Geometry and Color: Decoding the Arts of Islam in the West from the Mid-19th to the Early 20th Century

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**Impressum**

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Abstract
In the second half of the nineteenth century, there was a growing interest in Western countries for Islamic stucco glass windows, which were known from descriptions in books and as imported artifacts. Among the oldest publications is Émile Prisse d’Avennes’ (1807-1879) *L’art arabe d’après les monuments du Kaire depuis le VIIe siècle jusqu’à la fin du XVIIIe*. One year after its publication in 1877, its illustrations inspired the geometrical patterns of the windows of the Moroccan House, a neo-Moorish pavilion in the park of Linderhof Palace (Ettal, Germany).

**Keywords:** stained glass; world exhibition; Émile Prisse d’Avennes; neo-Islamic; Cairo

Blue and red light pours over gilded stucco work, oriental textiles, and painted wood panels: nineteen windows and a large skylight adorn the so-called Moroccan House in the park of Linderhof Palace (fig. 1). The stained glass of the small lancet windows forms a star pattern of red, blue, and green glass, held together by a gilded metal grid. They were made in Munich and inspired by the Mamluk architecture of Cairo. The eclectic manner of their design and manufacture is exemplary and founded in the deep interest in the design vocabulary of the Islamic world at that time. In the course of the nineteenth century, this interest led to an increasingly precise study of Islamic art and architecture, the import of countless artifacts and even whole interiors, as well as to more or less authentic imitations of architectural elements. Although some aspects of this cultural appropriation, such as the neo-Islamic style rooms, the history of displaying Islamic artifacts, as well as the Moorish Revival, have been analyzed in several publications (Giese, Volait and Varela Braga; Volait, *Fous du Caire*; Giese, *Mudejarismo*), the importance given to Islamic stucco glass windows in historic times has not yet found its response in today’s academic research.
Figure 1: Interior of the Moroccan House, part of Linderhof Castle. Image courtesy of Bildarchiv Marburg, photographed by Rose Hajdu.
The discovery of Islamic stucco glass windows by Europeans

The oldest known textual descriptions of stucco glass windows—or qamarīyāt—are those from Egypt of the British orientalist Edward William Lane (1801-1876) and the French glass painter Étienne Thevenot (1797-1862). Lane had traveled to Egypt from 1825 to 1828, and in his book *Manners and Customs of the Modern Egyptians* (1836) he described in detail the windows with their colored glass and their flower motifs as well as their materiality: glass, plaster, and wood (Lane 19-20; vol. 1). In 1837, Thevenot quoted the French painter Prosper Marilhat (1811-1847), who had traveled to Egypt in 1831-1833 and described how he saw the making of:

> des panneaux de mosaique en verres colorés d'une manière fort neuve pour un Européen. L'ouvrier après avoir découpé les verres d'une rosace, par exemple, lie les différents morceaux entr'eux par du plâtre presque liquide, et contenu dans une espèce de sabot, d'où il découle par une petite ouverture. On promène rapidement ce sabot sur les interstices des verres, et par ce moyen souvent répété, on les enchâsse dans les ouvertures de la rose ; on la met ensuite en place d'une seule pièce, après avoir sculpté les reliefs des nervures en plâtre (Thevenot 462, note 6).

The manufacturing is outlined in detail and the glass painter Thevenot draws a comparison with the technique he knows: “Le plâtre fait ici à peu près l'office des plombs et des meneaux sans nombre des rosaces qui encadrent les vitraux en Occident” (Thevenot 462, note 6). Unlike European stained-glass windows, which use lead came to assemble the cut glass pieces, Islamic windows use stucco. Lane and Thevenot had very different audiences: while Lane wrote his book about Egypt in general, Thevenot wrote a history of stained glass, where his account on Islamic stucco glass windows is only a footnote. But this shows how the experiences and the knowledge gained directly in Egypt by travelers such as Marilhat was received in the European countries not only by orientalists.

Also in 1837, Pascal Coste (1787-1879) published his *Architecture arabe ou monuments du Kaire*. The French architect only made a short mention of qamarīyāt in his book, without going into detail, but one of his plates shows a façade of a Cairo house with eighteen stucco glass windows with their typical flower motifs (Coste pl. XLVII). Edward Lane had also written about Egypt and made many sketches, some showing Islamic windows. In the 1840s, both the British architect James William Wild (1814-1892) and the Bernese architect Theodor Zeerleder (1820-1868) followed this example and produced elaborate drawings and watercolors of Cairene interiors with qamarīyāt. Both architects used their studies for the making of replicas in their homelands.

