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## **Geometry and Color. Decoding the Arts of Islam in the West from the Mid-19<sup>th</sup> to the Early 20<sup>th</sup> Century**

**edited by Sandra Gianfreda, Francine Giese,  
Axel Langer and Ariane Varela Braga**

# Impressum

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## Color and Geometry in the Alhambra and What Got Lost in the Alhambresque

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### Abstract

The dissemination of Owen Jones' studies of the Alhambra and his color theory has been increasingly well understood as a cornerstone of the later Alhambresque style. And yet, curiously, Jones offers at once an accurate appreciation of the Alhambra and a basis for a striking divergence from Nasrid design in Alhambresque interiors. This article examines that discrepancy. It begins with a review of the aesthetics of the Alhambra in view of the eleventh-century optics of Ibn al-Haytham, supported by conservation work that has confirmed Jones' vibrant colors. The aesthetic key to the Alhambra is not color alone, however, but a principle of visual harmony integrating color and geometry. The Nasrid builders applied color in conjunction with principles of proportionate geometric relationships and measurable visual properties—height, distance, size, depth—in the architectural and decorative design. They also manipulated color through their consideration of the materiality of the polychromed surfaces, whose reflective and refractive potentials allowed for differing optical effects. By balancing attention between color, as transmitted through the innovative technique of chromolithography, and the drawings of plans and elevations, this article strengthens the understanding of Jones' grasp of the visual harmony of the Alhambra. Second, it demonstrates the ways in which Jones' plates of various ornament were often privileged over, or simply divorced from, his architectural drawings in Alhambresque interiors: e.g., the *Salón árabe* (1847-1851) in the Royal Palace of Aranjuez (Spain), the *Salotto Turco* in the Villa Mimbelli (1865-1870) in Livorno (Italy), and the Moorish Bath (1850-1854) at Schloss Albrechtsberg in Dresden (Germany). In conclusion, this article proposes that, in contrast to the Alhambra, a loss of visual harmony is a significant characteristic of the Alhambresque, or, otherwise stated, that the Alhambresque interiors feature a disproportionate emphasis on color, consistent with the ideological burden of Orientalism.

**Keywords:** Alhambresque; *Salón árabe* (Aranjuez); color; Owen Jones; Rafael Contreras Muñoz

### Design principles in the Alhambra and Owen Jones' studies

It has long been recognized that the pivot between the Alhambra and the Alhambresque with regard to architectural forms and, even more so, color, was the work of Owen Jones (1809-1874) in his architectural projects and publications. The present study starts by looking back to the aesthetic principles embodied in the Alhambra, and then examines the distance in the nineteenth century between Jones' cogent understanding and the subsequent adaptations of the Alhambresque. The *Salón árabe* (Arab Room) in the Royal Palace at Aranjuez offers a case study of the path from

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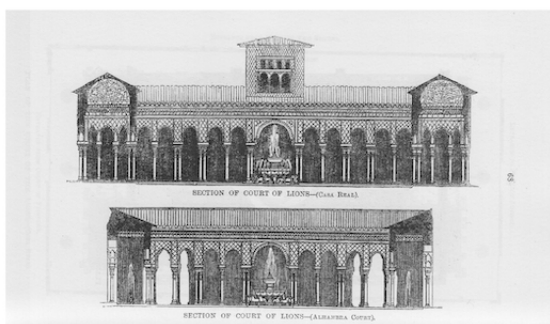
<sup>1</sup> **Olga Bush**, Visiting Scholar, Vassar College, Poughkeepsie, New York.  
Email: [olbush@vassar.edu](mailto:olbush@vassar.edu)

derivation to deviation in a design, which although initiated by Rafael Contreras Muñoz (1824-1890), restorer-decorator of the Alhambra, was overtaken by other forces. This case enables the analysis of the interrelationship between color and geometry, which I take to be the crux of the use of color in medieval Islamic architecture, a principle that was mismanaged at Aranjuez.

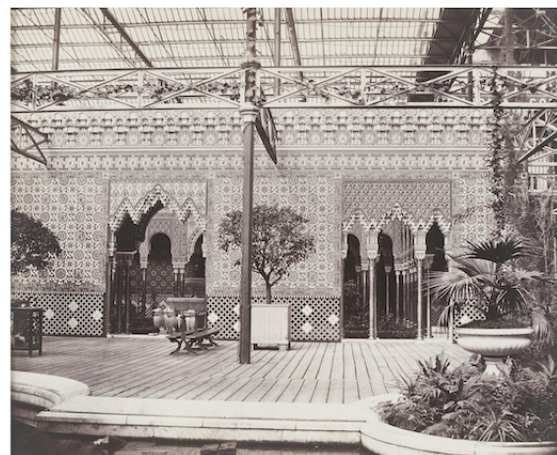
Although the Alhambra was built over the course of three centuries, the Nasrid palatial city is remarkably unified, architecturally and aesthetically. The nineteenth-century Orientalist imaginary singled out the Court of the Lions and its adjacent two precincts, the Hall of Two Sisters and the Hall of the Abencerrajes, with their soaring *muqarnas* vaults, as the paradigm for Alhambresque courtyards and interiors. Jones was the main resource for those projects, both as a theorist and a practitioner. His text, *Plans, Elevations, Sections and Details of the Alhambra*, was first available in installments in 1836, and then as a two-volume edition, illustrated with Jones' pioneering chromolithographic plates, between 1842 and 1845 (Goury and Jones). Jones put his studies of Nasrid architectural design and his articulation of its corresponding color theory to the test in his construction of the Alhambra Court in the Crystal Palace at Sydenham in London in 1854 (Varela Braga, "How to Visit" 71-83; Ferry; Frankel). Together with his publications, this project supplemented or substituted for on-site study of the Alhambra for architects and the general public, newly interested in so-called "Oriental art". Jones' painstaking, scientific approach to measurement, his skills as a draughtsman, his invention of chromolithography, and his talent for commercial diffusion were all factors in his wide-spread influence (fig. 1a-c).



