

***Riesentor* and its Layered Character**

Nikola Beim

Vienna, Austria, n.k.beim@gmail.com

Abstract

The *Riesentor*, the west portal of St Stephen's Cathedral in Vienna, compresses eight centuries of additions, repairs, and ideological debates. Instead of isolating a single authentic moment, this paper proposes a digital palimpsest methodology that co-registers archival drawings, historic photographs, laser-scan point clouds, and photogrammetry models into a single, time-stamped spatial model. Every documented phase, such as Romanesque form, Gothic refacing, Baroque polychromy, post-war reconstruction, and contemporary digitization, is stored as an independent layer. Viewers can slide through centuries or juxtapose moments side by side, replacing the static “before-and-after” narrative with a four-dimensional continuum. This layered visualization reframes preservation practice by shifting decision-making from material excision or replacement to data-rich simulation that tests minimally invasive scenarios before any change is made. The digital palimpsest thus reorients preservation methodology by positioning the portal as an unfinished artwork that future scholars and experts can extend rather than redo. By demonstrating how the digital domain can preserve and even amplify the monument's accumulated meanings while guiding any upcoming interventions, the project offers a transferable workflow for other cases that prioritize narrative continuity and the evolution of built structures over time.

Keywords: Digital Preservation, Technology, Palimpsest

Introduction

The *Riesentor* embodies Vienna's evolving attitudes toward preservation, serving as both a physical palimpsest of architectural styles and a case study for rethinking how history is recorded and interpreted. The portal (Fig. 1) functions as the main entrance to St Stephen's Cathedral, located on the Western facade between two towers.

The portal has a layered history that combines multiple building styles. Originally, it was built in a Romanesque style during the cathedral's second, late Romanesque, construction phase around 1230/1240, and was partially restored into a Gothic style centuries later. It serves as a hybrid of styles to this day. That is exactly what a palimpsest does. It preserves multilayered information within a single object. Over time, the portal's development was impacted by natural events, wars, restorations, and many ideological debates, making it an exemplary case of a monument that keeps changes visible, legible, and navigable in a digital environment.



Fig. 1. Riesentor, St. Stephen's Cathedral in Vienna. Photograph by the author, 2024

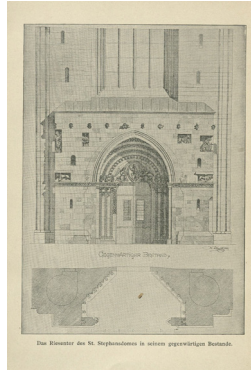
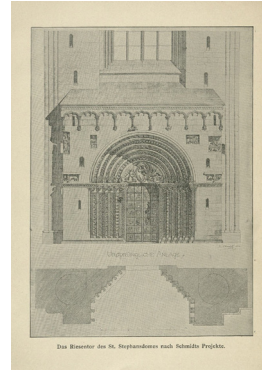


Fig. 2. Friedrich von Schmidt. *Das Riesentor des St. Stephansdomes*. Drawings, 1882. Ownership: MAK – Museum of Applied Arts, Vienna. Left: *Das Riesentor des St. Stephansdomes in seinem gegenwärtigen Bestande*. [The Giant Portal of St. Stephen's Cathedral in its current condition]. Right: *Das Riesentor des St. Stephansdomes nach Schmidts Projekte*. [The Giant Portal of St. Stephen's Cathedral based on Schmidt's projects]. Published in: Mantuani, Josef. *Das Riesentor zu St. Stephan in Wien und Fr. v. Schmidts Projekt für dessen Wiederherstellung. Randglossen zu Heinrich Swobodas Schrift: „Zur Lösung der Riesentorfrage“*, 1903.



Historical Debates

In late-nineteenth-century Vienna, preservation was closely entwined with historical scholarship and contemporary architecture. During this period, historicism, as represented in architecture and the applied arts, served as a tool for defining national identity in the German-speaking countries (Reynolds Cordileone 2008, 123). In Vienna, the tendency toward historicism was evident in buildings that revived historical styles such as Gothic, Baroque, and Greek, particularly in the prominent Ringstrasse project of the time (Olin 1992, 20). A key representative of this approach was the architect and restorer Friedrich von Schmidt, who embodied the classical restoration tradition that dominated Western Europe until the late nineteenth century, when preservation began to emerge. Schmidt restored multiple works of architecture to their original state, opposing the ideas of some Viennese figures. Schmidt's restoration plan for the *Riesentor*¹ from 1882 (Fig. 2) was heatedly discussed in Viennese society because he wanted to restore the portal to its original Romanesque style regardless of the cathedral's otherwise Gothic style. Hence, the question arose as to who was allowed to decide how to preserve the portal or building.

