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Abstract	This article examines the role of Nasrid Granada in the development and spread of decorative wooden ceilings or <i>artesonados</i> in the late medieval and early modern periods. It argues that it was in the intensive building projects of the Nasrids in the fourteenth century that the techniques of <i>carpintería de lo blanco</i> were perfected, and that highly decorative geometric designs in ceilings became popular in royal palace contexts. Through four case studies from Granada and the Alhambra, it explores the making and meaning of these ceilings and examines their role in the display of royal power and authority.	
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4 The decorative wooden ceilings
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28 From around the early thirteenth to the late sixteenth centuries, highly
29 decorative wooden ceilings were built for important religious and palatial
30 structures in North Africa and al-Andalus. Some of the most important
31 spaces in late medieval and early modern Spain such as the Throne Hall of
32 the Alhambra, used by the Nasrids and then the Catholic monarchs, and
33 the Hall of the Ambassadors in the Alcázar in Seville, were crowned with
34 these wooden ceilings. These kinds of ceilings date from both before and
35 after the Nasrid regime, from Almohad North Africa to Castilian Spain,

but this essay argues that the developments in Nasrid Granada, particularly in the ceilings made for the Alhambra palace, played a crucial role in the spread of the technique.

Known in Spanish as *artesonados*, these ceilings were made with a carpentry technique called *carpintería de lo blanco*.¹ The origins of this carpentry technique have been debated (see for example, Nuere Matauco 2015, 134–39; McSweeney and Rosser-Owen 2023, 1286), with Nuere Matauco arguing that they can be traced to the carpentry practices of northern, Christian Spain. Issues of survival, restoration and lack of documentation make such claims of origin very difficult to establish. At the same time, attempting to define the origins of *carpintería de lo blanco* along religious or ethnic lines is futile in a craft practice that necessarily involves the participation of many individuals, patrons, and contexts. Claiming this carpentry practice as essentially a Muslim or a Christian one demonstrates a misunderstanding of the complex nature of society in medieval Iberia, its patronage practices over time, the fluidity of movement of craftspeople in the period and the lack of clarity we still have about individual religious identity and its manifestation in everyday life and work. This essay is not therefore an attempt to reclaim *carpintería de lo blanco* for Islamic Spain, but rather to highlight the role played by a place—Nasrid Granada—in its success. The significance of the Nasrid ceilings in Granada to the wider spread of the technique has tended to be underplayed in the scholarship on *carpintería de lo blanco*, which has to date focused on the ceilings of Toledo and Castile (Nuere Matauco, Candelas, and de Mingo 2020; Nuere Matauco 2020, particularly 193), although a publication on the carpentry of Granada has gone some way to redress this (Fernández-Puertas, Marinetto Sánchez, and Aljazairi López 2015; see also McSweeney and Rosser-Owen 2023). Surviving examples of ceilings from Nasrid Granada (1238–1492 CE), and from those Castilian courts close to the Nasrid regime such as that of Alfonso XI (r. 1312–50 CE) and Pedro I (r. 1334–69 CE) in Seville, suggest that it was in fourteenth-century al-Andalus and its milieu that these carpentry techniques, which used complex geometric motifs based on polygons and stars, were perfected in the making of monumental wooden ceilings.

The ceilings of the Alhambra defined the very idea of a royal ceiling. The prestige of the Alhambra for both the Nasrid regime and, following the conquest of Granada in 1492 CE, for the Spanish rulers, led to the wider renown and indirect imitation of its decorative features including its monumental ceilings in high-status buildings such as the Alcázar in Seville. They acted as a springboard for the increased complexity, monumentality, and popularity of these ceilings throughout Spain in the fifteenth and sixteenth centuries, as described in this special issue by Chicote Pompanin and Feliciano (2024). The stylistic and technical origins of the four ceilings

1 *Carpintería de lo blanco* (literally ‘white carpentry’), the name referring to the light colour of the wood used for the ceilings, is loosely translated into English as strapwork carpentry.



in the fifteenth-century Torrijos palace that are the focus of this special issue can thus be found ultimately in the Alhambra, making it possible draw a line between the palace of Nasrid Granada and that of Castilian Torrijos (on Torrijos, see McSweeney and Rosser-Owen 2023).

This essay will first set out how early examples of the technique can be found in North Africa, arguing that it was under the Almohad rulers (c. 1130–1269 CE) that complex geometry began to be used on wooden ceilings, with surviving examples from mosque contexts. Four case studies of important Nasrid ceilings will then demonstrate how in the fourteenth century the practice became more common in the extensive building projects of the Nasrids, with more complex constructions where these kinds of decorative wooden ceilings began to be used in important secular spaces such as the Throne Hall of the Comares Palace in the Alhambra.

The earliest monumental wooden ceilings that survive using the technique of *carpintería de lo blanco* can be found in present-day Morocco, dating from the late twelfth century. The technique has an even longer history, however, as it most likely evolved from the use of interlace strapwork carpentry in wooden furniture, such as minbars, mihrabs, and doors that were made across the central and western Islamic lands. Examples of this strapwork furniture survive largely from the first half of the twelfth century, and it is possible that they had been made from an earlier date. These are characterized by geometric decoration based on star motifs and polygons, using grooved strapwork to create overall repeating designs in combinations of wood types, sometimes with ivory and bone inlays. In Fatimid contexts (909–1171 CE), vegetal, figurative, and epigraphic motifs are more commonly found on surviving wood and plaster. However, there are examples of the use of star shapes and other polygonal geometric designs in late Fatimid Cairo, such as in the portable minbar which is dated 1133 CE (Fig. 1), and was made for the mausoleum of Sayyida Ruqayya in Cairo. Sayyida Ruqayya was a venerated figure, as the daughter of the Rashidun caliph Imam ‘Ali and wife of the Fatimid caliph, al-Āmir bi-Aḥkām Allāh (r. 1101–30 CE) (Khalifa Hammad, 2023). Her portable wooden mihrab has geometric star motifs using strapwork decoration framing the central arch. While the situation of the patron in Cairo may indicate a Cairene workshop, these objects were made to be portable, and it is entirely possible that the minbar was brought to Cairo from elsewhere. This is the case for the well-known, almost contemporary dated example of the Kutubiyya minbar (Fig. 2). This wooden portable minbar was made in Córdoba in 1137 CE for the Almoravid ruler ‘Ali ibn Yūsuf (1106–43 CE), for his congregational mosque in Marrakesh (Bloom 1998, 4).² Its translocation from Córdoba to Marrakesh, a journey described in the inscription on the

2 Geometric interlace carpentry using stars and polygons is also evident on a now lost wooden mihrab, from Aleppo, which has been dated to both twelfth and thirteenth centuries. See photograph by K. A. C. Creswell in the Victoria and Albert Museum collection, London, accession number 2454-1921. Accessed August 14, 2024.

minbar, gives an indication of how prized and valuable this kind of
woodwork was for the Almohad rulers in North Africa.