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b



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Figure 1a: *Court of the Lions, Alhambra*. Image courtesy of Olga Bush, photographed by Olga Bush; 1b: *The Alhambra Court, Crystal Palace, Sydenham, London*. 1854. Taken from Jones, *The Alhambra Court*; 1c: *The Alhambra Court, Crystal Palace, Sydenham, London*. 1859. Image courtesy of the Victoria and Albert Museum, London.

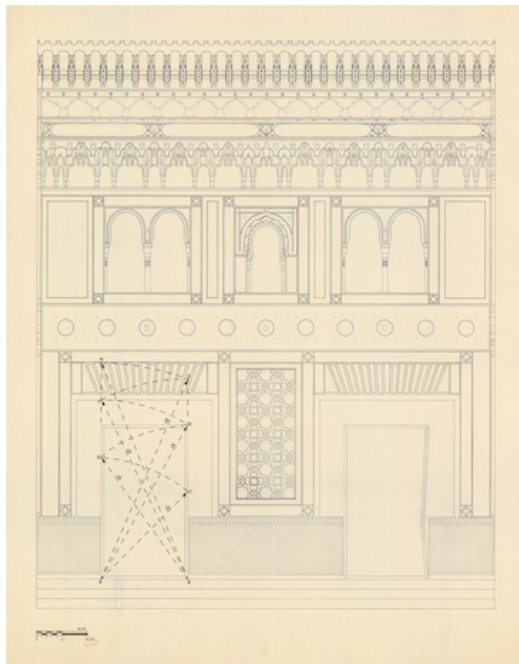
Jones' careful study of Nasrid design and his understanding that it was based on geometric principles was crucial. Plane crystallographic group theory was made possible only with the aid of X-rays in the 1990s; and yet mathematicians who have undertaken the analysis of geometric design in the Alhambra have found that the Nasrids had discovered and employed all of the seventeen possible two-dimensional symmetry groups in their tile mosaics (Makovicky and Fenoll Hach-Ali; Pérez Gómez et al.; López Rodríguez et al.; fig. 2a-b).



Figure 2a and 2b: *Dadoes of ceramic tile mosaics, Hall of Comares, Palace of Comares, Alhambra*. Images courtesy of Olga Bush, photographed by Olga Bush.

The use of a single geometric ratio, the square-root of 2, as the basis for all calculations enabled Nasrid designers to endow all elements of a building's elevation and plan, as well as the decoration of its interiors, with a unity that encompassed the splendid variety of decorative bands and the different motifs within them (Fernández-Puertas 19-79; Bush, *Reframing the Alhambra* 166-201; fig. 3a-b).

Jones recognized that the overwhelming impression of decorative abundance in the Alhambra was the result of such scientific principles, becoming the first European architect to accurately analyze the construction of *muqarnas* arches and vaults and to produce geometric drawings of individual *muqarnas* elements and of complete compositions (Gámiz Gordo and Ferrer Pérez-Blanco 57-87). He published his findings in *Plans, Elevations* and in his 1854 guidebook to the Alhambra Court at the Crystal Palace (Jones, *The Alhambra Court* 61-62; fig. 4a-c).

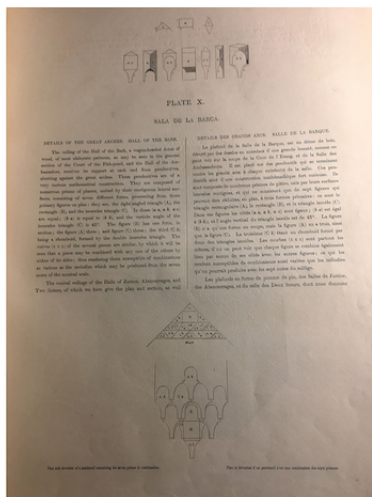


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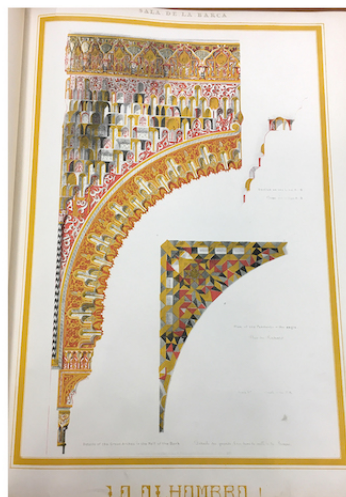


