

THE NASRID MARISTÁN OF GRANADA. RESTORATION OF A MONUMENT AT A DIFFICULT CROSSROADS

EL MARISTÁN NAZARÍ DE GRANADA. RECUPERACIÓN DE UN
MONUMENTO EN UNA DIFÍCIL ENCRUCIJADA

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ABSTRACT: this article considers the consolidation and restoration project of the southern portico of the Maristán. Outstanding historical keys that go beyond the mediaeval period, are provided, and events of the long process that takes place since its incorporation into the public heritage in 1984 until today, are explained. As the recovery of this building is made from remains in very poor conditions, the methodology followed in the project is detailed, and technical solutions that act as a support for a difficult path that interacts with the remains of the original building and makes it understandable as a spatial and functional structure, are described.

KEYWORDS: maristán, mint, restoration, consolidation, recovery

RESUMEN: este artículo trata fundamentalmente del proyecto de consolidación y restauración del pórtico sur del Maristán. Se aportan las claves históricas más relevantes que no se detienen en la etapa medieval, y se explican las vicisitudes del largo proceso que transcurre desde su incorporación al patrimonio público en 1984 hasta hoy. Como la recuperación de este edificio se hace a partir de unos restos en condiciones muy deficientes de conservación, se detalla la metodología seguida en el proyecto y se describen las soluciones técnicas que actúan como soporte de un difícil camino que interactúa con los restos del edificio original y lo hace comprensible como estructura espacial y funcional.

PALABRAS CLAVES: maristán, casa de la moneda, restauración, consolidación, recuperación

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IL. 1. Juan Antonio García Granados. South pavilion, with part of its roof collapsed, once the archaeological excavation of the site and the work to remove debris from the pool had begun (1985).

1. Introduction

The Maristán de Granada is located in the heart of the lower Albaicín, in front of the Monasterio de la Concepción, very close to Carrera del Darro. Founded by Muhammad V in 1367, it is an exceptional testimony to the splendour of 14th century Granada, and the Maristán is the only hospital in Al-Andalus about which there is any significant information.

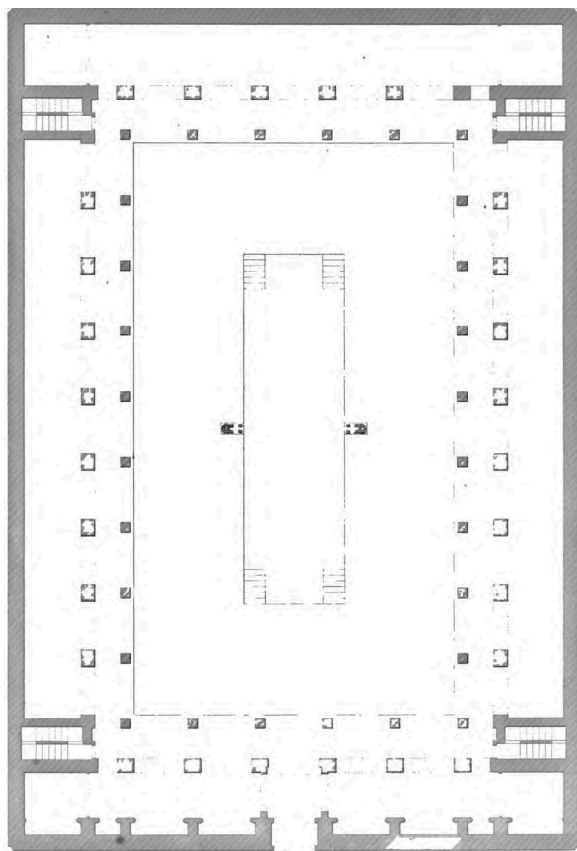
The remains of the Maristán have presented a difficult challenge in terms of their restoration because they are structures that have survived after being encased by and combined with other, later constructions that were interwoven with the medieval buildings, and have been practically demolished in their entirety. When destruction of the Maristán was halted in 1984 it meant the beginning of interesting work to remove the construction elements that hid the original structure in the part of the building that remains standing at the far south of the plot.

At the same time, highlights of the the initial archaeological campaign carried out in 1984–1986

included the appearance of low standing remains from other bays in the building and a first section of the patio pool. There is still a section of unexplored soil in the remaining land with intense filling that may well lead to extremely interesting information about this monument. Since then, an alliance has been forged between remains that are in danger of disappearing and a fertile subsoil that sustains our knowledge of such a complex past.

Some interesting data regarding the dimensions are provided below (measurements were taken on the middle axis of each space):

- The Maristán plot: 37,30 x 25,15 m.
- Courtyard: 26,16 x 15,00 m.
- Pool. Surface of water: 16,20 x 4,50 m.
Depth: 1,10 m.
- Pool including thickness of wall
(1,25m): 18,70 x 7,00 m.



IL. 2. Francisco Enríquez, Floor plan of the Arab Hospital in Granada. In: CLAYE, J (imp.), GIDE (ed.), GAILHABAUD, J (ed. lit.). *Hospital Arabe a Grenade. Plan, T. 3*, n.d. (1858).

2. Historical-documentary research to support intervention

Building work on the Maristán began in September 1365 on the orders of Muhammad V and lasted until June 1367, according to the foundation stone that adorned its entrance gate. One of the reasons for its swift construction could be due to the existence of a previous building on the site with a similar morphology and distribution of spaces.

The function of this hypothetical building is unknown, although the division of its floor plan into four bays set around a central patio suggests it may have had a similar use to a fanadiq (inn), ribat (monastery) or madrasa (Islamic school), or particularly to the contemporary Marinid schools of Morocco¹ (14th century). Along similar lines to a fanadiq, there has also been speculation that it is possibly functioned as an *okels*² (*Khans* or caravasar) because of its

typological similarities with this family of oriental buildings³. Also, it has frequently been observed to have a similar floor plan and elevation to the Corral del Carbón in Granada.