Some years later, the first Islamic stucco glass windows were imported to Europe and displayed at the 1867 *Exposition Universelle* in Paris, incorporated into buildings in the Ottoman national section. Three buildings represented the empire: a mosque, a residence, and a bath. They were designed by the French architect Léon Parvillé (1830-1885) in collaboration with the Italian architect Giovanni Battista Barborini (1820-1891) and made in Istanbul. The residential building, named *Pavillon du Bosphore*, as well as the mosque, displayed several stained-glass windows (Çelik 103; [2](footnote2))

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2 “Colored glass mosaic panels in a very new way for a European. The worker, after having cut the glasses for a rosette, for example, binds the different pieces together with almost liquid plaster, and contained in a kind of shoe, from which it emerges through a small opening. This shoe is moved rapidly over the interstices of the glasses, and by this often-repeated means: they are embedded in the openings of the rose; it is then put in place as a single piece, after having sculpted the reliefs of the plaster ribs.” All translations are by the author of this article.

3 “The plaster here serves more or less as the lead came and the countless mullions of the rosettes which frame the stained-glass windows in the West.”


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Sarah Keller

*Following Prototypes*
Catalogue 8). Exactly how they looked is not known, however, the Ottoman official and exhibition organizer, Victor Marie de Launay (1822/1823-1890), described their technique in detail: "Ils ne sont pas, comme les anciens vitraux d’Europe, montés sur une armature de plomb, mais sur une plaque de plâtre coulé dans des bâts percés à jour" (Bey 32). If these windows from Istanbul were especially made for the exhibit or if existing windows were re-used is uncertain.

In 1858, the qamarīyāt of Istanbul, more precisely those of the Süleymaniye Mosque (AH 957-964 / AD 1550-1557), had received praising words in the journal Organ für christliche Kunst of the German painter Friedrich Baudri (1808-1874), quoting an account of the British architect William Burges (1827-1881): "Von der Wirkung der farbigen Fenster der Moscheen macht man sich schwerlich einen Begriff; hat man dieselben gesehen, so überzeugt man sich, dass die aus Edelsteinen geformten Fenster des Aladdin keine Fabel, nur eine Uebertreibung sind" (198).

The fragility of the stucco glass windows complicated the task of importing them from the Islamic lands to the Exposition Universelle. While the creators of the Pavillon du Bosphore were able to import such artifacts, the architects of the Egyptian section were less successful. As far as it is known, there were no stained-glass windows integrated in the Selamîît or in the Oâîît (caravanserais) (Çelik 112; Volait, "Égypte représentée" 430). But from a report of the French archaeologist Émile Prisse d’Avennes, member of the commission of the Egyptian section, we are informed about the intention to insert Islamic stucco glass windows there. The scholar, who had spent several years in Egypt, had been given the opportunity to buy in Paris three boxes with fragments of six qamarīyāt from a mosque in Cairo. These had been sent from Egypt to the 1867 Exposition Universelle in Paris but had not survived the transport and arrived there in pieces (Prisse d’Avennes 154; vol. 1). In one of the archaeologist’s portfolios from Cairo, a photo of these fragments can be found (fig. 2). Prisse d’Avennes managed to reconstruct two windows out of the fragments: several reconstruction drawings are preserved, which show the floral and geometrical motifs of the fragments in different compositions (fig. 3). In the end, the scholar published one reconstructed window (fig. 4) in his seminal 1877 publication L’art arabe d’après les monuments du Kaire depuis le VIIe siècle jusqu’à la fin du XVIIIe, the plates of which had previously appeared in 1869. In 1877, the finished work was published in association with the upcoming Exposition Universelle of 1878 in an augmented version of one text volume and three volumes of plates. The book seems to have attracted a lot of attention at the fair (Prisse d’Avennes (son) 53; Volait, "Émile Prisse d’Avennes" 107-108). Apart from the reconstructed qamarīya, a window from another Cairene mosque was published as well as two views with qamarīyāt of a private house (Prisse d’Avennes pl. CXLI, pl. CXXIX, pl. CXL; vol. 3).

5 "They are not, like the old stained-glass windows in Europe, mounted on a lead frame, but on a plasterboard cast in open-drilled frames." For a similar description see Coup d’œil 2-3. For the question of Victor Marie de Launay’s authorship see Ersoy 274, fn. 64.

6 "It is difficult to get an idea of the effect of the colored windows of the mosques; if one has seen them, one is convinced that the windows of Aladdin made of precious stones are not a fable, just an exaggeration."

7 According to the merchant M. Maynard, the windows were taken out of the Cairene mosque Al-Ashraf ("Gama El-Achrafieh" begun in AH 826 /1424 AD).