At some point in the twelfth century, carpenters in North Africa
transferred this technique of interlace carpentry on furniture to building
monumental wooden ceilings. It is not clear what drove this development,
but its evolution at this time and place is not surprising. Recent
scholarship has argued that the region was not just a recipient of ideas
from al-Andalus but also ‘an incubator of artistic change’ in a variety of
craft forms (Bongianino 2023, 28; Rosser-Owen, 2014). The acquisition
in 1137 CE of the Kutubiyya minbar from Córdoba indicates that there
was an interest in and patronage of interlace carpentry amongst the
highest status patrons and for important buildings in the region. The
development may also have reflected the ready availability of high-quality
cedar and pine wood from the Rif mountains of North Africa, which
meant that in the early medieval period wood did not have to be sourced
from far away (Rodríguez Trobajo 2008, 38). It may also have been
influenced by the proliferation of highly decorative plaster ceilings under
the Almohads, such as at the Qubbat al-Ba‘diyyīn in Marrakesh probably
completed in 1125 CE (Rosser-Owen 2014, 170)³ and the dome in front of
the mihrab of the Great Mosque of Tlemcen, added in 1136 CE (Almagro
2015, 216–24), and their use of complex geometric forms. Carpenters may
have spotted an opportunity to construct elaborate ceilings from wood like
the examples made from plaster. Commissioned by important patrons and
armed with a ready supply of high-quality wood and the knowledge of
geometry acquired from making minbars and other furniture, it is
therefore not difficult to imagine medieval North Africa as the incubator
of these new kinds of wooden ceilings.

The decorative wooden ceilings may also have evolved alongside the
increasing significance in Almohad architecture of the *qubba*, a reception
space such as that of the Qubbat al-Ba‘diyyīn in Marrakesh that was
reserved for the ruler and set apart from the public. The *qubba* was
typically square in plan with a domed (wooden or plaster) ceiling. It had a
particular importance in Almohad architecture as a visual marker both of
the caliph’s presence and of Almohad identity: as Abbey Stockstill has
argued, the *qubba* created a mediated setting where the caliph as religious
and political leader could interact with the public, forming ‘a visual
marker of the caliph’s presence’ (2023, 13–14). While the *qubb*as that
survive are of brick, plaster and wood, the etymological and historical
roots of the *qubba* may be found in domed fabric tents, royal textile rooms
examples of which were described in early accounts of Marrakesh
(Stockstill 2023, 13–16). While remains of these tents have not survived,
the thirteenth-century Almohad banner of Las Navas de Tolosa (now in
the Museo de Telas Medievales in the Monastery of Santa María la Real

3 See <https://www.archnet.org/sites/1739/>. Accessed August 14, 2024.



Fig. 1: Historic photograph of the mihrab from the mausoleum of Sayyida Ruqayya, by Pascal Sebah c. 1880. Cairo. Victoria and Albert Museum, London, 395-1924. The wooden mihrab, twelfth century CE, is in the Museum of Islamic Art, Cairo, MIA no. 446.

de las Huelgas, Burgos, catalogue no. 00652193) displays decorative features of Almohad royal textiles including a central motif based on a star pattern, and Qur'anic inscriptions in marginal friezes, features that are common on *qubba* ceilings made from wood. Perhaps a need for



Fig. 2: Minbar made in Córdoba for the Kutubiyya Mosque in Marrakesh. Badi Palace, Marrakesh. 1137 CE. Wood, bone, ivory. 386 cm h. 346 cm l. 87 cm w. Image licensed under Creative Commons CC BY-NC-ND 4.0. license.

permanent royal structures in the growing urban landscape meant that 178
Almohad craftspeople turned to plaster and wood to emulate these 179
portable, somewhat ephemeral textile rooms. 180

The dating of wooden ceilings is difficult as buildings were renovated 181
and ceilings have been moved, but some survive from the most prestigious 182

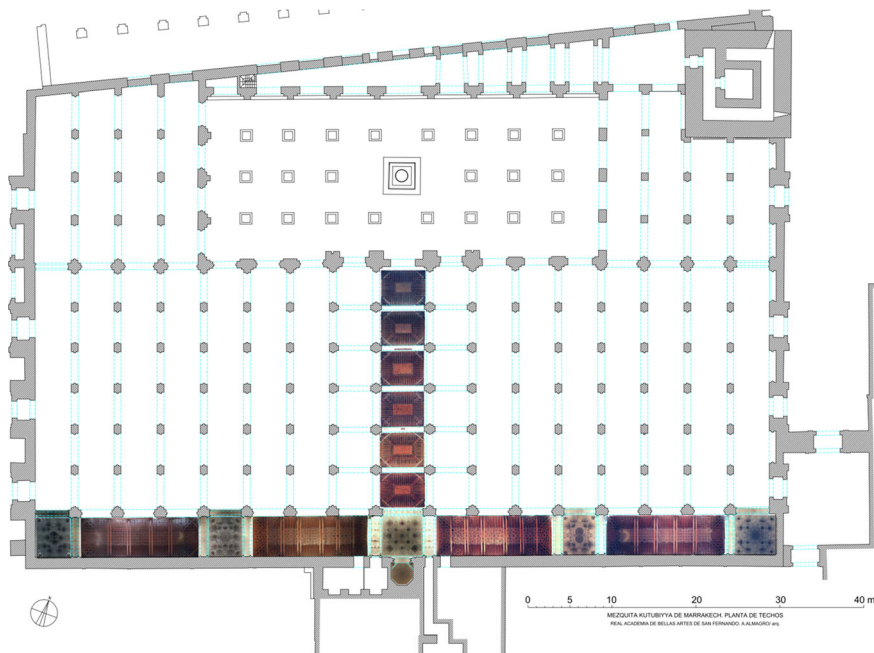


Fig. 3: Plan with projection of the ceilings of the Kutubiyya mosque in Marrakesh. Image by Antonio Almagro Inv. No. 740_03, from ATARAL, Atlas de Arquitectura Almohade, Real Academia de Bellas Artes de San Fernando: <https://www.ataral.es/>. Accessed May 1, 2024.

sites of the Almohads. In Marrakesh, four wooden ceilings were added to the Kutubiyya mosque along the qibla wall, after the mosque's extension in 1163 CE (Almagro and Jiménez Martínez 2022, 276–78).⁴ These are rather simple in structure and decorative features when compared with later ceilings with more complex geometrical designs. Nevertheless, two of the ceilings, those either side of the mihrab, include the eight-pointed star designs known in Spanish as *ruedas*, or wheels, a design that would be found in later ceilings (including the Torrijos V&A ceiling). These four rectangular wooden ceilings measure around fourteen metres long each and alternate along the mosque's qibla wall with five square, plaster *muqarnas*⁵ ceilings that measure between four and five metres in width (Fig. 3). The transverse nave along the qibla wall of the Qasbah mosque (1185 CE), also in Marrakesh, demonstrates an arrangement of alternating long wooden ceilings with smaller plaster *muqarnas* domes, although in this case three plaster domes alternate with two wooden ceilings (Almela Legorburu 2020).⁶

This combination of plaster and wooden ceilings is characteristic of how ceilings would develop across North Africa and into al-Andalus. In Nasrid Granada plaster *muqarnas* ceilings and wooden strapwork ceilings

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4 See also the online Atlas of Almohad Architecture (Almagro, n.d.).