The Nasrid Maristán may have resulted from the refurbishment of a pre-existing building, to which a second floor and pool were probably added while access to the rooms was modified. The old hospital therefore had a rectangular floor plan with four two-storey bays –symmetrical with their opposite side and preceded by a porticoed gallery– arranged around a central courtyard with a pool in the centre that was flanked on its longest sides by two monumental lion sculptures, now at the Alhambra Museum.

The stairs were presumably located in the centre of the longest sides, while the northern façade was used as the main entrance where the foundation stone of the hospital⁴, was placed; this stone detailed that the sultan was the patron of the work, its function, period of construction, etc.

It is not known on what date the building began to be used as a mint. Some historians date this new use after the conquest of the city by the Catholic Monarchs (1492) or slightly later, between 1499 and 1502⁵; while others claim that it was an Arabic

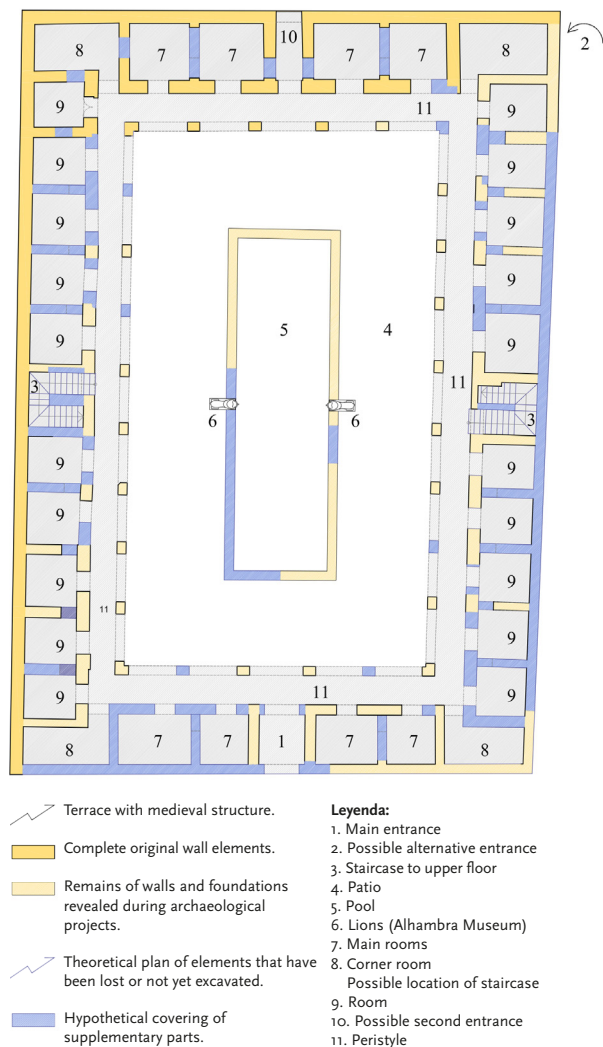
1. TORRES BALBÁS, L. El Maristán de Granada. In: *Crónica de la España musulmana XV*, vol. IX, 1944, p. 497.

2. DESSALINES D' ORBIGNY, A. *Viaje pintoresco á las dos Américas, Asia y África*. Imprenta y librería de Juan Oliveres, Vol. 3, 1842, p. 5.

3. CLAYE, J. [imp.], GIDE [ed.], GAILHABAUD, J. [ed. lit.]. *L'architecture du Vme. au XVIIme. siècle et les arts qui en dépendent: la sculpture, la peinture murale, la peinture sur verre, la mosaïque, la ferronnerie, etc. / publiés d'après les travaux inédits des principaux architectes français et étrangers par Jules Gailhabaud*. Paris: Gide, Éditeur, T. 3, 1858, s.p. Available online: <https://catalog.hathitrust.org/Record/009268277> [Access 03/09/2020].

4. TORRES BALBÁS, L. (1944). *Ob. cit.*, p. 489.

5. SALVATIERRA CUENCA, V.; GARCÍA GRANADOS, J. A. El Maristán: visión arqueológica. In: *El Maristán de Granada: un hospital islámico*. Granada: Spanish Association of Neuropsychiatry, 1989, p. 51.



IL. 3. Pedro Salmerón Escobar, Diego Garzón Osuna. Restoration of the Maristán floor plan, identifying the preserved remains. (2019).

mint before that date due to the construction of a new hospital in Plaza de Bibalbonud⁶ (today Placeta del Abad) in the mid-15th century.

The 1980 excavations in the south bay documented the changes made to the layout of the medieval building: essentially, some rooms were expanded by joining together pre-existing spaces and the interior corridor that connected all the sides was eliminated.

As a result of a visit to the building by royal mandate in 1585, sources state that at this time approximately «one hundred workers and coin makers, relatives of one another»⁷ worked there. At this

stage, the mint needed repairs, especially to its tiled roofs, which were partly sunken and damaged, and the pool «which was itself neglected and the drain was blocked»⁸.

The most important room, known as the Treasury Room –recorded as being in the upper storey of the south bay– was «where the treasurer and other senior officers of the house usually worked»⁹. The rooms where the coin was minted (minting workshop¹⁰) are presumed to have been on the ground floor, very close to the Treasury (probably also in the south or west bay), and there may have been a possible alternative entrance to the main entrance¹¹ on Calle Bañuelo.

In Granada, there were as many as «eight small furnaces (hornas)»¹². There were also other technical departments: a room for the engraver (perhaps a workshop for engraving dies¹³), a smelting room («quarto de las fundiciones») where the copper coin was melted with the silver coin; and a

6. MARTÍN GARCÍA, M.; GARCÍA GRANADOS, J. A. El Maristán tras el hallazgo de sus restos. In: *Cuadernos de Arte de la Universidad de Granada*, XIV. XVI, 1984, p. 10.

7. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1582). Fomento/ Sig. C. 01929.0020.

8. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1582). Fomento/ Sig. C. 01929.0020.

9. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1655). Fomento/Sig. C.01929.0034.

