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PARA OPTAR AL GRADO DE DOCTOR

The Representation of Power in the Art and Architecture of the Kingdom of Sicily during the Norman Period (1130-1189 AD)

La representación del poder en el arte y arquitectura del Reino de Sicilia en época normanda (1130-1189)

Volume I. Text

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TÍTULO DE LA TESIS:

La representación del poder en el arte y arquitectura del Reino de Sicilia en época Normanda (1130-1189) / The Representation of Power in the Art and Architecture of the Kingdom of Sicily during the Norman Period (1130-1189 AD)

DOCTORANDO/A: Maurizio Massaiu

INFORME RAZONADO DEL/DE LOS DIRECTOR/ES DE LA TESIS

(se hará mención a la evolución y desarrollo de la tesis, así como a trabajos y publicaciones derivados de la misma).

La presente Tesis Doctoral propone un análisis comparativo del motivo decorativo de la *muqarnas* en el arte y arquitectura normanda del reino de Sicilia (1130-1189) con el objeto de enmarcar los ejemplos normandos en la perspectiva de las producciones análogas, antecedentes, coetáneas y posteriores. De esta manera se intenta circunscribir desde el punto de vista espacial y cronológico los posibles focos de procedencia de los modelos acogidos, aclarando las posibles vías de llegada y la mecánica de transmisión al arte y a la arquitectura normanda. La investigación aporta nuevos datos sobre los procesos de intercambio y transferencia artístico-cultural en la Edad Media europea.

Ha sido relevante para este estudio la delimitación del trasfondo histórico, artístico y cultural de los objetos motivo de estudio, así como la descripción de la ingente cantidad de material utilizado. Al rastreo sistemático de la documentación y los materiales y su análisis ha añadido el doctorando el marco socio-cultural en el que se desarrolla la transmisión de los objetos artísticos motivo de estudio. El doctorando ha aplicado una metodología analítica en la que demuestra que se establece la creación de un modelo de análisis artístico específico para la transmisión de motivos, temas y formas. Como complemento informativo, todos los materiales han sido reunidos por el doctorando en un CD.

Como consecuencia de lo anteriormente explicitado, el doctorando ha demostrado con la aplicación de la metodología analítica desarrollada y aplicada en el presente estudio, el complejo proceso de intercambio y transferencia artístico-cultural en la

Edad Media europea, en este caso en conexión con el flujo de contactos e influencias procedentes del Oriente Próximo.

Por todo ello, se autoriza la presentación de la tesis doctoral.

Córdoba, 20 de Marzo de 2018

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Firma del Codirector

Fdo.: Doris Behrens-Abouseif

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I dedicate this work to Ana. She is the only one who knows how long and difficult this journey has been. We are both grateful to everyone who helped us throughout.

A NOTE ON TRANSLITERATION AND DATING

1. System of Transliteration of Arabic Characters

Consonants

ء	ʾ	ض	ḍ
ب	b	ط	ṭ
ت	t	ظ	ẓ
ث	th	ع	ʿ
ج	j	غ	gh
ح	ḥ	ف	f
خ	kh	ق	q
د	d	ك	k
ذ	dh	ل	l
ر	r	م	m
ز	z	ن	n
س	s	ه	h
ش	sh	و	w
ص	ṣ	ي	y

ة a/at (construct state)

Short Vowels: a, i, u Long Vowels: ā, ī, ū

2. Dating Notation

The years and centuries are given according to the Gregorian calendar (AD = *Anno Domini*) with dates given in Byzantine calendar (AM = *Anno Mundi*) and *Hijrī* dates (AH = *Anno Hegirae*) added in the case of historical events, or manuscripts and objects with dated inscriptions.

ABBREVIATURES AND ABBREVIATIONS

Amari (ed.) *Biblioteca*	Michele Amari (ed.), *Biblioteca Arabo-Sicula, ossia raccolta di testi arabici che toccano la geografia, la storia, le biografie e la bibliografia della Sicilia*, Lipsia: F.A. Brockhaus, 1857.
Amari (trans.) *Biblioteca*	Michele Amari (trans.), *Biblioteca Arabo-Sicula. Versione Italiana*, (2 vols.), Torino e Roma: Ermanno Loescher, 1880-81.
Amari, *Storia*	Michele Amari, *Storia dei musulmani di Sicilia*, (3 vols.), Firenze: Le Monnier, 1854-1872.
Amari, *Epigrafi*	Michele Amari, *Le epigrafi arabiche di Sicilia*, Palermo: S.F. Flaccovio Editore, 1971.
Brenk, *La Cappella Palatina*	Beat Brenk (ed.), *La Cappella Palatina a Palermo*, (4 vols.), Modena: Mirabilia Italiae, 2010.
CHI	*The Cambridge History of Iran*, Cambridge: Cambridge University Press, 1968-1991.
Creswell, MAE	Keppel Archibald Cameron Creswell, *The Muslim Architecture of Egypt*, (2 vols.), New York: Hacker Art Books, 1978.
DBI	*Dizionario biografico degli italiani*, Roma: Istituto della Enciclopedia italiana, 1960-.
EI	*Encyclopaedia of Islam (1st edition)*, eds. M.Th. Houtsma, T.W. Arnold, et al., Leiden: Brill, 1913-1936.
EI2	*Encyclopaedia of Islam (2nd edition)*, eds. P. Bearman, T. Bianquis et al.,

	Leyden/New York/Paris: Brill, 1960-2004.
EI^3	*Encyclopaedia of Islam (3rd edition)*, eds. K. Fleet, G. Krämer et al., Leiden/Boston, 2007- .
EIr	*Encyclopaedia Iranica,* Online edition, New York, 1996- .
Herzfeld, MCIA/Alep	Ernst Herzfeld, *Materiaux pour un Corpus Inscriptionum Arabicarum. 2e Partie. Fasc. 2: Syrie du Nord. Inscriptions et monuments d'Alep*, (2 vols.), le Caire: Institut Français d'Archéologie Orientale, 1954-56
Marçais, AMO	George Marçais, *L'Architecture musulmane d'Occident (Tunisie, Algérie, Maroc, Espagne, Sicile)*, Paris: Arts et Métiers Graphiques, 1954.
NCMH	*The New Cambridge Medieval History*, Cambridge: Cambridge University Press, 1995-2005.
Pope, SPA	*A Survey of Persian art from prehistoric times to the present*, ed. A.U. Pope, repr. Ashiya (Japan): SOPA 1977, [first published 1938-1977].
PG	Jacques Paul Migne (ed.), *Patrologiae cursus completus, Series graeca*, (161 vols.), Paris: apud J.P. Migne Editorem, 1857-1866.
PL	Jacques Paul Migne (ed.), *Patrologiae cursus completus, Series Latina*, (221 vols.), Paris: apud J.P. Migne Editorem, 1844-1855.

INTRODUCTION

1. Preliminary

The Norman art and architecture of Sicily display a wide repertoire of architectural and decorative features of oriental lineage. In residential architecture, various plans and forms found in the contemporary or earlier Islamic world were used in Sicily, such as T-plan reception rooms, turrets that project from the main body of the buildings and artificial ponds intended to reflect the main façades. In addition, such elements as the stone dome resting on squinches, the use of the ogival or two-centred arch and blind arches or arched panels which adorn most of the façades on Norman buildings can be cited as proof of the assimilation of an ancient Near Eastern tradition of Mesopotamian and Iranian origins, which had already been adopted by Islamic architects in the Umayyad dynasty, as well as in the following periods.

In the field of decoration, this influence was even more noticeable and explicit. It included lavish *muqarnas* in palaces, paintings with Islamic iconography, Arabic inscription bands, geometric and interlace star patterns in floor pavements, stucco window grills and wooden panels defining fields with vegetal decoration. While an Islamic influence over the art of Norman Sicily is well established, tracing its origins remains a subject of debate and scholars have attributed it variously to the Islamic West, North Africa, Fāṭimid Egypt and the Near East.

2. Purpose

The present research was devised with the aim to analyse certain of the above-mentioned oriental models assimilated in the architectural decoration of royal palaces built in the Norman Kingdom of Sicily (1130-1189 AD), and to correctly frame these buildings within the socio-political, cultural and artistic contexts of the kingdom, with a special focus on its relations with both the Mediterranean and the Near East.

In the beginning, a broad approach to both epigraphic and geometric decoration with Islamic influences was proposed. However, it became immediately clear that this focus was too general and the volume of material was too extensive, rendering it impossible to study in sufficient detail. Thus, it was decided to adopt a systematic focus on a specific type of geometric decoration, *muqarnas*, thus leaving the option of analysing epigraphic evidence open, as well as other kinds of decoration, whenever it was necessary or useful for the development of the discussion.

Muqarnas was chosen because it was used extensively in these Norman palaces, and it offered a potentially rich field for comparative study (comparison can be focused from different points of view, such as geometry, construction techniques and building materials, Sicilian examples apparently showing a great variety).

A regressive and comparative analysis of Sicilian *muqarnas* with similar examples known in the Mediterranean and Near Eastern areas was proposed, with three main art-historical purposes: the first was to

correctly frame the Norman examples from the perspective of analogous Islamic production.

The second was to circumscribe, from the spatial and chronological points of view, the possible sources for the introduction of *muqarnas* into Sicily.

Finally, through this evaluation it was hoped to clarify, by a comparative analysis, the potential ways by which this Eastern model arrived on the island and explain the mechanics of transmission to Norman art and architecture. As is usual in comparative research, it was hoped that a better understanding could be achieved, not only with a view to Sicilian *muqarnas*, but also to all of the examples compared.

Simultaneously it was planned to read the results of this analysis against a background of the socio-political, cultural and artistic contexts of Sicily and her relations with other Mediterranean and Near Eastern countries during the twelfth century, relying on the latest studies on this subject.

Due to geographical and political pointers, it is generally accepted that Norman architecture in Sicily was influenced by both North Africa and Fatimid Egypt. However, this study's preliminary hypothesis was that these were not the only sources of inspiration and that a reconsideration of a wider span of the Norman-Arab network was necessary, along with an evaluation of the creative power of craftsmen working under Norman rule.[1]

[1] A seminal influence on the formulation of this initial hypothesis was D. Behrens-Abouseif, 'Sicily, the Missing Link in the Evolution of Cairene Architecture', in U. Vermeulen and D. de Smet, (eds.), *Egypt and Syria in the Fatimid, Ayyubid and Mamluk eras*, Leuven: Peeters, 1995, pp. 275-301.

3. Methodological Aspects

The methods used for this work are based on the analysis of the different types of documentation, including all the bibliographical, historical, archaeological and graphical information currently available.

A preliminary phase of this work was the reconstruction of the historical frame of the Kingdom of Sicily and its international relations, paying special attention to the socio-political, cultural and artistic life of the kingdom in the period in which Norman art and architecture flourished (approximately 1130-1189 AD). In fact, apart from classical studies, which are often useful, our knowledge of the social, political, linguistic, ethnic and cultural complexities of the kingdom are increasingly better known thanks to recently published scholars' works, such as those of Jeremy Johns, Alex Metcalfe and Anneliese Nef, to name a few.[2]

The next step was to select a significant sample of monuments in which *muqarnas* is used. Apart from ten Sicilian monuments showing *muqarnas* decoration, more than 70 monuments were identified, illustrative of the origins and evolution of *muqarnas*, covering a geographical area extending from Central Asia to the Iberian Peninsula, and attributed to a chronological span of approximately three centuries, from the tenth to twelfth centuries, with a digression into the thirteenth

[2] For a detailed discussion with bibliographical references on this topic, see 'Chapter 1' of the present work.

century to describe the evolution of stone *muqarnas* vaults[3] (some 15 monuments, described in chapter 7). I would like to draw special attention to this point. Sicily was treated as one element amongst the others in the catalogue and the set of comparative material selected was extensive. Indeed, in addition to the more than 70 examples mentioned above, other later Islamic monuments are included occasionally, whenever they have been deemed useful to clarify specific aspects of the discussion.

The most relevant information on the selected items was provisionally catalogued (including bibliographical, historical, archaeological and graphical information). A huge effort was made at this stage to obtain access to the original archaeological studies on these monuments, rather than simply relying on later reference works. Apart from the remarkable and almost daily increase of material available online from different institutions and digital repositories,[4] this was made possible thanks to a wide use of interlibrary loans, as well as personal visits to Italian, Spanish and international libraries, especially the British Library, the libraries of the School of Oriental and African Studies and the Warburg Institute (University of London), the Bodleian Libraries (University of Oxford) and the library of the *École française de Rome*, among others.

[3] In the present work the term '*muqarnas* vault' is used, which is widely accepted in the *muqarnas* historiography. However, as a rule, these are not real vaults, but either corbelled or suspended structures.

[4] I refer for instance, to such repositories as the Creswell Archive at the Ashmolean Museum or the Herzfeld Papers (divided between the Smithsonian Institution and the Metropolitan Museum of Art), just to cite two among the most important for the topic of the present work.

Although it was impossible to visit all the selected monuments in person, I was able to visit and study many of the catalogued monuments in Sicily, Spain, Morocco and Egypt. Personal and current political circumstances within the Near East precluded further travels to this region. Sadly, throughout the last years, a number of medieval monuments studied in this work have been damaged or destroyed; these are reported in the corresponding catalogue entries.

At the next stage the selected monuments were classified in general groups, preliminarily established by geographical criteria, as a rule. Further subdivisions are detailed in a following paragraph, that is dedicated to *The Structure of the Work*.

Subsequently, the information that was gathered was critically analysed in a series of entries paying special attention to their chronology, material, construction, geometrical and decorative aspects of the selected examples of *muqarnas*. This catalogue, which is an integral part of this thesis, is composed of some 90 entries, including ten dedicated to Sicilian monuments and 80 to examples of *muqarnas* documented in the Mediterranean region and the Near East. A selection of the most relevant graphic documentation, which was used and produced while preparing the catalogue, is included in Plates CD as illustrations to –and integral part of– the present work (it contains more than 500 pages of illustrations, including photographs and drawings).

Once all the selected monuments were analysed, a more secure chronology and a more accurate classification of the *muqarnas* from all the Mediterranean and Near Eastern examples was provided, which served as a base for the comparative study. This resulted in achieving the goals suggested at the beginning of this research. Indeed, thanks to this wide and up-to-date set of comparative data, Norman *muqarnas* was more correctly framed within the perspective of analogous Islamic production. This comparative study allowed for specifying the complexity and variety of *muqarnas* techniques and to identify the mechanics of motif transmission.

Finally, this enabled me to circumscribe the possible sources of the model and evaluate the creative power of skilled craftsmen, working in the Islamic tradition at the service of the Norman kings, encouraged by their Norman patrons to fashion an avant-garde style aimed at reflecting their own image of power.

In summary, the methodology used within this research was planned to achieve the purposes set into the scientific framework, as is shown below:

1. The devised work methodology allowed me to establish an outline for my research.
2. The preliminary phase was the reconstruction of an historical framework for the Kingdom of Sicily, paying special attention to its socio-political, cultural and artistic contexts.

3. A list was made of all the monuments displaying *muqarnas* decoration ascribable to the period included from the origins of the motif (most probably in late tenth-eleventh century) through to the first half of the thirteenth century.
4. The selected examples were catalogued and analysed.
5. The collected information on both the Mediterranean and Near Eastern areas was studied from a comparative viewpoint.
6. The results of these analyses were read within the framework of the socio-politic, cultural and artistic context of Sicily and its relations with the Mediterranean and the Near East during the twelfth century.
7. The plausibility of the hypothesis suggested at the beginning of the research was verified, providing conclusions that corroborate the aims of this work.

4. The Structure of the Work

The present work is divided into two volumes: *Volume I. Text*; and *Volume II. Plates CD*, which contains the illustrations to the catalogue entries and is intended as an integral part of the thesis. *Volume II. Plates CD* has the same structure (chapters, sections and paragraphs) as *Volume I. Text*. A table of contents working as hyperlinks is included in PDF Bookmarks of Volume II to facilitate the contents navigation.

Some additional pictures are included in the section 'Illustrations', as an appendix to *Volume I* (in the text, mentions to figs. 1-27 refer to the pictures included in this section).

The study is divided into eight chapters. Chapter 1, which is a large introductory chapter dedicated to 'The Context', opens with an historical introduction, giving a short outline of the events that led to the Norman conquest of South Italy and Sicily and to the establishment of the Kingdom, as well as a summary of the period in which the Sicilian monuments analysed in the present work were constructed.

The following part of the chapter is dedicated to an analysis of the heterogeneous social and linguistic communities of the Norman Kingdom and to the 'ethnic' geography which –in addition– often did not correspond to the unstable South Italian political boundaries. This section is aimed at representing a general outline of this complex situation only: different groups of the population are subdivided into general 'ethnic' categories defined by the impact of language. In fact, none of these groups, viewed in turn, was actually homogeneous and the margins between different groups in Sicily were largely indistinct.

The third part of the chapter is dedicated to the royal court, which represents the milieu in which royal architectural patronage was gestured. Because of the historical circumstances described so far, multilingualism and multiculturalism characterised the Kingdom of Sicily from its origins. This was true, to an even larger extent, for the royal circle, including state officials and courtiers.

Important personages from the kingdom's different ethnic groups were integrated into court circles. Many of them are known by name, either from narrative sources or from documentary evidence. At the same time, the heterogeneous milieu of the court was further enriched by the incorporation into both the state and the court a number of

relevant personages from outside the kingdom. According to the historical sources, indeed, Norman Kings attracted and rewarded systematically experts and educated men from different parts of the world, regardless of their origins, integrating them into the ruling class. A number of relevant historical figures of the kingdom are illustrated, who are known either from the narrative sources or contemporary documents. Many of these personages were also men of letters and science, or else promoters of cultural life in the Kingdom. A panorama of this cultural life is given through the prosopography of known Arabic, Greek and Latin personages. The development of this chapter was not intended to be an original contribution, given the number of important studies dedicated to these topics during the last two decades. Constant reference to these works is made within the chapter.

Chapters 2-7 contain the study of examples of *muqarnas* decoration from both the Mediterranean and Near Eastern worlds, initially selected to serve as a base for the comparative study of Sicilian *muqarnas*. However, finally they include some clarifications for the chronology and classification of *muqarnas* in the Islamic World. All these chapters include a section of catalogue entries, introduced by a paragraph of 'General Observations', where the most relevant remarks about the catalogue section are presented and discussed.

Chapter 2, dedicated to the question of the earliest instances of *muqarnas*, includes a catalogue composed of six individual entries dedicated to monuments or remains located in Central Asia, Iran and Iraq traditionally dated between the ninth-tenth and the late eleventh

centuries. These are considered, historiographically, as being the earliest recorded instances of *muqarnas*. The most relevant result of this chapter is the discussion and chronological reassessment of *muqarnas* fragments from Nīshāpūr –traditionally regarded as being the earliest extant remains of *muqarnas* decoration– as well as a first evaluation of the formative process of *muqarnas*.

Chapter 3, dedicated to 'The Saljūq Examples in Iran', consists of a catalogue of nine entries including some Saljūq monuments in Iran, which display *muqarnas* decoration. These entries have been subdivided into three groups, respectively entitled: 'linear muqarnas'; 'the squinch'; and 'the vault'. The structural interpretation of *muqarnas* (i.e. the idea that it originated from the progressive fragmentation of the squinch), is discussed, as well as the main lines of the motif's development in Iran in Saljūq times.

Chapter 4, on '*Muqarnas* in Egypt', includes 14 entries for Egyptian monuments with *muqarnas* decoration. These entries are subdivided into two different groups, namely: 'The problem of the earliest examples'; and 'The evolution of the "stalactite pendentive" in Fatimid Egypt'. The origins and the possible way by which *muqarnas* was introduced into Egypt are discussed. Some observations are given on the local evolution of *muqarnas* in Fāṭimid times.

In Chapter 5, dedicated to the '*Muqarnas* in Syria', there are 20 entries, all Syrian monuments displaying *muqarnas* decoration. The entries are subdivided into two different groups, namely: 'The earliest examples'; and 'The stone *muqarnas* pendentive in Syria'. Special attention is given to the impact of different building materials (such as

stone and stucco) on *muqarnas* and the existence of a tradition of wooden prototypes, for which no examples survive to this day, is proposed.

Chapter 6 is subdivided into four parts: '*Muqarnas* in Ḥammādid Art (1014-1152 AD)'; '*Muqarnas* in Almoravid Art (1040-1147 AD)'; '*Muqarnas* in Almohad Art (1121-1269 AD)'; and '*Muqarnas* on the Iberian Peninsula'. This chapter contains important observations about the traditional dating of the introduction of *muqarnas* into the Islamic West, as well as a hypothetical interpretation about the filiation of Western stucco *muqarnas* from a Near Eastern wooden technique.

Chapter 7 is dedicated to stone *muqarnas* portals. I decided to discuss them separately, because they are apparently the best comparative material available in the Islamic world for studying the stone *muqarnas* vaults of Sicily. They are also highly relevant to the topic of *muqarnas* development. This section's catalogue includes 17 entries, mostly for Syrian monuments displaying stone *muqarnas* portals. The entries are subdivided chronologically into two groups, namely: 'The Ayyubid Examples'; and 'The First Mamluk Examples in Syria and *muqarnas* portals in Egypt and Palestine'. The building features of some of these portals, especially the earliest examples, seem to corroborate the potential importance of wooden models in Syrian *muqarnas* tradition, which was discussed in previous chapters. The evolution of this stone tradition was followed in Syria up to the Mamluk period, when stone *muqarnas* vaulting was exported to Palestine and Egypt.

Chapter 8 is the final and the most extended chapter in this section. The wide variety of formal patterns and materials displayed in Sicilian *muqarnas* represent one of the richest repertories of either the earlier or contemporary Islamic world. These examples are studied and compared to their Islamic counterparts, previously analysed, corroborating some of the interpretations suggested in the discussion of previous chapters. The initial hypotheses have been corroborated through a new evaluation of Sicilian '*muqarnas* culture'.

1. THE CONTEXT*

1.1. Historical introduction

1.1.1. The arrival of the Normans in South Italy

At the beginning of the eleventh century, the political, economic, social and cultural scene of southern Italy and Sicily was fragmented and heterogeneous. In the Peninsula, there were several political entities, constantly opposing one another: the Byzantine Empire controlled Apulia, Basilicata and Calabria; the three Lombard principalities of Benevento, Capua and Salerno; and the duchies of Gaeta, Naples, Sorrento and Amalfi. Sicily was under Muslim rule, divided into three rival emirates.[5]

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* Bibliographical indications in the notes to this chapter intend to be merely orientative, and by no way are complete. Studies on each of the different topics concerning the history of the Normans in Italy –rapidly resumed or mentioned here– are uncountable. However, as a rule, most recent works cited in notes below have good and up to date bibliographical references about each specific topic.

5 Apart from classic and still useful general works on the history of the Normans in South Italy, such as Michele Amari, *Storia dei musulmani di Sicilia*, (3 vols.), Firenze: Le Monnier, 1854-1872, in particular vol. 3; Ferdinand Chalandon, *Histoire de la domination normande en Italie et en Sicile*, (2 vols.), Paris: Librairie Alphonse Picard et fils, 1907, and more recent works such as Peri et al. *Atti del Congresso internazionale di studi sulla Sicilia normanna. Palermo, 4-8 dicembre 1972*, Palermo: Università di Palermo, Istituto di storia medievale, 1974; Salvatore Tramontana, *La monarchia normanna e sveva*, Torino: UTET, 1986; Paolo Delogu, *I normanni in Italia. Cronache della conquista e del regno*, Napoli: Liguori, 1984; Mario d'Onofrio (ed.), *I Normanni popolo d'Europa*, Venezia: Marsilio, 1994; Pierre Bouet and François Neveux (eds.) *Les Normands en Méditerranée aux XIe-XIIe siècles*, Caen: Presses universitaires de Caen, 2001 [New Online Edition]; on the South Italian political situation in the 10th-11th centuries see, among others, Vera von Falkenhausen, *La dominazione bizantina nell'Italia meridionale dal IX all'XI secolo*, Bari: Ecumenica Editrice, 1978; Barbara M. Kreutz, *Before the Normans: Southern Italy in the ninth and tenth centuries*, Philadelphia: University of Pennsylvania, 1996; Enrico Cuozzo and Jean-Marie Martin (eds.) *Cavalieri alla conquista del Sud. Studi sull'Italia Normanna in memoria di Léon-Robert Ménager*, Roma-Bari: Editori Laterza, 1998;

According to the chronicles, the arrival of the first Normans to these lands is related to the passage through Italy of groups of pilgrims, returning from the Holy Land.[6] Norman bands were enrolled as mercenaries to the service of different lords, who were continually in conflict, the one against the other. In such circumstances, a prospect of large booties and profits continually attracted the arrival of new groups from the north. Thanks to their military prowess and political opportunism, two Norman families, the Drengot and the Altavilla, succeeded in seizing their own fiefdoms and obtained their investiture respectively as counts of Aversa (1038 AD) and counts of Apulia (1042 AD).[7]

From that moment, the Normans ceased to be mercenaries in the service of Italian lords and became conquerors, undertaking a great expansion on their own, which aroused the concern of Pope Leo IX

Graham A. Loud, *The Age of Robert Guiscard: Southern Italy and the Norman Conquest*, New York: Longman, 2000, in particular pp. 12-57; Jonathan Shepard, 'Byzantium and the West', in NCMH, vol. 3, pp. 605-623; Graham A. Loud, 'Southern Italy in the tenth century', in NCMH, vol. 3, pp. 624-645; Hugh Kennedy, 'Sicily and al-Andalus under Muslim rule', in NCMH, vol. 3, pp. 646-669; Giovanni Tabacco and Graham A. Loud, 'Italy in the Eleventh Century', in NCMH, vol. 4:2, pp. 72-119; Pierre Bouet, '1000-1100: la Conquête', in Bouet and Neveux, *Les Normandes*, pp. 11-22; Raffaele Licinio e Francesco Violante (eds.), *I caratteri originari della conquista normanna (atti delle XVI Giornate normanno-sveve, 2005). Diversità e identità nel Mezzogiorno (1030-1130)*, Bari: Edizioni Dedalo, 2006; Giovanni Coppola, *Battaglie Normanne di Terra e di Mare*, Napoli: Liguori Editore, 2015, pp. 5-15.