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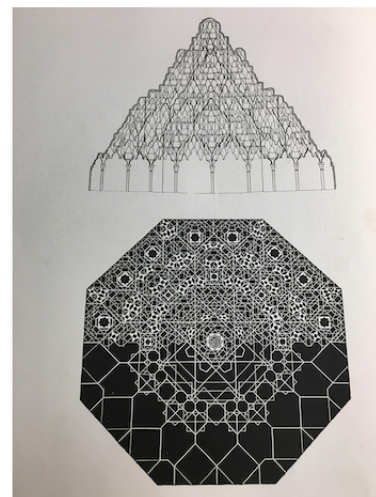
Figure 3a: *Façade of Comares, Palace of Comares, Alhambra* (after a drawing by M. López Reche, added construction of geometric measurements by Olga Bush); 3b: *Façade of Comares, Palace of Comares, Alhambra*. Image courtesy of Olga Bush, photographed by Olga Bush.



a



b



c

Figure 4: *Muqarnas* elements and constructions, 4a: *Muqarnas elements*. 1842-1845. Taken from Goury and Jones text to pl. X, vol. 1; 4b: *The muqarnas arch of the Sala de la Barca* 1842-1845. Taken from Goury and Jones pl. XII, vol. 1; 4c: *The muqarnas dome of the Sala de las Dos Hermanas* 1842-1845. Taken from Goury and Jones pl. X, vol. 1.

Jones also understood that the interrelationship between geometry and color was the key to Nasrid design. In the lesser-known guidebook of 1854, he comments that the ornaments “always fit the places they occupy; the pattern never is interrupted or broken by any other than a natural division” (*The Alhambra Court* 33). Taking “fit” literally as a spatial term, the observation suggests geometric proportionality. But that “fitness” here has a broader meaning in the aesthetics of the Alhambra, whose traditional term in Western aesthetics is “harmony”, and whose spokesperson in medieval Islamic art is the eleventh-century experimental scientist Ibn al-Haytham (ca. 965-1040). In his groundbreaking treatise, the “Book of Optics”,<sup>2</sup> he underlined the role of light and color as the foundations of perception and distinguished between the perception of individual properties—such as shape, size, distance, and position—and paired properties, like separation and continuity, smoothness and roughness, and motion and rest (Ibn al-Haytham 126-206; bk. I). Many of those properties, both individual and paired, are measurable quantities, and therefore relate to proportionality. Of special pertinence to Jones’ sense of “fitness”, however, Ibn al-Haytham argued that aesthetic judgment also depended upon the more elusive principle of harmony. Thus, he stated that beauty’s “completion and perfection is due only to the proportionality and harmony that may obtain between the particular properties” (Ibn al-Haytham 205; bok. I).

Jones is vaguer, but no less apt in capturing the fundamental role of harmony in Nasrid aesthetics when he emphasizes that colors were chosen for the surfaces in the Alhambra with an eye to what would “...add most to the general effect”. (Jones, *Decorative Ornament* 165). He is more concrete in relating proportionality to harmony and geometry to color, however, when he remarks, “every transition of form is accompanied by a modification of colour, so disposed as to assist in producing distinctness of expression”, and “in more visibly bringing out the form” (165). Here, he echoes Ibn al-Haytham’s analysis of continuity and separation made perceptible by the use of color. Jones illustrates the point when he explains the distribution of primary colors in the parietal decoration in the Alhambra: “On moulded surfaces they placed red, the strongest colour of the three, in the depths, where it might be softened by shadow, never on the surface; blue in the shade, and gold on all surfaces exposed to light: for it is evident that by this arrangement alone could their true value be obtained” (Jones, *Decorative Ornament* 167; his emphasis). Contemporary work in conservation corroborates that analysis of highly textured surfaces carved at varying depths and painted (Fernández-Puertas 92).

As I have discussed elsewhere, the *muqarnas* vaults of the Hall of the Two Sisters and of the Hall of the Abencerrajes present astonishing examples of harmony. Illuminated by the windows in the drums, the visual impact of the vaults’ vibrant polychromy—the remains of which are visible to this day—would have been heightened by the way in which the complex proportionality of the geometric design was qualified by the application of color to vary the perception of the visible properties enumerated by Ibn al-Haytham: the distance between the observer’s eyes and the vaults’ receding depth; the highly textured surfaces of the *muqarnas* elements (that is, smoothness and roughness); and the continuity and discontinuity in the *muqarnas*’ volumes and shapes. In accordance with Jones’ propositions, it is demonstrable that a change in color in two identical designs in the dadoes of ceramic tile mosaics leads the eye to perceive them as two distinct compositions, as can be seen, for instance, in the Alhambra’s Court of the Myrtles (Bush, *Reframing the Alhambra* 40-48; fig. 5).

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<sup>2</sup> For a sustained study of Ibn al-Haytham’s optics in the context of design in the Alhambra, and especially on the interrelationship between geometry and color, see Bush, *Reframing the Alhambra* 17-71. On extending this analysis to the work of Op artist François Morellet (1926-2016), see Bush, “Designs” 53-75; Ibn al-Haytham; Smith 184-231.