10. TORRES LÁZARO, J. Obreros, monederos y casas de moneda. Reino de Castilla, siglos XIII-XV. *Anuario de estudios medievales*, núm. 41, 2, 2011 (Ejemplar dedicado a Tecnología Medieval en el Mediterráneo Occidental), p. 676. Available online: <https://dialnet.unirioja.es/servlet/articulo?codigo=3836851> [Access 03/09/2020].

11. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1655). Fomento/Sig. C.01929.0034.

12. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1661). Fomento/Sig. C.01929.0039.

13. TORRES LÁZARO, J. (2011). *Ob. cit.* p. 676.

final unit, which functioned as a testing laboratory («quarto del ensaio»¹⁴).

During the first third of the 17th century, Andrés Horacio de Lebanto is recorded as being the treasurer and owner of the house. On his death, the estate passed to his daughter in 1637; however, it was not definitively adjudicated until 1656 because the will triggered a lawsuit among his relatives¹⁶.

Later, the building was acquired by the Discalced Mercedarian friars of the Convent of Bethlehem¹⁷, and this community proceeded to sell it in 1748. From this moment onwards, its new owner –a wine merchant named José Merchante– began a programme of works that would transform the building, aiming to adapt it to its new function¹⁸, obtaining ample space for storage and stables for the draught animals.

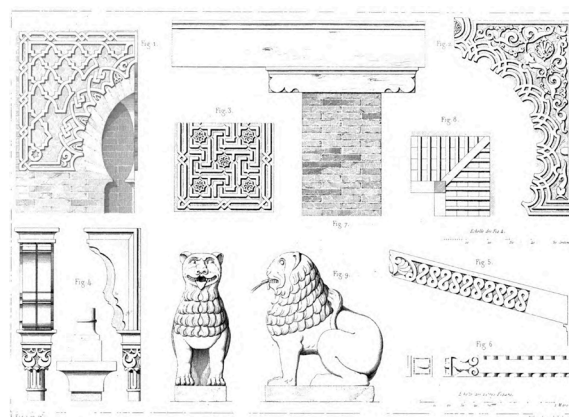
A new sale must have taken place in around 1825 because it then functioned as a «prisoners' barracks»¹⁹. The inhabitants of the penitentiary even started a fire in its facilities in 1834, causing serious damage.

In 1841 the building was acquired by Vicente López who, on being informed of its ruinous state, requested a licence to demolish it but met with great opposition from various intellectuals of the period. At that time, architect, restorer and academic Francisco Enríquez y Ferrer drew up a series of plans outlining its distribution with floor plans, cross-sections, the main façade and its most significant construction, decorative and sculptural elements.

The protests were ignored and in August 1843 the north and west bays were demolished. The demolition was denounced by the Chairman of the Ornament Commission as it did not have the corresponding license from the Municipal Council²⁰.

José Giménez Serrano describes the devastated circumstances in which the property found itself in an article published in *El Siglo Pintoresco* in 1846:

«In the centre of the rubble-filled site, one can still see the pool, around which white oleander is growing; and among the fragments of carved stucco, luxuriant myrtle



IL. 4. Francisco Enríquez, Façade and drawing of constructive, decorative and sculptural elements. In: CLAYE, J (imp.), GIDE (ed.), GAILHABAUD, J (ed. lit.) *Hospital Arabe a Grenade. Elevation et Coupe longitudinale*, 1858, T. 3, s.p. <https://cutt.ly/lhcASP7>

stalks and shoots of Alexandria and Bengal roses are laboriously emerging, which seem to be trying to cover that sad and desolate ruin with their green garlands»²¹.

It was later thought that the Maristán had disappeared completely, except for its entrance, whose

14. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Visita a la Real Casa de la Moneda de Granada (1661). Fomento/Sig. C.01929.0039.

15. TORRES LÁZARO, J. *Ob. cit.*, p. 679.

16. ARCHIVO DE LA REAL CHANCILLERÍA DE GRANADA. Pleito entre Francisca Benita Levanto, vecina de Granada, con Ángela Levanto y consortes, vecinos de Sevilla sobre la sucesión de los bienes que dejó Andrés Horacio Levanto (1656). Catálogo de Pleitos / Caja 586-19.

17. SALVATIERRA CUENCA, V.; GARCÍA GRANADOS, J.A. (1989). *Ob. cit.*, p. 53.

18. MARTÍN GARCÍA, M.; GARCÍA GRANADOS, J.A. (1984). *Ob. cit.*, p. 10.

19. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Petición de que los presos de la Casa de la Moneda sean trasladados, argumentando las molestias que causan a los vecinos (1834). Beneficencia y Sanidad/Sig. C.00139.0017.

20. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Correspondencia (1845). Gobierno. Alcalde/Sig. C. 01929.0111.

21. GIMÉNEZ SERRANO, J. *España pintoresca. La casa de la Moneda en Granada, El Siglo Pintoresco*, Tomo II, núm. 89, 1846, p. 152-153. Available online: <http://hemerotecadigital.bne.es/ detalles.vm?q=id:0003796854&lang=es> [Access 03/09/2020]



IL. 5. Pedro Salmerón Escobar, Diego Garzón Osuna. Ground floor of the Maristán site, identifying its uses before the 1984 demolition (2019).



IL. 6. Juan Antonio García Granados, 1984, photo. Demolition of the apartment house that occupied the east bay of the Maristán.

«stone with Arabic inscription» was placed in the capital's (archaeological) museum on 21 November 1845²². Since then, and until the 1970s, when initial research into the site began²³, the remains of the old building were lost in oblivion. In view of the important evidence found, in July 1981 the Commission of Historical and Artistic Heritage decided to initiate proceedings to declare the site an Archaeological Monument.

Shortly afterwards, the property was sold to some private individuals who applied for a municipal building permit to develop an apartment project inspired by Enríquez's drawings. At this time, the property was divided lengthwise, from north to south, by a wall that took the east side of the pool as the site of its elevation, creating two sectors that were divided into plots and occupied by different buildings.

After a brief period of tension between the supporters and detractors of this development project, the Historical Heritage Commission agreed to carry out excavations, and the Archaeological Museum of Granada was entrusted with managing this work, forming a technical team in 1983.