Schmidt was appointed as the main restorer of the cathedral. Thus, he held the power to restore it as he envisioned. Restoration efforts on the building were first initiated by the Cathedral Building Society (*Wiener Dombauverein*) with interior renovations in 1880. Two years later, the Building Society turned its focus toward the *Riesentor* following Schmidt's restoration plans and thus aimed to restore the portal to its original state.² The *Dombauverein*'s efforts to restore the portal were opposed by two groups: art historians and the Catholic Church. These groups communicated their stances regarding the reconstruction by

publishing articles in the Viennese press. Moritz Thausing, an art historian, presented his critique in the newspaper *Neue Freie Presse*.³ At the same time, the Catholic Church commented in the Catholic newspaper *Das Vaterland*, claiming that the Gothic style (the main cathedral style) is truly Catholic, so the cathedral should remain as is and not be turned into its original state. Religion played a key role in Austrian society, especially concerning monuments. This is evident in the case of the *Riesentor*, where Catholic representatives actively participated in the restoration debate and publicly voiced their opinions.

The decision about the case was made at the meeting of the Central Commission for the Research and Preservation of Artistic and Historical Monuments (*Die Zentral-Kommission für Erforschung und Erhaltung der Kunst und historischen Denkmale*),⁴ the state institution responsible for monument protection. The meeting was attended by Thausing's colleague, Theodor Sickel, who succeeded in convincing the Commission to quell the restoration plans (Olin 1985, 190). However, twenty years later, in 1902, the restoration ideas for the *Riesentor* were rediscovered, supported by the Commission, and rejected by the newly formed Secession, an art movement founded in 1897 by Austrian artists. Besides these groups, some of Thausing's art history students, including Alois Riegl, participated in the conversations. Comments appeared again in numerous articles in the Viennese press, such as Riegl's critique published in the *Neue Freie Presse* or a text by the Secession group in their journal, *Ver Sacrum*.⁵ Riegl considered stylistic unity as the primary criterion of preservation, and he defended the current appearance of the cathedral because it symbolized precisely this unity (Olin 1992, 21). The cathedral's west façade, including the *Riesentor*, consists of Romanesque and Gothic styles and thus represents the coexistence of multiple historical layers within one structure without one being dominated by the other. Riegl's reflections on the *Riesentor* case not only articulated his position on stylistic unity but also laid the foundation for his broader theoretical contributions to preservation thought. His engagement with this debate shaped the development of concepts that he would later apply to other preservation cases. In his writing, Riegl introduced a monument value related to mood, *Stimmungswert*, which can be observed within the *Riesentor* (Allais and Pop 2020, 14). However, he neglected to include this value in his axiological study presented in the essay, *The Modern Cult of Monuments*. Therefore, *Stimmungswert* did not become widely known among the public. Within the same period, Riegl commented on another restoration case, the altar of St. Wolfgang (*Der Pacher-Altar*) in *Salzkammergut*, Upper Austria. Similarly to the *Riesentor* case, his prevailing opinion here was to reject any restoration efforts and instead favor preservation methods applied to many national monuments at the turn of the century.

To conclude, the pro- and anti-restoration groups presented their commentary through various newspapers. Their opinions reached the public because newspapers were widely available in the city and not restricted to scholars and experts. Therefore, groups' comments informed and shaped public perception of the monuments and their protection from various viewpoints over multiple decades. Moreover, these various approaches to monument protection consequently influenced how monuments' authenticity, materiality, form, and appearance were perceived. A number of these core issues were addressed by an architect and architectural researcher, Thordis Arrhenius. She claimed that "authenticity, origin, and authorship are concepts at the core of the polemic that has surrounded conservation throughout its history (Arrhenius 2012, 12)." Following Riegl, the diversity of styles incorporated into the *Riesentor* can be understood as evidence of the monument's

authenticity and of its stylistic evolution over centuries. From a Rieglian perspective, attempts to counteract this aging by restoring the monument to an assumed original form would therefore be considered “against nature.” The previously mentioned figures (Thausing, Sickel, and Riegl) are thus representatives of a rising preservation method in Austria at the turn of the century, alongside the movement of modernism.