5 On *muqarnas*, please see the glossary in the cluster Introduction.

6 These have not been fully studied and several may be later renovations.

accompanied by plaster friezes on the walls were made for palaces and religious buildings. As they grew in popularity in Granada, wooden ceilings were always juxtaposed with decorative plaster friezes and at times, with complementary plaster ceilings (for example, in the Partal mirador space, see below). This relationship between plaster and wood persisted in post-Islamic Spain. In fifteenth-century Torrijos, horizontal plaster friezes were installed beneath all four monumental wooden ceilings in the palace of Gutierre de Cárdenas and Teresa Enríquez (McSweeney and Rosser-Owen 2023, 1283–84). It reflects the importance of the spaces in which the ceilings were situated, where it was not just the ceilings that were embellished, but the walls as well, for which plaster panels were the most suitable and available technique.

The technical terms used to describe the ceilings are not easily translatable to English, so in this context the Spanish terms are used. *Artesonado* is the term used for ceilings made from intricately joined wood, forming geometric patterns, often in a structure formed of panels in a rectangular or square space, making octagonal, domed or even oval roofs. Horizontal decorative roofs are called *alfarjes*, they have individual beams spanning a flat or horizontal space, with decorative interlace in between which may or may not be recessed (e.g. Partal portico). *Armadura* is the general name for roofs made with the rafter and collar beam construction. Two types of *armadura* developed alongside each other in Nasrid Granada to create monumental ceilings with geometrical interlace —*apeinazada* and *ataujerada*. *Apeinazada* incorporates the decorative interlace into the structure (e.g. Cuarto Real de Santo Domingo, see below), while *ataujerada* refers to the application of a ‘skin’ of decorative geometrical interlace which obscures any sense of where the structural carpentry lies beneath (e.g. Comares Throne Hall and Court of the Lions pavilions, both below). The most complex of ceilings are those made with *ataujerada*, where the design, often based on multiple star patterns, seems to float on top of the ceiling’s structure. This kind of ceiling became more popular and frequent during the Nasrid period. (López Pertíñez 2006, 221).

The remainder of this article will focus on four important ceilings from Granada, case studies that highlight the types and forms that were constructed there during the Nasrid period, both in the Alhambra palaces and in the city of Granada.

The evidence for the flourishing of decorative wooden ceilings in North Africa was probably mirrored in contemporary developments in al-Andalus. Evidence suggesting the presence of wooden ceilings in the Almohad mosque in Seville, was discovered in recent archaeological excavations in the form of two *aliceres*, decorative wooden planks that are



part of the rafter and collar beam (*par y nudillo*) ceiling (Jiménez Sancho and Jiménez Martín 2019).

During the turbulent thirteenth century, the powers of Castile and Aragon took control of most of what had once been Almohad territory in al-Andalus, while in North Africa, the Hafsids seized power in Tunis (1236 CE) and the Marinids of Marrakesh (1269 CE). From this political turbulence, the Nasrid kingdom emerged as a Muslim enclave in Iberia, a safe and increasingly wealthy haven for Muslims leaving newly Christianised territories of Castile and Aragon, with its port city in Malaga and its capital in Granada. It was in Granada where we find monumental building work flourishing again, in the new capital of the Nasrid kingdom founded in 1238 CE. The Nasrids established their palace and residence as well as a series of garden pavilions, mosque, and bathhouse in the Alhambra, while in the city below a series of secondary palaces belonging to prominent figures, a large congregational mosque and *madrassa* were constructed. They adopted Almohad building techniques and styles, constructing palaces from brick and rammed earth, with *qubbas* flanked by ancillary rooms, situated beside gardens with large pools of water and formal walkways. Their interior facades were decorated with moulded and painted plaster and the ceilings were a combination of plaster *muqarnas* domes with increasingly complex wooden monumental ceilings.

Cuarto Real de Santo Domingo (late thirteenth century)

One of the earliest monumental wooden ceilings can be found in the oldest extant Nasrid palace in Granada, datable to the second half of the thirteenth century (Rodríguez Trobajo 2008, 35; Almagro and Orihuela 2013, 33).⁷ It was probably built under the reign of Muhammad II (r. 1272–1302), making it contemporary with the building of the Generalife palace in the Alhambra. The Cuarto Real de Santo Domingo, was a palace pavilion, with a central *qubba* flanked by side chambers, that was built into the city wall in Granada (outside of the Alhambra) and surrounded by orchards and formal gardens. The *qubba* prefigures the form and layout of the later Throne Hall of the Comares Palace in its square plan and large scale. The square plan (7.7 m) has three alcoves on each of three of the sides and an entrance to the portico on the fourth. Windows pierce the upper section letting light in beneath the ceiling to illuminate above and below.

The *qubba* is crowned with a wooden *apeinazada* ceiling, which rises on four sides from its square base (Almagro 2002, 175–92) (Fig. 4). Beneath the ceiling is a horizontal plaster frieze with geometric designs, that is

⁷ This date was confirmed by dendrochronology carried out on pine wood from the ceiling, which provided a *terminus post quem* of 1283 (Rodríguez Trobajo 2008, 35; Almagro and Orihuela 2013, 33).

surmounted by a horizontal carved wooden frieze with repeated epigraphic motifs. The four sides of the ceiling rise to the *almizate*, as the central horizontal section of the ceiling is known, with its geometric designs that form a series of motifs based on the eight-pointed star, culminating in a central eight-pointed star. Four wood types were found in the making of the ceiling—Scots and Maritime pine (*Pinus silvestris* and *Pinus pinaster*), oak (*Quercus*) and cedar (*Cedrus atlantica*). This combination of wood types reflects an efficient use of materials, in which each wood type is used for its strengths, for example, those parts of the ceiling that required strength and support were made from oak, while cedar was used for the more decorative elements (Rodríguez Trobajo 2008, 35). It is a relatively simple shape of ceiling, compared with later examples that use multiple vertical panels (*faldones*—literally ‘skirts,’ referring to the panels that make up the main body of the ceiling) and more complex star forms. Nevertheless, this ceiling demonstrates a complexity of construction in its use of different wood types and geometric design, and an ambition in its size and monumental presence, that marks it as among the first of a new type of wooden ceiling.

Partial Pavilion (early fourteenth century)

Three important ceilings survive from the early Nasrid pavilion known as the Partial (also known as the Torre de las Damas or Ladies’ Tower), which is set on the outer walls of the Alhambra overlooking the Albaicín area of Granada (Fig. 5). The Partial was built during the reign of Muhammad III (r. 1302–9 CE), with its form, position between mosque of the Alhambra and the palace of the Generalife, and layout indicating it functioned as a pavilion and private meeting place rather than a permanent residence (McSweeney 2020). The pavilion has many windows that bring light into the building and offer views from this high point, beyond the walls of the Alhambra to the city of Granada and beyond. As is the practice throughout the Alhambra, the walls were decorated with glazed tiles below and moulded plasterwork above, with carved wooden ceilings throughout. Plaster, wood, and ceramics were brightly coloured, and these colours enhanced by the rippling effect of the light through the windows that is reflected off the large pool of water situated directly in front of the pavilion.