6 The presence of the Normans in South Italy is first recorded in 999 AD at Salerno, according to Amatus of Montecassino and in 1016 AD in the Gargano Peninsula, according to Guillelmus Apuliensis. See, respectively, Amatus of Montecassino, *Storia de' normanni di Amato di Montecassino volgarizzata in antico francese*, (ed. Vincenzo De Bartholomaeis) Roma: Istituto storico italiano, 1935, pp. 21-22 and Guillelmus Apuliensis, *La geste de Robert Guiscard*, (ed. and trans. Marguerite Mathieu), Palermo: Istituto Siciliano di Studi Bizantini e Neo-Ellenici, 1961, pp. 98-100.

7 Loud, *The Age of Robert Guiscard*, pp. 67-80.

(1049-1054 AD). The Pope campaigned against the Normans with an army of Italians and Swabian mercenaries (the military campaign implicated the Holy Roman Emperor Henry III, r. 1039-1056 AD). In 1053 AD the anti-Norman coalition was defeated at the battle of Civitate, and in 1054 AD, with the Eastern schism, the Latin Church lost the support of Byzantium, as well, which resulted in a change in the Papacy's policy, leading the Pope to seek an alliance with old enemies and dissociate from the tutelage of the Holy Roman Empire. In 1059 Robert Guiscard, the most prominent member of the Altavilla family, recognized Pope Nicholas II as his feudal lord and swore fidelity to him –'by the Grace of God and St. Peter'– as 'Duke of Apulia and Calabria, and if either aid me, future lord of Sicily'.[8] Robert was Count, 1057-1059 AD, then Duke of Apulia and Calabria, from 1059 to his death in 1085 AD.[9]

1.1.2. The conquest of Sicily and the foundation of the Kingdom

At the time of Robert Guiscard's oath swearing, Sicily was under Muslim domination, and Robert contracted the conquest of the island to Roger, his younger brother. While on the mainland the Normans continued expanding at the expense of Lombards and Byzantines; between 1061 and 1091 AD Roger put an end to the Muslim domination of the island and proclaimed himself count (1071-1101 AD), creating the third

[8] The text of Robert Guiscard's oath is preserved, it was published in Paul Fabre and Louis Duchesne, *Le Liber censuum de l'Eglise romaine*, Paris: Ernest Thorin, 1889-1952, vol. 1, p. 422.

[9] Apart from the works cited in note 5, see Ernesto Quagliarello et al., *Roberto il Guiscardo e il suo tempo. Atti delle prime Giornate normanno-sveve: Bari, 28-29 maggio 1973*, Bari: Dedalo, 1991 (1st ed. Roma: Il centro di ricerca, 1975).

Norman pole of South Italy. In 1098 AD, Urban II (Pope from 1088 to 1099 AD) granted to the Counts of Sicily the Apostolic Legateship, a series of extraordinary prerogatives that qualify them, among other things, to appoint bishops and to collect the rents of Sicilian Latin churches, in order to reconstitute the dioceses disappeared throughout Muslim domination.[10]

On the mainland, Robert progressively forced Norman Lords to recognize his supremacy, but he was unable to formalize his personal prestige and power in a solid political institution. In the words of Paolo Delogu:

> 'Il più ambizioso e più potente tra gli Altavilla fu Roberto Guiscardo, che fra il 1050 e il 1085 progressivamente costrinse i Normanni già insediati a riconoscere la sua supremazia, conquistò e sottomise Salerno e Bari, che erano tra le principali città del Mezzogiorno; lanciò e sostenne la conquista della Calabria e della Sicilia; divenne interlocutore e protettore interessato dei papi; sconfisse più volte gli eserciti germanici scesi in Italia per riaffermarvi l'autorità imperiale e terminò la sua carriera assalendo in Grecia l'impero bizantino, forse nell'intento di conquistare la dignità imperiale a Costantinopoli. Ma nonostante la sua forza e il suo enorme prestigio, il Guiscardo fu tenacemente avversato dagli altri capi normanni, e le subordinazioni feudali da lui imposte, spesso con la forza, non divennero un apparato statale, nonostante il titolo di duca da lui assunto e la costituzione di embrionali uffici amministrativi centrali, preposti al fisco e agli affari giuridici del duca.

[10] Quagliarello et al., *Ruggero il Gran Conte*; Ferdinando Maurici, *Castelli medievali in Sicilia. Dai bizantini ai normanni*, Palermo: Sellerio, 1992, pp. 90-118; Salvatore Tramontana, 'Ruggero I e la Sicilia musulmana', in Giosuè Musca, *Il Mezzogiorno normanno-svevo e le crociate. Atti delle quattordicesime giornate normanno-sveve*, Bari: Dedalo, 2002, pp. 49-64; Julia Becker, 'Un dominio tra tre culture. La contea di Ruggero I alla fine dell'XI secolo', *Quellen und Forschungen aus italienischen Archiven und Bibliotheken* 88 (2008), pp. 1-33. On the Apostolic Legateship or 'Regia Monarchia Sicula', as the privilege was called, see Salvatore Fodale, *L'Apostolica Legazia e altri studi su Stato e Chiesa*, Messina: Sicania, 1991; Salvatore Vacca (ed.), *La Legazia Apostolica. Chiesa, potere e società in età medievale e moderna*, Caltanissetta-Roma: Sciascia, 2000.

> Agli inizi del XII secolo, tre lustri dopo la morte del Guiscardo, il dominio normanno nell'Italia meridionale si presentava infatti costituito da un gruppo ristretto di grandi signori e feudali, sostanzialmente indipendenti fra loro; da una molteplicità di signorie minori, fondate su una città o un castello, e da alcuni governi cittadini più o meno autonomi'.[11]

In Sicily, on the contrary, Robert and Roger (predominantly Roger alone, after his brother's death) maintained the exclusive control of their conquest succeeding in creating a unitary domination, which Roger organized for their sole benefit:

> 'Ciò fu possibile anche per l'accorto sfruttamento dei vantaggi economici della conquista. Guiscardo e Ruggero, ma soprattutto quest'ultimo, che aveva il controllo diretto del territorio, riservarono a sé ingenti proprietà fondiarie, sia fiscali che private, conservando l'organizzazione agraria del dominio musulmano e controllando oculatamente la forza lavoro. Imposero la loro privativa fiscale su terre incolte e foreste, riservando a sé i diritti di caccia, di pascolo e di estrazione del legname. Si impadronirono dei diritti doganali che venivano tradizionalmente riscossi nelle città e nei porti, forse aggiungendone di nuovi; riscossero tasse di natura pubblica sulla compravendita degli immobili, sulla pesca, sulla produzione di grano, orzo e vino, calcolata in base al numero degli aratri e dei nuclei familiari dei coltivatori, sui mulini, sul bestiame e sulla commercializzazione della lana. In sostanza la florida economia siciliana venne sottoposta a un esteso prelievo fiscale che non era nuovo, giacché risaliva in gran parte all'organizzazione precedente e se ne erano giovati già i governatori musulmani, ma che progressivamente venne a concentrarsi nelle mani di un unico percettore, il conte di Sicilia, che ne faceva parte al fratello e poi agli eredi di questi, secondo accordi che furono continuamente rinegoziati a vantaggio del conte. […] All'apogeo del successo, nei primi anni novanta dell'XI secolo, Ruggero conte di Sicilia esercitava sull'isola un potere che andava ben oltre la signoria militare e la superiorità feudale sui suoi compagni d'arme; egli era subentrato alle istituzioni statali islamiche nei loro diritti; aveva imposto alle

[11] Paolo Delogu, 'Un'isola al centro del mondo', in Beat Brenk (ed.) *La Cappella Palatina di Palermo*, (4 vols.), Modena: Mirabilia Italiae, 2010, vol. 1, pp. 9-25, see p. 11.

> cittadinanze patti onerosi che però in certo modo le tutelavano, rendendo accettabile la sottomissione; disponeva di rendite finanziarie che ne facevano uno dei principi più ricchi d'Europa'.[12]

These political and economic circumstances made Sicily markedly different from any other European feudal principality as a political entity. Neither the Western Empire nor the Papacy could claim any rights on the island, which allowed Roger's authority to be autonomous on both sides.[13]

When Roger died in 1101 AD, his wife Adelaide administered Sicily as regent and she had no trouble in guaranteeing Roger II's succession (Roger II became Count in 1105 AD, at the age of nine, after the death of his older brother who was only 12 years old. Roger II began his personal rule in 1112 AD, at sixteen years old).[14]

During his first years of rule Roger II seemed to pay little attention to the Norman territories on the mainland, mostly focusing on Mediterranean concerns (relations with the Crusader states and North Africa).[15] However, the County of Sicily was the most powerful Norman state of South Italy, often intervening in support of the peninsular Norman Dukes, who were unable to control their feodaries. This situation led to the outbreak of war when Duke William II (Duke of Apulia and Calabria from 1111 to 1127 AD) died without a legitimate heir and

[12] Delogu, 'Un'isola al centro del mondo', p. 11.

[13] Delogu, 'Un'isola al centro del mondo', p. 13.

[14] Delogu, 'Un'isola al centro del mondo', pp. 12-13.

[15] Delogu, 'Un'isola al centro del mondo', p. 14.

his cousin Roger II (Count of Sicily from 1105-1130 AD, and future King of Sicily from 1130-1154 AD) claimed the inheritance.[16]

Roger II disembarked at Salerno and began the war against his new Apulian feodaries, who were supported by the Pope (Honorious II, Pope from 1124 to 1130 AD and Innocent II from 1130 AD). Honorious II first excommunicated Roger and then engaged him militarily in a long war that placed both Byzantium and the Holy Roman Empire against him. However, the anti-Norman army was unable to stop Roger II and in August 1128 AD, Honorius invested Roger as Duke of Apulia, Calabria and Sicily in Benevento. [17]

It was an ambiguous win for Roger II, which Mario Caravale has analyzed as follows:

> 'E' vero che l'investitura di Benevento rappresentò una sconfitta per Onorio, il quale fu costretto ad accettare Ruggero e a venir meno alle promesse fatte ai suoi feudatari; ma è altresì vero che la sconfitta non fu completa. Il nuovo duca aveva visto svanire subito le possibilità di realizzare la sua politica di indipendenza dalla Chiesa e aveva dovuto piegarsi a ricevere l'investitura dal papa, con il conseguente riconoscimento di una superiore signoria del pontefice sui suoi domini. Perciò Onorio se era stato costretto ad accettare come duca una persona non desiderata, tuttavia era riuscito a ribadire il principio della necessità per il duca dell'infeudazione pontificia'.[18]

In September 1129 AD Roger II imposed a general peace at Melfi, at a meeting with all the South Italian *optimates* (all counts, bishops and

[16] Ernesto Quagliarello et al. *Società, potere e popolo nell'età di Ruggero II. Atti delle terze giornate normanno-sveve*, Bari: Dedalo, 1979; Hubert Houben, *Ruggero II di Sicilia. Un sovrano tra Oriente e Occidente*, Roma-Bari: Laterza 1999; Pierre Aubé, *Roger II de Sicilie*, Paris: Librairie Académique Perrin, 2016.

[17] Matthew, *The Norman Kingdom of Sicily*, Cambridge: Cambridge University Press, 2001, pp. 19-53.

[18] Mario Caravale, *Il regno normanno di Sicilia*, Milano: Giuffrè, 1966, p. 38.

abbots present accepted his succession to the Duchy of Apulia and swore loyalty and obedience to him). This was the new duke's first attempt to impose his power over the Italian barons, who, however, used to recognize the Duke of Apulia as a kind of *primus inter pares*, and were reluctant to recognize a superior authority in him. For his part Roger, as count of Sicily, was the heir and the promoter of a different system, which originated in the different ways in which the respective conquests of South Italy and Sicily were carried out. In fact, while the continent was conquered by different Norman lords, upon whom –later on– the Altavilla family tried to prevail, the conquest of Sicily was conducted by a single army with a single leader, who distributed the lands only after a final victory was achieved, thus maintaining a supreme authority over his vassals.[19]

The papal investiture of Benevento represented a setback for Roger II's project of imposing upon the mainland a similar position as he had in Sicily. However, in 1130 AD, taking advantage of the profound crisis of the papacy, following the death of Honorious II, Roger was crowned as King of Sicily, Calabria and Apulia by the Antipope Anacletus II, obtaining the conferment of the royal authority to his power.[20]

[19] Caravale, *Il regno normanno*, pp. 19-22.

[20] Matthew, *The Norman Kingdom*, pp. 174-175; H. Bloch, 'The Schism of Anacletus II and the Glanfeuil Forgeries of Peter the Deacon of Monte Cassino', *Traditio*, 8 (1952), pp. 159-264. On the jurisprudential apects related to Roger II's coronation see Caravale, *Il regno normanno*, in particular pp. 40-51 for Roger's coronation by Anacletus II.

1.1.3. The Norman Kingdom of Sicily

Roger's coronation was not universally approved. Some of his magnates contested his pretensions and it was only in 1139 AD, after a decade of wars in South Italy,[21] that Pope Innocent II (1130-1143 AD) granted recognition to the kingdom of Sicily, at the commonly named 'Peace of Mignano' (Roger was recognized as King of Sicily and his sons as Duke of Apulia and Prince of Capua, respectively).[22]

Sicily was the base of Roger II's power and wealth. His enemies were unable to threaten the island and throughout his reign it remained a secure stronghold, where Roger II used to shelter and reorganize the army after military campaigns on the continent. From the island, he promoted an expansive Mediterranean policy –which his engagement in the Italian mainland's war did not stop– leading him to the conquest of new possessions in both Byzantine and Muslim territories, thus, reversing the traditional subjection of the island. In the 1130s-1140s AD Roger's fleet conquered coastal cities and islands in Zīrīd North Africa

[21] On the 1130s events, Matthew, *The Norman Kingdom*, pp. 45-51. Delogu, 'Un'isola al centro del mondo', pp. 15-16 resumed these events as follows: 'La proclamazione del regno fu infatti violentemente osteggiata dai baroni pugliesi, dal papa competitore Innocenzo II e dall'imperatore tedesco Lotario III. Occorsero dieci anni a Ruggero II per imporre il riconoscimento della sua dignità regia ai numerosi avversari, attraverso una serie di campagne militari condotte nel continente contro le coalizioni armate dei baroni, del papa e dello stesso imperatore, sceso in Puglia con un esercito tedesco, nelle quali Ruggero subì anche pericolose sconfitte. Ma la Sicilia, protetta dalla distanza e dalla flotta, restò irraggiungibile per i nemici, né questi riuscirono a suscitarvi rivolte. Così Ruggero poteva ripararvi sicuro al termine di ogni campagna militare condotta sul continente contro la coalizione dei suoi avversari, ricostituire l'esercito, reclutandovi milizie feudali, mercenari assoldati con le enormi ricchezze del tesoro, e perfino truppe speciali islamiche, che impiegava sul continente in azioni terroristiche esenti da riguardi cristiani'.

[22] Matthew, *The Norman Kingdom*, pp. 51-53.

(conquering Djerba, Tripoli, Kerkenna Islands, Mahdiyya and Annaba), and attacked Byzantine domains in the Ionian Sea (occupying Corfu, attacking Corinth, Thebes, Athens). However, it seems that Roger's main interests were not the territorial acquisitions, but naval hegemony and commercial interests.[23]

Sicilian relations with the Near East seemed to follow this same strategy. After Roger was excluded from the Kingdom of Jerusalem,[24] he maintained certain influence in the Latin Kingdom through the Hospitallers, the Amalfitan foundation that he protected and promoted (Hospitallers were authorized to found their hospitals everywhere within his Kingdom). In Syria, a familiar connection existed with the Principality of Antioch and the County of Edessa, which were governed, with alternate fortunes, by members of the Altavilla family. Although Roger was unable to intervene in the succession of his cousin Constance of Antioch (he tried to impede her marriage with Raymond of Poitier, which finally took place in 1136 AD), he maintained important links with

[23] Delogu, 'Un'isola al centro del mondo', pp. 16-17. Norman Sicily had complex relations with the North African Muslim cities, which alternated alliances and conflicts. On this topic see, among others, Hady Roger Idris, *La Berbérie Oriental sous les Zīrīdes*, (2 vols.) Paris: Librairie d'amérique et d'Orient Adrien-Maisonneuve, 1962, I, pp. 303-406; Adalgisa de Simone, 'Ruggero II e l'Africa Islamica', in Musca, *Il Mezzogiorno normanno-svevo e le crociate*, pp. 95-129; Lamia Hadda, 'La bataille de Ras Dimas d'août 1123. La dernière victoire des Zirides sur les Normands', in Jean-Marie Martin and Rosanna Alaggio (eds.) *Quei maledetti Normanni. Studi offerti a Errico Cuozzo per i suoi settant'anni da Colleghi, Allievi, Amici*, Ariano Irpino-Napoli: Centro Europeo di Studi Normanni, 2016, I, pp. 483-499.

[24] In 1113 AD Roger's mother, Adelaide, married Baldwin of Jerusalem with the agreement that Roger would be the heir to the kingdom, if Baldwin and Adelaide had no children. However, the plan failed miserably because of Baldwin's bigamy and because of the firm opposition of Jerusalem's barons (see Houben, *Ruggero II*, pp. 38-41).

the region and promoted Sicilian commercial activities.[25] In addition, the second most important figure of the Kingdom during some three decades, Roger II's *ammiratus ammiratorum*, was the Syrian born George of Antioch (his potential importance, as a link with the Levant will be discussed below).[26]

During his reign, which lasted until 1154 AD, Roger II created a politically strong and militarily powerful state. The extraordinary personal wealth of the Kings of Sicily, which became legendary, was already famous during his lifetime. Yet, 'the wealth of the Norman kings was not simply a matter of legend. It was real', and it was closely related to their efficient government and administration.[27]

In this regard, the most relevant contribution to the Kingdom's organization was given by the establishment of the *dīwān al-maʿmūr*, or the 'royal *dīwān*', the royal central administration. [28] The royal *dīwān* was

[25] Delogu, 'Un'isola al centro del mondo', p. 16.

[26] A part of a study which I recently authored is also dedicated to these topics: Maurizio Massaiu, 'Alcune note sulla "connessione siriana" della Sicilia Normanna a proposito del programma musivo di Santa Maria dell'Ammiraglio', in Manuel Marcos Aldón and Maurizio Massaiu, *Entre Oriente y Occidente. Textos y espacios medievales*, Córdoba: Ucopress, 2016, pp. 101-126.

[27] D. Abulafia, 'The Crown and the Economy under Roger II and His Successors', *Dumbarton Oaks Papers* 37 (1983), pp. 1-14, in particular p. 1.

[28] The fundamental and most exhaustive study on the royal dīwān is Jeremy Johns, *Arabic Administration in Norman Sicily: The Royal Dīwān.* New York: Cambridge University Press, 2002. For the meaning of '*dīwān al-maʿmūr*' see p. 195: '*Maʿmūr* is a passive participle of the verb *ʿamara*, 'he inhabited', and has the primary meaning, in the classical language, of 'inhabited', 'frequented', 'peopled', 'flourishing', 'in good state of repair', *etcetera*. The word also carries strong Qurʿānic resonances. *Al-bayt al-maʿmūr*, 'the much-frequented house', is generally understood to refer to the Kaʿba (*Qurʿān* 52:4); and the verb *ʿamara* is also used of mosques, perhaps most famously in the verse *innamā yaʿmuru masājida llāhi man āmana bi-llāhi etc.*, 'Only he who believes in God shall attend the mosques of God etc.' (*Qurʿān* 9:18). *Maʿmūr* has thereby acquired the secondary connotation of 'served' or 'worshipped'. In

not simply the adaptation of indigenous administrative practices to the Kingdom's needs (which was the case for Norman administration in the post-conquest period), but a highly developed and specialised office dedicated to Arabic administration, created 'very largely through the importation of new elements from the wider Islamic world'.[29] As will be discussed below, transcending its original administrative function, the royal dīwān became a centralized bureaucracy, at the service of royal power, which 'came to play a role in the political life of the kingdom, in government, and in the formation of the monarchy itself'.[30]

When Roger II died, in 1154 AD, his son William I, who reigned until 1166 AD, succeeded him on the throne. While on the east front he was able to defend the Kingdom from external threats (in particular, from Byzantine attacks on Apulian ports), on the North African coast he was unable to resist Almohad expansion. He preserved the administration established during his father's rule, but his reign was marked by continuous

medieval and later Islam, the epithet *al-maʿmūr* is traditionally extended to royal institutions, and expresses the pious hope that the institution may always be 'inhabited', 'served', and 'busy'. Thus, for example, a Fāṭimid decree of 1130 was issued by the office of correspondence, the *dīwān al-inshāʾ al-maʿmūr*. In Norman Sicily, we find *maʿmūr* used of royal institutions which have nothing to do with the fiscal administration, such as the royal palace at Palermo, and the royal *ṭirāz*. It cannot be stressed too emphatically that maʿmūr is in no way descriptive of the functions or activities of the *dīwān*. Thus, the phrase *al-dīwān al-maʿmūr* means simply 'the busy …', 'the [well-] served …' or, more loosely but more appropriately in Norman Sicily, 'the royal dīwān'.

[29] Johns, *Arabic Administration*, p. 90.

[30] Johns, *Arabic Administration*, p. 211. The non-administrative function of the royal dīwān and its contribution to the formation and development of the Arabic facet of the royal image are discussed in Johns, *Arabic Administration*, pp. 284-300.

confrontation with the aristocracy, which barely suffered the king's support for the rise of the 'bourgeoisie' in state offices, and the exclusion of nobles from administration. Barons chafed under this policy, embodied by Maio of Bari, William's *ammiratus ammiratorum*, and who twice plotted against the king (in 1155 and in 1160-61 AD, when Maio was killed and William was captured by the conspirators along with his family in the royal palace). The rebellion was bloody, but the later years of his reign were peaceful. Antipathy to William I's reign is weighed with the negative judgment of the so-called 'Hugo Falcandus', author of the most detailed contemporary account about these events.[31]

At William's death, his son William II (1166-1189 AD) succeeded him, initially under the regency of his mother, Margaret of Navarre, during his minority (until 1171 AD). In contrast to his father, the chroniclers emphasize, his beauty, his correctness in exercising his functions and his respect for the laws and the people. His reign was considered to be a peaceful period of relative stability for the Kingdom, and is marked by ambitious diplomatic and dynastic policies. In 1174 and 1175 AD he signed important treaties with Genoa and Venice; in 1177 AD, after

[31] Hugo Falcandus (ed. G.B. Siragusa), *La Historia o Liber de regno Siciliae e la Epistola ad Petrum Panormitanae ecclesiae thesaurarium di Ugo Falcando*, Roma: Fonti per la Storia d'Italia, 22, 1897. On William I, apart from the classic works of Amari and Chalandon, cited in note 5 (to which must be added Giovanni Battista Siragusa, *Il regno di Guglielmo I in Sicilia*, Palermo: Tipografia dello 'Statuto', 1885), see Luigi Ambrosi et al., *Potere, società e popolo nell'età dei due Guglielmi. Atti delle quarte giornate normanno-sveve*, Bari: Dedalo, 1981; Tramontana, *La monarchia normanna*, pp. 181-194, Matthew, *The Norman Kingdom*, pp. 62-67, 212-218, 268-70; Berardo Pio, *Guglielmo I d'Altavilla. Gestione del potere e lotta politica nell'Italia normanna (1154-1169)*, Bologna: Pàtron Editore, 1996. The latter study is a substantial reevaluation of William I's political figure, against the historiographical clichés derived from Falcandus.

Frederic Barbarossa's defeat at Legnano, Sicilian representatives, acted as mediators between the Holy Roman Emperor and the Lombard towns.[32] William II's fleet attacked Alexandria in 1174 AD, the Balearic Islands in 1182 AD and was sent to aid the Crusader States after Saladin conquered Jerusalem in 1187 AD. In 1185, taking advantage of the incompetent rule of Andronicus Comnenus (1183-1185 AD), William II organized an assault against the Byzantine Empire, conquering Thessalonica, but finally unable to attack Constantinople (the Norman army was finally pushed back to Sicily after Isaac Angelus took the throne, in September 1185 AD). In 1177 AD he married Joan of England (the seventh child of Henry II and Eleanor of Aquitaine, sister of Richard the Lionheart) and in 1186 AD organized the marriage of his aunt Constance with Henry, the heir to the Holy Roman Empire (this union produced Frederick II in 1194 AD).[33]

Both William I and William II are usually considered shadowy figures in historiography, compared with the epic characters of Robert Guiscard and Roger I, and the prominence of Roger II. After the Kingdom's turn to bureaucracy, under Roger II, the last Norman Kings of Sicily are mostly known for palace intrigues and their courtly life. However, they were able to prolong the kingdom's opulence and magnificence and were

[32] Matthew, *The Norman Kingdom*, pp. 273-275. Romuald, archibishop of Salerno, was one of William II's envoys and left a detailed report about this mission, Romualdus Salernitanus (ed. C.A. Garufi), *Romualdi Salernitani Chronicon*, Città di Castello: coi tipi della casa editrice S. Lapi, *sine data* [1935], pp. 290-293.