Despite this, the partial demolition of the building (east side) began without impediment. Before the damage was irreparable, the museum made an agreement with the owners to perform the planned excavations; at the same time, debris was being removed and the Andalusian Government was taking steps to acquire the plot²⁴.

Once the process was completed in 1986, thanks to the expropriation of the site, new excavation works and other additional processes were begun and these have continued until practically the present day. However, intervention and enhancement has been the big issue in recent years, especially since the Maristán was made a monument in 2005²⁵.

3. Restoration of space and function

3.1. Reflections on the urban location and the organization of the building

Other important remnants from the medieval period are located very close to the space occupied by the remains of the building such as the Baño del Nogal, popularly known as *Bañuelo*, the Nasrid House of Zafra and the archaeological remains of the old gate of Los Tableros with its floodgates, a key point of the *coracha* (section of wall) that provided water to the Alcazaba Qadima in the Albaicín and the Alcazaba of the Alhambra itself. Numerous people and pack animals travelled across the top of this inner urban wall to transport water; this was of strategic importance for the medieval city before the Acequia Real (Royal Channel) and main city channels were operative. This functional axis passes through the Maristán itself and explains the possibilities offered by its location and its links to primitive structures related to water; these subjects will be explored in the archaeological study planned in the project.

The Maristán has a porticoed structure around a rectangular courtyard presided over by a large pool. The rooms are constructed and connected with a peristyle on the ground floor and a gallery on the upper floor. There are two possible positions for the stairs, in the centre of the longest sides, or the corners; this aspect will be analysed in the archaeological research. The courtyard is the main feature and the two marble lions give a sense of concentrated

22. ARCHIVO HISTÓRICO MUNICIPAL DE GRANADA. Correspondencia (1845). Gobierno. Alcalde/Sig. C. 01929.0111.

23. SALVATIERRA CUENCA, V.; GARCÍA GRANADOS, J. A. (1989). *Ob. cit.*, p. 15-16.

24. *Ibid.*, p. 18.

25. DECREE 113/2005 of 26 April declaring the Nasrid Maristán in Granada an Asset of Cultural Interest, with the category of Monument. *Boletín Oficial de la Junta de Andalucía* [online], no. 92, Seville, 13 May 2005, p. 42-45. Available on the Internet: <http://www.juntadeandalucia.es/boja/2005/92/boletin.92.pdf> [Access 04/09/2020]

balance to the discourse of the water in a type of ritual that probably had both a symbolic and therapeutic purpose.

The structure can be described as having a special magnetism, a subtle attractiveness, if it is imagined as an architectural object with a firm geometry in the medieval urban framework, possessing a type of vanishing point that leads to the Alhambra fortification, whose bastions soar straight upwards in

a stunning view that forms a dominant backdrop. The Maristán was constructed at almost the same time as the Patio de los Leones and shares with it the concept of a model with porticos on four sides and the symbolic presence of lions: strength and guardianship, conducts for the the most precious good, water, a vital sustenance that is also aesthetic and resonant. At the same time, it shares elements with another earlier palace patio, the patio in Comares Palace, with its decidedly rectangular design



IL. 7. Pedro Salmerón Escobar, Diego Garzón Osuna. Location of the Maristán in the urban plot (2019).

and a pool as the main feature. The utilitarian organization and distribution of the Maristán, with small rooms connected to double-storey galleries is highly reminiscent of the Corral del Carbón, although each building had a different function.

The only part of the original building that survives as a decent-sized structure is the south sector. Its roof is a metallic gabled structure covered and sealed with fibre cement sheets. This covering was made in 1988-1989 under the management of architect Eduardo Martín Martín and became the building's image until 2020. Its protective function, originally intended for a limited period of time, remained for over three decades. This long period of paralysis was undoubtedly due to a lack of funds but another equally important factor must be taken into account: the dilemma surrounding how to restore such a damaged and controversial physical structure with such fragile building materials.

3.2. The dilemma of how to proceed with restoring the property

The reconstruction debate has a long history, especially in a continent like Europe that has been punished by two world wars with far-reaching destructive consequences. The concept of recovering an identity lost in such a traumatic way has been behind widespread mimetic reconstructions, what occurred in Warsaw after the Second World War, for example; cases in which a more distant restoration has been used with a commitment to contemporaneity have been more successful. This could be applied in the case of the Maristán, where different actions are viable depending on what is preserved in a process that adds the necessary objectivity to the restoration.

It has been very difficult to progress towards finding a solution for the Maristán without dividing any intervention into the property into two or more stages. Any attempts to establish a unitary project without distinctions have proved unsatisfactory. The complete reconstruction of the building has run up against legal and methodological problems because a large part of the building is lost. If there is no solid starting base, a false copy of what disappeared could be produced, as Carlo Ceschi explains²⁶,



IL. 8. Pepe Marín. General view of the Maristán before the intervention, Board of Trustees of the Alhambra and Generalife (2016).

without meeting the applicable requirements in an intervention in historical heritage in accordance with the current legislation and the directives and regulations in this area. In contrast, the southern pavilion offers a solid anchorage point that sets it apart from the rest.

After several attempts to find a viable solution by the Department of Culture of the Andalusian Government, the process sped up in 2016 when the Board of Trustees of the Alhambra and Generalife was entrusted with financing an intervention; the Board welcomed this challenge within its programme of buildings linked to the Alhambra in the city of Granada. In this way, continuity was given to an interesting relationship with a new management

26. CESCHI, C. *Teoria e storia del restauro*. Roma, 1970. Capítulo XII: Esperienze di guerra e problematiche della ricostruzione, p. 168-208.



IL. 9. Manuel Torres Molina "Patio of the Corral del Carbón (before restoration)". The Corral del Carbón is one of the few examples of public Arab architecture that is preserved in Granada. It was part of the non-residential structure of the Islamic city where the main commercial activities took place. (1920-1930). APAG. Colección de fotografías. F 00012.