The portico is covered by a long wooden *alfarje* ceiling, measuring 16.5 m 3.25 m (Fig. 6). It is divided into five, eight-pointed star designs, of which the central design forms a cupola using the *ataujerada* technique, positioned at the central point of the portico and marking the entrance point to the *qubba*. This demonstrates how by the early fourteenth century

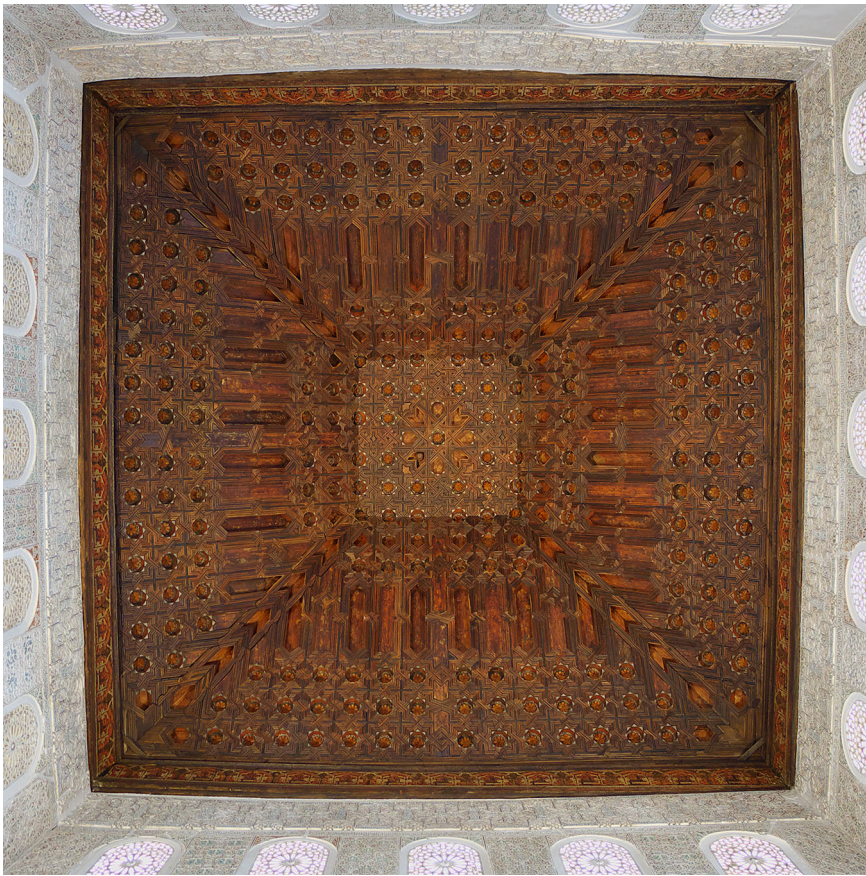


Fig. 4: Wooden ceiling of the Cuarto Real de Santo Domingo, Granada. Photograph by the author.

ceilings were part of an architectural language used to articulate the status of rooms beneath, as the central cupola of the portico identifies the entrance to the projecting *qubba* that looks over the city of Granada below. The *qubba* has a carved wooden *ataujerada* ceiling (5.10 m 5.10 m), with single *faldones* with eight-pointed star decorations. However, the most complex of ceilings in this building is not in the *qubba* below, but upstairs in the mirador, where a wooden *ataujerada* ceiling once crowned this most private of spaces. This ceiling is in the Museum of Islamic Art in Berlin (I.5/78); there is a replica in its place in the Partal today (McSweeney 2020) (Fig. 7). The small space of the mirador is illuminated by its fifteen windows, which frame views of the Alhambra's residential palaces and what was the mosque above (now the church of Santa María de la Alhambra), and to the city of Granada and its surrounding landscape down below. Sounds and scents from the garden

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Fig. 5: Partal pavilion, Alhambra, Granada. Photograph by the author.

and city would have entered the mirador both by night and day, while the cooling breeze in the summer makes this one of the most pleasant spaces within the confines of the Alhambra. The decorative wooden ceiling, the plasterwork, and ceramics on the walls work alongside the changing environmental actors of light, sound, scent, and breeze to create a dynamic and intimate space.

The main mirador ceiling is formed from a central sixteen-pointed star, from which sixteen trapezoidal panels, each covered with geometric motifs based on stars, extend to an eight-sided horizontal frieze. The frieze sits on the four-sided wooden frieze that surmounts the plaster panels that extend to below the windows, where ceramics meet the floor. In this way, it moves from sixteen to eight to four sides through vertical transitions, each with its own unique frieze of carving and painting (differing from the cupola in the portico below, as that cupola makes a simpler transition from a sixteen- to eight-sided form). Measuring 3.55 m 3.55 m, with a height from base of ceiling to top of 1.90 m, it is made from hundreds of