[33] Graham A. Loud, 'Sicily in the Twelfth Century', in NCMH, 4:2, pp. 442-474, in particular see pp. 471-472. On William II, see Ambrosi et al., *Potere, società e popolo nell'età dei due Guglielmi*; Matthew, *The Norman Kingdom*, pp. 167-186, 271-287.

patrons of some of the most important monuments of the Norman period in Sicily, which are discussed in this work.

1.2. The Social Context

Apart from the political fragmentation, which resulted from the historic situation described above, the social and linguistic communities of the Norman Kingdom of Sicily were heterogeneous, as well. This is not to say that the 'ethnic' geography did not correspond to the (unstable) political boundaries. In a recent article, Vera von Falkenhausen, presented a succinct summary of this:

> 'Nel Sud della penisola italiana i Normanni dovettero confrontarsi con strutture politiche, culturali e religiose quanto mai varie e multiformi. In Campania i principati longobardi di Benevento, Capua e Salerno, politicamente autonomi, dipendevano dalla giurisdizione ecclesiastica di Roma; la popolazione, che viveva secondo il diritto longobardo, era di cultura linguistica latina. Analogamente anche i piccoli ducati di Napoli, Amalfi e Gaeta sulla costa tirrenica, in cui vigeva però il diritto romano […] le province bizantine non presentavano affatto una struttura unitaria: la Calabria e la Puglia meridionale (Salento), a popolazione prevalentemente greca, dipendevano dalla giurisdizione ecclesiastica del patriarcato di Costantinopoli, mentre la Puglia settentrionale e centrale, nonché la maggior parte della Basilicata, erano di cultura latina e rientravano nell'ambito giurisdizionale della Chiesa romana. Infine, dalla metà del X secolo, le ricorrenti incursioni arabe avevano spinto verso Nord un gran numero di Greci, siciliani e calabresi, che finirono con lo stabilirsi sia nella Puglia bizantina sia nei principati longobardi, soprattutto in Cilento: nelle loro nuove sedi costoro dipendevano automaticamente dalla giurisdizione ecclesiastica di Roma e si adattarono alla lingua locale. […] La Sicilia invece, suddivisa in diversi emirati arabi, era prevalentemente islamica, anche se non possiamo escludere la presenza di comunità cristiane di lingua araba; nel Nordest viveva peraltro una considerevole minoranza cristiana di lingua greca. Inoltre, sia nell'Italia meridionale bizantina e longobarda che in Sicilia sono attestate numerose comunità giudaiche. In tale congerie di stati è logico che non soltanto i confini politici, ma anche quelli culturali fossero piuttosto labili. Esistevano, ad esempio, minoranze arabe nella Calabria meridionale e poiché il principato di Salerno si estese temporaneamente fino alla Calabria settentrionale, anche le diocesi locali di Bisignano, Malvito e Cosenza vennero sottoposte all'arcivescovo di Salerno e quindi a Roma. Soprattutto nelle aree di confine si registra un certo bilinguismo

> della popolazione o almeno di alcuni gruppi: nella Calabria meridionale sono attestati Greci con conoscenze d'arabo, mentre nel Nord della regione era diffusa anche la lingua latina: san Nilo di Rossano (X secolo), ad esempio, era in grado di comunicare in latino. In ogni caso non sempre ed ovunque, nel meridione d'Italia, all'orientamento religioso e linguistico degli abitanti faceva riscontro l'appartenenza politica'.[34]

The following paragraphs are aimed to represent only a general outline of this complex situation: different groups of the population are subdivided into general 'ethnic' categories defined privileging their position and the impact of language. In reality, none of these groups, viewed in turn, was actually homogeneous and the margins between different groups in Sicily were indistinct, to a large extent.[35] In fact, the South Italian tradition of mixed languages and cultures created a systematic degree of uncertainty in the definition of 'ethnic' categories, a task that relies mainly on onomastic data and linguistic evidence:

> 'To add to the complexity of the situation, many 'Greeks' had intermarried with 'Lombards' and 'Normans' and even with Muslims and 'Berbers'. In all the above cases, individual instances, usually in the form of mixed names, can be cited to show that the margins of these groups were often, and probably had been for some centuries, raggedly indistinct'.[36]

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[34] Vera von Falkenhausen, 'Una babele di lingue: a chi l'ultima parola? Plurilinguismo sacro e profano nel Regno normanno-svevo', *Archivio Storico per la Calabria e la Lucania* 76 (2010), pp. 13-35, in particular pp. 13-15.

[35] Vera von Falkenhausen, 'Il popolamento: etnie, feudi, insediamenti', in Giosué Musca, *Terra e uomini nel Mezzogiorno normanno svevo. Atti delle settime Giornate normanno-sveve*, Bari: Dedalo, 1987, pp. 39-74, in particular pp. 39-40; Vera von Falkenhausen, 'The South Italian Sources', in Mary Whitby, *Byzantines and crusaders in non-Greek sources, 1025-1204*, Oxford: Oxford University Press, 2007, pp. 95-121, in particular pp. 95-96.

[36] Alex Metcalfe, *Muslims and Christians in Norman Sicily. Arabic speakers and the end of Islam*, London and New York: Routledge Curzon, 2003, p. 55.

In addition, this complex situation during Norman domination was far from fixed: both the religious and linguistic bases of South Italy and Sicily suffered major and complex transformations during the Norman period. The Norman conquest and domination altered not only the political structures of the region, but also its society, and this is especially true for Sicily, which was an Arabic-speaking Muslim island during the eleventh century that had become essentially 'Latin' Christian by the end of the twelfth century.[37]

1.2.1. The 'Latin' element

As French-speakers, the Norman conquerors themselves could be included within the Latins.[38] The term 'Normans' is commonly used by modern authors, following the Latin chronicles. However, the same ethnic notion of 'Norman' should be used cautiously in Sicily, since it has been shown that, despite the conquests being Norman-led, only a part of the commonly named 'Normans' were actually Norman.[39]

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37 Metcalfe, *Muslims and Christians*, p. 55

38 Antonino de Stefano, *La cultura in Sicilia nel periodo normanno*, Palermo: IRES, 1938, pp. 9-10.

39 Annliese Nef, *Conquérir et gouverner la Sicile islamique aux XIe et XIIe siècles*, Rome: École française de Rome, 2011, pp. 21-22: 'La qualification de cette conquête ne va pas sans soulever de problèmes. Menée par des représentants de la famille des Hauteville, originaire de Normandie, mais installée en Italie méridionale depuis une date mal définie, cette conquête qualifiée ici parfois de normande, bien qu'elle ne le soit que peu (les troupes et les évaluations prennent en compte des Français de toutes origines et des Lombards), parfois de latine, même si le sud de l'Italie est en partie hellénophone et si une partie des troupes devait utiliser cet idiome que pratiquaient les Hauteville'. See also Metcalfe, *Muslim and Christians*, pp. 24-25 and p. 55, Léon-Robert Ménager, 'Pesanteur et étiologie de la colonisation normande de l'Italie' in Quagliarello et al., *Roberto il Guiscardo*, pp. 203-229; Léon-Robert Ménager, 'inventaire des familles normandes et franques émigrées en Italie

> 'It has been estimated, largely from onomastic evidence, that between two-thirds and three-quarters of first generation south Italian Normans can be described as Norman in the sense that they hailed from Normandy. However, with the passing of a second and third generation of Norman settlers, such assessments become increasingly evaluative and raise questions about the whole issue of ethnicity, the unreliability of its indicators, and the concept of a 'race' or 'people' as understood by medieval sources or as epitomised by kings who had never ventured further north than Ceprano, located between Naples and Rome, some 1,500 kilometres overland from Rouen'.[40]

It should be also remembered that the Norman Kings of Sicily genetically descended from Norman conquerors, but they were all born in either South Italy (Roger II), or in Sicily (William I and William II), and that even their antecedent Count Roger, who was actually born in Normandy, spent almost fifty years of his life in South Italy.[41] As will be revealed below, at the upper levels of the Kingdom's society, the Norman connection with France and England allowed a continued absorption of high-status immigrants by both the ecclesiastical and secular ruling classes.[42]

The Norman Conquest represented an 'essential break' in the history of Sicily, leading to the establishment of a feudal 'colonial' system, coexisting with Muslim chiefdoms directly dependent on royal power.

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méridionale et en Sicilie (XIe-XIIe siècles)', in Quagliarello et al., *Roberto il Guiscardo*, pp. 279-410; Alberto Vàrvaro, 'Les Normands en Sicile aux XIe et XIIe siècles. Présence effective dans l'île des hommes d'origine normande ou gallo-romane', *Cahiers de Civilisation médiévale*, 23, (1980), pp. 199-213; Lucien Musset, 'Les circonstances de la pénétration normande en Italie du Sud et dans le Monde méditerranéen', in Bouet and Neveux, *Les Normandes*, pp. 34-42, in particular pp. 36-39.

40 Alex Metcalfe, *The Muslims of Medieval Italy*, Edinburgh: Edinburgh University Press, 2009, p. 89.

41 Metcalfe, *Muslim and Christians*, p. 24.

42 Nef, *Conquérir et gouverner*, pp. 613-615.

Within this coexistence, '*qu'il faut entendre comme lutte à mort*', the feudal element, throughout the whole Norman period, pursued a policy of systematic religious conversions and Latinization.[43]

One of the instruments of this policy was the promotion of massive 'Lombard' migration towards the island. The 'Lombards', in words of Metcalfe, represent a 'somewhat nebulous group' of distant German origins that was already well assimilated into south Italian society at the Normans' arrival. In some sources they are called 'Longobards', to distinguish them from the 'Lombard' settlers from North Italy.[44] Lombards, together with Greeks, were the dominant south Italian ethnicities of Byzantine South Italy at the moment of the Norman conquest. They spoke Latin and followed the Latin rite. They were mostly settled in Apulia, Basilicata and North Calabria.[45] While immigration from these regions represented a continuous stream, which extended over the whole island, immigration from north Italian cities was limited to the domains of the Aleramici. The North Italian family to which Roger

[43] Henri Bresc, 'Féodalité coloniale en terre d'Islam. La Sicile (1070-1240)', in *Structures féodales et féodalisme dans l'Occident méditerranéen (Xe-XIIIe siècles). Bilan et perspectives de recherches. Actes du Colloque de Rome (10-13 octobre 1978)*, Rome: École Française de Rome, 1980, pp. 631-647, in particular pp. 631-633. Apart from the several works which Bresc dedicated to these topics, which is not the case to detail here, see the recent Nef, *Conquérir et gouverner*, with full and detailed bibliography.

[44] Von Falkenhausen, 'I gruppi etnici nel regno di Ruggero II e la loro partecipazione al potere', in Quagliarello et al. *Società, potere e popolo*, pp. 133-156, in particular p. 136; Metcalfe, *Muslim and Christians*, p. 55.

[45] Von Falkenhausen, 'Il popolamento', p. 39, Jean-Marie Martin, 'L'attitude et le rôle des Normands dans l'Italie méridionale byzantine', in Bouet and Neveux, *Les Normandes*, pp. 98-109, in particular pp. 99-100.

II's mother belonged, settled around the Muslim enclaves of Val di Mazara and Val di Noto.[46]

To conclude this outline on the Latin elements in the Norman Kingdom, mention should be made of the Maritime Duchies of Amalfi, Napoli and Gaeta, which were independent during the eleventh century, and considered themselves as 'Romans',[47] as well as the presence of merchants from Italian and European maritime cities in the principal ports of the Kingdom.[48]

1.2.2. The Greek presence in the Kingdom

South Italian provinces or themes of the Eastern Roman Empire had a significant Greek population. However, the population in Byzantine

[46] Bresc, 'Feodalité colonial', p. 633, Nef, *Conquérir et gouverner*, p. 43-44, with a detailed bibliography.

[47] Von Falkenhausen, 'Il popolamento', pp. 39-40.

[48] David Abulafia, *The Two Italies. Economic Relations Between the Norman Kingdom of Sicily and the Northern Communes*, Cambridge: Cambridge University Press, 1977; Abulafia, 'The Crown and the Economy'; David Abulafia, 'L'attivita commerciale genovese nell'Africa normanna: la citta di Tripoli, in Peri et al. *Atti del Congresso*, 395-402; Geo Pistarino, 'I normanni e le repubbliche marinare italiane', in Peri et al. *Atti del Congresso*, pp. 241-262; Geo Pistarino, 'Commercio e vie marittime di comunicazione all'epoca di Ruggero II', in Quagliarello et al. *Società, potere e popolo*, pp. 239-258, Geo Pistarino, 'Commercio e comunicazioni tra Genova ed il Regno normanno-svevo all'epoca dei due Guglielmi', in Ambrosi et al., *Potere, società e popolo*, pp. 231-290; Henri Bresc, 'Reti di scambio locale e interregionale nell'italia dell'alto Medioevo', in Ruggero Romano e Ugo Tucci (eds.), *Storia d'Italia. Annali 6. Economia naturale, economia monetaria*, Torino: Einaudi, pp. 135-178; Henri Bresc, 'Le marchand, le marché et le palais dans la Sicile des Xe-XIIe siècle', in *Mercati e mercanti nell'alto medioevo: l'area Euroasiatica e l'area Mediterranea: settimane di studio del Centro italiano di studi sull'alto Medioevo, 40:23-29 aprile 1992*, Spoleto: Centro italiano di studi sull'alto Medioevo, pp. 285-325; 1993; Jeremy Johns, 'Arabic Contracts of Sea-Exchange from Norman Sicily', in Paul Xuereb, *Karissime Gotifride. Historical Essays to Godfrey Wettinger on His Seventieth Birthday*, Malta: Malta University Press, 1999.

territories was not homogeneous at the time of the Norman Conquest: the south of Apulia and Calabria had a predominantly Greek population, while the north of Apulia and Basilicata were for the most part Latin. A relevant Greek population lived under Muslim rule in Sicily, especially in the north-east part of the island, although from the tenth century, Muslim incursions tended to push the Greek population of Sicily and South Calabria northwards.[49]

After the conquest, despite the process of Latinization of the church's hierarchies, which was inexorable throughout the Norman period,[50] it seems that the Normans did not pursue a systematic Latinization of the Greek population. In this respect, although the Norman lords did not follow the same policy, at least two main tendencies can be identified:

> 'Per semplificare si potrebbe dire che quei dominatori normanni dell'Italia meridionale, il cui centro di potere si trovava in Puglia - da dove, estendendo lo sguardo su tutto l'Adriatico, seguivano una politica di aggressione nei confronti di Bisanzio - dimostrarono un atteggiamento poco benevolo anche nei confronti di quanto restava di bizantino nell'Italia meridionale, a differenza di quei Normanni che risiedevano in Sicilia, e che non si trovavano a confronto diretto con Bisanzio, e che solo occasionalmente attaccavano la Chiesa greca, anche perché in Sicilia ve ne erano solo residui molto limitati'.[51]

However, once the conquest was consolidated and a Byzantine reaction appeared implausible, the attitude to the Greeks became more generally

[49] Von Falkenhausen, 'Una babele di lingue', pp. 13-15.

[50] Peter Herde, 'Il papato e la Chiesa greca nell'Italia meridionale dall'XI al XIII secolo', in *La Chiesa greca in Italia dall'VIII al XVI secolo, Atti del Convegno Storico Intereccl esiale (Bari, 30 aprile – 4 maggio 1969)*, 3 vols., Padova: Editrice Antenore, 1972-73, I, 213-255; Norbert Kamp, 'Vescovi e diocesi dell'Italia meridionale nel passaggio dalla dominazione bizantina allo Stato normanno', in Rossetti (ed.), *Forme di potere*, pp. 379-397.

[51] Herde, 'Il papato e la Chiesa greca', pp. 215-216.

benevolent in all South Italy. There was no cultural contrast against the Greek element, once it was politically integrated into the Norman state. To sum up, in Kamp's words:

> 'la riorganizzazione della chiesa italiana meridionale sotto il segno dell'obbedienza romana, che era stata resa possibile dal patto stabilitosi fra i conquistatori normanni e il papato riformatore, si compì essenzialmente su quelle prime pietre che il passato, sotto altri indirizzi e obiettivi, aveva posto. Essa, attraverso il riconoscimento degli arcivescovadi esistenti, aprì l'Italia meridionale in maniera unitaria all'obbedienza romana con una organizzazione provinciale molto frazionata in rapporto al numero degli abitanti, ma appoggiata a forme di insediamento storico e a unità regionali: essa dimostrò in confronto alla chiesa greca […] la stessa capacità di differenziazione tra la tradizione culturale e la lealtà politico-ecclesiastica che aveva caratterizzato anche l'amministrazione bizantina. Le unità e forze ecclesiastiche formatesi storicamente non venivano violentemente soppresse, se si inserivano nei nuovi ordinamenti politici'.[52]

Although it is not possible to establish a global model of policy regarding Greek religious entities, as a rule Greek Bishoprics and church hierarchies were virtually more conflictive with the new political power, and suffered a stronger process of Latinization. Monasteries, on the other hand, were protected and supported by new secular powers and in some cases, they assumed an alternative role as a reference for the Greek population.[53]

In Sicily, both Count Roger and his son and successor, Roger II, actually established a tradition of patronage of Greek monasteries and

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[52] Kamp, 'Vescovi e diocesi', p. 387.

[53] Maria Bianca Foti, 'Cultura e scrittura nelle chiese e nei monasteri italo-greci', in Filippo D'Oria (ed.), *Civiltà del Mezzogiorno d'Italia. Libro scrittura documento in età normanno sveva. Atti del Convegno dell'Associazione Italiana dei Paleografi e Diplomatisti (Napoli – Badia di Cava dei Tirreni, 14-18 ottobre 1991)*, Salerno: Carlone Editore, 1994, pp. 41-76, in particular p. 43.

integration of the Greek element at the upper levels of the state (these aspects are discussed in more detail below). The liberation of this Christian (i.e. 'Greek') population from the oppression of the infidels was part of the rhetoric of the Sicilian conquest, found in both the chronicles and the charts of Count Roger.[54] The Greeks had already held relevant positions at the emiral court in Palermo, and according to the chronicles, a Greek archbishop was in the city when Count Roger entered it.[55] In addition, the 'Norman' army that conquered the island included defeated Byzantine contingents and local Greek auxiliary troops, which joined the local element. After the conquest, the number of Greeks on the island was increased by immigration from the mainland. Although it is impossible to calculate their numbers, Greeks were a significant part of the Kingdom's population, and politically loyal religious entities, as well as the Greek functionaries, who were assimilated into the administration, were useful in mediating with this part of the population.[56]

The regions where Norman rule was more benevolent with the Greek element, Calabria and Sicily, were regions with a long tradition of relations with the Christian East. According to hagiographic sources produced within the island and dated to the seventh-eighth centuries (at the very beginning of the island's Byzantinization) the first bishops of Sicily were sent directly from Antioch, as was the case of the

[54] Vera von Falkenhausen, 'I ceti dirigenti prenormanni al tempo della costituzione degli stati normanni nell'Italia meridionale e in Sicilia', in Gabriella Rossetti (ed.), *Forme di potere e struttura sociale in Italia nel medioevo*, Bologna: Il Mulino, 1977, pp. 321-377, in particular pp. 346-347.

[55] Falkenhausen, 'I ceti dirigenti', p. 346.

[56] Falkenhausen, 'I ceti dirigenti', p. 347.

protobishops Pancras of Taormina, Marcianus of Syracuse and Beryllus of Catania (the political message of this legend is clear in contrast to the meddling from Rome and perhaps similarly from Constantinople).[57]

At approximately the same period as when the legend of the protobishops was first recorded, the Syrian origins of the Roman Catholic Pope Sergio (687-701 AD), who came immediately from Sicily, is also documented and his predecessor Conon (686-687 AD), who also came immediately from Sicily, was most probably of Anatolian origin.[58] They were two of the eight 'oriental' figures that became Pope in Rome, from John V (685-686 AD) to Zachary (741-752 AD). According to Aldo Messina, some of them, recorded by the *Liber Pontificalis* as '*natione syrus*' could also have come from Sicily, being part of the Syro-Palestinian group that settled on the island during the seventh century.[59]

Not only did Syrian churchmen move to Sicily, but some Sicilian monks are documented in Syria during this same period, as is the case of Cosma, who was met in Damascus by John Damascene's father. A notice from the *Liber Pontificalis* records Teophanius –or Stephanus, according to another reading– who was '*abbas monasterii Baias, insulae Siciliensis*' who became patriarch of Antioch around 681 AD. According to Amari,

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57 A. Messina, 'I siciliani di rito greco e il Patriarcato di Antiochia', *Rivista di storia della chiesa in Italia* 32 (1978), pp. 415-421. As regards the cited sources, see pp. 416-416: 'La notizia è attestata per la prima volta nel noto Encomio di S. Marciano, prodotto da uno *scriptorium* siracusano tra il VII e l'VIII secolo […] ed è riportata anche nella Leggenda di S. Pancrazio, un testo agiografico prodotto dallo stesso *scriptorium* tuttora inedito e conservato in parecchi codici greci, dei quali il più antico pare il Vat. gr. 1591 del 965, ma già diffuso agli inizi del secolo IX perché noto a Teodoro Studita, che ne cita brani ampiamente'.

58 Messina, 'I siciliani di rito greco', p. 418-419.

59 Messina, 'I siciliani di rito greco', p. 419.

another Sicilian deacon, Constantine, became patriarch of Antioch some two years later.[60] Ties between Sicily and the Levant are documented at a later date, as well:

> 'Ancora agli inizi del secolo IX narra il biografo di Michele il Sincello di missive inviate da questi "πρὸς τοὺς ἐν Σικελίᾳ ὄντας ὀρθωδώξους μοναχούς" al fine di informarli sulla corrispondenza intercorsa tra il papa e il patriarca di Gerusalemme su questioni dottrinali. I circoli monastici siriaco-palestinesi conoscevano la letteratura agiografica siciliana: di recente la Follieri attribuendo il canone di S. Agrippina, santa tipicamente siciliana, a Teofane Grapto si è chiesta se questi non avesse avuto fra le mani una Passio greca della santa proveniente dalla Sicilia ed altrettanto si può dire del biografo di Gregorio vescovo di Agrigento, che dovette scrivere la sua opera in Siria, raccogliendo le notizie che circolavano negli ambienti monastici locali, presso cui lo stesso Gregorio era vissuto un breve periodo della sua vita'.[61]

It appears that the ties of Sicily's Christian communities with their Levantine counterparts survived beyond the Muslim conquest.

> 'La conquête musulmane même a déplacé des groupes compacts de Chrétiens d'Orient: des Coptes ont laissé leur nom (al-Aqbâṭ) à un village des environs immédiats de Palerme. La Vie du saint sicilien Elie le Jeune, captif en Afrique en 835, montre les mouvements forcés corrélatifs à la conquête, et aussi la facilité des déplacements entre Afrique, Egypte et Syrie'.[62]

Orestes, the Melkite patriarch of Jerusalem from 986 AD was the author of the Hagiographies of Sicilian Saints Sabas, Christopher and Macarius.

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60 Messina, 'I siciliani di rito greco', p. 420, Leonard C. Chiarelli, 'Sicily and the Syrian Connection', in Erica Cruikshank Dodd*, The Frescoes of Mar Musa al-Habashi: A Study in Medieval Painting in Syria*, (Toronto: Pontifical Institute of Mediaeval Studies, 2001), pp. 186-187; Amari, *Storia dei musulmani*, vol. 1, p. 29.

61 Messina, 'I siciliani di rito greco', p. 420.

62 Bresc and Nef, 'Les Mozarabes', p. 136. Objection to this interpretation was raised in Metcalfe, *Muslims and Christian*, p. 60:

He belonged to a Greek family personally related to the Fāṭimids and he was most probably born in Sicily or South Italy.[63]

Symeon of Trier (named after the city where he spent the last years of his life and died around 1035 AD) was a Greek from Syracuse. He studied in Constantinople and in Palestine, where he most probably learned Arabic, (he was also known as Symeon of Syracuse or Symeon of Mount Sinai).[64]

Apart from this fragmentary evidence, from a study on the practice of the church in the western regions of South Italy (Sicily, Calabria, Lucania and Campania) it seems that the liturgy used in these regions was not the Constantinopolitan, but the Syro-Palestinian one. In particular, in a South Italian *euchologia* dated from the eighth-tenth centuries there are recorded formulas and prayers of oriental origin unknown in the Constantinopolitan rite, which are related to Melkite rituals recorded in Egypt and with the Syro-Palestinian liturgy of Saint James.[65] According to André Jacob:

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63 Bresc and Nef, 'Les Mozarabes', pp. 136-137.

64 Angelo Michele Piemontese, 'Codici greco-latino-arabi in Italia fra XI e XV secolo', in Francesco Magistrale, Corinna Drago et al. (eds.), *Libri, documenti, epigrafi medievali: possibilità di studi comparativi: atti del Convegno internazionale di studio dell'Associazione italiana dei paleografi e diplomatisti: Bari (2-5 ottobre 2000)*, Spoleto: Centro italiano di studi sull'alto Medioevo, 2002, pp. 445-466, in particular p. 447.

