanship details rather than explicit architectural forms. Finally, we examine in what Frič's crucial contribution to architecture lies, as he was a more complex entrepreneur.

Frič designed several detached houses of different scale and in various urban situations. Among them is the house of the civil engineer Rybáček on Kubániho Street in

Bratislava (1933–1934), now Slovakia. The structure of a narrow winter garden with a plain wall behind is based on the Trombe wall concept, rare in the then Czechoslovak architecture. The house represents a modern concept of a smaller urban villa that is introvert to the street and opened to the garden. It differs from Frič's house designs for small towns such as Myjava, where he designed the evangelic priest Valášek's detached house, called 'The house of Sun' (1933). Although compared to the Rybáček's vila in Bratislava, the architectural composition was limited to a trivial addition of prisms, it was a rare example of purist architecture in the town. Frič subsequently published a design proposal for an anonymised Doctor B's detached house with a surgery (1933). Despite its attractive design and ingenious layout, it was not a rare hybrid typology, as it was applied in Jan Gillar's (1904–1967) design for Doctor Polony (1937–1938).

In the context of motorisation and modernisation processes in interwar cities, new public traffic shelters were being built. Frič built one in Hviezdoslavovo Square in Bratislava (1928), in front of the monumental representative architecture of the Carlton Savoy hotel, rebuilt by Michal Milan Harminc. In such a contrary position, the kiosk was architecturally banal but infrastructurally crucial. The architectural form based on vertical volumes combined with horizontal lines, and rectangular, circular, and polygonal geometry, together with its position were criticised at first. In the research, it is confronted with a series of tram shelters and waiting rooms by Oskar Poříška (1897–1982) in Brno (1925–1932), now Czech Republic. Considering the multiplicity, scale, and additional facilities involved, the Brno tram shelters substantiate that the specific typology was evolving more intensively in the Czech than in the Slovak environment. The recognition of both designs in period magazines on architecture, 'Slovenský staviteľ' and 'Stavba', confirms their appreciable contribution to architectural discourse in that unique typology.

The motorisation and modernisation processes in cities led to the construction of a new typology of gas stations. They would be embodied in dynamic architectural forms. Although in Czechia such architectures were being built since early 1930s, both in city centres and on peripheries, in Bratislava there was no gas station until 1940. The first was the Zikmund Brothers' gas station on Račianska Street (1940), located on what was the city periphery at that time. It was designed by the Czech architect Jan Slavíček and built by Rudolf Frič. Due to its structure and dynamic form, it is being compared to Gočár's designs.

The fourth and last typology to deal with is a mausoleum, or generally a tomb. As an ancient sepulchral architecture, it used to have traditional architectural forms. From this point of view, it may be considered the opposite of transport architecture, which was modern in cause and form. However, in the interwar Czechoslovakia this typology was fading away, and was scarcely used from the post-war time onwards. The paper studies the only example of sepulchral architecture in Frič's portfolio which is his family mausoleum in Dobříš (1937) near Prague, now Czech Republic. The mausoleum design is based on a square geometry and symbolism, significantly repeating the square arrangement. It is confronted with the Nedelco and Klimko family mausoleum (1937) at Saint Rosalia Cemetery in Košice (Slovakia), designed by Ľudovít Oeschläger (1896–1984). The Krčméry family mausoleum (1937) by Emil Gottesmann (1900–1944) also follows a conservative cube-shaped concept. The last confrontation is made with Adolf Loos's design proposal for the Austrian Czech art historian Max Dvořák's mausoleum.

TEMPORARY FORMS OF PERFORMATIVE SPACE: IMPACT OF TEMPORARY ARCHITECTURE ON AUDIENCE DIVERSIFICATION

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Keywords: architecture, performance, space, temporary, statistics, event

We are publishing this paper as a partial output of a larger body of research. It serves to analyse the data collected during the implementation of the object, which was created during the research by design phase. Along with the theoretical background, a

part of the dissertation thesis is devoted to this issue. The fundamental question becomes how such interventions affect the show attendance; we focus on documenting the visitor profile, the ratio of viewers, ranging from new, casual viewers to viewers who regularly seek theatre as a type of culture. We investigate the direct impact of temporary architecture on theatre attendance and audience diversification.