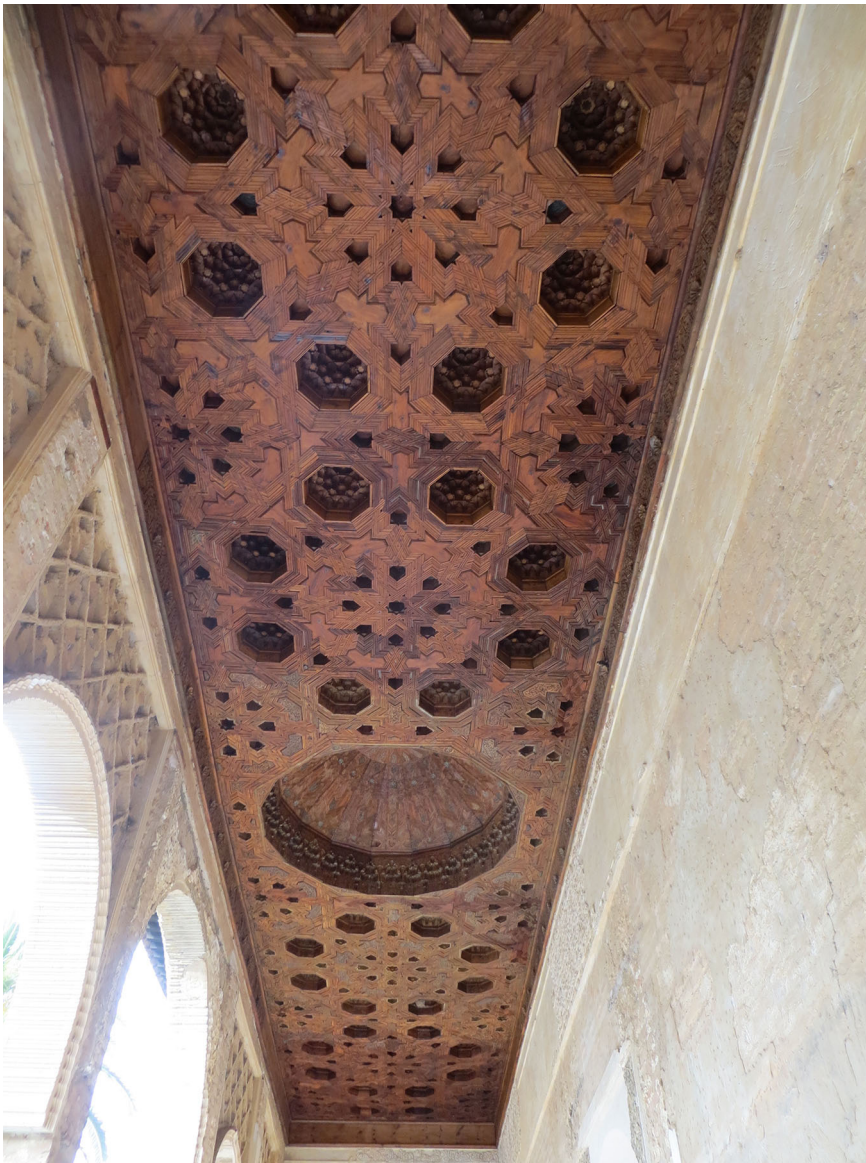


Fig. 6: Wooden ceiling of the portico of the Partal pavilion, Alhambra, Granada. Photograph by the author.

pieces of at least five different types of wood (McSweeney 2020, 46, 53). A second room in the mirador is missing its ceiling (whereabouts unknown), while a niche off this secondary room contains a diminutive *muqarnas* plaster ceiling, the oldest plaster *muqarnas* ceiling in the Alhambra (McSweeney 2020). The word *yumn* meaning ‘good fortune’ in Arabic, is repeated around the wooden frieze in mirrored angular script, a phrase

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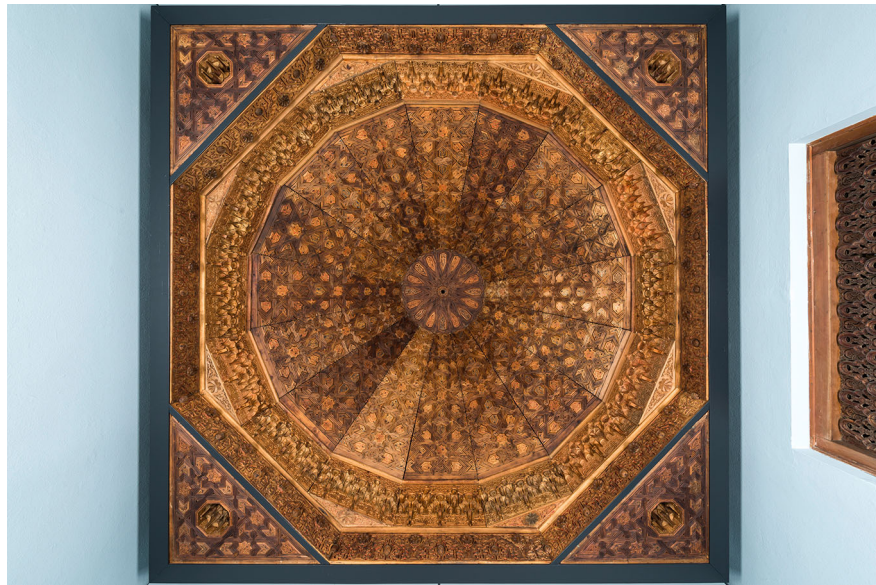


Fig. 7: Wooden ceiling from the Partial mirador, now in the Museum of Islamic Art in Berlin. Photograph by Johannes Kramer Museum für Islamische Kunst, Berlin, 1.5/78.

frequently found throughout the decoration of the Alhambra and later
palaces. The Nasrid motto, *Wa lā ghāliba illā-llāh* (There is no Victor but
God) is repeated in cursive script on the upper frieze of the ceiling.

The mirador would have been accessible to only a very small number of
individuals in the royal court; today it is not generally accessible to visitors
as its staircase is narrow and the space within is small. While its exact
function is unknown, it is likely that the collection of decorative ceilings
indicates the high status of this private space, probably meant for royal
meetings of the most intimate and secure nature. The placement of the
most geometrically complex of ceilings in the Partial in the mirador
suggests that the ceiling may have reflected the personal taste of the ruler
in the early fourteenth-century Alhambra.

***Qubba* or Throne Hall of the Comares Palace (mid fourteenth century)**

Some forty years after the Partial, and the high status of decorative wooden
ceilings in Nasrid Granada is confirmed in the installation of a
monumental wooden ceiling in the *qubba* of Sultan Yusuf I (1333–
1354 CE) in the Comares Palace (c. 1350 CE). This is the domed, square
space that would become the Throne Hall when the Alhambra became the
residence of the Catholic monarchs in 1492 CE (Fig. 8). Both the Comares



Fig. 8: View of the Throne Hall in the Comares Palace, Alhambra, Granada. Photograph by the author.

Palace and the adjacent Court of the Lions were built during the second half of the century under the supervision of the ruler's vizier, Ibn Zamrak (1333–93 CE), who was responsible for many of the poetic verses inscribed on its walls in wood and plaster.

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The status of the Comares ceiling is confirmed by its size, unprecedented in al-Andalus and significantly larger than that of the next largest *qubba* ceiling, that of the previously discussed Cuarto Real de Santo Domingo at 7 m². The Comares *qubba* space measures 18.2 m in height and 11.3 m in width, and the wooden ceiling spans the entire interior space, making it the largest wooden ceiling in the western Islamic world (Fig. 9). It is made of over eight thousand pieces of painted wood (Fernández Puertas 2015, 21) with a mix of cedar and pine woods. In plan the hall comprises the central square space, with three alcoves on each of the three sides, and an entrance on the fourth which leads to the portico and the water pool and garden beyond. In the alcoves are low set windows while the space is entered through a large arched door.

The ceiling is *ataujerada*, meaning that its structure is not visible; the tracery covers it like a skin. The geometric strapwork forms motifs of eight-pointed and sixteen-pointed stars that extend in *ruedas* (wheels) across the ceiling. The multitude of stars which were brightly painted gives the impression from below of the firmament above. The whole ceiling is illuminated by a series of high windows beneath the domed ceiling which allow light and air to penetrate the voluminous space below.

The structure of the ceiling is formed of a total of thirteen panels—three on each of its four sides, with a central *almizate*, at the centre of which is a small *muqarnas* cupola around a star shape. A wooden frieze (*arroca*) sits beneath the ceiling panels, with a painted inscription, beneath which a wooden *muqarnas* frieze links the ceiling to the moulded plasterwork that meets it on the walls beneath. The inscription on the painted frieze is from sura (chapter) 67 of the Qur'an, known as Surat Al-Mulk (The Sovereignty), which includes a description of the seven heavens ('He is the One' Who created seven heavens, one above the other' 67:3).