65 André Jacob, 'L'evoluzione dei libri liturgici bizantini in Calabria e in Sicilia dall'VIII al XVI secolo, con particolare riguardo ai riti eucaristici', in Agostino Pertusi et. al. *Calabria bizantina. Vita religiosa e strutture amministrative. Atti del primo e secondo Incontro di studi bizantini*, Reggio Calabria: Edizioni Parallelo 38, 1974 pp. 47-69. The seminal interpretations of Jacob are confirmed and specified in several more studies such as those of Giuseppe Baldanza, Elena Velkovska and Stefano Parenti, among others. For bibliographical references see the collection of articles: Stefano

> 'Queste preghiere non hanno potuto introdursi che tramite sacerdoti o monaci palestinesi ed egiziani di osservanza melchita scacciati dai loro Paesi dalle invasioni arabe. Se in un eucologio così ufficiale si sono potute verificare infiltrazioni di formule orientali, bisogna evidentemente concludere che i Melchiti palestinesi o egiziani erano in quel tempo abbastanza numerosi in Sicilia e in Calabria o che, almeno, svolgevano un ruolo importante nella vita ecclesiastica di queste regioni'.[66]

More recently, direct comparison with liturgical sources from oriental patriarchates , such as the Georgian and Armenian versions of the liturgy, influenced by non-Constantinopolitan, ancient Greek Chalcedonian liturgies, confirmed the oriental provenience of prayers and formulas documented in Italian *euchologia*.[67]

The documentation from eleventh-century Italy is poorer, but it seems that despite the increasing influence of the new Constantinopolitan liturgy of Saint John Chrysostom, the oriental prayers and formulas did not completely disappear at any time from the Italian *euchologia*.[68] Whatever the case may be, during the first half of twelfth century, a homogeneous group of several manuscripts shows again oriental elements, in the form of both archaisms inherited from the local tradition and new formulas introduced from the Syro-Palestinian liturgy of Saint James.[69]

Parenti, *A Oriente e Occidente di Costantinopoli. Temi e problemi liturgici di ieri e di oggi*, Città del Vaticano: Libreria Editrice Vaticana, 2010.

66 Jacob, 'L'evoluzione dei libri liturgici', p. 59.

67 S. Parenti, 'La preghiera della cattedra nell'eucologio Barberini gr. 336', *Bollettino della badia greca di Grottaferrata* 8 (2011), pp. 149-168, in particular see 162-165.

68 Jacob, 'L'evoluzione dei libri liturgici', pp. 61-63.

69 Jacob, 'L'evoluzione dei libri liturgici', pp. 64-65. A. Jacob, 'Deux formules d'immixtion syropalestiniennes et leur utilisation dans le rite byzantin de l'Italie méridionale', *Vetera Christianorum* 13 (1976), pp. 29-64.

1.2.3. The Christian Arabs

Christian Arabs are a heterogeneous group, principally composed of Arabized autochthone Greek Christians, who continued living on the island as *dhimmī* after the Muslim conquest, and were progressively arabized. In addition, during the centuries that outlasted the Muslim domination, groups of Christian Arabs migrated from Muslim domains to the island. This migration could have taken advantage of the new political situation, which facilitated displacements between Sicily and the Muslim territories including Africa, Egypt and Syria, but in some cases Christians may have been forcibly displaced, as could be the case of the above-mentioned group of Copts which gave their name to al-Aqbāṭ village.[70]

In the historiography on Christian Arabs of Muslim and Norman Sicily, both the terms 'Melkite' and 'Mozarab' have been used occasionally. Neither terms were used in the twelfth-century sources referring to Sicily, and they entered into historiography as analogies with the examples of the Mediterranean Levant and the Iberian Peninsula, respectively.[71]

In its original context, the term 'Melkite', refers to a community with specific ecclesiastical identity, which arose in the Near East under Islamic domination. In particular, it referred to:

> 'anti-Monothelite Syrian Chalcedonian groups, as distinct from the Jacobites, later identified with the Christians of the Umayyad Caliphate who accepted the teachings of the Sixth Ecumenical Council of the Royal

[70] Bresc and Nef, 'Les Mozarabes', pp. 134-137.

[71] Nef, *Conquérir et gouverner*, pp. 305-306.

> Byzantine Church in 681. In this context the label Melkite should not be understood as a synonym of "Greek Orthodox" but rather of "Chalcedonian", which, for the Syrian Christians, identifies those who followed the Dyothelite dogma'.[72]

As indicated in the Melkite sources, apart from the Chalcedonian faith, from the seventh century onwards, the community was characterized by the joint use of Greek and Arabic.[73] The term 'Melkite' is a reference to the original orthodox subjection to the figure of the Byzantine monarch.[74] However, at an early date relations with the Byzantines were enfeebled by doctrinal controversies (such as the monothelitism and iconoclasm) and the new political frontiers, after the Muslim conquest.[75]

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[72] J.P. Monferrer-Sala, 'Between Hellenism and Arabicization. On the formation of an ethnolinguistic identity of the Melkite communities in the heart of Muslim rule', *Al-Qanṭara* 33: 2 (2012), pp. 445-471, in particular p. 445. The article is a detailed discussion of the emergence and first development of Melkites (7th-8th century) in the Near East.

[73] Monferrer-Sala, 'Between Hellenism and Arabicization', p. 446.

[74] Monferrer-Sala, 'Between Hellenism and Arabicization', p. 449: 'Their distinctive features, therefore, are defined by faith in Byzantine orthodoxy subjected to the figure of the Byzantine monarch, hence the name Mal(a)kiyyūn / Milkiyyūn / Malkā'iyyūn / Malkāniyyūn 'royalist' (<βασιλικοί > Syr. Malkōyē, cf. Gr. Μελχῖται). The term malkōyō (Ar. mal(a)kī) was first used in the mid-fifth century by Monothelete Syrian Chalcedonians to distinguish themselves from Jacobites, and was later used to refer to Christians in the Umayyad caliphate who accepted the teachings of the sixth ecumenical council of the Byzantine imperial church in 681, known as Constantinople III. However, it should be noted that the label 'Melkite' was used not as a synonym of the double epithet 'Greek Orthodox', but of 'Chalcedonians' (alkhalqidūniyya/al-khalqidūniyyūn), although it was also used to refer specifically to those Syrian Christians who followed the dyothelete dogma'.

[75] Hugh Kennedy, 'The Melkite Church from the Islamic Conquest to the Crusades: Continuity and Adaptation in the Byzantine Legacy', in *The 17th International Byzantine Congress: The Major Papers*, New Rochelle (NY): Caratzas, 1986, pp. 325-343, in particular p. 338: 'Essentially the Melkite church survived because it was cut off from Constantinople. At the time of the Muslim conquest, the Chalcedonian church in the Patriarchate of Antioch and Jerusalem was in a state of chaos and disarray. The Muslim conquests seem to have done little direct and immediate harm

In the Sicilian context the term is used both in the studies on the Liturgy, which are mentioned above, and in a less strict sense, to define Christian Arabs belonging to the Palermitan courtly milieu related to George of Antioch:[76]

> 'J'appelle ce milieu grec, essentiellement palermitain, "Melkite" en raison de l'origine syrienne de son plus brillant représentant, l'amiral Georges d'Antioche, qui résume bien les caractéristiques de cette élite administrative et intellectuelle: des Grecs de religion, arabes de langue, issus du pays sicilien ou immigrés de Syrie, chrétiens de famille ou de conversion, mozarabes donc, mais sur le versant byzantin, sans attache profonde envers Constantinople, mais dévoués au "roi", à l'idée abstraite de la souveraineté'.[77]

As part of the royal entourage, this element will be discussed in detail below, in the third part of this chapter.

As regards the term 'Mozarabs', [78] referring to the 'Arabized Christians' of Sicily, it is more widely used, especially in French

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and the church became separated from Byzantium as much by doctrinal disputes, over Monothelitism, over Iconoclasm as by political frontiers. Under these circumstances, the Melkite church developed its own identity, an Arabophone hierarchy recruited from the lands of the Caliphate and an Arabic literature and a Syriac liturgy'.

76 Henri Bresc, 'De l'État de minorité à l'État de résistance: le cas de la Sicile normande', in Michel Balard (ed.), *État et colonisation au Moyen Age et à la Renaissance*, Lyon: La Manufacture, 1989, pp. 331-347.

77 Bresc, 'De l'État de minorité', p. 333.

78 In its original context the term 'Mozarab' –recorded in Hispano-Latin and Castilian documents of the 12th century in different variants such as *Muztárabes*, *Muzárabes*, *Mozárabes*, *Mosárabes*, *Mozarabia* and *Almozárabes*– was used to indicate Christians submitted to Muslim rule. The term is first documented in 1101 AD in charter granted to Toledo by Alfonso VI (king of Castile, 1072-1109 AD). Although the origin of the term is the Arabic *mustʿarab*, 'Arabized', the term was not used in Arabic sources, where typical terms as *Dhimmī*, *Ahl al-Dhimma*, *ʿajam* and *muwallad* were used, among others. The term *mustʿarab* and its variants as patronymic and nickname, attached to the personal name are used in Toledan documents (both in Arabic and in Latin) dated to 12th -13th centuries. See Francisco Javier Simonet,

historiography.[79] As Annliese Nef recently stated, the introduction into Sicilian historiography of such terms as 'Melkites' and 'Mozarabs' has been useful to emphasize 'the impossibility of defining the cultures present in Sicily in a monolithic way', but the use of these terms could in turn lead to simplifications.[80] In line with these considerations and following more recent tendencies in studies, the term 'Melkite' is used in this work, as far as possible, only in a technical sense, while the general term 'Christian Arab' is preferred to 'Mozarab'.

Historia de los mozárabes de España: deducida de los mejores y más auténticos testimonios de los escritores christianos y árabes, Madrid: Establecimiento tipográfico de la viuda é hijos de M. Tello, 1897-1903, pp. VII-XV.

79 See, among others: Bresc, 'De l'Etat de minorité'; Henri Bresc and Annliese Nef, 'Les mozarabes de Sicile (1100-1300)', in Cuozzo and Martin, *Cavalieri alla conquista del Sud*, pp. 134-156; Annliese Nef, 'L'histoire des "Mozarabes" de Sicile. Bilan provisoire et nouveax matériaux', in Cyrille Aillet, Mayte Penelas et al. (eds.), *¿Existe una identidad mozárabe? Historia, lengua y cultura de los cristianos de al-Andalus (siglos IX-XII)*, Madrid: Casa de Velázquez, 2008, pp. 255-286; H. Bresc, 'Arabi per lingua, greci per rito, i Mozarabi di Sicilia con e dopo Giorgio', *Byzantino-sicula*, 5 (2009), pp. 263-282. Annliese Nef avoided the use of the term in the more recent Nef, *Conquérir et gouverner*, pp. 306-307: 'Le terme de "mozarabe", dans le sens de chrétien "arabisé", a donc pu sembler plus adéquat pour qualifier les Siciliens de culture grecque, arabisés linguistiquement et islamisés culturellement. Son utilisation n'est pas attestée en Sicile, probablement parce qu'il n'était pas nécessaire d'y distinguer, comme dans la péninsule Ibérique, deux groupes de chrétiens latins intégrés au monde latin qui différaient par leur histoire. En outre, en Sicile, le rapport, qu'il soit réel, idéologique ou mythique, qu'entretiennent les conquérants avec le passé de la région est très éloigné de ce qu'il fut dans la péninsule Ibérique. Enfin, la multiplication des débats autour des "mozarabes", bien que peu pertinents pour l'histoire sicilienne, explique que nous évitions de recourir à cette désignation'.

80 Nef, *Conquérir et gouverner*, p. 307: 'Nous renoncerons donc à ces deux qualificatifs, dont l'introduction dans l'historiographie sicilienne a eu le grand mérite de mettre l'accent sur un point fondamental: l'impossibilité de définir les cultures en présence en Sicile de manière monolithique, comme l'a rappelé récemment Alex Metcalfe, le revers de la médaille étant que ces vocables peuvent contribuer à figer cette complexité'.

The onomastic study of the copious and heterogeneous documentation of the Norman period –notarial acts, royal charters and registers of villeins– represents one of the most important sources for the study of Christian Arabs in Sicily. They have been subdivided into three main groups: villeins expressly designed as Christians, whose *ism* would be perfectly suitable for a Muslim; Christians whose onomastic mixed Greek and Arabic from one generation to the other; Palermitan Christians of a similar onomastic as the precedent, but showing a completely different social profile. [81] The first group consists of profoundly Arabized Christians and certainly not recently converted Muslims (who used to adopt a new Christian-related *ism*). The others are deeply Arabized Christians, who retained memories of their Greek origin. We are often unable to know whether their origin is local or not.[82] On the other hand,

> 'it may be oversimplified to regard 'Greeks' and 'Arab-Christians' as two distinct communities because it is quite probable that many indigenous Sicilian Christian groups on the island comprised of bilingual Arabic-Greek speakers, the relative strengths of their languages and identities contingent on the greatly-varying background cultures and circumstances of their particular region. Indeed, a large body of vernacular interferences between Greek and Arabic that appear regularly in both public and private documentation throughout the entire Norman

[81] Annliese Nef's categorization is used (from Nef, 'L'histoire des Mozarabes', p. 267), which is not intended to be a simplified categorization, but to show the heterogeneity and plurality of the group: 'En bref, ici encore les maigres indices disponibles désignent d'évidence une pluralité d'identités mozarabes et non une seule que l'on pourrait penser de manière monolithique'. See also Bresc and Nef, 'Les mozarabes de Sicile'. For the problems related with the onomastic analysis in Sicilian documentation see Metcalfe, 'Muslims and Christians', pp. 74-98.

[82] Nef, 'L'histoire des Mozarabes', p. 267.

> period suggest a similar conclusion of widespread Greek-Arabic bilingualism'.[83]

In addition to this, distinguishing between Muslims and Arabic-speaking Christians may also prove problematic, since such names as Muḥammad, ʿAlī, Ḥammūd and Aḥmad, usually associated with Muslims, are also found in Christian communities.[84]

The question of the use of Arabic may be also analyzed from the point of view of the cult. The Christian Arabs of Sicily were culturally and religiously grafted onto the Greek element and they belonged to the Greek rite, but we do not know whether Arabic was used in liturgy before the mid-twelfth century.[85] The tentative attribution to Italy of few Greek-Arab psalters and gospels dated before that date is unclear.[86] The most ancient example is the Ms BnF suppl. gr. 911, coming from the Holy

[83] Alex Metcalfe, 'The Muslims of Sicily under Christian Rule', in Graham Loud and Alex Metcalfe, *The Society of Norman Italy*, Leiden – Boston – Köln: Brill, 2002, pp. 289-321, see p. 311.

[84] Metcalfe, 'The Muslims of Sicily', p. 312.

[85] For later dates (ca. 1340 AD), the following important passage is often cited to prove that it did, Ludolfus de Suchem, *De Itinere Terrae Sanctae*, (ed. Ferdinand Deycks), Stuttgart: Litterarischer verein, 1851, p. 20: 'Tamen in Sicilia indifferenter ad tres ritus se habent: in una parte ad ritum Latinum, in alia ad ritum Graecorum, in tertia ad ritum Sarracenorum; attamen omnes sunt Christiani, licet ritu differant et discordent'; see, among others, J. Johns, 'The Greek Church and the Conversion of Muslims in Norman Sicily?', *Byzantinische Forschungen* 21 (1995), p. 133-157, in particular p. 142; Bresc and Nef, 'Les Mozarabes', pp. 37-38, Nef, 'L'histoire des Mozarabes', p. 255; Nef, *Conquérir et gouverner*, p. 213.

[86] Nef, *Conquérir et gouverner*, pp. 212-220, see also Piemontese, 'Codici greco-latino-arabi'.

Sepulchre in Jerusalem and dated to 1043 AD by the copyist.[87] According to Paul Géhin's hypothesis, which relies mostly on paleographic considerations –Greek text in '*style en as de pique*', and alleged western style of the Arabic script– the manuscript was copied either in South Italy or Sicily, and then brought to Jerusalem. [88] However, there is no agreement on this conclusion and the manuscript's provenience is still debated.[89]

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87 The manuscript was catalogued in Georg Graf, *Geschichte der christlichen arabischen Literatur*, (5 vols.), Città del Vaticano: Biblioteca Apostolica Vaticana, 1944-1949, I, p. 147 and described in Paul Géhin, 'Un manuscrit bilingue grec-arabe, BnF, Supplément grec 911 (année 1043)', in François Deroche and Francis Richard, (eds.), *Scribes et manuscrits du Moyen-Orient*, Paris: Bibliothèque nationale de France, 1997, pp. 162-175 and Piemontese, 'Codici greco-latino-arabi', pp. 451-452. The manuscript was extensively studied in more recent articles such as J.P. Monferrer-Sala, 'Por dentro de la traducción. Exégesis de un pasaje del Suppl. Grec. 911 de la BnF (año 1043)', *Ḥikma* 2 (2003); A. Urbán, 'Nomina sacra en un ms. inédito de Lucas (Ms BnF, Suppl. gr. 911, año 1043)', *Collectanea Christiana Orientalia* 1 (2004), pp. 247-275; J.P. Monferrer-Sala, 'Descripción lingüística de la columna árabe del BnF Suppl. grec. 911 (año 1043)', *Collectanea Christiana Orientalia* 2 (2005), pp. 93-139; Ángel Urbán, 'Los intercambios vocálicos en un manuscrito greco-árabe inédito del Evangelio de Lucas (BnF, Suppl. gr. 911, s. XI)', *Collectanea Christiana Orientalia* 2 (2005), pp. 245-272; A. Urbán and J.P. Monferrer-Sala, 'Some regards on Textual Criticism in a Greek-Arabic MS: BnF Suppl. grec 911 (A.D. 1043)', *Parole de l'Orient* 30 (2005), pp. 79-102; Ángel Urbán, 'An Unpublished Greek-arabic Ms of Luke's Gospel (BnF Suppl, grec. 911, AD 1043). A report', in Juan Pedro Monferrer-Sala (ed.), *Eastern Crossroads: Essays on Medieval Christian Legacy*, Piscataway (NJ): Gorgias, 2007, pp. 83-95; Juan Pedro Monferrer-Sala and Ángel Urbán, 'A *Membrum Disjectum* or the Reconstruction of a Lost Bifolio: St. Petersburg "Grec 290" from Bnf "Suppl. Gr. 911": Edition and Commentary', in Juan Pedro Monferrer-Sala, Sofía Torallas and Herman Teule (eds.), *Eastern Christians and Their Written Heritage: Manuscripts, Scribes and Context*, Leuven: Peeters, 2012, pp. 115-134.

88 Géhin, 'Un manuscrit bilingue', pp. 169-173.

89 Specialists in Greek palaeography generally ascribed the manuscript to South Italy, relying on a great number of Italian Greek manuscripts in '*style en as de pique*' documented in the 10th-11th centuries. According to Angelo Michele Piemontese's analysis, the Arab text confirms this conclusion, showing a Maghribi calligraphic model. A different interpretation is given by Juan Pedro Monferrer and Ángel Urban,

Following in chronological order the Cod. Neapolitanus gr. 20 (olim Vindobonensis Suppl, gr. 94), is another manuscript which has been ascribed to South Italy. It is a Greek psalter with later Arab and Latin versions in the margins. The Greek text is ascribed to eleventh-century South Italy, the Arab text (oriental *naskhī*) may be twelfth or thirteenth century and the incomplete Latin text even later.[90]

Two other manuscripts may be relevant here, the Ven. Marc. 539 (coll. 303) and Ven. Marc. Gr. 11 (coll. 379), both prevenient from Cardinal Bessarione's collection.[91] The first is a Greek-Arab *tetraevangelion*, which was catalogued in a single hand, mid-twelfth Sicilian work. Piemontese ascribed the text to the 'Ferrar Group' or else 'famiglia 13' of the new testament in Greek, which has affinities with the Syriac recension.[92] The Ven. Marc. Gr. 11 is a Greek-Latin-Arab *Praxapostolos*, which belonged to the Monastery of San Michele Arcangelo, in Troina.

who ascribe the Arabic writing to the work of an Eastern copyist (for bibliography see note 87).

90 Géhin, 'Un manuscrit bilingue', p. 175; Piemontese, 'Codici greco-latino-arabi', pp. 452-453; Nef, *Conquérir et gouverner*, pp. 214-215.

91 Piemontese, 'Codici greco-latino-arabi', pp. 460-462; Nef, *Conquérir et gouverner*, p. 216.

92 Piemontese, 'Codici greco-latino-arabi', p. 460. The scholar added the following observations: 'La versione araba è esemplata sulla recensione siriaca, di cui reca la tipica suddivisione per *aṣḥāḥ* "sezione", chiaramente in Marco, Luca, Giovanni. In colonna destra, la *naskh* è ortografata, non sempre, a norma maghrebina. Reca tratti e legature di genere corsivo. Il tracciato è vigoroso, ma con resa disomogenea. La puntuazione diacritica di norma orientale interferisce in quella maghrebina. I nomi *Yaʿqūb*, *Yūsuf* "Giuseppe", e i termini *qabīla* "tribù", *al-quds* "santo" (f. 2*v*), *yaqīn* "certo" (f. 20*v*), sono ortografati a norma orientale. Così sovente la clausola *wa qāla* "e disse" (es. f. 4, 39*v*). Su f. 265, al principio delle linee 10, 11, 12, 13, la clausola *qāla lahu* "gli disse" è puntuata a norma asiatica nella terza occorrenza. Ciò indica che lo scriba era di scuola orientale provvisto di un antigrafo di stessa provenienza, adattato alla maniera maghrebina' (pp. 460-461).

According to Piemontese, the Latin text is written in a Late-Carolingian script dated to twelfth-thirteenth centuries, and the incomplete Arab version, in elegant oriental *naskhī*, was written after the Latin, probably depending on the Latin text.[93]

The trilingual psalter (in parallel Greek-Latin-Arabic texts) in the British Library, Harley MS 5786, deserves a special mention here. The Latin text is in the left column, in late Carolingian script (at least 6 hands) and reports the version of the *vulgata*. The Greek text is in the central column, is written in 'Reggio style' and reports the version of the Septuagint. The Arab text is on the right column, in cursive script (2-3 hands), and reports the version of Abu l-Fath ʿAbd Allāh ibn al-Faḍl ibn ʿAbd Allāh al-Mutrān al-Anṭākī, a Melkite deacon of Antioch in the eleventh century. On the last folio a note was added in Latin, with the date of 1153 AD, representing a secure *terminus ante quem*. There is consensus that the psalter was written in Norman Palermo,[94] most probably in a circle very close to the royal court (the Greek hand has been identified with George, *taboularios* of Reggio active as scribe in S. Salvatore *in lingua phari* between 1143 and 1153 AD, and the Arabic is closely related to the Eastern Arabic script used in the Royal Dīwān, introduced to Sicily in ca. 1130 AD).[95] This group of Christians, of both

[93] Piemontese, 'Codici greco-latino-arabi', pp. 461-462.

[94] The digitalized manuscript is available online at the web page of the British Library, together with a detailed manuscript card including extensive bibliography. In the latest version if the Library's card, the manuscript's origin is given simply as 'Sicily, Palermo'. See: http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Harley_MS_5786, (accessed online 13 July 2017).

[95] The Greek scribe was identified by M.B. Foti, 'Il vangelo miniato di Parma e la biblioteca del monastero *in lingua phari*', *Κοινωνία* 16 (1992), pp. 75-84, in

Arabic and Greek culture, active in Palermo around the royal court will be discussed in detail below.

1.2.4. The Muslims

The process of acculturation and Arabization of the Sicilian population during Muslim domination was heterogeneous and multifaceted, but it is assumed that at the time of the Norman conquest the population of Sicily was predominantly Muslim and that virtually everyone understood Arabic.[96]

The onomastic study of the documents of Norman period suggest that immigration to the island could have be rather cosmopolitan, and names suggesting Indian, Persian or Copt origins are recorded.

> 'However, there are doubts over the quality and status of this type of evidence. For while some of these immigrants may have arrived recently in Sicily, others may have been established for many generations but had retained the toponymic element to their name by way of family identity.

particular pp. 82-83; for the Arabic script see J. Johns, 'The Greek Church' pp. 141-142; Piemontese, 'Codici greco-latino-arabi', p. 456; Nef, *Conquérir et gouverner*, p. 215.

[96] The father of the studies on the Muslims of medieval Sicily, with substantial parts dedicated to the Muslims under Norman rule, is Michele Amari, who first edited and translated both Arab authors and epigraphs about Muslim Sicily and wrote the first history of Sicilian Muslims. See Michele Amari (ed.), *Biblioteca Arabo-Sicula, ossia raccolta di testi arabici che toccano la geografia, la storia, le biografie e la bibliografia della Sicilia*, Lipsia: Brockhaus, 1857; Michele Amari (trans.), *Biblioteca Arabo-Sicula. Versione Italiana*, Torino e Roma: Ermanno Loescher, 1880-81; Michele Amari, *Le epigrafi arabiche di Sicilia*, Palermo: S.F. Flaccovio Editore, 1971; Amari, *Storia dei musulmani*. There is a wide bibliography on the topic, see among others: Ahmad Aziz, *A History of Islamic Sicily*, Edinburgh: University of Edinburgh, 1975; Henri Bresc, *Politique et société en Sicile, XIIe–XIVe siècles*, London: Aldershot, 1990; Ferdinando Maurici, *Breve storia degli arabi in Sicilia*, Palermo: Flaccovio, 1995; Metcalfe, *Muslims and Christians*; Metcalfe, *The Muslims of Medieval Italy*; Nef, *Conqérir et gouverner*; Johns, *Arabic Administration*.