IL. 10. Manuel Torres Molina Granada. Corral del Carbón, patio. Interior view of the patio of the Corral del Carbón, with the water basin in the centre and two floors of arcades (1930-1933?). APAG. Colección de fotografías. F 07298.

concept that began in 1933 when the Corral del Carbón was acquired and declared a monument thanks to architect Leopoldo Torres Balbás, who ran a brilliant policy of acquiring relevant pieces of urban architectural heritage from the Hispano-Muslim period²⁷.

The remains can be divided into three recognisable areas that can be approached differently: the south portico, the pool and the rest of the building's bays where various archaeological remains have emerged. The intervention becomes unblocked from a conceptual point of view when these parts are differentiated to be worked on in two phases. The initial

2016 commission focused on the south portico and the closest sector of the pool to ensure the intervention made sense, because working on the pool explains its relationship with the patio as the defining feature of this beautiful building.

3.3. Intervention on the south portico and the pool from a conceptual perspective

The south portico represents value in itself despite being in ruins because every action on each constituent material, whether this is wood, brickwork or rammed earth, can be followed step by step as these elements are dismantled, reassembled or reinforced. In other words, there is enough evidence to make a rigorous analysis of the situation and propose the most appropriate action. Too much time has passed since it was put in place, but the temporary cover has protected the remains from disappearing. Much can be learned from the lesson they offer, their positioning, their capacity for closing and defining spaces, which is indicated by the textures of the bare walls that also speak of an evolution. These vestiges have sufficient power of seduction. Intervention is unnecessary, instead it is a question of working alongside them.

The project marked out the actions and proposed which parts should be dismantled for restoration and then replaced, such as the wooden beams of the battens or the brick columns of the portico that are still standing. The walls were not demolished and were reinforced by encasing them in a way that was compatible with the original to recover their load-bearing and functional value. In terms of individual elements such as wooden joists etc. that could not be replaced in the building due to excessive damage, plans were made to store these elements in the spaces made available for this purpose at the Board of Trustees of the Alhambra and Generalife, or to exhibit them in the building itself with a selection of the most significant, as indicated

27. SALMERÓN ESCOBAR, P. Torres Balbás. Los inicios de la planificación en la Alhambra. In: *Leopoldo Torres Balbás y la restauración científica* Ensayos. Granada: Patronato de la Alhambra y Generalife, Instituto Andaluz de Patrimonio Histórico, 2013, p. 109.



IL. 11. Pedro Salmerón Escobar, Diego Garzón Osuna. Floor plans and perspective of the Maristán, indicating the stages of the intervention (2019).

by Camilo Boito (1836-1914) in accordance with the conditions that any new addition must meet in a restoration²⁸.

The pool was another incentive for this restoration, which was planned based on the principles of scientific restoration; the pool is visible because it is marked out by walls, even if they have been altered by additions, while the pool bottom has been transformed but is recoverable. The advantage of the pool from a preservation point of view is that it is a structure that goes deep into the ground and barely touches the surface to achieve its function, making it less vulnerable –this simple fact has delayed its alteration or destruction. In addition, it was a useful resource for storing water across periods, either as a tank or for hygiene and cleaning purposes. It is the second sector to which the principle of use can be applied– transforming the architectural elements and proposing, on the basis of its material nature, its full integration into the finally restored building.

This means that, similarly to the rest of the intervention, when identifying the pool as an object, its constituent elements as a construction piece must be studied at an archaeological level, and also its function as a water store with a hydraulic installation that allows water to enter and exit, cleaning and makes the lions function, with added value from an ornamental and symbolic perspective. Archaeology will carefully dissect this fundamental piece of the Maristán; a study of the original paving is also proposed and these remains should emerge during an intervention that affects the whole space. It is not uncommon during a project of this type for valuable elements to emerge during the course of the work, meaning it is important to envision a need to adapt to the unforeseeable. This is also true for studies of the walls that are related to archaeological research into establishing how the building was constructed and the logic of its precisely fitting elements in a brilliant moment in Hispano-Muslim construction. The project is intended to contribute to an in-depth knowledge of the Maristán while preserving and enhancing it at the same time.



IL. 12. Pedro Salmerón Escobar. Deterioration of south portico footing, lower level (2015).

4. The construction project

In addition to a description of the planned construction solutions for restoring the southern half of the Maristán, it should first be emphasised that the original remains of the building are very poorly preserved. It is highly fortunate that the pillars of the southern portico and part of the nearby walls are still standing. The fact that the building was adapted for other uses during its long history contributed to maintaining the southern bay until the present day, while the remaining wings that surrounded the patio fell by the wayside during successive processes of ruin and demolition. Occupation of the site has helped it endure over time, although this has led to an excessive use of the materials and construction elements as indicated below.

4.1 Filling on the site. The original paving and the pool

The building progressively fell into ruin in a series of processes that began in the 19th century with the collapse of the west bay; these processes were responsible for the gradual elevation of the courtyard and, as a result, the level of the ground floor paving. The lack of a workforce and the economy made this a frequent occurrence in the Albaicín in times past,

28. CAPITEL, A. *Metamorfosis de monumentos y teorías de la restauración*. Madrid: Alianza Editorial, 1988, p. 32.



IL. 13. Pepe Marín. View of the pool and south portico before the intervention (2016). APAG.

where, in addition, bringing materials in and out is especially difficult due to its intricate urban morphology. When part of the building collapsed, instead of removing the rubble, its inhabitants spread it out over the ground floor of the site, even clogging up the central pool, causing the ground floor paving to be raised. Therefore, one of the main vectors for restoring the Maristán involves excavating this area of filling, which is about 1.5 m deep. It consists of dispersed material of different types under which successive pavings describe the material history of the building, from the location of the original medieval level, to the emergence of foundry furnaces from its use as a mint or the existence of cobbled pebble and rubblework paving from the time when the Maristán was a wine warehouse.

Recovering the original level of the courtyard will release the columns of the peristyle that are currently half-buried, revealing their full size, which is proportional to the slenderness that can be observed in the upper storey. At the same time, the building work will make it possible to rescue sections of the original paving, integrating them with new pa-

ved areas through the use of ceramics or stabilised soil. The original profile of the pool will need to be recovered by dismantling a metre-high elevation of its wall, which must have been used to make the filling from demolished parts of the original building compatible with the pool's permanent functionality.