It has frequently been argued that the repeated stars on the ceiling, and the point where four sides join, should be interpreted literally as an illustration of these words from the Qur'an. In addition, this theory suggests that the edges of the ceiling where each side's panels meet the next, represent trees or rivers (Nykl, 1936–1939, 179–181; Grabar 1978, 142; Cabanelas Rodríguez 1988, 81–90).

This literal interpretation of the ceiling's iconography as representing the seven heavens in its star forms, was visualised by Leopoldo Torres Balbás, curator (restorer) of the Alhambra (1923–36 CE) whose drawing of one of the four sides of the ceiling made explicit this interpretation of its stars as relating to seven heavens (Fig. 10). The idea has been regularly repeated, including in the Alhambra official guide, which states that the ceiling represents



Fig. 9: Wooden ceiling of the Throne Hall in the Comares Palace, Alhambra, Granada. Photograph by the author.

the eschatological representation of the seven heavens that, after death, a Believer's soul must pass through—based on its worthiness—before reaching the eighth heaven: paradise, the throne of God (represented here by the central *mocárabe* [muqarnas] dome). The roots of the four trees of Paradise are grafted on to it, symbolized by

455

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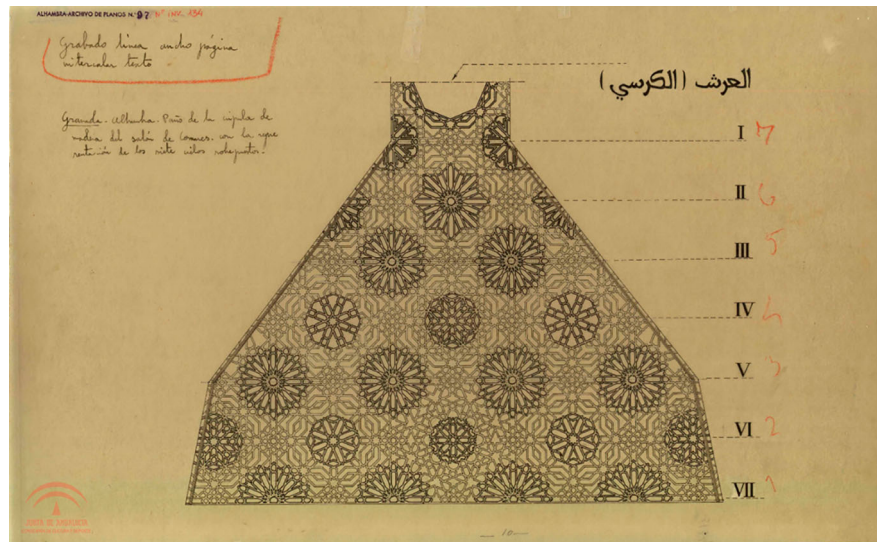


Fig. 10: Schematic drawing of a section of the wooden ceiling in the Throne Hall in the Comares Palace with the ‘seven heavens’ superimposed, made by Leopoldo Torres Balbás, second quarter of the twentieth century. Archivo, Patronato de la Alhambra y Generalife, APAG/ Colección de Planos/ P-00013. Ink on paper, 37 cm 59 cm.

the peaks of the ceiling, which also may be identified with the rivers of Paradise irrigating the different levels of heaven. Thus, the ceiling served to legitimise the sultan seated below it, under the same celestial vaults ‘in which there exist no defects or imperfections’ according to the Qur’an, so that he might carry out his eminent judiciary functions. (Bermúdez López 2010, 119–20)

However, these seven levels of stars which supposedly represent the seven heavens are not immediately legible on the ceiling. The ‘seven heavens’ reading relies on the viewer beneath counting up horizontal rings of stars from base to apex, in a zig-zag (as they are not vertically aligned), from the half star at the bottom of the panel, to the stars around the *almizate*. If read from the base of the wooden panels to the central star, there are not seven distinct layers of stars, but rather six and a half, or if the central star is included, then seven and a half stars. The seven layers are by no means obvious, neither are the ‘trees’ or ‘rivers’ on the four meeting points of the panels, which instead show a continuity of geometric design and form around the ceiling’s circumference.

Should the carpenters have wished to represent seven distinct layers, they would have had many examples in wood and plaster of how to show them more clearly. Indeed, as previously noted, horizontality is very present in the decorative language of the Alhambra, in its silk textiles with



their distinct levels, and in the moulded plasterwork on its walls, including on the walls of the Comares *qubba*, on which rows of stars also feature. Beneath the *muqarnas* frieze there are very clearly defined horizontal friezes: a frieze of plasterwork repeating the Nasrid motto, this sits above five arched windows on each of the four walls which illuminate the ceiling; directly beneath is a poetic inscription in large cursive letters; beneath this are eight repeated *rueda* designs based on the twelve-pointed star motif. This lack of defined levels in the ceiling suggests that the rather literal interpretation of the ceiling might be erroneous.

Seeing the stars and constellations in palace ceilings and likening them to the power of the ruler is a longstanding metaphor in Arabic poetry, found in descriptions of palaces (al-qusūr) known as *qusūriyyāt* that long predate the Alhambra. In these descriptions, the virtues and visage of the ruler are linked to the bright cosmic space of the skies above, as seen in the palace ceilings decorated with star-shaped motifs, situating the ruler closer to heaven and ultimately to God. A verse by the Sicilian poet Ibn Hamdīs (d. 1132 CE), who worked for the court of Al-Mu'tamid in Seville, makes just such a connection between the ruler's physical and spiritual virtues and the structure of the palace and its celestial imagery:

The builders have conveyed the prince's qualities in their construction.

Thus, from his breast they have taken its breadth; from his light the brightness; from his fame its broad scope; and from his wisdom the foundations.

By taking his high royal rank as a model, his hall has been raised so high that it is on a par with the constellations. (Parada López de Corseles 2021, 396)

This tradition of *qusūriyyāt* was continued in the court poetry of the Nasrid viziers, in poems which were inscribed in the walls of the palaces they were written about. Beneath the Comares ceiling, a set of plaster frieze inscriptions is found at head height on the walls of the central alcove, with words composed by the Nasrid court vizier (Ibn al-Jayyab or Ibn al Khatib). They offer an understanding of the function of the whole room and the role played by its magnificent ceiling, describing the room as 'the throne of the kingdom'; it is 'the highest qubba,' the constellations are in the 'sky' and likening the whole room to the body of the ruler, as it is 'clothed in dignity with robes of undeniable distinction' (Puerta Vilchez 2011, 126).