> That we cannot he sure when, or even if, these people had arrived from the places their names suggest is a serious impediment to the use of such data to establish immigration patterns'.[97]

According to Alex Metcalfe, the names recorded in the villein registers indicate an important connection with the Maghreb, but 'immigration could have come largely from anywhere between Spain and Egypt'.[98] Onomastic evidence from the eleventh-twelfth centuries also suggest that immigrants may have come from more remote regions as well, such as Syria and the Sudan.[99]

As regards the 'Berber question', Berber settlements are generally not recorded, and linguistic evidence relative to Arabic gives only an indication of a general relation with the Maghribī world (i.e. 'almost anywhere between al-Andalus and Egypt', in Metcalfe's words). Some Berber tribal names are documented in toponymy, and Berber names are traceable in the villein registers,[100] but little linguistic evidence is available on the use of Berber dialects on the island, and their use must have been exclusively oral, in any case.[101]

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97 Metcalfe, *Muslims and Christians*, p. 60.

98 Metcalfe, *Muslims and Christians*, p. 60.

99 Metcalfe, *Muslims and Christians*, p. 61.

100 See Metcalfe, *Muslims and Christians*, pp. 63-64: 'The figures gathered from the Sicilian villein registers are as follows: registers from Catania and Aci (1095) 2.6 per cent (i.e. 27 names from a total of 1020); the Monreale estates (1178-83) 1.8 per cent or 36 out of 1921 names and all other registers (1095-1169) 1.5 per cent (or 6 out of 396 names). Taking into account the relatively small sample size available and leaving a generous margin for error and variation, the results show a thin but fairly even distribution of Berber names across the island'.

101 Metcalfe, *Muslims and Christians*, pp. 62-64.

The population of the island underwent important changes after the Norman conquest, many of the Muslim elite left the island while villeins of entire areas were moved from their regions to make space for 'Latin' immigration. As a rule, the western part of the Island (Val Démone), facing Calabria, suffered a dramatic depopulation of Muslims compensated by massive 'Lombard' immigration. In contrast to this, on the south-west part of the island Christian immigration was minimal until at least 1180s AD.[102]

It is estimated that Muslims still formed the majority of the population throughout the Norman period and until the 1220s AD.[103] They played a vital role at virtually all levels of Sicilian society in the Norman period:

> 'The Muslim population was vital to the island's economy, in both rural agricultural and urban trades and manufacturing, as well as providing skilled craftsmen, merchants and products for export. During the period of Norman state-building, Muslims maintained their roles as naval officers, foot soldiers and as bureaucrats charged with the management of the royal fiscal administration and palaces. Arab-Muslim influence made significant impressions on palace life, art and administration as well as on the outlook and lifestyles of the kings themselves'.[104]

There is evidence that during the first decades after the Norman Conquest they did not pursue a policy of converting the Muslims, and even discouraged it, on some occasions. Leading Muslims retained their political position and the recorded examples of conversions seem to be exceptions to the rule.[105]

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[102] Metcalfe, 'The Muslims of Sicily', pp. 290-292.

[103] Metcalfe, *The Muslims*, p. 142.

[104] Metcalfe, *The Muslims*, p. 142.

[105] Metcalfe, 'The Muslims of Sicily', pp. 294-295; Metcalfe, *Muslims and Christians*, pp. 32-33.

This situation gradually changed throughout the twelfth century, although there is nothing to suggest that the Normans supported a policy of conversion. During the conquest, the destruction of Muslim villages and properties was considerable and members of the Muslim aristocracy left the island. However, once the conquest was secured the Normans granted legal protection and security to Muslim properties belonging to the remainers, in return for a capitation tax for which the Arabic term of *jizya* was used[106] (conditions, however, may have varied depending on particular agreements signed by the conquerors). As regards the Muslim villeins, their fiscal status and their terms of service 'were not necessarily worse than for the other communities'.[107] As regards the legal status of Muslims, a kind of indirect rule was established, relying on the principle that each of the island's communities, was judged by its own law, except the cases in which this could be in conflict with the Kingdom's other laws.[108] Throughout the twelfth century, Muslim magistrates and courts (for the most part adhering to the Mālikī school) were active in Sicily, guaranteeing the respect of Islamic law and conventions within the Muslim community.[109] With the exception of Val Démone, where the impact of 'Latin' settlements was far more violent:

> '[...] the emerging picture is of an Islamic community that continued to function relatively normally, sheltering under a type of indirect rule, its judicial and religious status theoretically guaranteed in return for a higher tax burden and a reversal of its former prestigious social position.

[106] Metcalfe, 'The Muslims of Sicily', pp. 294 and 296; Metcalfe, *Muslims and Christians*, pp. 34-37 and 177.

[107] Metcalfe, 'The Muslims of Sicily', p. 295.

[108] Metcalfe, *The Muslims*, pp. 150-152, Johns, *Arabic Administration*, pp. 35-39 and 293.

[109] Metcalfe, 'The Muslims of Sicily', p. 296.

> For many of Sicily's Muslims, daily life under Christian rule thus continued without substantial change'.[110]

Muslims and crypto-Muslims also played an important role in the royal entourage and administration, which deserve a separate discussion and will be treated thoroughly below, in the paragraph dedicated to the royal court.

1.2.5. The Jews

There is evidence that significant Jewish communities settled in both Islamic and Norman Sicily.[111] Benjamin of Tudela, who visited the island before 1172-1173 AD, reported that there were 200 Jews in Messina and 1,500 in Palermo (by far the most important community he recorded in Italy),[112] but from documentary evidence, specifically donations to the church of taxes from the Jews, it is clear that these Jewish settlements were not limited to Palermo and Messina and that Jews represent an important minority.[113]

Although Jews were settled in Sicily from the classical period, documentation for Norman times shows that they were strongly Arabicized. Hebrew and Aramaic must have been used in official

[110] Metcalfe, 'The Muslims of Sicily', p. 296.

[111] Metcalfe, *The Muslims*, pp. 107-108, Hubert Houben, 'Religious Toleration in the South Italian Peninsula during the Norman and Staufen Periods', in Loud and Metcalfe (eds.), *The Society*, pp. 319-339, in particular pp. 333-337.

[112] Benjamín de Tudela (trans. José Ramón Magdalena Nom de Déu), *Libro de viajes*, Barcelona: Riopiedras Ediciones, 1989, pp. 122-123. Metcalfe, *Muslims and Christians*, p. 69; Houben, 'Religious Toleration', p. 334.

[113] Metcalfe, *The Muslims*, p. 107.

contexts, but Arabic was the everyday language (it is documented that Sicilian Jews preserved the use of Arabic until the fifteenth century).[114] Jews had a similar subordinate status as the Muslims; they preserved their religion and jurisdiction within their community in return for the payment of the *jizya* (a social and legal position which continued the status they had under Muslim rule).[115]

There is no evidence that Jews played any role in the political administration of the kingdom, and we are ignorant as to whether they were part of court circles.[116] This is particularly surprising considering the importance that Jews had in both the preceding Islamic period and during Frederick II's reign.[117]

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[114] Metcalfe, *Muslims and Christians*, pp. 68-69; Giuseppe Mandalà, 'The Jews of Palermo from Late Antiquity to the Expulsion (598–1492-93)' in Annliese Nef (ed.), *A Companion to Medieval Palermo*, pp. 437-485, in particular pp. 463-464.

[115] Houben, 'Religious Toleration', p. 333, Johns, *Arabic Administration,* pp. 35-39, 57,

[116] Metcalfe, *The Muslims*, p. 107. A tenuous indication in this sense is given by the Judeo-Arabic inscription recorded in the quadrilingual stele for Anna, mother of Grisantus, 'clericus regis', see: Nef, *Conquérir et gouverner*, p. 108: 'Soulignons, enfin, la place attribuée au judéo-arabe sur la stèle de Grisantus. Si nous ignorons tout du rôle des juifs de langue arabe à la cour des souverains normands, ils apparaissent ici comme la quatrième composante de la population sicilienne et de ses élites, bien attestée pour les périodes précédente et successive. On a suggéré que le contenu des quatre versions, conforme à la doctrine de Rome, prouvait que l'arabe et le judéo-arabe s'adressaient à des convertis, juifs et musulmans à l'origine. L'hypothèse ne convainc guère et évacue la question de savoir si Grisantus connaît le judéo-arabe et surtout pourquoi il tient à le voir figurer sur une stèle funéraire familiale'. On this stele see Michele Amari, *Le epigrafi arabiche di Sicilia*, Palermo: S.F. Flaccovio Editore, 1971, pp. 201-211, Johns, 'The Greek Curch', pp. 140-141, Jeremy Johns, 'Le iscrizioni e le epigrafi in arabo', in Maria Andaloro (ed.), *Nobiles Officinae. Perle, filigrane e trame di seta dal Palazzo reale di Palermo*, (2 vols.) Catania: G. Maimone, 2006, vol. 1, pp. 520-522 and vol. 2, pp. 47-68.

[117] Nef, *Conquérir et gouverner*, p. 108. On the Jews in Sicily during both the Norman and Staufen period see Attilio Milano, *Storia degli ebrei in Italia*, Turin: Einaudi, 1992 [first edition 1948], Raphael Straus, *Gli Ebrei di Sicilia, dai Normanni a Federico II*, Palermo: Flaccovio, 1992; Aldo Sparti, Shlomo Simonsohn et al. *Italia Judaica. Gli*

1.2.6. Other minorities

In the Byzantine period, apart from migrations of 'Greeks' from other regions of the empire, which are mentioned above, migrations of Slavs and Armenians are documented. Two *castra* in the Gargano (Devia and Peschici) seem to have a majoritary Slav population from twelfth century documentation. Their origin has been related to the Bulgarian invasion of Serbia towards the end of the tenth century and their integration was perhaps intentionally avoided, during both Byzantine and Norman times, in order to contain further Slav pressure from the Adriatic coast in front of the Garagano. [118] After the Norman conquest it seems that immigration from the Balkan Peninsula ceased, and during the twelfth century the onomastics indicate the progressive fusion with the local 'Latin' population.[119] Apart from this *castra*, Slav immigration was not relevant and the only constant flow from the Dalmatian coast was related to slavery.[120]

ebrei in Sicilia sino all'espulsione del 1492. Atti del V convegno internazionale, Palermo, 15-19 giugno 1992, Roma: Fratelli Palombi Editori, 1995; Nicolo Bucaria, *Sicilia Judaica*, Palermo: Flaccovio, 1996; Shlomo Simonsohn, *The Jews in Sicily. Volume 1 (383-1300)*, Leiden – New York – Köln: Brill, 1997; Shlomo Simonsohn, 'il Mezzogiorno normanno-svevo visto dal mondo ebraico', in Giosuè Musca, *Il Mezzogiorno normanno-svevo visto dall'Europa e dal mondo mediterraneo. Atti delle tredicesime giornate normanno-sveve*, Bari: Dedalo, 1999, pp. 327-340; Annliese Nef, 'La Sicile dans la documentation de la Geniza cairote (fin Xe-XIIIe siècle): les réseaux attestés et leur nature', in Damien Coulon et al. (eds.), *Espaces et Réseaux en Méditerranée VIe -XVIe siècle*, Paris: Editions Bouchène, 2007, pp. 273-291; Mandalà, 'The Jews of Palermo'. On the important Jewish population documented in Apulia from byzantine time see Jean-Marie Martin, *La Pouille du VIe au XIIe siècle*, Rome: École Française de Rome, 1993, in particular pp. 492-503.

[118] Martin, *La Pouille*, pp. 504-507.

[119] Martin, *La Pouille*, p. 508.

[120] Martin, *La Pouille*, p. 509.

Both high imperial functionaries of Armenian origin and small groups of Armenians are documented in south Italian regions during the tenth-eleventh centuries. The former were in Italy only for service reasons within the Byzantine army and administration. As was the case for the high imperial aristocracy they were not rooted in the local environment and were not established permanently in Italy. These small groups of Armenians, documented in the regions of Bari, Lecce and Benevento, seem to have progressively lost their particularism. The last indications for an Armenian presence in South Italy are documented at the beginning of the twelfth century.[121]

[121] Martin, *La Pouille*, pp. 518-520.

1.3. The Royal Court

1.3.1. The autochthonous members of the royal circle

Due to the historical circumstances described so far, multilingualism and multiculturalism characterized the Kingdom of Sicily from its origins. This was true, to an even larger extent, for the royal circle, including state officials and courtiers. Important personages from the kingdom's different ethnic groups were integrated into the royal court circles. Many of them are known by name, either from narrative sources or from documentary evidence. Among them is Eugenios, the first known *amiratus*[122] of Greek origins.[123] As for most of the administration's high functionaries, he was originally a 'notarius'.[124] He constituted 'a dynasty of administrators' which included his sons *amiratus* John and Nicola, documented under Roger II's services, and his grandson *amiratus* Eugenius, who was famed under William II. This Greek family was most probably originally from the Val Demone (or had settled there very early on). [125] Other known Greek families, which maintained prestigious

[122] The term *amiratus* (and its variants, such as *armeratus* and *admiratus*, for example) 'is a Latinized form of *amīr* in Arabic and the origin of admiral in English, *admiral* in German, *amiral* in French, and *ammiraglio* in Italian. This title was held by the most powerful people, and sometimes by head ministers in the kingdom. Many historians think that the *amiratus* was the highest official in charge of the financial administration as well as the commander of the navy' (Takayama, 'Amiratus', p. 134). However, the definition of this office –as well as other offices mentioned below– is not always clear and it changed over the time.

[123] However, Johns, *Arabic Administration*, p. 69, suggests that he received this title posthumously.

[124] The term *notarius* was used to indicate a kind of chief secretary (Amari, *Storia*, vol. 3, p. 353), and was 'the essential rank for holders of high administrative office' (Johns, *Arabic Administration*, p. 69).

[125] Falkenhausen, 'I ceti dirigenti', p. 354.

positions under Norman rule were the Maleïnos, the Terràs, the Graffeo, as well as Scolario of Reggio's clan.[126] On the other hand, little is known about the origins of emir Christodoulos (he also appears as Christoforus -and variants- in Latin, and as both ʿAbd al-Raḥmān and ʿAbd Allāh in Arabic sources). This personage, who for some twenty years (approximately from 1107 to 1126 AD) supervised the Norman administration before the kingdom's foundation, most probably belonged to the bilingual Arab-Greek Christian community of Sicily.[127]

Among the Latin functionaries involved in Norman administration is Robert, first known *amiratus* of Palermo, appointed by Robert the Guiscard in 1072 AD according to a short notice reported by William of Apulia, and the *armeratus Palermi* Petrus Bido, who is the second known *amiratus* (from a document dated 1086 AD), being most probably a Norman or Longobard. They are the only Latins appointed to this position, later *amirati* being all Greeks or Arab-Greeks. Paenos (styled *camerarius* and later *protocamerarius*) and Jordanus (*camerarius*) were active during the years of Christodoulos' emirate.[128] After Roger II's death, Latin become increasingly important for a career in the kingdom's administration and the number of known personages coming from 'Latin' Italian families increased:

> 'Le grandi carriere amministrative furono ormai accessibili solo a chi conosceva anche il latino e poteva essere utilizzato in tutto il Regno, come

[126] Falkenhausen, 'I ceti dirigenti', pp. 355-356.

[127] Léon-Robert Ménager, *Amiratus - Ἀμηρᾶς. L'émirat et les origines de l'amirauté (XIe - XIIIe siècles)*, Paris, 1960, pp. 29-41; V. von Falkenhausen, 'Cristodulo', *Dizionario biografico degli italiani*, 31 (1985), Roma: Istituto della Enciclopedia Italiana, pp. 49-51; Johns, *Arabic Administration*, pp. 69-74.

[128] Johns, *Arabic Administration*, p. 68, Falkenhausen, 'I ceti', p. 352.

> per esempio il cosiddetto *iudex Tarentinus*, o *Abdenago filius Annibalis*, o l'ammiraglio Eugenio il Giovane. Proprio alla luce di queste considerazioni si spiega il fatto che, fin dalla fondazione e unificazione del Regno, esponenti del ceto dirigente latino longobardo dell'Italia meridionale poterono compiere grandi carriere nell'amministrazione centrale, come il vice-cancelliere Matteo, i Guarna da Salerno e l'ammiraglio Maio di Bari. I maggiorenti della Calabria e della Sicilia dovettero adattarsi alla nuova situazione per non perdere, con le possibilità di carriera nell'amministrazione, le posizioni sociali ed economiche raggiunte. Cominciarono per questo ad assumere nomi normanni, strinsero parentele con membri della nobiltà normanna, adottarono infine prontamente il latino. Ne segue che nelle nostre fonti è spesso difficile distinguere il vecchio ceto dirigente dal nuovo'.[129]

Maio, who was the son of a royal judge of Bari, was *scriniarius*[130] since 1144 AD, vice-chancellor from 1149 AD, chancellor from 1152 AD and was appointed *magnus admiratus* after Roger II's death, in 1154 AD. From that moment Maio was the most powerful personage in the kingdom, becoming increasingly unpopular until he was murdered in 1160 AD. He was depicted as a tyrant by contemporary sources.[131] Other contemporary officials were related to Maio: Maio's brother and son, both named Stephen, were emirs of the kingdom. They were arrested after Maio's assassination. Matthew of Salerno, who was Maio of Bari's right hand, was a notary and Vice-chancellor, and *magister notarius* under William I, William II and Tancred. He was arrested, as well, after Maio's fall, but was soon released from prison and returned to an important position in the administration. In fact, he was put in charge of

[129] Falkenhausen, 'I ceti dirigenti', p. 370.

[130] The term *scriniarius* was used to indicate an 'archivist in the royal chancery' (Johns, *Arabic Administration*, p. 197).

[131] Johns, *Arabic Administration*, pp. 197-202.

the reconstitution of the registers destroyed during the rebellion of 1160 AD, was chancellor under William II and Tancred and was a member of the triumvirate that monopolized the administration during the last years of William I's and during William II's reigns.[132]

The chronicler Romualdus Salernitanus, archbishop of Salerno, was another member of the royal court. Matthew and Romualdus belonged to two important families of Longobard origin, of Salerno. [133] Bartholomew, William II's doorkeeper and Peter, a notary who was relative of Matthew, also came from Salerno.[134] Another personage of Longobard origins was the palace chamberlain, Atenulf, 'one of the leading figures of the administration since the 1140s AD.[135]

Some members of the Muslim elite, as well, were employed in the administration. Sirāj ibn Aḥmad ibn Rajāʾ, known as Abū l-Ḍawʾ, was a member of an important Palermitan family 'which provided the *qāḍī* of Palermo in three successive generations'.[136] He was designated as *al-qā'id* and variants[137] in the official documents and is styled as *al-kātib* or 'the secretary', in narrative sources. He was most probably an Arab administrator and scribe at Roger II's service in comital time, before the royal *dīwān* was established in the early 1130s AD. He remained related

[132] Johns, *Arabic Administration*, pp. 219-224.

[133] Falkenhausen, 'I ceti dirigenti', p. 370.

[134] Johns, *Arabic Administration*, p. 243 and pp. 228-229.

[135] Johns, *Arabic Administration*, p. 219.

[136] Johns, *Arabic Administration*, p. 88.

[137] This honorific, later on, was born by all the most important royal *dīwān*'s Arab officers. Apart from the Arabic form, *al-qā'id*, it is used in Greek and Latin variants such as καΐτος, καΐτης gaytus, etc. (see Johns, *Arabic Administration*, pp. 89 and 222).

to the court at least until the early 1140s AD.[138] Some decades later, during the reign of William II, Abū l-Qāsim ibn Ḥammūd, was employed in the royal *dīwān* (he is recorded as one of the *ἀρχόντων τῆς κόρτης καὶ σεκρετικῶν* in a document of 1168 AD and one of the *magistri duane nostre de secretis* in 1173 AD). He was a member of an important Sicilian Arab family, which both Falcandus and Ibn Jubayr[139] considered as the leader of Sicilian Muslim Community.[140] Another known Muslim notable was the *ḥākim* ʿUthmān Ibn al-Muhadhdhib al-Judhāmī, who was a courtier and was most probably employed in the royal administration during Queen Margaret's regency.[141]

1.3.2. The integration of high-status immigrants

In the cases mentioned in the previous paragraph, a certain continuity can be observed with regard to the period preceding the unification and foundation of the kingdom (the important personages of the kingdom being often sons of the previous ruling class). However, at the same time, the heterogeneous milieu of the court was further enriched by the incorporation into the state and the court a number of relevant personages from outside the kingdom. According to the historical sources, indeed, Norman kings attracted and rewarded systematically experts and wise men from different parts of the world, regardless of their origins, integrating them into the ruling class.[142] Hugo Falcandus

[138] Johns, *Arabic Administration*, pp. 88-90.

[139] Hugo Falcandus (ed. Siragusa), *Liber*, p. 119; Ibn Jubayr (ed. Wright) p. 341.

[140] Johns, *Arabic Administration*, pp. 234-243.

[141] Johns, *Arabic Administration*, pp. 240, 243 and 252.

[142] Loud, 'Sicily in the Twelfth Century', p. 470.

reported that King Roger was determined to discover 'the customs of other kings and peoples, in order to adopt any of them that seemed particularly admirable or useful', and that 'when he heard that any persons were either effective counsellors or famous warriors, he would honour them with gifts to encourage their virtue'.[143] This notice seems to be confirmed by Romuald of Salerno, which stated that:

> 'Quamvis autem predictus rex, sapiencia ingenio et plurima discretione polleret, tamen sapientes viros diversorum ordinum et diversis mundi partibus evocatos, suo faciebat consilio interesse […] Et si quos probos et sapientes viros, sive de terra sua sive aliunde genitos, laicos seu clericos invenire poterat, sibi adherere iubebat, et prout cuiusque exigebat conditio, eos diversis honoribus divitiis exaltabat'.[144]

To illustrate this, a number of relevant historical figures in the kingdom can be cited; they are known either from narrative sources or from contemporary documents. The most famous is undoubtedly George of Antioch, Roger II's 'ἄρχων τῶν ἀρχόντων' ('archon of archons'), who together with the king is the most important personage of the kingdom from the 1120s until his death in 1151 AD (the figure of George is treated in more detail in the section below).

[143] Hugo Falcandus (trans. G.A. Loud and T. Wiedemann), *The history of the tyrants of Sicily by 'Hugo Falcandus'. 1154–69*, Manchester: Manchester University Press, 1998, p. 58; Hugo Falcandus (ed. Siragusa), *Liber*, p. 6: 'Aliorum quoque regum ac gentium consuetudines diligentissime fecit inquiri, ut quod in eis pulcherimum aut utile videbatur sibi transumerat. quoscumque viros aut consiliis utiles aut bello claros compererat, cumulatis eos ad Virtutem beneficiis invitabat'.

[144] Romualdus Salernitanus (ed. C.A. Garufi), *Chronicon*, pp. 233-234.

Important personages, such as the Robert of Selby (Roger II's chancellor),[145] Richard Palmer (royal familiar, bishop-elect of Syracuse from 1157 AD, but consecrated only in 1169 AD, and archbishop of Messina from 1183 to 1195 AD),[146] or Herbert of Middlesex (archbishop of Conza from 1169 to 1181 AD)[147] were of English origin. Others were of French origin, according to Hugo Falcandus, Roger II:

> 'Transalpinos maxime, cum ab Northmannis originem duceret, sciretque Francomm gentem belli gloria caeteris omnibus anteferri, plurimum diligendos elegerat, et propensius honorandos'.[148]

However, Normans were appreciated not only as warriors. The same Hugo Falcandus relates that French became an indispensable language at the royal court,[149] probably when a group of notables, such as Stephen of Perche (chancellor under regent Margaret and archbishop of Palermo),[150] Peter of Blois (William II's tutor) and his brother William came from Norman France. This group was headed by Stephen of Perche, who was a distant cousin of Margaret and was invited to Palermo in order to support her during her son's minority. Peter and William of Blois were candidates for the sees of Naples and Catania, respectively, but their careers were truncated hastily by the dismissal of Stephen of

[145] Johns, *Arabic Administration*, pp. 197-198.
[146] Johns, *Arabic Administration*, pp. 224-232.
[147] Loud, 'Norman Sicily in the Twelfth Century', p. 470.
[148] Hugo Falcandus (ed. Siragusa), *Liber*, p. 6.
[149] Hugo Falcandus (ed. Siragusa), *Liber*, p. 127.
[150] Johns, *Arabic Administration*, pp. 228-232 and 254-256.

Perche.[151] Gentile, a Tuscan in the service of the Hungarian king, was sent to Palermo in 1154 AD, and accepted William I's offer to remain in Sicily as Bishop of Agrigento (he remained linked to the Palermitan court until his death in 1171 AD).[152]

1.3.3. The Arab elements related to the royal dīwān

Although many of the leading personages mentioned so far were related to this institution, as well, the royal *dīwān* was mainly composed of Arab elements (including Muslims, converted Muslims, crypto-Muslims and Arab-Christians).[153] Several of these personages are known from the surviving documents (often produced by the royal *dīwān* itself) and from narrative sources.

In his outstanding study on the royal *dīwān*, Jeremy Johns offered the prosopography of some of its leading personages. The lives of five of them, Philip of Mahdiyya, Martin, Peter (Barrūn, Aḥmad), Richard and Abū l-Qāsim ibn Ḥammūd, can be reconstructed in some detail. Philip was a eunuch of Roger II, perhaps a former slave who came from Mahdiyya with George of Antioch, and gained the King's favour. According to an interpolation in the twelfth century manuscript of Romualdus' chronicle, the king put him in charge of the whole palace

[151] Norbert Kamp, 'The Bishops of Southern Italy in the Norman and Staufen Periods', in Loud and Metcalfe, *The Society*, pp. 185-209, in particular p. 198.