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Figure 5a: *Muqarnas vault, Hall of the Abencerrajes, Palace of the Lions, Alhambra*; 5b and 5c: *Dadoes of ceramic tile mosaics, west and north walls, north-west niche, Court of Myrtles, Palace of Comares, Alhambra*. All images courtesy of Olga Bush, photographed by Olga Bush.

### Rafael Contreras Muñoz and his dissemination of the Alhambresque style

There is no doubt that Jones had a direct impact on Rafael Contreras Muñoz. Young Rafael was apprenticed to his father, José Contreras Osorio (1794-1874), who was in charge of work in the Alhambra at the time of Jones' on-site studies. Thus, while Rafael Contreras' restoration of the Sala de las Camas in the baths of the Palace of Comares has proven greatly controversial with respect to its vibrant polychromy (Rubio Domene, "La Sala" 152-171; Rubio Domene, *Yeserías de la Alhambra* 83-93; Barrios Rozúa, "Antes de Viollet-le-Duc" 231-275), careful examination shows that he was familiar with Jones' publications. It is likely that Contreras was acquainted with Jones' *Plans, Elevations* through his connections with two renowned Spanish historians and Arabists: Pasqual de Gayangos y Arce (1809-1897), who wrote the history of the Nasrids and translated the Alhambra's epigraphy for the *Plans, Elevations*; and Gayangos' student and later son-in-law, Juan Facundo Riaño y Montero (1829-1901), a professor of Arabic at the University of Madrid and a member of the Real Academia de la Historia. Riaño helped Contreras to promote his plaster models in Europe between 1850 and 1883, including the acquisition by the South Kensington Museum in London of fifty-eight examples made in Contreras' workshop (Rosser-Owen 118-119). It is also possible that Contreras consulted a copy of the *Plans, Elevations* owned by Salvador Amador (1813-1849), who subscribed to the publication, and who held the post of the architect-director of the Alhambra from 1847 until 1849 (Panadero Peropadre, "Madrid frente a Granada" 88, fn. 38).



Contreras' numerous small-scale, brightly painted plaster models of partial elevations of Nasrid interiors made in casting molds in his workshop, closely followed Jones' chromolithographs and color theory and were exhibited and collected in Europe (Giese and Varela Braga, "The Alhambra *en miniature*" 97-112; González Pérez, "Reconstructing the Alhambra" 29-49; "Rafael Contreras" 165-178). His three-dimensional model of the Hall of Two Sisters, executed between 1842 and 1846, brought him especial success and notoriety. In 1847, he presented the model to Isabel II of Spain (r. 1833-1868), who purchased it for display at the Prado,<sup>3</sup> appointed him as "restaurador-adornista" (restorer-decorator) of the Alhambra,<sup>4</sup> and commissioned the *Salón árabe* for the Royal Palace in Madrid. When the project was realized, not in Madrid but at the royal palace in Aranjuez, it became the first and only nineteenth-century royal commission of an Alhambresque interior in Spain.

Isabel II was not simply importing the exotic from afar, as her European counterparts did. In the context of mid-nineteenth-century European nation-building, this commission reflected the ongoing debate on the creation of a *national* architectural style that would signal Spain's distinctiveness and originality vis-à-vis its European neighbors. I have discussed the history of architectural debate over national style in Spain in another study (Bush, "The 'Orient' Express"); here, I wish to emphasize that Rafael Contreras played a major role in the debate, both as the designer of Alhambresque interiors in the residencies of the Spanish nobility in Madrid (Panadero Peropadre, *Los estilos medievales* 867-923; "Recuerdos de la Alhambra" 33-40; Serrano Espinosa 2014; Ordieres Díez, 179-201) and in exporting neo-Moorish design through the exhibition of his prize-winning plaster models (Panadero Peropadre, "Recuerdos de la Alhambra" 37). In this study, I will limit myself to the particular case of the *Salón árabe* at Aranjuez, concentrating on aesthetic rather than political aspects.

A plaster model of a complete elevation of the Hall of Two Sisters made in Contreras' workshop and signed by Tomás Pérez reproduces accurately the *muqarnas* vault of that room. The model, measuring 4.38 m x 2.08 m x 1.35 m, has been dated between 1850 and 1855, but Contreras' mastery of the *muqarnas* construction is attested by the *muqarnas* vault in the *Salón árabe* at Aranjuez completed in 1851. It should be noted that although Jones included his drawings of the geometric construction of a *muqarnas* vault in *Plans, Elevations*, he did not build one until three years later, in 1854, in the Hall of the Abencerrajes in the Crystal Palace in London (fig. 6).