While a metaphorical link between the ruler and the constellations can be found in these poetic descriptions of the ceilings, what is not found anywhere in the Alhambra are literal representations of the Qur'anic or poetic texts that are inscribed on the walls. The importance of the Qur'an

to the power of the ruler, and the integration of it as text into the decorative scheme of the Alhambra, is clear throughout the building in its many inscriptions (Puerta Vilchez 2011). The ruler did not need to draw a schematic representation of the seven heavens above for the viewer below to interpret it as a representation of his power on earth or his legitimacy to rule. Unambiguous statements of power and of religious authority were written in the inscriptions: they are spelled out in poetic verses in moulded plasterwork beneath the ceiling; they are implied in the scale and complexity of the ceiling and made clear in the splendour of the room beneath it. The *qubba* itself, a distinctive square reception space with a domed roof, had come to represent the power and presence of the ruler since Almohad times. The room is filled with Qur'anic text, none of which needs to be visualised through literal representation to be understood—it could be read directly and would have been known to those standing beneath. This reading of this ceiling as a visualisation of the seven heavens is, therefore, a misunderstanding of the role of such ceilings in palace architecture. The complex geometry visible in the ceiling and throughout the Alhambra ceilings invited the viewer to gaze in awe and captivation at the ceiling, marvelling at the craftsmanship and at the achievements and virtues of its patron whose throne is 'on a par with the constellations' (Ibn Hamdīs quoted in Parada López de Corselas 2021, 396). Imagining representations of trees in the corners and awkwardly counting fixed levels of heavens in its stars is unnecessary and unprecedented in the context of this kind of ceiling, which in its multitude of stars already shows us the heavens above and implies, through the presence of the ruler beneath and the inscriptions to that effect around the walls, the power of the ruler on earth.

Court of the Lions hemispherical ceilings in the twin pavilions (late fourteenth century)

The Alhambra preserves two examples of the most complex type of ceiling that it was possible to construct, known as the *media naranja* or 'half orange' type. This kind of hemispherical ceiling, which reproduces a perfect dome shape in wood, is rare. There are only five surviving hemispherical wooden ceilings in Spain, one of which is one of the four Torrijos ceilings from the end of the fifteenth century, now in the Museo Arqueológico Nacional in Madrid (Inv. 63585-ID006). Two others are in Seville, in the Hall of the Ambassadors of the Alcázar (1427 CE), and above the staircase of the Casa de Pilatos (1537 CE).

The other two, which are the earliest surviving examples, and the only ones that are constructed using the *ataujerada* technique, are the twin



Fig. 11: Court of the Lions view towards the east pavilion, Alhambra, Granada. Photograph by the author.

wooden domed ceilings in the Court of the Lions of the Alhambra (Fig. 11). They date from the second half of the fourteenth century (around 1380 CE) under the second reign of Nasrid ruler Muhammad V (r. 1362–91 CE) and another thirty years later than the Comares ceiling.

The ceilings are within the projecting open pavilions that articulate the east and west ends of the open court. The rooms off the court are united by channels of water emanating from the central fountain supported by lions, the channels forming circular pools beneath both pavilions and in each of the two halls. The pavilions project into the courtyard, while behind each is a perpendicular arcaded hall and, beyond them, the Hall of the Kings in the east, and the (damaged) Hall of the Muqarnas in the west.

These two ceilings are nearly identical, both measuring 3.30 m in diameter (Fig. 12). The restoration of the East pavilion revealed it had six hundred and sixty-nine *zafates* (decorative wooden inserts).⁸ Like all decorative ceilings, these are protected by a roof above them while the pavilions are supported by multiple columns. The plaster inscriptions on the walls include a mix of blessings and epithets and praise verses to the ruler. *Muqarnas* plaster squinches bridge the gap between the square plan and the circular form of the wooden ceiling. The wooden dome begins with a frieze, decorated with projecting pinecone motifs. Above the frieze,

573

8 This date was confirmed by dendrochronology carried out on pine wood from the ceiling, which provided a *terminus post quem* of 1283 (Rodríguez Trobajo 2008, 35; Almagro and Orihuela 2013, 33).



Fig. 12: Wooden ceiling of the east pavilion in the Court of the Lions, Alhambra, Granada. Photograph by the author.

the hemisphere is filled with large *ruedas* arranged around a central octagon, without any visible angles joining the panels. The hemispherical geometry of both ceilings is based on a combination of eleven- and eight-pointed stars (these are the only examples in the Alhambra of the use of the eleven-pointed star [Makovicky and Fenoll Hach-Alí 2000, 37–42]).



While much attention has been paid to the other ceilings of the Court of the Lions—the plaster *muqarnas* ceilings of the Abencerrajes Hall and the Hall of the Two Sisters and the figurative painted ceiling of Salon de los Reyes—few studies have been focused on these two wooden ceilings, even though they are the earliest known examples of these kinds of hemispherical ceilings (Nuere Matauco 2004).⁹ In their study of *media naranja* ceilings, Nuere Matauco, Candelas, and de Mingo argue that the Court of the Lions ceilings are fundamentally different to the later *media naranja* ceilings in Torrijos and Seville in their form and design (2020, 2). By this they mean that the Court of the Lions cupolas are fully *ataujerada* (the underlying structure is not visible in the geometry of the strapwork carpentry from beneath), unlike the *media naranja* ceilings from the fifteenth century (Seville and Torrijos) which are *apeinazada*, meaning their geometrical designs are expressed through the structural forms that support the cupola itself.

Given that these ceilings are in that sense unique, without surviving precedents, it is difficult to speculate on how the technique to construct such perfectly domical ceilings might have developed. They demonstrate the same strapwork carpentry techniques that were found in contemporary furniture, but with the added complexity of being made for a hemispherical form, demonstrating a knowledge of applied geometry that goes beyond that needed for flat surfaces.

The design of the geometric motifs on both *ataujerada* and *apeinazada* ceilings required a knowledge of applied geometry which master carpenters combined with a mastery of structural carpentry techniques. Euclidian geometry was an important part of a craftsman's education in the medieval Islamic world, and treatises from as early as the tenth century attest to the importance of applied geometrical principles in architecture and craft (Brentjes 2008, 441). The question of how to tile a spherical dome, for example, is one that the Persian mathematician Abu al-Wafā' Būzjānī (940–98) addresses in his text 'On What is Needed by the Craftsman from Geometrical Construction,' in which he examines the application of geometry to architectural constructions (Kheirandish 2017, 86). The most complex ceilings such as the *media naranja* hemispherical domes required a high level of geometric knowledge and applied skills. We do not have surviving preparatory drawings or plans on paper of the ceilings, though this does not mean they were not used; however, it is also possible that carpenters had the applied mathematical knowledge to be able to translate the dimensions of a room and of the available material into a ceiling of a particular size and geometry, based on a sixteen-sided star, as the Partal mirador ceiling is for example, without using two-dimensional plans on paper.

⁹ The Patronato de la Alhambra undertook restoration of the wooden ceiling and plaster *muqarnas* in the east pavilion of the Court of the Lions in 2015–18, with reports of the completion of this restoration published in the press and on the Alhambra website. See <https://www.alhambra-patronato.es/proyectos/restauracion-de-la-armadura-semiesferica-ataujerada-del-templete-este-del-patio-de-los-leones/>. Accessed August 15, 2024.