[152] Kamp, 'The Bishops of Southern Italy', p. 197.

[153] The most recent exhaustive study on the royal dīwān is Johns, *Arabic Administration*. See also Hiroshi Takayama, *The Administration of the Norman Kingdom of Sicily*, Leiden: E.J. Brill. 1993.

(*universo hunc prefecit palatio, et totius domus sue statuit esse magistrum*) and made him admiral of his fleet (*stolii sui ammiratum*).[154]

Philip had formally converted to Christianity but he was accused of being a crypto-Muslim and condemned to death with his colleagues in 1153 AD.[155]

Eunuch Martin was one of the leading figures of the reaction against Matthew Bonellus and the conspirators who killed Maio of Bari, holding his own court with special judicial power. Under the regency of Margaret he was the director of the royal *dīwān* and one of the royal familiars until he died in 1176 AD.[156]

Peter, or else 'Petrus' was another eunuch, who can be identified with the same personage called 'καΐτης Περρουν' in the documents *Dīwāni* 15-17 (1141 AD) and '*qā'id* Barrūn' in the document *Dīwāni* 19 (1149 AD).[157] Later on, he was commander of the Norman fleet under William I, had his personal court and persecuted the rebels of 1160-1161 AD. He was one of Margaret's favourites and belonged to the triumvirate established during the queen's regency, being one of the most powerful persons in the kingdom. Realizing the hostility of the kingdom's notables, he defected to the Almohads.[158]

[154] Romualdus Salernitanus (ed. Garufi), *Chronicon*, p. 234.

[155] Johns, *Arabic Administration*, pp. 215-218.

[156] Johns, Arabic Administration, pp. 219-222.

[157] Most probably both the Greek and Arabic form of the name derive from French 'Perron', diminutive form of 'Pierre' (see Johns, *Arabic Administration*, p. 222). The cited documents are catalogued in Johns, *Arabic Administration*, pp. 301-314.

[158] Johns, *Arabic Administration*, pp. 222-228.

Richard was another palace eunuch who first appeared in the *dīwān* in 1161 AD and is last documented in 1187 AD. He was *magister camerarius palatium* (chamberlain) and became director of the royal *dīwān*. According to Falcandus,[159] he was the leader of the opposition to Stephen of Perche.[160]

In addition to these major personages, other Arab servants related to the palace and the royal *dīwān* are known only by sporadic or single references, such as the *qā'id* Mataracius, the master Abdeserdus, *qā'id* John, and other scribes and servants either in the service of the kings or the royal eunuchs.[161]

Apart from Abū l-Ḍaw' and Abū l-Qāsim ibn Ḥammūd, who belonged to the Sicilian Muslim elite, all these personages were eunuchs and little is known about their origins:

> 'Philip of al-Mahdiyya and Peter both came from North Africa as children, and were raised in the palace. Philip may have come to Sicily in George of Antioch's household, but Peter was probably taken during the capture of Gerba, and may have been castrated in the palace. Nothing is known about the origins of the other eunuchs, but it seems probable that some, like Peter, were captured during military campaigns in North Africa, while others may have been purchased from Christian, or even Jewish, merchants. […] It seems improbable that any of the eunuchs were Sicilian Muslims. Islamic law forbade Muslims to be made slaves and, a fortiori, to be castrated, and Islamic courts generally acquired their slaves and eunuchs from beyond the frontiers of Islam. In the Roman and Byzantine empires, too, eunuchs were supposed to be foreign slaves. Had the Norman eunuchs been drawn from Sicily, they might have retained familial links which would have weakened their utter dependence upon the king. It was their social isolation and their utter dependence upon the king, as much as the act of castration, that distinguished the eunuchs. They had been raised in the palace as the personal dependents of the king

[159] Hugo Falcandus (ed. Siragusa), *Liber*, p. 145.

[160] Johns, *Arabic Administration*, pp. 228-234.

[161] Johns, *Arabic Administration*, pp. 243-247.

> and his family, to whom they were bound by quasi-familial ties of affection, as well as by bonds of dependence and service. The omnicompetence of the eunuchs, as personal servants, as keepers of the harem and as custodians and perhaps even educators of the palace children, allowed them far closer intimacy with the king and his family than would have been granted to any Latin courtier'.[162]

According to the studies of Jeremy Johns, the royal *dīwān*, in the sense of a specialized office dedicated to Arabic administration, seems to emerge suddenly, highly developed and well-organized, only after 1130 AD. It is around this date that the documentation produced by the Norman administration shows a sudden qualitative leap indicating that the *dīwān* was not simply an evolution of the previous administration, but a basically new institution organized upon oriental models from the contemporary Islamic world. Relying on both documentary and narrative sources Johns identified George of Antioch as the 'chief architect' of this creation.[163]

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[162] Johns, *Arabic Administration*, pp. 249-250.

[163] Johns, *Arabic Administration*, p. 257. On George of Antioch see Ménager, *Amiratus* (it is a study of the institution of the admiral in Norman Sicily, which includes a short biography of George); A. Acconcia Longo, 'Gli epitaffi giambici per Giorgio di Antiochia, per la madre e per la moglie', *Quellen und Forschungen aus italienischen Archiven und Bibliotheken*, 61(1981), pp. 25-59; Adalgisa de Simone, 'Il mezzogiorno normanno-svevo visto dall'Islam africano', in Giosuè Musca (ed.) *Il mezzogiorno normanno-svevo visto dall'Europa*, pp. 261-293; V. Prigent, 'L'archonte Georges, prôtos ou émir?', *Revue des études byzantines*, 59 (2001), pp. 193-207, Johns, *Arabic Administration*, pp. 80-85; A. Acconcia Longo, 'Considerazioni sulla chiesa di S. Maria dell'Ammiraglio e sulla Cappella Palatina di Palermo', *Nea Rhome* 4 (2007), pp. 267-293. A number of useful studies dedicated to George of Antioch have been recently collected in Mario Re and Cristina Rognoni (eds.), *Byzantino-Sicula V: Giorgio di Antiochia: l'arte della politica in Sicilia nel XII secolo tra Bisanzio e l'Islam. Atti del convegno internazionale (Palermo 10-20 aprile 2007)*, Palermo: Istituto siciliano di studi bizantini e neoellenici 'Bruno Lavagnini', 2009.

George was a member of a Melkite family, originally from Antioch, which was employed in administration in Syria –he was trained 'at Antioch and elsewhere', according to Arabic sources–.[164] He and his family fled to Zīrid Ifrīqiya some years after 480 AH/1087-88 AD and were employed by Tamīn ibn Bādīs (emir from 1062 to 1108 AD).[165] In 1108 AD, at the emir's death, because of the aversion of Yaḥā –Tamīn's son and successor–, George fled to Sicily with his family and defected to the Normans. He was employed by Christodoulos –the above mentioned vizier of Roger II in comital times– first as local governor, then in central administration and government, where he made a brilliant career.

[164] The quotation is from Ibn Khaldūn and al-Tījānī, see Amari (ed.) *Biblioteca*, p. 487 and p. 392; and Amari (trans.) *Biblioteca*, p. 206 and p. 65, respectively. Apart from these two authors, more or less extended information about George is reported by different Arab sources, such as Ibn al-Athīr, the *Kitāb al-bayān*, Abulfeda and al-Ṣafadī. For the edition of these texts see Amari (ed.) *Biblioteca*, respectively pp. 293-297 (Ibn al-Athīr); pp. 372-373 (*Kitāb al-bayān*); pp. 388-400 (al-Tījānī); pp. 416-7 (Abulfeda); pp. 487-490 and pp. 501-502 (Ibn Khaldūn); p. 657 (al-Ṣafadī); for the translations see Amari (trans.) *Biblioteca*, respectively vol. 1, pp. 470-476 (Ibn al-Athīr); vol. 2 pp. 37-38 (*Kitāb al-bayān*); pp. 60-78 (al-Tījānī); pp. 100-101 (Abulfeda); pp. 206-210 and 226-228 (Ibn Khaldūn); pp. 563-564 (al-Ṣafadī). An extended biography of George of Antioch reported by al-Maqrīzī, which was not edited by Amari, was pointed out by Adalgisa de Simone 'Il mezzogiorno normanno-svevo visto dall'Islam africano', in Musca (ed.), *Il mezzogiorno normanno-svevo visto dall'Europa*, pp. 261-93. This text is edited in Aḥmad ibn ʿAlī al-Maqrizi (ed. Muḥammad al-Yaʿlāwī), *Kitāb al-muqaffā al-kabīr* (8 vols.), Beirut: Dār al-Gharb al-Islāmī, 1991, vol. 3, pp. 18-20. An Italian translation was given in De Simone, 'Il mezzogiorno', pp. 276-279. An English translation in Johns, *Arabic Administration*, pp. 80-90. See also Annliese Nef's observations to the text in Nef, *Conquérir et gouverner*, pp. 311-314.

[165] Al-Maqrizi (ed. Al-Yaʿlāwī), *Kitāb al-muqaffā*, p. 19: '*wa-dhalik nayyif thamānīn wa-arbaʿumāʾia*', which Johns translated 'That was in about the year 480/1087–88'. However the term literary means 'that was in four hundred and eighty-something' or 'that was in four hundred and eighty-odd' (in a litteral sense *nayyif* refers to a number from one to three, i.e. 'that was in 481-84 AH/1088-1091 AD', I thank Faiad Barbash for this indication).

Between the mid-1110s and the mid-1120s AD he was sent several times as ambassador to Cairo. In 1123 AD he was Christodulos's lieutenant during the failed attack upon the Zīrid capital, Mahdiyya. In 1125 AD he is recorded as 'emir' and around 1126 AD –after Christodoulos's fall, according to al-Maqrīzī– he is appointed vizier, and 'presides over the whole kingdom' until his death in 1151 AD.[166]

During the 25 years between 1126 and 1151 AD the importance of George of Antioch in Norman Sicily could hardly be overestimated. According to al-Maqrīzī's biography (as translated by J. Johns):

> '[George] amassed the revenues and organised the foundations of the kingdom. He veiled Roger from [his] subjects, and arranged for him to dress in clothes like the Muslims', and not to ride out, nor to show himself in public, except on holidays, when he would process, preceded by horses adorned with saddles of gold and silver, and with caparisons studded with gemstones, and by domed litters and gilded banners, with the parasol above him and the crown upon his head. George was entitled 'exalted master, pleasing [to God], glory of the victorious king, pride of majesty, rule of leadership, leader of armies, honour of ministers, emir of emirs'. He acquainted Roger with the biographies of the kings, and ordered one of his secretaries, called al-Ḥanash ('the Snake'), to compile a biography of him. […] Roger's state grew under George's management. Thus, when high prices and civil disorders fell upon the Maghrib, there emigrated to him a vast galaxy of emirs, judges, lawyers, men of letters, and poets. Both George and Roger were lavish with their hospitality to them, and had them stay with them. Thus the island flourished in a most splendid way, and travellers from every land made for it with all sorts of goods and rare merchandise, until the year 546/20 April 1151 – 7 April 1152, [when] George the vizier died at the age of ninety'.[167]

[166] Johns, *Arabic Administration*, p. 74 and pp. 92-94.

[167] Johns, *Arabic Administration*, p. 82.

As De Simone pointed out, the authenticity of some basic elements of al-Maqrīzī's story are confirmed from other independent sources.[168] In particular, there is consensus that George played a leading role in the reform of the royal administration.[169] However, what is more relevant here is that George also influenced different aspects of the Sicilian monarchy, manipulated the royal image –being the shaper of the Islamic facet of Roger II's kingship, according to al-Maqrīzī–, and was himself a patron of culture and arts, co-responsible with the king for the island's flourishing.

1.3.4. Cultural life around the royal court

The artistic and intellectual circle surrounding the royal court is evoked by some of the authors related to the Norman patrons, or else personages who visited Sicily in the Norman period. As is mentioned above, Norman kings attracted and rewarded systematically experts and wise men from different parts of the world, regardless of their origins, often integrating them into their ruling class. Many of these personages were also men of letters and science.[170]

During Roger II and William I's reigns, a number of Arab poets and scholars related to the royal circle are known from different sources.[171]

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[168] De Simone, 'Il Mezzogiorno', pp. 279-280. See also Johns, *Arabic Administration*, pp. 83-90.

[169] Johns, *Arabic Administration*, pp. 93-94.

[170] Loud, 'Sicily in the Twelfth Century', p. 470.

[171] The following indications about literary production in Norman Sicily intend to be merely orientative. Annliese Nef (Nef, *Conquérir et gouverner*, p. 206) has already expressed the need of a systematic and specific study of the more or less fragmented information about this topic, specifically with regard to Arabic literary production.

The above-mentioned Abū l-Ḍawʾ *al-kātib*, for example, was also a poet. Extracts from his poems, including an elegy on the death of Roger II's son, are known thanks to the works of ʿImād al-Dīn al-Iṣfahāni (d. 1201 AD), one of the most important sources on Arab literature in Sicily. ʿImād al-Dīn read some works of Abū l-Ḍawʾ and other Sicilian poets in Arabic poetry anthologies, which are now lost, such as the anthology of Ibn Bashrūn al-Ṣiqillī (*al-Mukhtār fī l-naẓm wa-l-nathr li-afāḍil ahl al-ʿaṣr*, 'The anthology of poetry and of prose by the best men of the age'), among others. Abū l-Ḍawʾ was the recipient of some verses by the polymath Abū l-Ṣalt Umayya, also quoted by al-Iṣfahānī (Abū l-Ṣalt travelled to Sicily on several occasions, as it is discussed below).[172]

Ibn Bashrūn was himself a poet and anthologist in Norman Sicily, where he compiled and published the *Mukhtār* in 561 AH/1165-6 AD.[173] He is the author of a *qaṣīda*, fragmentarily preserved, in praise of Roger II in reply to a similar composition authored by ʿAbd al-Raḥmān ibn Muḥammad al-Buṭīrī.[174]

Several Arab poets related to the royal court were known to ʿImād al-Dīn al-Iṣfahānī through an anonymous anthology of Sicilian poets, now

Apart from the texts edited and translated by Amari useful information is given in Adalgisa de Simone, *Nella Sicilia araba tra storia e filologia*, Palermo: Luxograph, 1999; pp. 3-15; A. Nef, 'Dire la conquête et la souveraineté des Hauteville en arabe', *Tabularia "Études"* 15 (2015), p. 1-15.

[172] Amari, *Storia*, vol. 3, p. 665. Extracts of 'Imād al-Dīn's work dedicated to Sicilian poets were published and translated respectively in Amari (ed.) *Biblioteca*, pp. 579-612; and Amari (trans.) *Biblioteca*, pp. 429-490.

[173] Johns, *Arabic Administration*, p. 88. See also Amari, *Storia*, vol. 3, pp. 752-761.

[174] Amari, *Storia*, vol. 3, pp. 759-761. Nef, 'Dire la conquête', p. 11.

lost, compiled in Mahdiyya in the twelfth century.[175] Among them is the juriconsult (*faqīh*) Abū Musa ʿĪsā ibn ʿAbd al-Munʿim al-Ṣiqillī, who exchanged verses with Abū l-Ḍawʾ and Abū l-Ṣalt.[176] Abū Musa's son, Abū ʿAbd Allāh Muḥammad b. ʿĪsā, was a juriconsult, a poet, a geometer (*muhandis*) and astronomer/astrologer (*munajjim*).[177]

Apart from Abū l-Ḍawʾ's elegy on the death of Roger II's son, al-Iṣfahānī knew of several Arab poets who celebrated Roger II, such as Abū Ḥafṣ ʿUmar ibn Ḥasan, ʿAbd al-Raḥmān ibn Ramaḍān, ʿAbd al-Raḥmān ibn Muḥammad al-Buṭīrī and ʿAbd al-Raḥmān ibn Abī al-ʿAbbās al-ʿIṭrābanishī. However, al-Iṣfahānī regularly mutilated their words, in order to avoid the repetition of praise to 'infidels'.[178]

Al-Iṣfahānī also mentioned that Yaḥyā ibn al-Tīfāshī al-Qafṣī was killed by the 'Franks' in Sicily after 550 AH/1155-1156 AD, when they attacked Muslims.[179] ʿUthmān ibn ʿAbd al-Raḥmān, known as Ibn al-Sūsī, was active in Palermo and wrote an elegy on the death of a Muslim *qāʾid*.[180] Abū l-Ḥusayn ibn al-Ṣabbān al-Mahdawī, who was famed in Syria in Nūr al-Dīn's reign and died in Damascus in 560 AH/1164-65 AD, wrote a poem about a young Christian who owned a tavern in Palermo.[181]

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175 Amari, *Storia*, vol. 3, pp. 745-746.

176 Amari, *Storia*, vol. 3, pp. 746-748; Johns, *Arabic Administration*, p. 88.

177 Amari, *Storia*, vol. 3, pp. 748-751, Amari (ed.) *Biblioteca*, p. 587; and Amari (trans.) *Biblioteca*, p. 443.

178 Amari, *Storia*, vol. 3, pp. 754-761, Amari (ed.) *Biblioteca*, pp. 581-586; Amari (trans.) *Biblioteca*, pp. 432-441.

179 Amari (ed.) *Biblioteca*, pp. 599; Amari (trans.) *Biblioteca*, p. 466.

180 Amari, *Storia*, vol. 3, pp. 751-752.

181 Amari (ed.) *Biblioteca*, pp. 599; Amari (trans.) *Biblioteca*, pp. 467-468.

Ibn Ẓafar, known scholar of Quranic science and active in Norman Sicily, was also a writer and a poet. He is mostly known for the famous *Sulwān al-muṭāʿ fī ʿudwān al-atbāʿ* ('Consolation of the leader during the enmity of his followers'), which he dedicated to Abū l-Qāsim's father, the above-mentioned leader of the Sicilian Muslims (the first edition was dedicated to an unnamed prince exposed to the revolt of his subjects).[182] The biographical information about Ibn Ẓafar and the chronology of his travels and works are rather confused. He travelled through the Maghreb, Egypt, Arabia and Syria, where he finally settled and died (in Hama) in the early 1170s AD. Only few chronological references seem clear: he was in Sicily between the late 1140s and the early 1150s (when he dedicated a first work to Abū l-Qāsim's father); he was in Syria sometime between 1149 and 1159 AD (when he dedicated a work to Ṣāfi al-Dīn Abū l-Riḍā Aḥmad b. Qurnāṣ, who protected him when he fled to Nūr al-Dīn); and he was again in Sicily in 1159-60 AD, where he prepared the second edition of the *Sulwān*, dedicated to Abū l-Qāsim's father.[183] Annliese Nef has recently suggested that the unnamed dedicatee of the first *Sulwān* was William I.[184]

[182] On Ibn Ẓafar see Amari, *Storia*, vol. 3, pp. 714-735, Nef, *Conquérir et gouverner*, pp. 207-210.

[183] Nef, *Conquérir et gouverner*, pp. 208-209.

[184] Nef, *Conquérir et gouverner*, pp. 209-210: 'Or, le passage qui décrit la rébellion contre le souverain dans la première version, peut être lu comme une référence aux événements siciliens des années 1155-1156. […] Que le livre ait été prévu pour un souverain chrétien expliquerait que son nom soit tu, mais cela rendrait également raison du choix du sujet puisque les miroirs des princes islamiques puisent largement dans les exemples pré-islamiques. Renforce cette hypothèse le fait que ce souverain est loué pour ses qualités intellectuelles et pour sa morale, mais jamais pour sa piété, contrairement aux autres destinataires, musulmans, des oeuvres de l'auteur'.

However, the most famous Arab figure at the Norman court was Abū ʿAbd Allāh Muḥammad al-Idrīsī. [185] Biographical notices on him are rather rare, he was a member of the Ḥammūdid family -who claimed lineage from the prophet Muḥammad through the Idrīsids of Morocco- which had important branches in North Africa, al-Andalus and whose presence is documented in Sicily (according to Ibn Qalāqis, the family of Abū l-Qāsim, who lead the Muslim community in Sicily, hailed from the Ḥammūdids).[186] Al-Ṣafadī, a Damascene author writing in the fourteenth century, reports that it was al-Idrīsī's father who settled in Sicily around the mid-eleventh century, and that his son lived in the entourage of Roger

[185] On al-Idrīsī, apart from G. Oman, 'Al-Idrīsī', in EI2, vol. 3 (1986), pp. 1032-1035; see G. Oman, 'Notizie sul geografo arabo al-Idrīsī (XII secolo) e sulle sue opere', *Annali dell'Istituto universitario orientale di Napoli*, 11 (1961), pp. 25-63; G. Oman, 'Notizie sul geografo arabo al-Idrīsī (XII secolo) e sulle sue opere. Addenda', *Annali dell'Istituto universitario orientale di Napoli*, 12 (1962), pp. 193-195; G. Oman, 'Notizie sul geografo arabo al-Idrīsī (XII secolo) e sulle sue opere. Addenda II', *Annali dell'Istituto universitario orientale di Napoli*, 16 (1966), pp. 101-105; G. Oman, 'Notizie sul geografo arabo al-Idrīsī (XII secolo) e sulle sue opere. Addenda III', *Annali dell'Istituto universitario orientale di Napoli*, 19 (1969), pp. 89-101; G. Oman, 'Notizie bibliografiche sul geografo arabo al-Sharīf al-Idrīsī (12 secolo) e sulle sue opere', *Annali dell'Istituto universitario orientale di Napoli*, 30:2 (1970), pp. 209-238; Henri Bresc and Annliese Nef, *Al-Idrīsī. La première géographie de l'Occident*, Paris: Flammarion, 1999; A. Allaoua and A. Nef, 'Al-Idrīsī et les Ḥammūdide de Sicile: nouvelles données biographiques sur l'auteur du *Livre de Roger*', *Arabica* 67 (2000), pp. 121-127; Johns, *Arabic Administration*, pp. 234-239; Annliese Nef: 'Al-Idrīsī: un complément d'enquête biographique', in Henri Bresc and Emmanuelle Tixier du Mesnil (eds.), *Géographes et voyageurs au moyen âge*, Nanterre: Presses universitaires de Paris Nanterre, 2010, pp. 53-66 ; Nef, *Conquérir et gouverner*, pp. 203-205.

[186] Abū l-Futūḥ Naṣr ibn ʿbū Allāh Ibn Qalāqis (ed. ʿAbd al-ʿAzīz Ibn Nāṣir al-Māniʿ), *Al-zahr al-Basim wa-l-ʿarf al-nāsim fī madīḥ al-ajall Abī l-Qāsim*, Riyaḍ: Jāmiʿat al-Malik Saʿūd, 1984., p. 3; Adalgisa de Simone, *Splendori e misteri di Sicilia in un'opera di Ibn Qalāqis*, Soveria Mannelli [Catanzaro]: Rubbettino, 1996, p. 37; Nef, 'Al-Idrīsī et les Ḥammūdide', p. 56.

II.[187] According to Allaoua Amara and Annliese Nef, who first point out this hitherto neglected passage, this could indicate that al-Idrīsī was born in Sicily, in contrast to the traditional notice, reported by some western authors, that he was born in Ceuta.[188] Be that as it may, al-Idrīsī recorded in his works that he travelled throughout Spain and North Africa and it is believed that he lived and studied in Cordoba (hence the *nisba* '*al-Qurtubī*', reported by some sources). He lived, at least for a long period of his life, in Sicily and developed his activities at the royal court. It was by commission of the Norman kings that he composed his famous world map and book of geography, known as the *Kitāb nuzhat al-mushtāq fī ikhtirāq al-āfāq*.[189] This work is also known as *Kitāb Rujār* or *al-Kitāb al-Rujārī* ('the book of Roger'), which lead scholars to assume that it was completed before the death of Roger II in 1154 AD. However, although a first incomplete version of the book may have been prepared and presented at that date, internal evidence of the text demonstrates that the work was continued and completed late in the reign of William I.[190] Al-Idrīsī is credited with another geographical work, the *Uns al-muḥaj wa-rawḍ al-furaj*, known as the 'small Idrīsī', as well as one on botany and pharmacology organized as a dictionary and preserved in two

[187] Allaoua and Nef, 'Al-Idrīsī et les Ḥammūdide', p. 122.

[188] Allaoua and Nef, 'Al-Idrīsī et les Ḥammūdide'; Nef: 'Al-Idrīsī'.

[189] See Bresc and Nef, *Idrīsī*, with full bibliography on the editions and translations of the work.

[190] Nef, 'Al-Idrīsī', p. 63. That al-Idrīsī continued living at the Norman court after Roger II's death seems confirmed by a notice –given by Ibn Bashrūn and reported by al-Iṣfahānī– that the geographer dedicated to William I a work called *Rawḍ al-uns wa-nuzhat al-nafs*. It is not clear whether this is a lost work or it is the same as the *Uns al-muḥaj wa-rawḍ al-furaj* or 'small Idrīsī' mentioned below in this paragraph (see Nef, *Conquérir et gouverner*, pp. 204-205).

manuscripts, held in Istanbul and Teheran, respectively. There are reportedly two different versions. It is unclear which was the original form of this work: the Istanbul manuscript has the particularity that several terms are notated –but not systematically– in different languages, such as Latin, Greek, Syriac, *hindi*, Turkish, Persian, Kurd and Berber. The text of the second manuscript does not report the notations in different languages, but mentions the author's sources, which the Istanbul manuscript does not. It is not known if al-Idrīsī composed the *Uns al-muḥaj wa-rawḍ al-furaj* and the book on drugs at the Norman court.[191]

A number of Greek and Greek-Latin scholars are also documented in the period including the reigns of Roger II and William I, the most famous among them being Neilos Doxapatres. Neilos wrote in 1142-1143 AD, in Palermo, a treatise on ecclesiastical politics, the 'Order of the Patriarchal Sees' (Τάξις τῶν πατριαρχικων θρόνων), commissioned by Roger II, in which the predominance of Rome above the other patriarchal sees, claimed by the Pope, is questioned.[192] A work known as *De oeconomia Dei* and a hagiography of Philarethes the younger are ascribed to him, as well.[193]

[191] Nef, *Conquérir et gouverner*, pp. 203-204.