Today’s Perspective on the *Riesentor* Case

The previous text examined various restoration and preservation efforts on the *Riesentor* within the context of historical debates. The case also matters today for three related reasons. First, Riegl’s involvement in the debate about the restoration and his stance against restoring it to its original state stood out at the time. Second, the *Riesentor* character contains multiple historical layers and is therefore a physical palimpsest. Third, when the portal is documented through digital methods, the palimpsest logic shifts into the digital realm. Here, layers can be separated, compared, and examined side by side rather than only read as a linear sequence. Historically, palimpsest emerged in the Middle Ages when vellum was reused through overwriting, and since the 1970s the term has also been applied in architecture. As a method it is based on layering, overlaying, and juxtaposing historical layers within the urban context, forming an emergent architectural typology. Unlike built palimpsest approaches whose layers are fixed, a digital palimpsest remains temporal and can be updated as documentation grows. Within such a model, multiple object’s states can be individually viewed or compared to others by overplay of spatial information. Digital palimpsest constitutes a 4D continuum that exposes issues of uncertainty and authorship, where multiple agencies contribute to one object over time. Rather than conceiving time as a linear progression with a teleological direction, objects represented in a digital environment serve only as temporal representations of their real counterparts.⁷

To construct a digital palimpsest model integrating diverse types of information, a touchless preservation approach is employed using digital tools such as photogrammetry or laser scanning. These methods capture and preserve objects without physical intervention while recording information about their form, material properties, and appearance as they evolve. In practice, proposed interventions can be modeled as additional time stamped layers that are registered alongside documented historical states. This allows to compare a planned change in contrast to previous states and against evidence for material and formal continuity, before any physical action is taken. The method promotes minimally invasive planning by testing alternatives in the digital environment and selecting interventions that preserve legibility of existing layers while meeting necessary requirements.

Moreover, the creation of copies enables the possibility of substituting the original fully. This was already addressed by Riegl in the early twentieth century as follows: “the development of modern techniques of reproduction promises that in the near future (especially since the invention of color photography and facsimile reproduction) new and perfect means of compensating for the loss of originals will be found. In this way, scholarly research, which remains a source of conflict for age value, can continue without interfering with the original (1982 [1903], 37-38).” Even though Riegl addressed physical copies, the same logic also applies to digital ones. These can be seen and analyzed through digital palimpsests composed of stratified historical layers, which are potentially juxtaposed, explored through AR or VR interfaces, or examined in detail beyond physical limitations.

Spanish non-profit organization Factum Foundation deploys state-of-the-art technology for preservation of cultural objects. In their approach, they “combine digital technologies, processes and outputs with physical outputs to ensure that our shared material culture is not lost to time and can be experienced by future generations (Factum Foundation 2025).” Furthermore, the organization developed “the multi-layered browser,” enabling the review of digitized objects while zooming into macro-level information at extremely high resolution. For these objects, the combination of laser scanning and photogrammetry processes ensures that they can be viewed with their texture and coloration. Therefore, any object’s surfaces of our environment can be scanned, stored, monitored, and cross-referenced (Young 2022, 47).

The digitized model can also be utilized as an expert tool for preservation by testing scenarios for how to treat an object in question, including cases where new requirements must be considered within existing fabric. Since the digital palimpsest serves as an archive of data, it has the potential to generate new data from the existing layers by deploying generative AI tools. This approach is predictive and already widely used in architecture in cases such as structural or climate optimization of a building. In preservation, a similar methodology can be applied because “AI is all about predictions. It recognizes patterns and predicts the future. And its success lies in the accuracy of its predictions (Leach 2022, 159).” Working with data, digital palimpsest can have even greater impact beyond a building itself. As Erica Avrami states “new technologies allow for the collection of precise spatial data, the recording of a wider range of resource types, the incorporation of digital photography, and the inclusion of historic contexts, all of which contribute to an analytical framework for using the data to inform planning goals and policies (2022).”