This knowledge and skill evident in the geometry of the ceilings is something that was recognised at the time. The response to viewing them was that the sophisticated geometric patterns were supposed to elicit a kind of active, meditative engagement on the part of the viewer. This special kind of looking is described in poetry inscribed on the walls of the Alhambra in carved and moulded plaster friezes. In the Alhambra's Qalapurra of Yusuf I from 1349 CE (also known as the Torre de la Cautiva), one of the poems reads: 'It is a palace whose splendour is shared by a ceiling, floor and four rooms. Marvellous its stuccos and tiles but even more prodigious the carpentry of its ceiling; after being assembled it was lifted precisely to its lofty position'; while another reads: 'Each shape, alone or accompanied, corresponds to another in symmetrical proportion. Look where you will and you will see many designs, all of them coloured, gilded and decorated' (Puerta Vilchez 2011, 311–12). In another mirador, that of the Lindaraja, a poem also in plaster describes the special kind of attentive looking—a captivation that is demanded by the interior decoration of the palace: 'mansions in which the eyes find enjoyment and where the gaze is captivated and reason enthralled' (Puerta Vilchez 2011, 231). This direction to look at the ceilings and be captivated by their repeated shapes and impressed by their construction describes an awareness of craftsmanship and appreciation of geometric design that helps explain the contemporary popularity of these ceilings and their enduring legacy.

Certainly, the expertise in applied geometry could be found in the Alhambra carpentry workshops at the time: a pair of doors in the Alhambra Museum made for the Two Sisters Hall is almost exactly contemporary with the construction of these cupolas (Museo de la Alhambra, 010230) (Fig. 13). Measuring 472 cm 146 cm, the strapwork carpentry geometrical motifs are based on eight-pointed stars (Fernández-Puertas 2015, 26). Their large size and level of complexity points to a highly skilled workshop in the Alhambra that could construct a range of wooden interior elements exactly at the time when the hemispherical cupolas were being made, in the late fourteenth century (López Pertíñez 2006, 368–70). The lack of examples of *media naranja* ceilings predating these two Court of the Lions ceilings, may be a question of survival, or it might indicate an extraordinary innovation that was made possible by the fertile and highly skilled craft environment of the Nasrid court. Despite some underlying differences and a gap of almost fifty years, the Court of the Lions ceilings undoubtedly prefigure the celebrated *media naranja* ceilings made for the Castilian courts of the fifteenth century in Seville and Torrijos (Nuere Matauco, Candelas, and de Mingo 2020, 2). The gilded dome in the Hall of the Ambassadors in Seville (1427 CE) is larger and in a more prominent position than the diminutive Alhambra examples, but the



Fig. 13: Wooden doors to the Throne Hall of the Comares Palace, Alhambra. Museo de la Alhambra, 010230. Photograph Lucía Rivas. Patronato de la Alhambra y Generalife..

result is a similar feat of complex hemispherical geometry in carpentry that was celebrated and imitated in the later ceilings in Torrijos and at the Casa de Pilatos.

The wider tradition of *carpintería de lo blanco* did not end in Granada once the construction of the Alhambra was completed. It grew in popularity, with monumental wooden ceilings appearing in contexts beyond palatial Nasrid structures. After the end of Muslim rule in Granada in 1492 CE, the technique was employed to in churches in the city, such as that of San Pedro y San Pablo whose sixteenth-century *armadura* was made by a known master carpenter, Juan de Vilchez (Aljazairi López 2015, 149).

While it is tempting to claim that Nasrid ceilings had a direct influence on the spread of these kinds of ceilings in Castile in the fourteenth century, that would be to simplify a very complicated chronology and to assume a single channel of influence rather than multiple networks of exchange. The mechanism for exchange of techniques, styles, and, crucially, craftspeople in this period among royal patrons is difficult to disentangle. In fourteenth-century Seville, for example, for the construction of the royal palace of the Alcázar, Alfonso XI and Pedro I employed craftspeople who may have worked for their Nasrid contemporaries, Yusuf I (r. 1318–54 CE) Muhammad V (r. 1354–59 and 1362–91 CE), but, as Ruggles highlights, the decoration and internal arrangements of the halls of the Alcázar and the Alhambra suggest a two-way flow of artists and craftspeople, underlining the complexities of the exchange between these rulers (2004, 93–94). Meanwhile in Toledo, connections with Nasrid Granada can be made with the monumental wooden ceilings that survive from the fourteenth century in the grand halls of buildings such as the Taller del Moro and the Salón de Mesa and in the synagogue of El Tránsito, for example.¹⁰ While the extent to which Nasrid craftspeople were involved in their construction is not known, their use of the same techniques and geometric forms suggests a close relationship between patrons. The link between the synagogue's patron Samuel Halevi Abulafia and the Castilian king Pedro I, to whom Halevi was treasurer, may provide a direct line through Pedro to the Nasrid monarch Muhammad V, with whom Pedro maintained close relations. At the height of their construction in the fourteenth century, we do not know enough about the movement of craftspeople and their patrons to claim a real understanding of who influenced whom, and of how exactly the practice of *carpintería de lo blanco* was disseminated throughout the region.

Nevertheless, its contemporary fame suggests that the Alhambra had an important role to play, which only increased in prominence after its conquest in 1492 CE. Ruggles notes how the Nasrid palace 'set the standard for opulence, beauty and comfort in the fourteenth century'

10 Castilla la Mancha Department of Education, Culture and Sports. n.d. 'Salón de Mesa.' Accessed August 15, 2024. <https://cultura.castillalamancha.es/patrimonio/catalogo-patrimonio-cultural/salon-de-mesa-de-toledo/>. 'Taller de Moro.' Accessed August 15, 2024. <https://cultura.castillalamancha.es/patrimonio/catalogo-patrimonio-cultural/taller-del-moro-de-toledo/>.



(2004, 93–94). It was a key conquest in the fifteenth century for the Catholic monarchs, who lost no time in renovating and moving into its palaces, allocating them for military, religious, and royal residential functions (McSweeney 2020, 83–100). The variety of ceilings on display at the Alhambra no doubt had an impact on those who witnessed its celebrated interiors after 1492 CE. The Nuremberg doctor Hieronymus Münzer visited the newly-conquered Alhambra palace during his travels through Europe from 1494 to 1495 CE. His description includes a lavish depiction of the colours and materials of the ceilings (he erroneously describes them as made of gold, lapis, marble, and cypress) noting that it was not possible to properly describe their craftsmanship (Puyol y Alonso 1924, 89). One of the first to enter the palace complex after its conquest was the patron of the V&A Torrijos ceiling, Gutierre de Cárdenas (1440–1503 CE), a prominent courtier and close confidante to the court of the Catholic monarchs. The palace that he built with his wife Teresa Enríquez in Torrijos was under construction at the time of Granada's conquest. While it was built in a Renaissance style typical of Castile at the time, it is not hard to imagine that their choice to commission four wooden, domed ceilings, in a variety of designs with their star motifs, *muqarnas* squinches, Arabic inscriptions in plaster friezes, and gilded and painted wood, was influenced by the splendour and variety of the ceilings that Gutierre had witnessed at first-hand in Granada, in the celebrated halls of the Alhambra.

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