[192] On this work, 'qui se trouve contenir l'un des plus mal traités des textes byzantins' and its editions see Vitalien Laurent, 'L'oeuvre géographique du moine sicilien Nil Doxapatris' *Échos d'Orient* 36: 185 (1937), pp. 5-30, in particular, pp. 23-27.

[193] On Neilos Doxopatres see, among other studies: Laurent, 'L'oeuvre géographique'; V. von Falkenhausen, 'Doxopatres, Nilo', in DBI, vol. 42 (1993), pp. 610-613; and more recently Stefaan Neirynck, 'Nilus Doxapatres's *De Oeconomia Dei*. In Search of the Author behind the Compilation', in Antonio Rivo and Pavel Ermilov (eds.),

Very little is known for sure about Neilos' life. In the introduction of the *Taxis* he reports that he had previously written in Palermo another shorter treatise on the same topic, now lost. The other definite information is that he was still in Palermo in 1146 AD, when he appears as a witness in a Greek sales document between the clerics of St. Mary's of the Admiral and the heirs of Zoe, who was a niece of the first Emir Eugenius. [194] Neilos has been tentatively identified with Nicolas Doxopatres, deacon of Hagia Sophia. According to this theory, Nicolas had landed in Sicily and become a monk under the name of Neilos, keeping the initial of his baptismal name, as was usual in Byzantine custom. [195] Other arguments, such as Neilos' exceptional culture and copious documentation, together with his familiarity with recent

Byzantine Theologians: The Systematization of Their Own Doctrine and Their Perception of Foreign Doctrines, Roma: Università degli studi di Roma "Tor Vergata", 2009, pp. 51-69; Stefaan Neirynck, 'The *De Oeconomia Dei* by Nilus Doxapatres: a tentative definition', in Peter van Deun and Caroline Macé (eds.), *Encyclopedic Trends In Byzantium? Proceedings of the International Conference held in Leuven, 6-8 May 2009*, Leuven - Paris – Walpole (MA): 2011, pp. 257-268; Stefaan Neirynck, 'Le "De Oeconomia Dei" de Nil Doxapatres. La théologie entre Constantinople et la Sicile, du XIIème siècle à la modernité', in Andreas Speer (ed.), *Knotenpunkt Byzanz Wissensformen und kulturelle Wechselbeziehungen*, Berlin - New York: De Gruyter, 2012, pp. 274-286.

[194] Salvatore Cusa, *I diplomi greci ed arabi di Sicilia pubblicati nel testo originale, tradotti e illustrati*, Palermo: Stabilimento Tipografico LAO, 1868, pp. 71-73; L. Perria, 'Una pergamena greca dell'anno 1146 per la chiesa di S. Maria dell'Ammiraglio', *Quellen und Forschungen aus italienischen Archiven und Bibliotheken* 61 (1981), pp. 1-24.

[195] See works cited at note 193. The hypothetical identification with Nicolas was first proposed by Giovanni Mercati, *Per la storia dei manoscritti greci di Genova, di varie badie basiliane d'Italia e di Patmo*, Città del Vaticano: Biblioteca apostolica vaticana, 1935, pp. 77-79.

intellectual trends of Constantinople, are given in support of his Constantinopolitan origins (or training).[196]

On the other hand, it has been proposed that this Neilos could be the same as the *Doxopater* who translated from 'Chaldean' (*caldaeo sermone*, perhaps Syriac)[197] into Greek the *Sybilla erythrea babilonica* (or perhaps the *Basilogaphia*, from which the *Sybilla erythrea babilonica* was extracted), later on translated into Latin by *Eugenius regni Siciliae admiratus*.[198] Although in its present form the text is a forgery ascribable to thirteenth century Sicily, it preserves the renown of Neilos as a polyglot expert on oriental languages. This information, together with

[196] Neirynck, 'Nilus Doxapatres', pp. 62-63 (in reference to the *De oeconomia Dei*): 'I think Nilus could fit rather well in that milieu [the 12th century Constantinopolitan intelligentsia around Hagia Sophia], maybe not at the very heart of it, but still influenced by it. In any case it is tempting to read his work against that background'. See also Laurent, 'L'oeuvre géographique', pp. 9-12. Laurent's, however, assumed Mercati's identification of Neilos with Nicolas (see previous note), on which there is not consensus.

[197] As proposed by Nef, *Conquérir et gouverner*, p. 225.

[198] In a manuscript of St. Mark's in Venice the title of the work is given as *Extractum de libro vasilographia in imperiali scriptura quem Sybilla erythrea babilonica ad peticionem Graecorum regis Priami edidit, quem caldaeo sermone Doxopater peritissimus transtulit, tandem de aerario Manuelis imperatoris eductum Eugenius regni Siciliae admiratus de graeco transtulit in latinum* (Valentinelli, *Bibliotheca manuscripta ad S. Marci Venetiarum. Codices mss. Latini. Tom IV*, Venetiis: Ex Typogrphia commercii, 1871, p. 108). In its present form the text is ascribable to the middle of the thirteenth century, so that Amari proposed that it could be a forgery dated to Fredrick II's period (Amari, *Storia*, vol. 3, p. 660-662). However, C.H. Haskins and D.P. Lockwood observed that its nucleus shows traces of earlier Sicilian and Eastern origins, concluding that the transmission from the East in the Norman period would be plausible and in accord with what we know of Eugenius' activity (see C.H. Haskins and D.P. Lockwood, 'The Sicilian Translators of the Twelfth Century and the First Latin Version of Ptolemy's Almagest', *Harvard Studies in Classical Philology* 21 (1910), pp. 75-102, in particular pp. 92-93. For Eugenius' activity see below, in this same section). See also the more recent Nef, *Conquérir et gouverner*, p. 225, who seems to implicitly agree with Haskin's and Lockwood's conclusions.

the fact that Neilos appears as a witness in the above mentioned document of St. Mary's of the Admiral could suggest that he belonged to the bilingual Greek-Arab entourage of George of Antioch, being perhaps of Syrian origin. This would explain some peculiarities of the *Taxis*, which shows a rich documentation often implying familiarity with Arabic sources.[199]

The Greek cleric and theologian Philagathos Keramenos was active under Roger II.[200] He was born in Cerami (near Enna), during the last quarter of the eleventh century. The origins of his family, as well as his social and economic conditions, are unknown. It seems that he was educated in the Greek monasteries of Calabria and was called to the royal court because of his fame as a preacher. According to Luca Amelotti:

> 'L'analisi dell'opera suggerisce orizzonti culturali paragonabili a quelli della stessa Costantinopoli: essa è infatti frutto di attenta preparazione e di vasta dottrina, basata ampiamente su fonti patristiche quali Massimo, i padri cappadoci (Basilio di Cesarea, Gregorio di Nazianzo e Gregorio di Nissa), Cirillo di Alessandria, Eusebio di Cesarea, e altri asceti come Simeone Metafraste; anche lo stile, che si serve di forme del greco classico, è solido ed espressivo. […] Filagato spicca come una delle figure principali del rinnovamento religioso e culturale stimolato, dopo la lunga dominazione araba in Sicilia, dai sovrani normanni: nella sua opera, infatti, egli non manca di celebrare cortigianamente Ruggero II. L'attività di F. non si limitò tuttavia al solo ambito religioso, importante fu anche la sua opera didattica: ricoprì la carica di διδάσκαλος evangelico, e significativo fu l'impulso dato alla ripresa dello studio della letteratura greca profana'.[201]

[199] Laurent, 'L'oeuvre géographique', p. 9.

[200] Giuseppe Rossi Taibbi, *Filagato da Cerami, Omelie per i vangeli domenicali e le feste di tutto l'anno. I: Omelie per le feste fisse*, Palermo: Istituto Siciliano di Studi Bizantini e Neoellenici, 1969. Before the study of Rossi Taibbi the author of Philagathos homilies was often (incorrectly) identified as Theophanou Kerameos. See, for example, De Stefano, *La cultura in Sicilia*, pp. 33-34.

[201] L. Amelotti, 'Filagato da Cerami', in DBI, vol. 47 (1997), pp. 564-565.

Philagathos' homilies are considered among the best Byzantine production of this genre, and were diffused across the Greek Orient.[202]

Little is known about the anonymous Greek poet who dedicated to George of Antioch a long iambic poem while prisoner in Malta, pleading for his release.

> 'Il poema, che soltanto da poco è leggibile nella sua interezza, fa sfoggio di tutti i *topoi* caratteristici della contemporanea panegiristica imperiale bizantina sulla scorta delle regole elaborate già nel III secolo d.C. dal retore Menandro e può essere letto a buon diritto come un esempio notevole della sostanziale unitarietà della lingua retorica e più in generale della cultura letteraria bizantina'.[203]

During William I's reign, Greek culture in Sicily seems to have lost its originality and appears subordinate to Latin culture. The translations into Latin of some important Greek works may be read as symptomatic in this sense. The most representative figures of the period are Eugenius of Palermo and Henricus Aristippus.

Eugenius of Palermo was born in approximately 1130 AD to a Greek family to whom the first known *amiratus* of Greek origins (Eugenios, grandfather of our Eugenius) belonged. As is mentioned above, Eugenios

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[202] De Stefano, *La cultura*, pp. 33-35. Benoît Grévin, 'Linguistic Cultures and Textual Production in Palermo, from the end of the 11th to the End of the 15th Century', in Nef (ed.), *A Companion*, pp. 413-436, in particular p. 421.

[203] C. Cupane, ' "Fortune rota volvitur". *Moira e Tyche* nel carme nr. I di Eugenio da Palermo', *Νέα Ῥώμη* 8 (2011), pp. 137-152, in particular p. 139. The text is edited in Joseph Busuttil, Stanley Fiorini and Horatio C.R. Vella, *Tristia ex Melitogaudo: lament in greek verse of a 12.-century exile on Gozo*, Malta : The Farsons Foundation, 2010. See also B. Lavagnini, 'Versi dal carcere di un anonimo poeta italo-bizantino di età normanna (1135-1151)', *Rivista di studi bizantini e slavi* 2 (1982), pp. 323-331, M. Puccia, 'L'anonimo carme di supplica a Giorgio di Antiochia e l'elaborazione dell'idea imperiale alla corte di Ruggero II', in Re and Rognoni (eds.), *Byzantino-Sicula V*, pp. 231-262.

began 'a dynasty of administrators' which included his sons *amirati* John and Nicola, documented as being in Roger II's service, and his grandson, our Eugenius. This Greek family was most probably originally from the Val Demone, or had settled early in it. Be that as it may, Eugenius seems a representative example of a scholar born and raised in the Norman Kingdom of Sicily. We have no information about his training and his early career, but he had knowledge of Greek, Arabic and Latin. His family was connected with the royal entourage over three generations. It is the family mentioned in the sales document of 1146 AD, witnessed by Neilos Doxapater. It was between the clerics of St. Mary's of the Admiral and the heirs of Zoe, who was granddaughter of the first Emir Eugenios and died childless. [204] John and Philip –our Eugenius' father and brother, respectively– are witnesses in another Greek deed of sale, of 1141 AD, between Peter Markēsi and a certain Theodore the Antiochene, founder of the monastery of San Nicolò, outside Palermo.[205]

[204] Perria, 'Una pergamena greca', p. 6.

[205] Cusa, *I diplomi*, pp. 22-23. J. Johns does not explain the reasons why he proposed that Theodor was George of Antioch's son (Johns, *Arabic Administration*, p. 317). About Theodore the Antiochene 'on sait seulement qu'il fit construire cette église en 1141, date à laquelle Petros Markēsi lui vendit quatre vilains d'origine arabo-musulmane pour deux cents taris et un cheval? Son origine orientale, sa richesse supposée (suffisante pour lui permettre d'établir un monastère), la présence parmi les témoins de *Iōannēs o tou amērados Eugeniou uios* ("Jean fils de l'émir Eugène") dans l'acte de fondation en 1141 et la proximité géographique de Chùrchuro avec Palerme, en font un parfait représentant du milieu composite des Grecs arabisés et des melkites de la capitale et, probablement, un Syrien, au moins d'origine. Il ne semble cependant pas qu'il existe de liens entre Théodore et la famille du célèbre Georges d'Antioche dont aucun des proches ne porte ce nom. Théodore était probablement lié à ce groupe qui travaillait pour l'administration royale et pour le dīwān' (Nef, *Conquérir et gouverner*, p. 90).

Eugenius appears in 1174 AD, in Salerno, as *magister duane baronum* and in 1178 AD as *magister regie Dohane baronum et de secretis* in the documents relative to a trial between Amalfi and Ravello. In 1189 AD, at William II's death he supported Tancred's candidature for the crown against the pretensions of the Roman Germanic Emperor Henry VI, and in 1194 AD, after Henry VI's victory, he was deported to Germany and imprisoned together with other family members and partisans of Tancred. However, most probably due to his deep knowledge of the kingdom, he was released and from 1196 AD is documented in Apulia, in the service of Bishop Conrad of Hildesheim. He is last mentioned in the sources in 1202 AD.[206]

Eugenius was also a famed scholar, known for his activity as poet (24 of his poems in Greek are preserved, which were first edited by Leo Sternbach)[207] and for his work as translator. As regards his poetical works:

> 'Si tratta nell'insieme di una produzione poetica dignitosa, benché non particolarmente originale, ispirata ampiamente dai carmi di Gregorio di Nazianzo, che riflette nel suo stile retorico-moralizzante forma e contenuti della contemporanea poesia bizantina'.[208]

[206] On Eugenius see Evelyn M. Jamison, *Admiral Eugenius of Sicily: his life and work, and the authorship of the Epistola ad Petrum, and the Historia Hugonis Falcandi Siculi*, London: Published for the British Academy by Oxford University Press, 1957; V. von Falkenhausen, 'Eugenio da Palermo', in DBI, vol. 43 (1993), pp. 501-506; Cupane, 'Fortune rota', for further observation and more recent bibliographical indications.

[207] L. Sternbach, 'Eugenios von Palermo', *Byzantinische Zeitschrift* 11 (1902), pp. 406-452.

[208] Von Falkenhausen, 'Eugenio da Palermo', p. 502.

As far as his activity as a translator is concerned, he translated the *Optics* of Ptolemy from Arabic (from two Arabic Manuscripts, both missing their the first volume, according to his testimony) and possibly collaborated in the translation of the *Almagesto* (the translation of this work from an anonymous translator is discussed below in this chapter).[209] In some of the several manuscripts of the *Stephanites kai Ichnelates*, the Greek version of the *Kalīla wa-Dimna*, it is reported that the translation from the Arabic into Greek was carried out by 'the wise, famous and great emir of the King of Sicily'. In the remaining manuscripts the translation is credited to Simeon Seth of Antioch, under the commission of Alexios Comnenos, 1081-1128 AD. According to Vera von Falkenhausen:

> 'Anche se le varianti testuali delle diverse redazioni non sono tali da far presumere due traduttori diversi, è probabile che Eugenio abbia aggiunto all'originaria traduzione greca di Simeone Seth tre prolegomeni. Benché elaborata in Sicilia, la redazione curata da E. non si trova soltanto in codici italo-greci, ma era diffusa anche in Oriente'.[210]

As is mentioned above in this chapter, a translation from Greek to Latin of the *Basilographia* (or else of an extract of it, the commonly named *Sybilla erythrea babilonica*) is also attributed to Eugenius, supposedly based on a translation *ex caldaeo* of the same text by Neilos Doxapatres.[211]

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[209] According to the text of the translator's preface to the *Almagesto*, as edited in Haskins and Lockwood, 'The Sicilian Translators', p. 99-102, in particular p. 100: 'Dehinc vero prefatum Ptolomei opus aggressus, expositorem propitium divina michi gratia providente Eugenium, virum tam grece quam arabice lingue peritissimum, latine quoque non ignarum'.

[210] Von Falkenhausen, 'Eugenio da Palermo', p. 503.

[211] Von Falkenhausen, 'Eugenio da Palermo', p. 504: 'Sebbene questo testo di profezie medioevali sia conservato soltanto in una redazione latina con aggiunte

Nothing is known about Henricus Aristippus' origins, and it seems to be generally accepted that Greek was not his mother tongue.[212] He was archdeacon of Catania from the mid 1150s AD, he was in Benevento with the royal army in 1156 AD, and in Constantinople as ambassador at an indeterminate period between 1158 and 1160 AD, from where he brought a copy of the *Almagest* and other Greek codices. Towards the end of 1160 AD he was chosen as chancellor of the kingdom after Maio of Bari's death, being one of the closest *familiars regis*. However, in 1162 AD following another conspiracy the king suspected treachery and imprisoned him, where he died shortly after.[213]

Aristippus is known for his translation of platonic *Meno* and *Phedo*,[214] as well as the fourth book of Aristoteles' *Meteorologica* (his translations remained in common use until the early Renaissance).[215] According to

pseudogioachimite, elaborata probabilmente pochi anni prima della morte di Federico II, è probabile che E. abbia effettivamente tradotto qualche testo di profezie bizantine, che, infatti, spesso vengono chiamate *Basilographia*. Data la normale fluidità testuale di questo genere letterario, non desta stupore se la traduzione del vaticinium della Sibilla Eritrea sia stata rielaborata e continuata in epoca sveva'.

[212] See Plato (ed. Minio-Paluello), *Phaedo. Interprete Henrico Aristippo. Edidit et praefatione instruxit Laurentius Minio-Paluello adiuvante H.J. Drossaart Lulofs*, London: in aedibus Instituti Warburgiani, 1950. According to Evelyn M. Jamison, *Admiral Eugenius of Sicily: his life and work, and the authorship of the Epistola ad Petrum, and the Historia Hugonis Falcandi Siculi*, London: Published for the British Academy by Oxford University Press, 1957, Aristippus could be 'a nickname derived from Aristippus of Cyrene, a disciple of Socrates' (p. xix). See Plato (ed. Minio-Paluello), *Phaedo. Interprete Henrico Aristippo*, p. ix.

[213] E. Franceschini, 'Aristippo, Enrico', in DBI, vol. 4 (1962), pp. 201-206.

[214] Plato (ed. Minio Paluello), *Phaedo. Interprete Henrico Aristippo*; Plato (ed. Victor Kordeuter), *Meno. Interprete Henrico Aristippo. Edidit Victor Kordeuter; recognovit et praefatione instruxit Carlotta Labowsky*, London: in aedibus Instituti Warburgiani, 1940.

[215] Charles Homer Haskins, *Studies in the History of Mediaeval Science*, Cambridge (MA): Harvard University Press, 1924, p. 143.

his own testimony (prologue to *Meno*) he translated, as well, the *Vitae filosoforum* of Diogenes Laërtius and some *opuscola* of Gregory of Nazianzus, now lost.[216]

The translation of the Greek *Almagesto* into Latin was misattributed to Aristippus, as well. In reality, it is the work of another anonymous translator, active in Sicily during approximately this same period.[217] The text is preserved in the ms. Vat. Lat. 2056, and according to the story reported in the translator's preface, this anonymous scholar was in Salerno, dedicated to the study of medicine, when he learned that the book had been brought to Palermo by Aristippus, and decided to travel to Sicily to study and translate it. However, once he had the book at his disposal, he found that his linguistic and astronomical knowledge was insufficient to permit a translation of the book, so that he applied himself to the study of Greek and started with such introductory treatises as Euclid's *Data*, *Optica*, and *Catoptrica*, as well as Proclus' *De Motu*. When he was ready to tackle the study of the *Almagest* he had the grace to pronounce Eugenius as his 'friendly expositor' and succeeded in translating the book into Latin.[218]

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[216] Franceschini, 'Aristippo', pp. 203-204.

[217] Haskins, *Studies*, pp. 53-54, 191-193.

[218] Haskins and Lockwood, 'The Sicilian Translators', p. 80. The text reads as follows in Haskins and Lockwood's edition (pp. 99-100): 'Hos autem cum Salerni medicine insudassem audiens quendam ex nuntiis regis Scicilie quos ipse Constantinopolim miserrat nomine Aristipum largicione susceptos imperatoria Panormum transvexisse, rei diu desiderate spe succensus, Scilleos latractus non exhorui, Caripdim permeavi, ignea Ethene fluenta circuivi, eum queritans a quo mei finem sperabam desiderii. Quem tandem inventum Perguse prope fontem Ethnea miracula satis cum perriculo perscrutantem, cum occulte quidem alia, manifeste vero mens scientie siderum expers prefatum michi transferre opus prohiberent, grecis ego litteris diligentissime preinstructus, primo quidem in Euclidis Dedomenis Opticis, et

Other Greek figures related to the Palermitan court were Roger of Otranto, of whom only a poem is preserved (Στίχοι τοῦ κυροῦ Ῥογερίου τῆς Ὑδροῦντος πρὸς τὸν πανευγενέστατον ἄρχοντα Εὐγένιου)[219] and Teocridas of Brindisi, a famed grammarian mentioned by Eugenius of Palermo and John of Salisbury.[220]

Some of the 'Latin' functionaries and scholars in the royal circle should be mentioned, in order to complete the framework of the intellectual milieu under Roger II and William I. Although, they are perhaps less important for the purpose of illustrating Sicily's connections with the Islamic and Middle Eastern world. Richard Palmer, is known as being the founder of a *scriptorium* of Latin codes in Messina, where he was archbishop from 1183 to 1195 AD, as is mentioned above.[221] He was a friend of both John of Salisbury and William of York, who visited the island in the early 1150s AD. Another English scholar documented on the island approximately during the same period is the unidentified dedicatee of the Latin translation of the *Phaedo*, carried out by Henricus Aristippus in 1156 AD.[222]

Catoptricis, Phisicaque Procli Elementatione prelusi. Dehinc vero prefatum Ptolomei opus aggressus, expositorem propitium divina michi gratia providente Eugenium, virum tam grece quam arabice lingue peritissimum, latine quoque non ignarum, illud contra viri discoli voluntatem latine dedi orationi'.

[219] Preserved in the cod. Laurent. gr. V, 10 fol. 168, edited in Sternbach, 'Eugenios von Palermo', in particular, p. 408.

[220] De Stefano, *La cultura in Sicilia*, pp. 36-37 and 39.

[221] Nef, *Conquérir et gouverner*, pp. 197 and 230; Kamp, 'The Bishops', p. 198.

[222] Graham A. Loud, 'Il regno normanno-svevo visto dal regno d'Inghilterra' in Musca (ed.), *Il Mezzogiorno normanno-svevo visto dall'Europa*, pp. 175-195, in particular pp. 183-184.

Maio of Bari, apart from being an important statesman, was also a scholar. His *Expositio orationis dominicae* is preserved, dedicated to his son Stephen. The wealth of biblical and patristic sources available to him has been pointed out by Donald Matthew in a monograph.[223]

The so-called 'Hugo Falcandus', the great historian of Norman Sicily, (his *Liber de Regno Sicilie* covers the period from 1154-1169 AD) was another member of the court, most probably of foreign origins. Jamison's suggestion to identify him with Eugenius of Palermo has found no consensus.[224] Neither is there agreement as to whether he should be identified with Hugues Foucaud (Fulcaudus), abbot of Saint-Denis from 1186 to 1197 AD, who coincided in Sicily with Peter of Blois.[225] This character is probably the 'Abbot H.', addressee of some of Peter's letters, to whom Peter asked to see a treatise that H. wrote about his unfortunate activities in Sicily.[226] Another plausible hypothesis for Hugo Falcandus' identification was proposed by Edoardo D'Angelo recently, who suggested he might be William, Peter of Blois's brother.[227]

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[223] Donald Matthew, 'Maio of Bari's Commentary on the Lord's Prayer', in Lesley Smith and Benedicta Ward (eds.), *Intellectual Life in the Middle Ages: Essays Presented to Margaret Gibson*, London: The Hambelton Press, 1992, pp. 119-144.

[224] Jamison, *Admiral Eugenius*, pp. 177-219.

[225] Ep. 131 (PL, vol. 207, col. 190a).

[226] Ep. 116 (PL, vol. 207, cols. 345-346). The last to put forward these claims in depth was Gwenty E. Hood, 'Falcandus and Fulcaudus, "Epistola ad Petrum, Liber de Regno Sicilie": Literary Form and Author's Identity', *Studi Medievali* 40 (june 1999), pp. 1-41. Hood's conclusions are reiterated by Nef, *Conquérir et gouverner*, pp. 599-600. On the other hand see: Johns, Arabic Administration, p. 247, Salvatore Tramontana, 'La lettera dello pseudo Ugo falcando: una lettura filologica' in Maria Andaloro (ed.), *Nobiles Officinae. Perle, filigrane e trame di seta dal Palazzo reale di Palermo*, (2 vols.) Catania: G. Maimone, 2006, vol. 2, p. 81-90.