After this first phase, the southern half of the pool will be recognizable. The hydraulic installation that is so closely related to the founding use of the Maristán for welfare purposes should, however, wait for the second phase of the monument's restoration in which its northern half will be excavated and enhanced. This intervention will involve restoring the parapets, basin and floor of the pool, proposing that it be temporarily filled with clean, inert sand and mortar until the second phase is implemented, with a layer of crushed glass as a finish that will evoke a sense of the water it contained as this material plays with the light.

4.2 Consolidating the soil

Current heritage interventions are required by law to address structural safety. This precept is particularly relevant at the Maristán, where numerous previous works have been carried out that can be used to evaluate the bearing capacity of the soil on which the building stands, trace the original foundations of columns and walls, and test samples of bonding mortars in brick elements, and the resistance of ceramic pieces and rammed earth in the laboratory. According to explorations carried out in this area in the 2003 geotechnical studies, 2017 geoelectric study and 2017 archaeological sampling, the Maristán's soil consists of different types of anthropic fillings to a depth of 7.90 m where solid ground is located, more specifically the Alhambra conglomerate. The foundations of the walls and pillars of the Maristán are around eighty centimetres below the original level of the courtyard; these are not foundations as such but rather the direct placement of the portico's brick pillars on the ground, or with a small drainage fill in the case of the load-bearing rammed earth walls that form the habitable bays.

In this type of situation there are two alternatives: pile-driving and soil consolidation. The first implies significant interference with the location and crea-

tes resistant flaws that have repercussions in terms of earthquakes, in combination with the intrusion of ties from the pile or micro-pile heads. Considering the process to be less harmful, a proposal was made to the Alhambra Board of Trustees to consolidate the soil using an improvement system based on deep resin injection. This technique is widely used to preserve monuments and consists of introducing expansive resins into the ground, near pillars and walls, using vertical or slightly inclined cannulas with a 50 mm diameter. Once it has set, the resin compacts the ground and immediately increases its load-bearing capacity. Underpinning work is performed with precise low-pressure pumping and topographical control instruments.

These tasks are carried out once the archaeological excavation has been completed, having removed the filling and the metal structure that has protected the Maristán from the weather to date. This method consolidates soil that has been relieved of the load from additional elements that have accumulated over time. A further precaution that must be taken before ensuring the cohesion of the soil is dismantling the portico pillars, due to their compromised state of balance, and shoring up existing alfarje panelled ceilings and walls.

4.3 Structural fatigue. The original pillars and walls

One of the direct consequences of the partial demolition operations carried out between 1988 and 1989 on the building that occupied the southern pavilion and covered the original remains was the elimination of all closing and supporting elements that were not considered to be contemporaneous with the Maristán founded in medieval times. This decision, although noteworthy from a heritage point of view, left the structure of the building in an extremely weak state, especially in a city like Granada where earthquakes are a frequent occurrence.

The removal of the previous roof at the end of the 1980s and the elimination of auxiliary structural parts meant that the patio pillars (two storeys), the rammed earth walls of the ground floor and this floor's alfarje ceilings were no longer supported and were exposed to atmospheric elements and

seismic movement. As a result of this exposure, there has been widespread crushing of the pillar footings and these elements have notably collapsed, while decoupling, rotting and rheological fatigue have appeared in the alfarje parts. This is compounded by the widespread deterioration of the rammed earth walls.

The poor condition of the footings that provide support to the portico's load-bearing walls and battens is the result of their inability to withstand loads, and this in turn is due to extensive biological deterioration from infestations by xylophagous insects and brown rot. The faces of the rammed earth walls reveal widespread loss of the *calicostrado*, a thick layer of mortar rich in fat lime that protected them from the erosive effects of atmospheric agents. Analyses performed in 2018 revealed that the rammed earth walls are of substandard quality with little lime present to act as a resistant, stabilising agent, and insufficient clayey material, these factors all result in very poor cohesion. Consequently, the walls have large disintegrated areas.

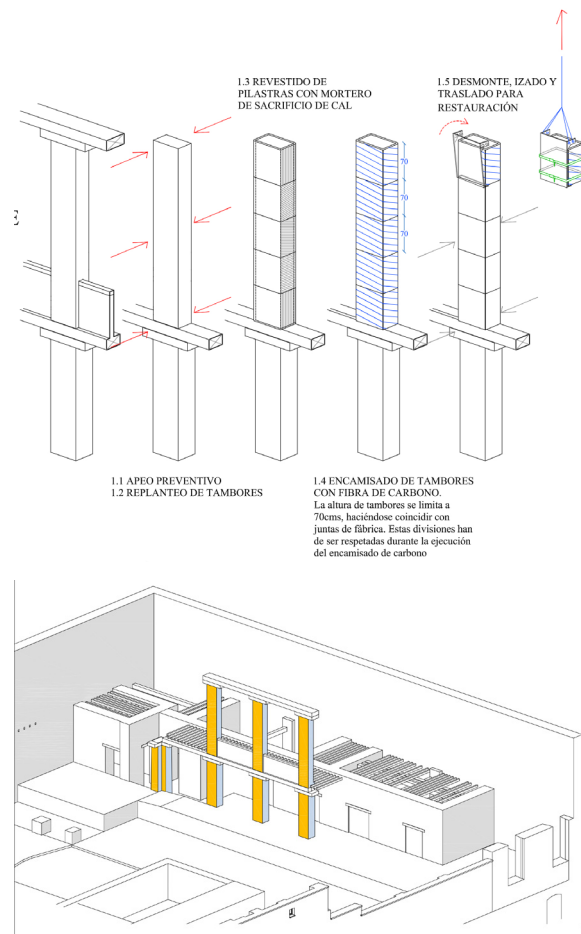
The pillars have an evident loss of verticality, especially the three on the first floor. For this reason these elements are joined to each other by a steel prosthesis added to the metal structure that has protected the remains for the last 30 years. The main reason dismantling the pillars is essential is the need to eliminate this auxiliary structure as a first step before excavating and removing the filling that covers the ground floor of the Maristán, thereby making the restoration of its volume possible. This task should be performed by dividing the pillars into drums that are confined with a strong casing that allows the pillars to be dismantled into 70 cm-high packages using a small hydraulic crane. By making an inventory of these elements under the supervision of a restorer, cleaning cement mortar overlays, the surfaces of joints and eliminating any unnecessary caulking, they can then be replaced in sections, using base planes with elastic mortar made from natural hydraulic lime. Once the drums that each brick pillar has been divided into have been relocated on the ground floor, the plan is to work on the gallery's alfarje ceiling after fitting restored footings and new wooden lintels. This solution will also be used on the upper floor.