8 The qamarīya of plate CXLV had a direct impact on the Villa di Sammezzano (1853-1889), built by Ferdinando Panciatichi di Ximenes d’Aragona (1813-1897). Although Prisse d’Avennes declared the illustration to be a stained-glass window ("chemsah ou vitrail"), Panciatichi had it transferred onto the walls for a mural painting in the Sala dei Gigli. The Sala degli Amanti in the same building has a wooden ceiling which is also based on a plate by Prisse d’Avennes (Keller, "Les vitraux du fumoir arabe" 33; Varela Braga 176-179.)
Figure 2: Émile Prisse d’Avennes. Photograph of qamariya fragments from Cairo. Album Art Arabe. Dessins : Arabesques 5. Image courtesy of Bibliothèque nationale de France. gallica.bnf.fr.
Figure 4: Émile Prisse d’Avennes. Reconstructed qamariya. Taken from Prisse d’Avennes pl. CXLV. Image courtesy of the New York Public Library Digital Collections.
New colorful windows for the Moroccan house

At the same fair of 1878, the Moroccan House was exhibited as a contribution of Morocco on the Trocadero (Les Merveilles 374). The wooden pavilion partitioned into several smaller rooms was originally commissioned by the Austro-Hungarian consul, Maximilian Schmidl, in Tangier for the Vienna World’s Fair of 1873 (Weyer 8). Probably after a stopover at the World’s Fair of Philadelphia in 1876, it was shown in Paris. There, the neo-Moorish ‘Tangier house’ caught the attention of the German architect Georg von Dollmann (1830-1895). He was the court architect of the Bavarian King Ludwig II (r. 1864-1886) and had been sent to the Exposition Universelle to study and describe the different Orientalizing exhibition pavilions there. Already in 1874, Ludwig II had commissioned an Arabian Pavilion for the park of his palace Linderhof near Munich, built between 1870 and 1886 in neo-Rococo style (Petzet 220). This building was not executed, but two years later the so-called Moorish Kiosk was bought. This was also a former World’s Fair pavilion, made in 1867 by Carl von Diebitsch (1819-1869). The German architect had made his neo-Moorish Kiosk at his own expense and presented it in the Prussian section at the 1867 Exposition Universelle. Only nine years later, Ludwig II was able to purchase the building and had it, with some modifications, re-erected in the palace park (Fehle; Keller, “Maurischer Kiosk” 189-191).

But the king’s desire for Orientalizing pavilions was not yet satisfied. At the 1878 Paris Exposition Universelle, he wanted to acquire the most beautiful building and on the basis of von Dollmann’s description he chose the Moroccan House (Weyer 8). With its Ibero-Islamic elements such as muqarnas (stalactite vaults), sebka-like ornaments (interlacing arches) and the wooden ceilings with star motifs, the pavilion was built in the Alhambra style (fig. 1).

After its purchase, Ludwig II had it placed on the woodland Stockalpe near the Linderhof, where its façade received the conspicuous banding in red and white as well as the blind horseshoe arches. The interior had been repainted, gilded, and newly furnished. The colorless glazing of the window openings was replaced with stained glass panels. In addition to the repainting of the walls, it was the king’s wish to insert colorful windows: “bei allen Fenstern sollen die unteren vergitterten Scheiben farbig gemacht werden.”

So far, the building had nothing to do with Prisse d’Avennes and his aforementioned publication L’art arabe, but when von Dollmann had to design new, colored windows for the Moroccan House, he found his inspiration in this book. In the documents of the court secretary of Ludwig II, two loose sheets with illustrations of window grilles are preserved (fig. 5): They are tracings of plates from L’art arabe (fig. 6).^{10}

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^{9} “[T]he lower latticed panes of all windows are to be made in color” Bayerisches Hauptstaatsarchiv, Geheimes Hausarchiv, Nachlass Ludwig II. Bauakt 1869-1981, no. 108/2.1; see Kriewitz 20.