Given the importance ascribed to *muqarnas* in European Orientalism, this pioneering work bears emphasis. I note, for example, that although Karl Ludwig Wilhelm Zanth (1796-1857) was familiar with Jones' publications, he did not attempt to build a *muqarnas* vault in the main hall of the Moorish Villa of the Wilhelma (Stuttgart-Bad Cannstatt), erected between 1842 and 1846 (Koppelkamm, 64-75; Giese, "An Inclination" 225-229; "Maurische Architekturzitate" 49-55). Carl von Diebitsch (1819-1869) made several drawings of a segment of the *muqarnas* vault of the Hall of Two Sisters on site in the late 1840s (Giese and Varela Braga, "Architecture, Ornament" 37, figs. A2-5 and A2-6), but it was not until after Jones' successful construction and Contreras' accurate models that he proposed his own way of reproducing them, building two small *muqarnas* ceilings in the Moorish Bath at Schloss Albrechtsberg in Dresden (1850-1854) (Heller, "Die Alhambra-Rezeption" 245-255, esp. 249; "Carl von Diebitschs Debüt" 153-162). It was more than a decade later that von Diebitsch executed a *muqarnas* vault for the Moorish Kiosk built for the Paris Universal Exhibition of 1867.<sup>5</sup>

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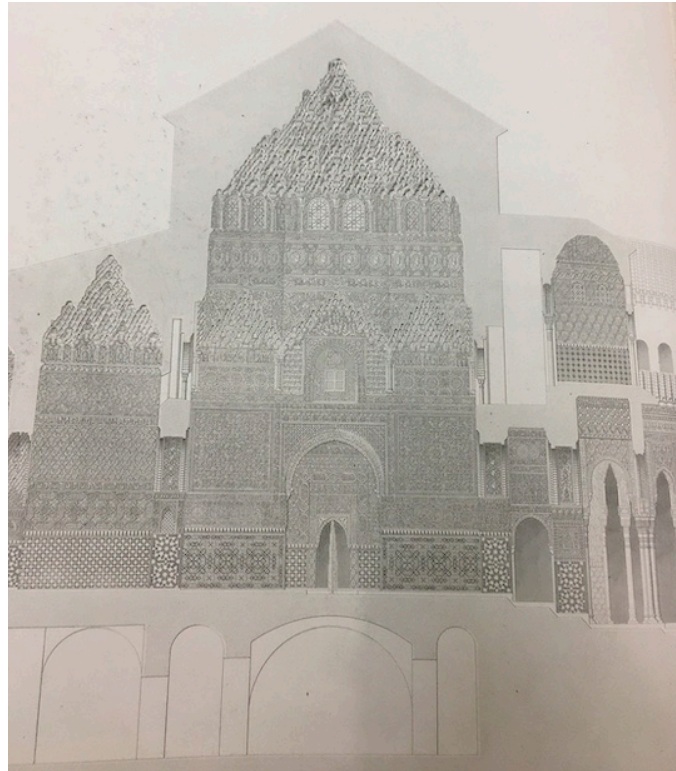
<sup>3</sup> The model is preserved in the collection of the Museo Arqueológico Nacional, Madrid, (Inv. O2758).

<sup>4</sup> Contreras held this position until his death in 1890. On the opposition to the appointment of Contreras on the part of Narciso Pascual y Colomer, the royal architect, see Barrios Rozúa, "Una polémica" 46.

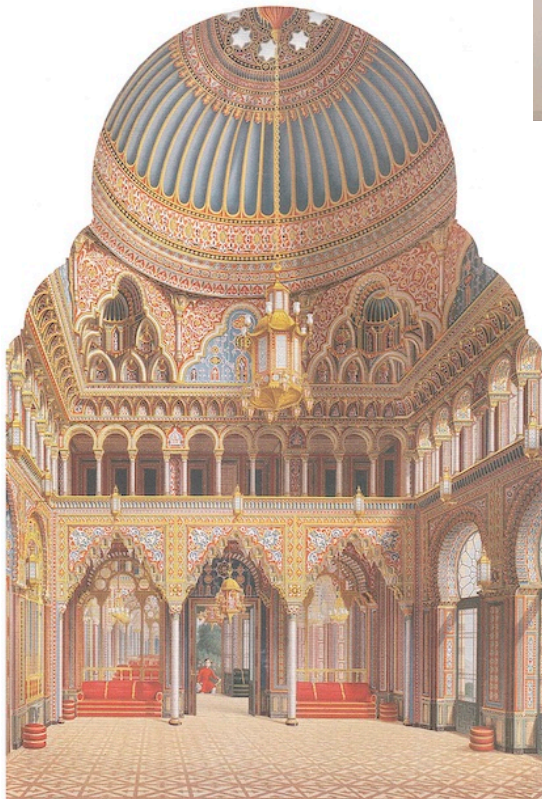
<sup>5</sup> I note that this vault rests on a drum with windows, and its transition zone is reminiscent of that of Zanth's design for a glass cupola in the Fountain Courtyard at Villa of the Wilhelma. The Moorish Kiosk was purchased by Ludwig II of Bavaria in 1876 for his Linderhof Palace, where it still stands. See Pflugrad-Abdel Aziz 73-77; Keller 185-195.



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Figure 6a: *Hall of Two Sisters*. Ca. 1850-1855, plaster cast (partial view). Image courtesy of Museo de la Alhambra, inv. no. 6601;

Figure 6b: *Hall of Two Sisters*, section of the elevation (detail). 1842-1845. Taken from Goury and Jones pl. XV; vol. 1;

Figure 6c: *Main Hall, Villa of the Wilhelma, Stuttgart-Bad Cannstatt*. 1842-1846. Taken from Ludwig von Zanth. *Die Wilhelma, Maurische Villa Seiner Majestät des Königes Wilhelm von Württemberg*. 1855.