IL. 14. Pepe Marín. Loss of verticality in the south portico pillars (2016). APAG.

Archaeological techniques have been used to locate the remaining, unpreserved portico pillars and original sections have emerged under the filling covering the ground floor. They will all be reconstructed, making it clear which are the new parts added to the originals by using different colours and textures in solid brickwork.

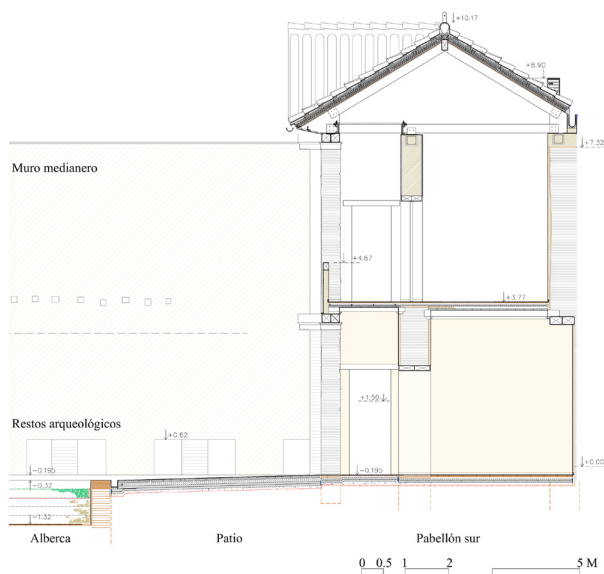
The joists used in the alfarje ceilings that rest on the pillars and load-bearing walls have fine, delicate carpentry work. In general, the battens have a 7 x 10 cm (width x height) scantling; their undersides are decorated with a marking gauge and have red, white and black pigments. It is important to note that in small areas of the gallery's ceiling boards, polychrome remains have been found that use the same pigments in ribbons or Greek key designs with geometric motifs. Most of the wood shows problems with rot and infestation by xylophagous insects that, in some cases, has led to mechanical failure, with extreme deformation and partial breaks. The intention is to recover as



IL. 15. Pedro Salmerón Escobar, Diego Garzón Osuna. Details and diagrams for dismantling the existing brickwork pillars (2019).

many pieces as possible using old wood prostheses and internal seams or reinforcements with fiberglass rods attached to the wood with epoxy resins. This will be done after the beams have had any infestations removed and been immersed in solidifiers. The alfarje ceilings that will be rebuilt will include original pieces alongside new pieces in laminated noble wood so that they can be differentiated. A thin compression layer must be laid on top to support the work performed by the beams using metal connectors, a light and resistant solution that will serve as a bearing plane for the ceramic flooring on the first floor.

The rammed earth walls that define the distribution of the living spaces in the south bay serve as a support for the alfarje ceilings described above and are the dividing enclosing walls of the complex. It should be noted that during the period that the building was unprotected (between 1985 and 1989), its exposure to atmospheric agents was decisive in its fate. There was accelerated damage to all structures (wood, earth



IL. 16. Pedro Salmerón Escobar, Diego Garzón Osuna. Section drawing of the south portico (2019).

and brick), as well as the loss of important cladding panels. However, the preservation work by archaeologists Granados and Salvatierra is noteworthy for their decision to remove some heraldic coats of arms from the front rendering on the southern dividing wall; these coats of arms are related to the mint and, more specifically, to its Treasure Room, located on the first floor of the pavilion. These elements are being restored by the Board of Trustees of the Alhambra and Generalife, with the intention of returning them to their original location.

The earlier analysis of the rammed earth walls highlighted a low proportion of binders (limes) and clays in their mineralogical composition; these are essential elements needed to give this type of structure maximum resistance. This situation, together with the loss of the «calicostrado», means that it will be necessary to establish a perimeter reinforcement with casing, using fibreglass meshes embedded in lime mortar that are joined to opposite sides of the walls by connectors made of the same material. Consequently any rebuilding of walls, introduction of floor slabs and new roofing solutions have been designed with strict weight controls to reduce loads. The walls that will be raised in the south portal will be made from resistant ceramic material to comply with regulations and will also be light to transmit the minimum possible load and react to earthquakes with a lower mass.

4.4 A new roof. Integration of the archaeological site.

The roof of the Maristán will be newly built because the original no longer exists and will differ in both construction and materials from other parts of the building. The project consists of a sequence of simple oak laminated wood frameworks formed by trusses and braces. The tiled roof is resolved with traditional flat Arabic tiles and cornices that project out significantly with a volume that is reminiscent of cornices from the Nasrid era.

The roof has two pediments where the bays built on the east and west sides of the building must have continued, an allusion that will allow visitors to admire the south pavilion as just one more piece in the building complex surrounding the patio.

The work will be completed by restoring the sections of brickwork wall and foundations that have emerged in the east and west bays of the patio. These areas make it possible to visualize the distribution of small rooms set around the courtyard and to anticipate the refurbishment of the archaeological site that will be achieved by integrating all elements of the complex.

4.5 Analysis as a tool

Putting the southern pavilion to use involves restoring archaeological remains in a situation that is far removed from their original functional capacity. Repurposing these remains so they can be integrated into a visitable building must meet the same requirements as a new building. To achieve this objective, the intervention must be approached with precise knowledge of the material nature of the remains that will be integrated into the new use, especially from a structural point of view. The allocation of load-bearing capacity to sections of brickwork or rammed earth walls requires an analysis of their materials and the cohesiveness between them.