^{10} Bayerisches Hauptstaatsarchiv, Geheimes Hausarchiv, Nachlass Ludwig II, Hofsekretariat 1884; Prisse d’Avennes pl. XLV (bottom right), pl. XLVI (top left) and text 264; vol. 1.
Figure 5: Trace copy from Prisse d’Avennes’ plate XLVI. 1884. Geheimes Hausarchiv, Hofsekretariat, München. Image courtesy of Bayerisches Hauptstaatsarchiv.
Figure 6: Émile Prisse d’Avennes. Window grilles from the mosque of al-Amir Qawsun. Cairo (AH 730 / 1329/1330 AD). Taken from Prisse d’Avennes pl. XLVI. Image courtesy of the New York Public Library Digital Collections.
The copying process is reflected in the perforation of the sheets as well as in auxiliary lines in ink and pencil. The stone window grilles depicted belong to the mausoleum of Hasan Sadaqah (AH 715-721 / AD 1315-1321) and the mosque of al-Amir Qawsun (AH 730 / AD 1329/1330), both dating to the Mamluk period and with the latter being mostly destroyed today. Prisse d’Avennes published a second illustration of the cupola of the mausoleum, which shows the window grilles in their architectural context (pl. XLV). They do not include glass but are unpainted openwork. The nineteen newly manufactured windows for the Moroccan House are exact copies of these illustrations (fig. 7), and its large skylight is based on the same patterns. For the windows’ colors, von Dollmann drew on the stained glass of the Moorish Kiosk, made one year before in 1877. When the Moorish Kiosk arrived at Linderhof, it had been extended with a new niche, repainted, and also refurnished with new stained-glass windows (Keller, “Maurischer Kiosk” 189-191). Apart from the designs for the windows that were executed, six further preliminary studies are preserved, which document the design process for the stained glass. Von Dollmann elaborated different color concepts, as one of these studies shows (fig. 8). In all likelihood, the court architect would have presented his designs to his commissioner, King Ludwig II, and let him choose.
Figure 8: Georg von Dollmann. Preliminary study for the windows of the Moorish Kiosk, 1876, watercolor, pen and ink, 59.3 × 37.5 cm, Ludwig II.-Archiv, inv. no. 2165s. Image courtesy of Bayerische Schlösserverwaltung.
The same glass painter who had executed the windows of the Moorish Kiosk was assigned to create the stained-glass panels of the Moroccan House: the Munich glass painter Franz Jäger (1842-after 1895; Staschull 55). He used the tracings of the window grilles after Prisse d’Avennes’ plates mentioned above as a template. His colorful glazings were made at a time, when, due to a reappraisal of the Middle Ages, the art of stained glass in Europe was being rediscovered. After it had gone out of fashion in the eighteenth century, it was Ludwig’s II grandfather, the Bavarian King Ludwig I (1786-1868), who had made the first commission for monumental church windows in 1827, founding the very influential Königliche Glasmalereianstalt in Munich which inspired much neo-Gothic enthusiasm. By the 1870s, when the windows of the Paris exhibition pavilions were made, the movement was flourishing: the new stained-glass workshops in Germany, especially in Munich, were almost uncountable (Vaassen 19, 23). It was therefore only natural that Ludwig did not try to import fragile original windows from Morocco or Egypt, as it was attempted for the World’s Fairs, but made use of the local, prosperous production. In this way the king could even more directly implement his wishes and ideas.

Still, Georg von Dollmann did not simply apply the already existing pattern of the stained-glass windows of the Moorish Kiosk but sought a new Islamic model: not Prisse d’Avennes’ colorful plates of Islamic stucco glass windows but the glassless window grilles were chosen as models. The original materiality did not matter, important was the adequate form. On the basis of the window grilles, Franz Jäger produced purely geometrical stained-glass windows, in which the plain colored glass pieces play the decisive role. The artist chose a technique for these glazings, which was unusual for its time. Instead of setting the glass pieces into slim lead cames, Jäger clamped the colored-glass pieces between two gilded openwork sheets already cut into the desired patterns, and then fixed them with small screws (Pohle and Thom 7). In contrast to the lead technique, the resulting window grilles were wider and their outlines even more pronounced due to the gilding. Their overall appearance therefore resembled more that of the window grilles.

Stained glass windows were an essential feature of many neo-Islamic buildings. They were constitutive for the ambiance of the interiors and therefore received equal attention from both nineteenth-century architects and designers. While towards the end of the century dozens of qamarîyāt were imported to Europe and also integrated into neo-Islamic style rooms, many architects opted for the creation of new stained-glass windows, especially when they were more oriented towards Ibero-Islamic architecture with the Alhambra as the main model. Although they were never entirely true copies, neither were the windows random designs, but carefully developed reinterpretations of Islamic architecture, as imparted by contemporary publications. In this same way, the architect Georg von Dollmann, the glass painter Franz Jäger and King Ludwig II created together neo-Islamic windows, in which the sophisticated geometrical patterns of Mamluk architecture are illuminated with striking colors.

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**Biography**

**Sarah Keller** is a senior researcher at Vitrocentre Romont, Switzerland, where she deals with Swiss stained glass of the Renaissance and Baroque periods. As a specialist for the glazing, she was collaborating with the research project “Mudéjarismo and Moorish Revival in Europe” from 2014 to 2019. Since 2020 she is a project partner in the Swiss National Science Foundation (SNSF)-project “Luminosity of the East. Materiality, Provenance and Reception of Islamic Coloured Glass Windows in the West”. She holds a PhD in Art History from the University of Bern. Her dissertation thesis analyzed the transfer of Islamic elements to Romanesque architecture in Northern Spain.