In that comparative context, the *Salón árabe* at Aranjuez, much praised in Madrid periodicals when it opened in 1851 (Panadero Peropadre, "Recuerdos de la Alhambra" 36-37), calls for closer study. In addition to his successful construction of *muqarnas*, Contreras had demonstrated his understanding of proportion in his plaster model of the Hall of Two Sisters, executed with meticulous accuracy on a scale 1:9 and, moreover, painted in keeping with the vibrant colors of Jones' chromolithographs.<sup>6</sup> But he was faced with an important constraint at Aranjuez (fig. 7).

The *Salón árabe* was to be built in an existing room within the palace, whose plan was significantly smaller than the Hall of Two Sisters (6.60 m x 6.60 m vs. 8.45 m x 8.45 m, respectively), and its elevation even more so (10.4 m at Aranjuez vs. 16 m in the Alhambra).<sup>7</sup>

### Building a Muqarnas vault: challenges and solutions

Confronting a similar problem in his Hall of the Abencerrajes for the Crystal Palace in London, Jones explained that his "reproduction" of the room in the Alhambra was the "full size of the original on plan, but diminished in height by omitting a band marked A on the diagram." (Jones, *The Alhambra Court* 34). By reducing the height of the walls, he preserved the height of the transition zone, the cupola's drum and the cupola itself, rendering a syntactically coherent elevation that closely follows its model in the proportional relations of its parts (fig. 8).

Contreras' elevation drawings, if he made any, have not been preserved,<sup>8</sup> but his plaster models of the Hall of Two Sisters show an elevation that speaks to his profound knowledge. The extant *Salón árabe*, however, is the result of other interventions, further complicated by professional jealousy. The project was begun under the supervision of Narciso Pascual y Colomer (1808-1870), chief architect of the Royal Sites (Panadero Peropadre, "Recuerdos de la Alhambra" 34). Colomer not only questioned Contreras' qualifications, but also accused him of profiteering by planning for carved stucco panels instead of casts, as well as the use of mineral pigments and gold leaf for painting (Panadero Peropadre, "Recuerdos de la Alhambra" 35; Serrano Espinosa, *Arquitectura y Restauración* 303-306; vol. IA). The cost-cutting also led to the replacement of the mosaic dadoes of ceramic tile in Contreras' plan with painted geometric designs.

In 1849, the supervision of the project passed from Colomer to Domingo Gómez de la Fuente (1809-1856), an architect, whose objective was to expedite the project's completion. He dismissed Contreras' accurately scaled models and casts as "curiosity objects" without any artistic merit (Panadero Peropadre, "Madrid frente a Granada" 103-104). It was most likely under de la Fuente's direction that the upper elevation of the walls was eliminated and the transition zone, articulated by the large, tri-lobed *muqarnas* squinches that brace the corners of the room, was placed directly above the painted dadoes.<sup>9</sup> The reduced elevation at Aranjuez required a cupola of shallow, circular shape, altogether different from the tall conical form of its model in the Alhambra.

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<sup>6</sup> Scholars continue to debate whether Contreras' plaster models replicated original Nasrid decoration or that of the later alterations in the Alhambra, including his own. Among them, see Kondratenko and Saviona 325; Serrano Espinosa, "La familia Contreras" 91-109.

<sup>7</sup> I wish to thank Irene Doménech Coullaut, the Head of the Área de Planificación, Dirección de Inmuebles y Medio Natural, Patrimonio Nacional, Madrid, Spain and her technical team for providing me with the room's dimensions and plan, and for producing, upon my request, a digital image in color of the section of the interior's elevation, seen here as figure 8b.

<sup>8</sup> In a private communication, Irene Doménech Coullaut confirmed that drawings for this project have not been preserved in the Archivo del Departamento de Arquitectura y Jardines, Archivo General del Palacio, Madrid.

<sup>9</sup> Panadero Peropadre suggests that Gómez de la Fuente's solution speaks of his limited knowledge of Nasrid architecture ("Recuerdos de la Alhambra" 36 and fn. 18; see also Serrano Espinosa, *Arquitectura y Restauración* 302-312; vol. IA).



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b



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d

Figure 7a and 7b: *Hall of Two Sisters*, muqarnas vault and interior; *Palace of the Lions*, Alhambra. Images courtesy of Olga Bush, photographed by Olga Bush; 7c and 7d: *Salón árabe*, Aranjuez, muqarnas vault and interior. 1848-1851. Images courtesy of Patrimonio Nacional, Palacio Real de Aranjuez, RAP122P.