In the introduction, we clarify the basic terminology used. In the book *Occupying spaces: experimental theatre in central Europe: 1950-2010*, Tatjana Lazorčáková presents two poles of the spaces in which theatre takes place: i. so-called theatre architecture, which includes stone theatres with a traditional stage and auditorium layout, and auditoriums with theatrical equipment, and ii. non-theatrical spaces, which include spaces not originally intended for theatre. Attention is paid to the second group of non-theatre spaces. The temporary architectural input into these spaces leads to the origin of the category under research – the term temporary forms of performative space. In this part of the research, the architectural input – the form – represents an object designed and realized by us. By implementing the object in two different types of non-theatre spaces, we create our own per-formative space. In addition to the object developed for the needs of the research, we also mention examples from domestic and foreign environments that complete the idea of similar types of projects.

Inspired by these projects, we abstract their characteristic features. Distinctive form, installation in public space and unconventional production are the characteristics that we intentionally use in our experiment. Similarly to the analysed examples from abroad, our object's aim is primarily making theatre accessible to a wider audience. In the experiment performed, we aim to confirm that temporary architecture forms intended for performative art can diversify, and expand the audience, and thus make the theatre more inclusive. The method we have chosen involves the analysis of two performances. In the *Jera* show, we analyse the impact of an object situated in a public space on the composition of visitors. The object takes on characteristics adopted from examples from abroad. The *Elektra* performance is used as a reference example, where the object is present, but it is not necessary for the relevance of the data obtained.

Elektra (is not coming) was a project developed under the interdisciplinary civic association *Objektorárium*, which brings together young professionals from the field of art and architecture. The production was hosted in the *Ad: creative centre*, located in the former boiler room at the Faculty of Architecture and Design, Slovak University of Technology, in Bratislava, Slovakia. The original text by director Matej Trnovec and playwrights Veronika Briestenská and Martina Havierová, *Elektra (is not coming)*, was based on the motives of Euripides' *Elektra* and other ancient myths. In the *Elektra (is not coming)* production, the object is a part of the stage, the play is performed inside and outside the object, the audience is seated in an improvised auditorium. Since the performance is hosted indoors, the object was not intended to function as an attractor. The role of this performance in relation to the research is primarily comparative. We do analyse the data obtained from the questionnaires and use them as a control sample in relation to *Jera*.

Jera – a dance movement performance for one performer – was delivered at the end of October in an exterior environment on the *Námestie slobody (Freedom Square)* in Bratislava, Slovakia. The choreographer was Nela Rusková, a final-year student at the Academy of Performing Arts in Bratislava, Slovakia, who was invited to join the – at that time emerging – interdisciplinary project *Objektorárium*. The object acted as an eye-catcher, as it was already installed in its location, along with a QR code referring to the performance, posted a week before the performance. We were inspired by projects from abroad where the objects appealed to potential visitors not only through traditional communication channels, but also by their distinctive form or by appearing in a space that was previously empty. The building provoked curiosity and the information reached people who are not regular theatregoers, which was already evident from the interviews with the audience before (after) the performance and was confirmed later by the answers collected in the questionnaires.

During both performances, audience data was collected by way of questionnaires. The research questions reflected the need to identify how the audience learned about the show, or what their motivation was to attend a particular performance. We also inves-

tigated the audience's relationship with the performance organisers to be able to separate those audience members whose motivation to come to the performance was personal (relationship with the organiser team or the cast). These data are confronted in the interior vs exterior relationship, to compare the number of casual (new) spectators that an object placed in the square was able to attract.