Similarly, it is important to find out the capacity of the land that will support the building. The 2003 geotechnical study did not allocate load-bearing capacity to the stratum of filling until a depth of 7.90 m. The 2018 electrical exploration of the subsoil confirms the thickness of the man-made filling and

helped to locate the foundation levels of the building's remains.

As the original remains that have surfaced at the Maristán are mostly rammed earth, four samples were analyzed for identification by granulometry (UNE 103101:95) and Atterberg limits (UNE 103103:94 and 103104:93); their remarkable lack of cohesion made the preparation of the samples difficult (UNE 103100:95) and revealed very low resistance levels.

For information about the brickwork, the compressive strength (UNE EN 772-1:2001) and apparent density (RL-88) of three samples of ceramic bricks were examined leading to varied results that are very different from the performance of contemporary materials.

Analysis of the carbonate (UNE 103,200:93) and organic matter (UNE 103204:93) content of three lime mortar samples from brickwork walls and pillars confirmed the weakness of the remains that

Rammed earth	Liquid limit	Plastic limit	Plasticity Index	Carbonates CO ₂ CA
1	30,60%	28,80%	1,8	-
2	28,10%	25,80%	2,3	-
3	30,30%	27,50%	2,4	10,10%
4	29,30%	28,20%	1,1	13,80%

The rigorous quality control system that must be applied to the entire intervention process has not gone unnoticed by the body responsible for the monument. Applying this system to analysis techniques means that decisions can be made based on scientific knowledge of the materials and construction systems present in the Maristán and, from this starting point, adjustments can be made in accordance with current legislation to complete a restoration that is consistent with the original values of the property.

Masonry	Resistance N/mm ²	Density g/cm ³
Brick 1	8,70	1,49
Brick2	6,00	1,42
Brick 3	3,50	1,46

Masonry	Organic matter	Carbonates CO ₂ CA
Mortar 1	0,39%	34,60%
Mortar 2	0,58%	22,20%
Mortar 3	0,71%	23,70%

5. Guidelines for a comprehensive restoration of the heritage space

The restoration of the southern pavilion will follow the project and apply a rigorous methodology that is continuously assisted by archaeology and conservation experts. These items include:

- Removal of the fibre cement roof and the steel structure added to protect the ruins. Eliminate the shed located in the south-west corner, also covered with fibre cement.
- Consolidate the land, dismantling, lifting and reinforcing original construction elements.
- Create a newly built roof, finished in Arabic tiles, that illustrates the connection with the lost pavilions located to the east and west.
- Restore the southern sector of the patio and integrate the corresponding part of the pool and surrounding paving.
- Establish provisional access from Calle Bañuelo so that the work can be seen, once completed, independently from the rest of the plot.

The stability problems of the dividing wall located to the east and a failure to understand what the sole recovery of the south pavilion could offer, have led to some of the objectives of the intervention being reconsidered. Finally, a situation arose that clarified the proposal: the Department of Culture, as the developer with ultimate responsibility, decided that the project (referring to the south portico), included guidelines with sufficient details and specifics for the whole of the Maristán, so that a second phase to resolve several fundamental issues was defined:

- Support of the eastern dividing wall, which has unquestionable archival value but is very unstable

and could, in the future, compromise all the work that has been done.

- Protect the remains emerging from the east, west and north bays.
- Create easy access for people with reduced mobility from Calle Concepción and include a lift or adapted platform.
- Propose an architectural solution that is different to the original construction system used in the southern pavilion, but that formally ties in with it, giving it a relevant and logical role in an overall solution.
- The action above should be based on restoring the courtyard and the pool, providing this area with the necessary conceptual and aesthetic unity.

This decision represents a decisive change of direction so that the actions in the south pavilion fit in appropriately and a comprehensive solution can be developed within the guidelines, consisting of a laminated wooden structure that allows the east wall to be fastened, the emerging remains to be protected and the route adapted to all types of public. The new structure has a dimensional sequence that matches the original supports, thereby achieving modular and visual balance throughout the entire courtyard enclosure, clearly distancing itself from the south portico but obtaining a sense of harmony between the various sectors, which are topped by a wooden roof finished in Arabic tiles that makes the architectural and urban integration of the complex possible. The project includes, in terms of progress, the floor plans for this solution and the images that accompany this text recreate views from different angles where various materials and solutions can be observed. The courtyard and the pool are integrated and replicas of the two lions that are kept in the Alhambra Museum will be installed, although made from a different type of stone.

In this work it was necessary to first define the section where preservation was inevitable and then try to resolve issues regarding the monument as a whole, harmonising a difficult synthesis of actions that include a well-considered reconstruction of the



IL. 17. Pedro Salmerón Escobar, 2001, photo. Lion from the Maristán in its previous location by the pool of the Partal Palace.

southern pavilion that is technically and scientifically supported by the pre-existing medieval elements and a conclusion to the whole monument that resolves, from a contemporary perspective, the restoration of a unique medieval welfare complex.



IL. 18. Pedro Salmerón Escobar, Lucía Balboa Quesada, Antonio Jiménez Quesada. Infographic. 3D image of the restored south pavilion (2019).



IL. 19. Pedro Salmerón Escobar, Lucía Balboa Quesada, Antonio Jiménez Quesada, infographic. 3D image. Central view of the restored Maristán in stage two (2019).



IL. 20. Pedro Salmerón Escobar, Lucía Balboa Quesada, Antonio Jiménez Quesada, infographic.
3D image of a detailed view of the south pavilion (2019).



IL. 21 Pedro Salmerón Escobar, Lucía Balboa Quesada, Antonio Jiménez Quesada, infographic.
3D image. Oblique view of the restored Maristán in stage two (2019).



IL. 22. Pedro Salmerón Escobar, Lucía Balboa Quesada, Antonio Jiménez Quesada, infographic. 3D image. Urban image from Bañuelo Street and Porteria de la Concepcion in stage two (2019).