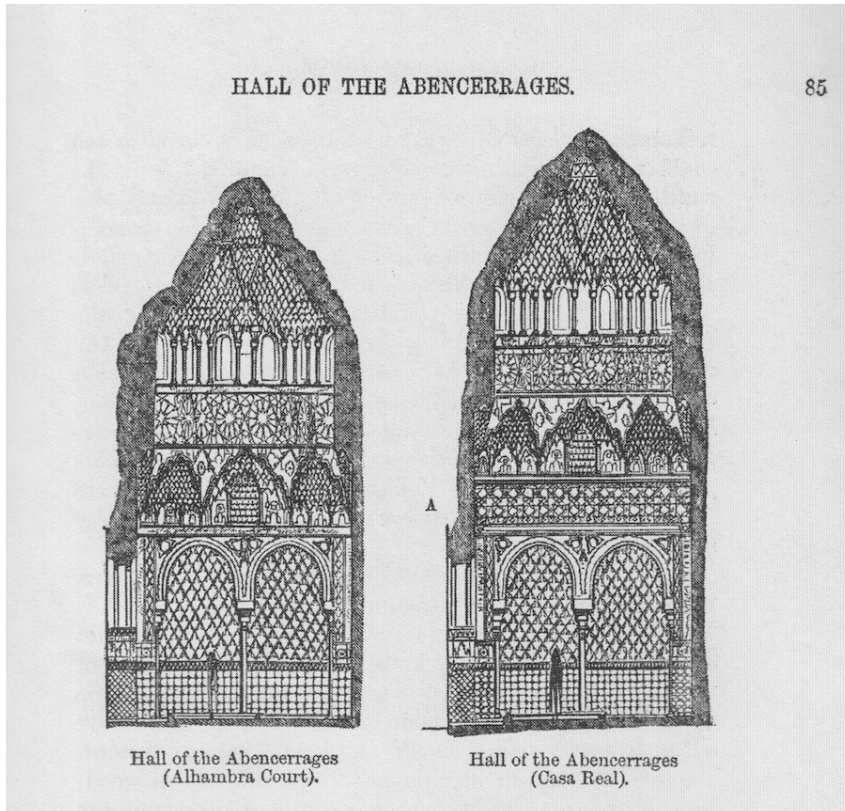


Figure 8a: Comparison of the elevations of the Hall of the Abencerrages in the Alhambra Court, Crystal Palace and in the Palace of the Lions, Alhambra. 1854. Taken from Jones, The Alhambra Court.



Figure 8b: Salón árabe, Aranjuez, elevation section. Image courtesy of Archivo del Departamento de Arquitectura y Jardines, AGP, Patrimonio Nacional.

Yet, still aiming for the visual impact of the soaring dome of the Hall of Two Sisters, the height of the drum was significantly expanded with two bands decorated with medallions and the area between them filled with row upon row of *muqarnas* in the drum's upper register. This design allows for the articulation of a sixteen-sided polygon, upon which rests the *muqarnas*-filled cupola.

Even if the *muqarnas* cupola reflects Contreras' original design, other elements of the elevation—the reduced height of the walls, the transition zone of enormous *muqarnas* squinches disproportionate to the other architectural elements, and a cornice above it to delineate the cupola's octagonal drum—reveal de la Fuente's incomprehension of the Nasrid compositional syntax in the Alhambra. The resulting visual effect is one of utter *disharmony*, exacerbated by the use of poorer decorative materials and synthetic pigments, further changes that took place under de la Fuente's direction (Serrano Espinosa, *Arquitectura y Restauración* 316; vol. IA). Then in 1851, literally adding insult to injury, when the finished *Salón árabe* was presented to the public, Gómez de la Fuente criticized it harshly, laying the blame on Contreras.<sup>10</sup> Colomer and Gómez de la Fuente's mistreatment of their colleague is, perhaps, only a footnote to architectural history, but their misunderstanding of Nasrid geometric proportionality and its relationship to color, grasped so well by Jones and Contreras, is an important, even paradigmatic instance of the skewing of the aesthetic principles of the Alhambra in the production of the Alhambresque.

### Scale matters: from the Alhambra to the Alhambresque

A remark by Jones concerning the scale of original motifs and their adaptation provides a key to the broader applicability of this analysis of the *Salón árabe* at Aranjuez. Jones states that in the Crystal Palace he modeled the mosaic dados for the court and its façade on the dados in the Court of the Myrtles, but, as he explains, "we have been obliged to change the colours somewhat, as the pattern given by them in the original was too large for our space" (Jones, *The Alhambra Court* 63-64). In other words, in keeping with the aesthetics of the Alhambra, and for optical reasons that Ibn al-Haytham could have explained, color and geometry are perceived in interrelationship. Here as well, however, the soundness of theory is belied by deviations in practice. Later designers had effectively turned Jones' chromolithographs of details of architectural decoration into a pattern book. Despite Jones' indication of scale, which they missed, they also overlooked the relation of color to proportion and hence the "fit" into the original setting, as can be seen, for instance, in the room known alternatively as the *Salotto Moresco* and *Salotto Turco* in the Villa Mimbelli (now Museo Civico Giovanni Fattori) in Livorno (Talini, 10-13). The villa was built between 1865 and 1875 for Francesco Mimbelli (1842-1930), a wealthy Livornian merchant, under the direction of architect Vincenzo Micheli (1833-1905) and painter Annibale Gatti (1827-1909). It is not clear who was responsible for the design of the *Salotto*, which, most likely, served as a smoking room. The cupola of the room, executed in wood, presents a stylistic hybrid: its flattened form is reminiscent in its decoration, not in its profile, of a Mamluk dome, as seen in Jones' design for the khedive's garden pavilion in al-Gezira palace in Cairo, while its drum is embellished with an Alhambresque *muqarnas* colonnade. The architectural decoration of the room, and especially of its walls, is greatly simplified and stylized Alhambresque, whose striking chromatic scheme of saturated, primary colors was theorized by Jones (fig. 9).