In addition to the *Riesentor* case, the Notre-Dame of Paris stands as a suitable example of 4D monument documentation. The building was reconstructed multiple times during its existence and was also an important restoration case for French architect Viollet-le-Duc. The building underwent various changes but maintained its historical appearance over centuries. In the twenty-first century, the building was digitally documented several times using laser scanning: before the fire, through Andrew Tallon’s laser scans, and again after the fire and during restoration. Therefore, its digital copies brought new possibilities for how to approach the building and its repair after the destruction. One of the architects responsible for rebuilding the cathedral claimed that Tallon’s digital reconstruction “enabled (them) to reconstruct the vaults without any hesitation from a dimensional or formal standpoint, and it also granted (them) total freedom to understand how [the cathedral] was made, to be able to rebuild it in a thoughtful, intellectual, and intelligent way (Cook 2023).”

The application of the digital palimpsest method not only advances preservation practices as seen in practice on Notre-Dame case but also suggests new interpretative possibilities within art historical discourse. Reflecting upon Riegl’s concept of unity of styles, the historical layers of a monument coexist without one dominating the others. This logic equally applies to the digital palimpsest, which offers a new representation of stylistic unity in the digital domain. This idea is particularly relevant to the *Riesentor*, where multiple styles coexist within a single structure. In practice, variety of experts are able to gain access to a digitized monument stored as a digital palimpsest and can analyze distinct stylistic layers documented over time. In this way, the digital palimpsest becomes an analytical tool for examining the evolution of an object’s historical styles throughout its complex history.

This process is valuable also for art historical research as it allows the examination of an artwork's formation without physically altering its structure. Fiona Cameron defined working with copies in her text "Beyond the Cult of the Replicant" responding to Walter Benjamin's work on reproduction and aura of an artwork. She states that "deciding what to digitize and render in 3D—and what not to—involves an active process of value and meaning making equivalent to that of the physical object. It enacts the curatorial process of selection of what is significant, what should be remembered and forgotten, and what categories of meaning such as classification, cultural values, or aesthetic attributes are given pre-eminence" (Cameron 2007, 57). Thus, once working with digital copies, monument's values and meanings are redefined by those in charge.

Conclusion

Unlike traditional preservation methods, which freeze a physical monument at a specific point in its history, digital preservation enables the *Riesentor* to be digitally documented, storing its history as digital data that always remains accessible. Furthermore, the notion of digitally archiving monuments in their various states challenges our modern understanding of linear time.

The palimpsest-like model of the *Riesentor* has various potential applications. The public can witness the changes that have occurred in the structure since its construction using various digital formats for visual representation. These allow for a new experience of various historical epochs, leave annotations, or even participate in the monuments' future. Individual layers that build the digital palimpsest offer a view of structural, material, and formal changes of the object in question. It also offers a possibility to simulate various preservation scenarios for the future within the digital environment before applying one to a physical object such as changes in geometry, materiality or other intervention on an object.

To conclude, this approach supports narrative continuity and can guide any upcoming interventions. The case study of *Riesentor* offers a transferable workflow for projects working with existing structures that prioritize the evolution of monuments over time.

Notes

1. The portal serves as the main entrance to the cathedral, built in the early thirteenth century in Romanesque style. It is located on the Western facade between two towers.
2. See details of the case in: Margaret Olin, "The Cult of Monuments as a State Religion in Late 19th Century Austria," *Wiener Jahrbuch Für Kunstgeschichte* 38 (1), 177-98, 1985.
3. Moritz Thausing expressed his stand in "Phylloxera Renovatrix" published in the newspaper "Neue Freie Presse" on the 25th of April 1882.
4. The Commission's original name was "k. k. Central-Commission zur Erforschung und Erhaltung der Baudenkmale." In its history, it has taken various forms and names, currently known as "Bundesdenkmalamt."
5. Alois Riegl's text appeared in "Neue Freie Presse" on 1st February 1902. The Secession's text against restoration was published as "Promemoria" in the Secession journal *Ver Sacrum*, Vienna 1902, pp. 49-56.
6. Riegl's article, introducing *Stimmungswert*, was never republished and appeared in English for the first

time only in 2020. See: Lucia Allais, Andrei Pop, Mood for Modernists: An Introduction to Three Riegl Translations (Grey Room, 2020).

7. The concept of digital palimpsest is derived in part from the following chapter: Beim, Nikola. "Digital Palimpsest: Transformation of Alois Riegl's Modern Cult of Monuments." In *Decoding Cultural Heritage: A Critical Dissection and Taxonomy of Human Creativity through Digital Tools*, edited by Fernando Moral-Andrés, Elena Merino-Gomez, and Pedro Reviriego, 265-291. Cham: Springer, 2024.

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