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<sup>10</sup> AGP, Administraciones Patrimoniales, Granada, Ca. 12016/6, discussed in Panadero Peropadre, "Madrid frente a Granada 102-104.

PLATE XVII.



№ 29, FULL SIZE.

a

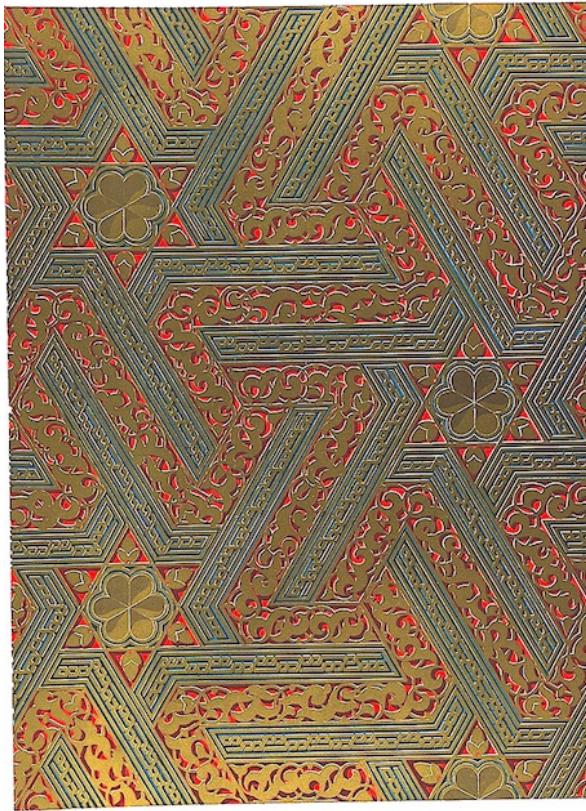
Figure 9a: Decorative ornament, Plate XVII, no. 29, full size. 1842-1845, chromolithograph. Taken from Goury and Jones pl. XVII, vol. 2. Image courtesy of Bildarchiv Foto Marburg, photographed by Rose Haidu.

b



Figure 9b: Salotto Turco, Villa Mimbelli, Livorno. 1865-1875. © Villa Mimbelli. Image courtesy of Bildarchiv Foto Marburg, photographed by Rose Haidu.

PLATE XXII.



N° 34, FULL SIZE.

c

Figure 9c: *Decorative ornament, Plate XXII, no. 34, full size. 1842-1845, chromolithograph. Taken from Goury and Jones pl. XXII, vol. 2. Image courtesy of Bildarchiv Foto Marburg, photographed by Rose Haidu.*

d



Figure 9d: *Moorish Bath, Schloss Albrechtsberg Dresden. 1850-1854. Image courtesy of Bildarchiv Foto Marburg, photographed by Rose Haidu.*



In its treatment of parietal decoration, the *Salotto Turco* is similar to an interior more familiar to scholars: von Diebitsch's Moorish Bath at Schloss Albrechtsberg in Dresden. Both interiors present examples in which the large-scale decorative motifs, executed in wood in the *Salotto Turco* and in cast plaster panels in the Moorish Bath, may well follow models in the original setting of the Alhambra, but they are *disproportionate* to the dimensions of their Alhambresque interiors. In consequence, the colors in these interiors appear too profuse and at times so indiscriminate as to result in flattened, monotonous surfaces. In other words, the disproportion in scale creates a disharmony in color, in contrast to the acute understanding of Jones and Contreras (in the latter's models, if not at Aranjuez). Thus, to recall Ibn al-Haytham's insight, beauty might be inherent in a single visual property, but complete and perfect beauty is achieved in the combination of visual properties: not color alone, nor geometry, but the relationship between them.

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## Biography

**Olga Bush** (Ph.D. Institute of Fine Arts, New York University) is a scholar of Islamic art and architecture, whose research interests engage interdisciplinary methods and theoretical issues on topics ranging from the relationship of poetry to architecture in medieval Muslim aesthetics to nineteenth-twentieth century European and American Orientalism, to *matronage* of the arts in collecting practices. Currently a Visiting Scholar at Vassar College and Reviews Editor of the *International Journal of Islamic Architecture*, she has taught Islamic art and architecture at Bard College, SUNY-New Paltz and Vassar College. Bush has received international research grants and held fellowships at the Institute for Advanced Study at Princeton, the American Academy in Rome, Metropolitan Museum of Art, Kunsthistorisches Institut in Florence, among others. She has published widely in such journals as *Muqarnas*, the *Journal of the Society of Architectural Historians*, *Artibus Asiae*, *Gesta* and the *International Journal of Islamic Architecture*, as well as in edited volumes, the *Encyclopaedia of Islam*, and the catalogue of Islamic Art at the Metropolitan Museum of Art. She has co-edited a volume of essays titled *Gazing Otherwise: Modalities of Seeing in and beyond the Lands of Islam* (Brill, 2015). Bush's book, *Reframing the Alhambra: Architecture, Poetry, Textiles and Court Ceremonial* (Edinburgh University Press, 2018) was a finalist for the 2019 Charles Rufus Morey Book Award (College Art Association), and the recipient of an honorable mention for the 2019 Eleanor Tufts Book Award (*American Society for Hispanic Art Historical Studies*).