[227] Edoardo D'Angelo 'Intellettuali tra Normandia e Sicilia (per un identikit letterario del cosiddetto Ugo Falcando)', in Anna Laura Trombetti Budriesi (ed.), *Cultura*

In William II's reign, two eminent Arab scholars, Ibn Qalāqis and Ibn Jubayr, visited Norman Sicily (respectively in 1168-69 and in 1184-85 AD), and left vivid descriptions of the island.

The famous Alexandrian poet Ibn Qalāqis spent approximately one year (at least, from May 1168 until April 1169 AD) there, enjoying the hospitality and patronage of Abū l-Qāsim, the above-mentioned political referee of the Sicilian Muslim community and officer of the royal administration. Indeed, Ibn Qalāqis dedicated his work *Al-zahr al-Basim wa-l-ʿarf al-nāsim fī madīḥ al-ajall Abī l-Qāsim* to him.[228] Ibn Qalāqis was introduced to Abū l-Qāsim's circle, which included poets, scholars and officers of the kingdom, such as the poet al-Umāwī, the jurist Abū ʿAlī Ḥasan ibn Ḥammūd, the above mentioned palace eunuch and *qāʿid* Richard, amongst others. Ibn Qalāqis was actually introduced to the Regent Queen Margaret and to William II, from whom he seemingly received a rich viaticum when he was preparing his return to Egypt.[229] Among his known works there is a *qaṣīda* on the birth of Abū l-Qāsim's nephew, three poetic compositions and a letter dedicated to the *shaykh* al-Sadīd al-Ḥuṣrī (perhaps the same as the *gaytus Sedictus* of

cittadina e documentazione: formazione e circolazione di modelli Bologna: CLUEB, 2009, pp. 325-350.

[228] Abū l-Futūḥ Naṣr ibn ʿAbd Allāh Ibn Qalāqis (ed. ʿAbd al-ʿAzīz Ibn Nāṣir al-Māniʿ), *Al-zahr al-Basim wa-l-ʿarf al-nāsim fī madīḥ al-ajall Abī l-Qāsim*, Riyaḍ: Jāmiʿat al-Malik Saʿūd, 1984. This work is studied and translated in De Simone, *Splendori e misteri di Sicilia in un'opera di Ibn Qalāqis*, Soveria Mannelli [Catanzaro]: Rubbettino, 1996.

[229] On Ibn Qalāqis, apart from the above-mentioned De Simone, *Splendori e misteri*, see Amari, *Storia*, vol. 3, pp. 541; Johns, *Arabic Administration*, pp. 35 and 233-241; Nef, *Conquérir et Gouverner*, pp. 184-191, 205-206, 211-212, 344-346, 652-654.

Falcandus),[230] a poem sent from Alexandria to Abū l-Qāsim asking for financial support to organize his pilgrimage, letters exchanged with Abū l-Ḥasan ʿAlī b. Abī l-Fatḥ b. Khalaf al-Umawī, three compositions to Queen Margaret and William II (one in praise of 'Richard the vizier', who introduced him to the king). Ibn Qalāqis also left vivid descriptions of courtly life in the gardens and the royal palaces that surrounded Palermo in the 1160s AD.[231]

The above mentioned al-Umāwī is another poet of the royal circle, known through his correspondence with Ibn Qalāqis. Some of his verses exist thanks to al-Iṣfahānī.[232] Other personages in the same circle are similarly known through Ibn Qalāqis's texts, such as the *qāʿid* Ghārāt ibn Jawshan, the jurist Abū ʿAlī Ḥasan ibn Ḥammūd, the above mentioned *ḥākim* ʿUthmān Ibn al-Muhadhdhib al-Judhāmī, or Abū l-Sayyid, who took care of the poet on his arrival.[233]

In 1184-1185 AD, approximately fifteen years after Ibn Qalāqis left Sicily, the Andalusian traveller Abū l-Ḥusayn Aḥmad ibn Jubayr, visited the island returning from his pilgrimage to the holy places. After visiting Baghdad, Mosul, Aleppo and Damascus (but not Jerusalem, which was in Christian hands), he set out for Spain from Crusader Acre, in a Genoese vessel. Near Messina he survived being shipwrecked and was rescued,

[230] Hugo Falcandus (ed. Siragusa), *Liber*, pp. 119 and 182-183 (*Epistola*), Nef, *Conquérir et gouverner*, pp. 344-345. According to Johns, *Arabic Administration*, p. 239: 'The poet seems to have enjoyed a more relaxed relationship with al-Sadīd than with Abū l-Qāsim, and may even have known him before coming to Sicily, and have sought his patronage as early as 1161'

[231] De Simone, *Splendori e misteri*, pp. 58-66; Johns, *Arabic Administration*, p. 240.

[232] Nef, *Conquérir et gouverner*, p. 206.

[233] Nef, *Conquérir et gouverner*, pp. 345-346, Johns, *Arabic Administration*, p. 240.

together with his Muslim fellow travellers, on the order of William II. Ibn Jubayr visited Messina, Cefalù, Termini and arrived in Palermo on 22 December 1184 AD. After spending a week in the capital, he proceeded to Trapani, where he remained for three months before finally embarking and returning to Al-Andalus. The pages in which he described Sicily, and in particular Palermo and the royal palaces, are well known.[234]

The royal entourage, in particular, impressed and astonished him. He dedicated a large passage to the wide employment of Muslims and crypto-Muslims by William II, [235] as well as to the imposing and elegant

[234] The extracts of Ibn Jubayr's *Riḥla* regarding Sicily were first published in M. Amari, *Voyage en Sicile de Mohammed-Ebn-Djobaïr de Valence, sous le règne de Guillaume Le Bon extrait du voyage en Orient de Mohammed-Ebn-Djobaïr; (man. de la Bibliothèque publique de Leyde, No. 320, pages 124 et suiv.); texte arabe suivi d'une traduction et de notes*, Paris: Imprimerie royale, 1846. See also Amari (ed.), *Biblioteca*, pp. 76-104; and Amari (trans.), *Biblioteca*, pp. 137-180. The whole text of the *Riḥla* was first edited in Ibn Jubayr (ed. W. Wright), *The travels of Ibn Jubair. Edited from a MS in the University Library of Leyden by William Wright*, Leiden: Brill, 1852; and first translated in Ibn Jubayr (trans. C. Schiapparelli), *Viaggio in Ispagna, Sicilia, Siria e Palestina, Mesopotomia, Arabia, Egitto compiuto nel secolo XII. Ibn Ǵubayr (Ibn Giobeir) ; prima traduzione, fatta sull'originale arabo da Celestino Schiaparelli*, Roma, Casa Editrice Italiana, 1906. In the present work reference are to the second edition of Wright, revised by De Goeje: Muḥammad ibn Aḥmad Ibn Jubayr (Ed. W. Wright and M.J. De Goeje), *The travels of Ibn Jubayr. Edited from a MS. in the University Library of Leyden by William Wright. Second Edition Revised by M.J. De Goeje*, Leiden: Brill, 1907. For bibliographical indications about the editions and translations of the *riḥla*, see Ch. Pellat, 'Ibn Djubayr', in EI2, vol. 3 (1986), p. 755; Teófilo Gallega Ortega, 'Ibn Ŷubayr al-Kinānī, Abū l-Ḥusayn, in *Biblioteca de al-Andalus*, 6 (2009), pp. 151-158.

[235] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, pp. 324-327. These passages are analysed in details in Johns, *Arabic Administration*, pp. 212-215 and 241-250. I report this passage in Johns' translation (pp. 212-213): 'The character of this king of theirs [William II] is astonishing for his good behaviour, for his employment of Muslims, and for his use of castrated youths (*al-fityān al-majābīb*), all or most of whom hide their faith but cling to the law of Islam. He is extremely trusting of Muslims, and reliant upon them in his affairs, and in the most important of his concerns, to the extent that the supervisor of his kitchen is a Muslim man. He has a troop of black Muslim slaves (*'abīd*), whose leader is one of them. His ministers and

royal palaces and gardens of Palermo, which he and his friends toured before they were brought before the king's procurator to be questioned about their plans (as was the practice with every stranger, according to Ibn Jubayr).[236] On Christmas day of 1184 AD he also visited the church of St. Mary's of the Admiral, leaving a vivid description of it. In the same passage, he gave the following description of the Christian Arab women that frequented George of Antioch's church, some thirty-five years after the Admiral's death:

> 'The Christian women's dress in this city is the dress of Muslims; they are eloquent speakers of Arabic (*faṣīḥāt al-alsan*) and cover themselves with veils. They go out at this aforementioned festival [Christmas] clothed in golden silk, covered in shining wraps, colourful veils and with light gilded sandals. They appear at their churches bearing all the finery of Muslim women in their attire, henna and perfume'.[237]

Ibn Jubayr was evidently impressed and astonished by what he saw, especially during his visit to Palermo and repeatedly invoked God's protection against the seduction and the confusion provoked by what he

his chamberlains are eunuchs (*wuzarā'u-hu wa-ḥujjābu-hu l-fityānu*), of whom he has a great many. They are the people of his state, and are appointed as his familiars (*bi-khāṣṣati-hi*). The magnificence of his kingship radiates through them, because they abound with sumptuous robes and lively horses, and there is none of them but has his own entourage, personal servants (*khawal*), and followers [...] He makes great use of eunuchs and slave-girls (*li-l-fityāni wa-l-jawārī*), and no Christian king rules in greater luxury, nor greater ease, nor greater refinement than he. He imitates the rulers of the Muslims in immersing himself in the luxury of his realm, in the provision of its laws, the invention of procedures, the allocation of degrees amongst his men, the elaboration of the ceremony of the realm, and the display of his finery. And his realm is extremely magnificent'.

[236] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, pp. 330-331.

[237] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, p. 333. I report the English translation from Metcalfe, *Muslims and Christians*, p. 97.

is saw. Speaking of William II, Ibn Jubayr reported the king's attention to doctors and astrologers, and stated that whenever William II was told that a doctor or astrologer was passing through his domains, he ordered the detention of the man and offered him large provisions in the hope he would forget his own homeland.[238]

During his stay in Sicily, Ibn Jubayr met some of the royal Arab servants (he mentions 'Yaḥyā ibn Fityān, the Embroiderer [al-Ṭarrāz], who embroiders in gold in the king's *ṭirāz*, and ʿAbd al-Masīḥ, a crypto-Muslim eunuch in the service of William II in Messina), and was host to Abū l-Qāsim.[239] Before leaving for al-Andalus Ibn Jubayr spent three months in Trapani and appreciated the real situation of Muslims who lived outside the royal court towards the end of the Norman kingdom, about whom he left a dramatic account.[240]

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[238] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, p. 325. This seems exactly what happened to Ibn Jubayr and his companions. Ibn Jubayr was a reputed scholar and *kātib*, employed in Almohad administration, who seemingly travelled with a group of western pilgrims of his class. One of them was Abū Jaʿfar Aḥmad ibn Ḥassān ibn Aḥmad ibn Ḥasān al-Quḍāʾī, a famed physician from Onda (or Granada, according to other sources), author of a medical treatise, who later became personal doctor of the Almohad al-Manṣur (r. 1184-1199 AD). See Ibn Jubayr (trans. Schiapparelli), *Viaggio*, p. ix.

[239] Johns, *Arabic Administration*, pp. 213, 241 and 244.

[240] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, pp. 341-342. See Johns, *Arabic Administration*, p. 249: 'Again and again, behind the screen of his pious rhetoric, Ibn Jubayr exhibits his astonishment at the topsy-turvy world of Norman Sicily – at Muslim slaves governing a Christian kingdom, and at a Christian king who behaved like a Muslim ruler. Only when he reaches Trapani, does he abandon this naïve, openmouthed wonder, and develop a harder, uncompromisingly critical view of the Norman kingdom. This, he implies, was in part the result of his meeting with Abū l-Qāsim. His account of the eunuchs comes before he reaches Trapani, and is, at one and the same time, highly sympathetic to them in their plight, and grudgingly admiring of the attitude displayed by King William and his court to his Muslim servants, and to all things Arab'.

As is mentioned above, already during William I's reign, the Greek culture in Sicily seems to have lost its originality and appears to have been subordinate to the Latin culture (only Eugenius remained active under William II). Some of the above-mentioned Latin scholars of William I's period, as well, were still active under the regency of Margaret and during William II's reign. Hugo Falcandus and Peter of Blois were protagonists in the transition phase between the two Williams. The latter was preceptor of the young William II, from 1166 to 1168 AD. His letters are preserved –written after he had to leave the island following Stephen of Perche's fall– which often contain shady descriptions of Sicily.[241] His brother William, who remained in Sicily until 1176 AD, despite his brother's exhortations to leave the island, was also a man of letters, author of sermons and theological treatises.[242]

Romualdus of Salerno (d. 1181 AD) was one of the most important ecclesiastical figures of the kingdom in the days of William I and William II. He is the author of the *Chronicon*, one of our main sources about the kingdom. As a youth, he studied at the *Schola Medica Salernitana* and was famed as a physician (*vir in fisica probatissimus*, according to Hugo Falcandus). [243] He began his career in his native town, becoming

[241] Nef, *Conquerir er gouverner*, p. 230. One volume of the *Patrologia Latina* is dedicated to the edition of Peter of Blois' works: *Petrus Blesensis bathoniensis in Anglia archidiaconus*, in PL, vol. 207. Letters about his past in Sicily, or reporting information about it, are included: see for example ep. 10 (PL, vol. 207, cols. 27-32), ep. 46 (PL, vol. 207, cols. 133-137); ep. 90 (PL, vol. 207, cols. 281-285); ep. 93 (PL, vol. 207, cols. 291-293); ep. 116 (PL, vol. 207, cols. 345-346) and ep. 131 (PL, vol. 207, cols. 386-391).

[242] De Stefano, *La cultura in Sicilia*, pp. 63-64.

[243] Hugo Falcandus (ed. Siragusa), *Liber*, p. 122. See also Romualdus Salernitanus (ed. Garufi), *Chronicon*, p. 253: 'rex W[ilhelmus] R[omualdum] secundum Salernitanum

archbishop of Salerno in 1153 AD and frequently employed in royal service.[244] His fellow citizen, the *magister notarius*, Matthew of Salerno, was also a cultured man (*homo erat sapiens*), according to Romualdus.[245]

Other figures are documented in Sicily during this time, such as Burgundio of Pisa and Gervasio di Tilbury. However, the Latin scholars of this late period are less relevant for the purpose of this work.[246]

archiepiscopum, qui in arte erat medicine ualde peritus, ad se uocari precepit'; and Peter of Blois, ep. 90 (*PL* 207, col. 282): 'Ego autem, cum in illa turbatione et egressu domini mei [Stephen of Perche] medio hemitritaeo laborem, de mandato domini regis curae et custodiae Salernitani archiepiscopi commissus sum, qui non minorem circa me diligentiam exhibuit, quam si dominus, aut filius ejus essem'.

[244] Marino Zabbia, 'Romualdo Guarna arcivescovo di Salerno e la sua cronaca', in Paolo Delogu and Paolo Peduto (eds.), *Salerno nel XII secolo. Istituzioni, società, cultura (Atti del Convegno internazionale Raito di Vietri sul Mare. 16-20 giugno 1999)*, Salerno: Provincia di Salerno; Centro studi salernitani Raffaele Guariglia, 2004, pp. 380-398.

[245] Romualdus Salernitanus (ed. Garufi), *Chronicon*, pp. 253 and 257.

[246] Piero Morpurgo 'I centri di cultura scientifica' in Giosuè Musca (ed.), *I centri di produzione della cultura nel Mezzogiorno normanno-svevo. Atti delle dodicesime giornate normanno-sveve*, Bari: dedalo, 1997, pp. 119-144.

2. THE ORIGINS AND FIRST DEVELOPMENT OF *MUQARNAS*

2.1. General Observations

This section includes a catalogue comprised of six individual entries, in which are described, in chronological order, some monuments or remains thereof traditionally dated between the ninth-tenth and the late eleventh centuries. These are considered, historiographically, as being the earliest recorded instances of *muqarnas*.[247]

2.1.1. Catalogue Entries

The first catalogue entry describes *muqarnas* fragments from Nīshāpūr, which are generally regarded as the earliest extant remains of *muqarnas* decoration; this includes a discussion and their chronological reassessment. These fragments were initially dated as being as early as

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[247] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries. For some general works on *muqarnas* see E. Diez, 'Mukarnas', in EI, vol. 9 [suppl.] (1927), pp. 153-154; Josef Rosintal, *Pendentifs: trompes et stalactites dans l'architecture orientale*, Paris: Librairie orientaliste Paul Geuthner, 1928; Josef Rosintal, *L'origine des stalactites de l'architecture orientale*, Paris: Librairie orientaliste Paul Geuthner, 1938; E. Herzfeld, 'Damascus: Studies in Architecture, I', *Ars Islamica* 9 (1942), pp. 1-53; Creswell, MAE, vol. 1, pp. 251-153 and vol. 2, pp. 146-148; Josef Rosintal and Eric Schroeder, 'Squinches, Pendentives, and Stalactites', in Pope, SPA, vol. 3, pp. 1252-1257; Oleg Grabar, 'The Visual Arts', in CHI, vol. 4, pp. 329-363; Michel Écochard, *Filiation de monuments grecs, byzantins et islamiques: une question de géometrie*, Paris: Librarie Orientaliste Paul Geuthner, 1977; Oleg Grabar, *The Alhambra*, London: Allen Lane, 1978; Ulrich Harb, *Ilkhanidische Stalaktitengewölbe*, Berlin: Reimer, 1978; Y. Tabbaa, 'The Muqarnas dome, its origin and meaning', in *Muqarnas* 3 (1985), pp. 61-74; D. Behrens-Abouseif, 'Mukarnas', in EI^2, vol. 7 (1993), pp. 501-506; G. Necipoglu, *The Topkapı scroll: geometry and ornament in Islamic architecture. Topkapı Palace Museum Library MS H. 1956*, Santa Monica (CA): Getty Center for the History of Art and the Humanities, 1995; J.M. Rogers, 'Notes on a Recent Study of the Topkapi Scroll: A Review Article', *Bulletin of the School of Oriental and African Studies, University of London* 60-3 (1997), pp. 433-439; Yasser Tabbaa, *The Transformation of Islamic Art During the Sunni Revival*, London: I.B. Tauris, 2002.

the ninth-tenth century, relying heavily on historiographical evidence and an inaccurate archaeological sequence that needs to be revised in the light of more recent studies on both Nīshāpūr and other Iranian sites. The remaining entries take into account the series of well-dated *muqarnas*, which include: the Arab-Ata Mausoleum at Tim, modern-day Republic of Uzbekistan (dated to 977 AD, though some doubts have been expressed on this early dating, as well); the ill-defined *muqarnas* squinches of the Gunbad-i Qābūs at Gurgān (1006-1007 AD); the squinches of the Davāzdah Imām Sanctuary at Yazd (1038 AD); the cornice of the Gunbad-i ʿAlī near Abarqūh, Fars (1056-1057 AD); and the dome of the recently-destroyed Mausoleum of the Imām al-Dawr, near Samarra (built certainly before 1094, and most probably before 1089-90 AD), which is usually considered as the earliest extant *muqarnas* vault.

All but one of these examples are located in Iran or Central Asia.[248] In its incipient form, as can be seen in the Arab-Ata Mausoleum and Davāzdah Imām Sanctuary, the motif's essential feature was the use of two or three types of simple, but well-defined, three-dimensional cells whose form can be assimilated into quarters, or else different fractions of spherical domes on cylindrical tambours. The cells were arranged in the space following an elementary geometrical disposition, in order to create a structure that spanned the corners of the square rooms at 45°. Since the cell has an arched shape and since the device was often employed in the dome's transitional zone, a structural origin of

[248] Scholars generally agree that these are provincial remains, fortuitous survivals, of a metropolitan style centred elsewhere, possibly in Baghdad. Yet, this is not the place to discuss the geographical origins of the motive.

muqarnas, as a progressive fragmentation of the squinch, is frequently proposed.[249] This possible architectural, or structural, interpretation is generally accepted from early *muqarnas* studies up until the present. However, scholars like Myron Bement Smith,[250] and more recently Raya Shani, [251] have pointed out that, although both the tri-lobed shouldered arch generated by the cells and their composition can be considered as self-supporting, [252] they are not weight-bearing members and their function seems to be decorative.

The use, for decorative purposes, of three-dimensional modules or else panels of this type is well documented in the monumental portal discovered in 1955 during the façade restoration of the Ḥakīm mosque in Iṣfahān, most probably ascribable to the third quarter of the tenth century (see fig. 1).[253] Above the entrance there is a vault split by a

[249] According to the structural interpretation of the *muqarnas* origin, *muqarnas* originated as a result of the progressive fragmentation of the squinches in such a region, as Persia, were the squinch was adopted as transitional device in dome architecture. Therefore, the *muqarnas* cell is considered as an architectural composition, which somehow repeats, on a reduced scale, the shape and the arched structure of the squinch itself.

[250] M.B. Smith, 'Material for a Corpus of Early Iranian Islamic Architecture: III. Two Dated Seljuk Monuments at Sin (Isfahan)', *Ars Islamica* 6:1 (1939), pp. 1-10.

[251] Raya Shani, 'The Muqarnas: Structure, Form, and Meaning', in Lorenz Korn and Anja Heinrich (eds.), *Beiträge zur islamischen Kunst und Archäologie. Hrsg. von der Ernst-Herzfeld-Gesellschaft* – vol.3, Wiesbaden: Reichert-Verlag, 2012, pp. 177-211, see pp. 177-179.

[252] C. Edwards and D. Edwards, 'The Evolution of the Shouldered Arch in Medieval Islamic Architecture', *Architectural History* 42 (1999), pp. 68-95, see p. 75.

[253] For the commonly named Jurjir Portal, at Isfahan see André Godard, 'The Jurjir Mosque in Isfahan', in SPA, vol. 14, pp. 3100-3103; Eugenio Galdieri, *Iṣfahān: Masğid-I Ğumʿa*, (3 vols.), Rome: IsMEO, 1972-1984, vol. 2, pp. 9-10 and figs. 45-46; S. Blair, 'The Octagonal Pavilion at Natanz: A Reexamination of Early Islamic Architecture in Iran', *Muqarnas*, 1 (1983), pp. 69-94; Sheila Blair, *The Monumental Inscriptions from Early Islamic Iran and Transoxiana*, Leiden: Brill, 1992, pp. 52-53.

central section that was left open. As a result, the side sectors of the vault have the shape of spherical triangles similar in form to the cells that were used in both the Arab-Ata Mausoleum and the Davāzdah Imām Sanctuary.[254] In this case, however, the twin spherical triangles were physically constrained by the arch which determined them geometrically, while in in the Arab-Ata Mausoleum and in the Davāzdah Imām Sanctuary the cells were used in a freer, more independent way, combining them as elements in a different composition. Despite their still rather obvious disposition into the squinches, this represented a significant evolution. At this stage it is interesting to recall that at the Arab-Ata Mausoleum, eight single cells of this kind are used as brackets at the drum's corners so as to mediate the transition from the octagon to the dome's circular base. This illustrates well the use for decorative purposes of single cells shaped as sectors of a dome on a cylindrical tambour.

The following entry is Gunbād-i ʿAlī, which shows a cornice created by combining, in three tiers, units of different shapes (5-7 kinds of cells are noticeable). Some of the cells' shapes are comparable to the analogous units used in the squinches described above, but for the first time, the whole of the architectural element, i.e. the cornice, is composed of units

[254] A comparable subdivision of semidomical elements occurred in the squinches of the Sāmānid Tomb at Bukhārā, except that here a central arch is built, leaving open two sectors of the virtual semidome at its sides, see: SPA vol. 3, pp. 945-949, (reproduced in fig. 2, of the present work). A split squinch is documented in the Ribāṭ Māhī, probably built in 1020-21, see: A. Hutt, 'Islamic Monuments in Kirmān and Khurāsān Provinces', *Iran* 8 (1970), pp. 203-205 and Pl. Xb (reproduced in fig. 3, of the present work). A simple split or subdivision of the squinch for decorative purposes is documented in the later mausoleum of Shah Faḍl, near Kashan, see E. Cohn-Wiener 'A Turanic Monument of the Twelfth Century' *Ars Islamica* 6:1 (1939), pp. 88-91.

ordered following a clear geometrical pattern or layout, which define the entire composition. Although the squinches of Arab-Ata Mausoleum and the Davāzdah Imām Sanctuary are some decades earlier than the Gunbād-i ʿAlī, in this cornice cells were combined following a more aware and complex patterning or geometric layout indicating that this is not a simple by-product or even an incidental development of the above-described squinches.

The final entry in this section is the Mausoleum of the Imām al-Dawr, which is included, despite its relatively late dating, as a testament to Iraqi architecture of the second half of the eleventh century.[255] Scholars agree that this mausoleum is a fortuitous provincial survival of a metropolitan style that probably reflects pre-existing Baghdadi models, which are otherwise unknown because of the almost complete destruction of buildings earlier than the late twelfth century in the former Abbasid capital. The mausoleum's dome is usually considered as the earliest extant *muqarnas* dome and the precursor of the commonly named 'sugarloaf domes', which are documented –from the twelfth century onwards– in Baghdad, Mosul, Damascus and Basra.

A progression of drums –or tiers of niches– organized through successive rotations of concentric polygons deliberately fragmentize the dome of the mausoleum. The backs of the niches, which form the dome

[255] At the end of October 2014, during the course of this study, blogs and forums reported the devastating news that the Mausoleum had been deliberately destroyed by the self-styled Islamic State, as a part of its strategy of cultural cleansing. The news was later confirmed by a release from UNESCO: http://www.unesco.org/new/en/mediaservices/singleview/news/director_general_of_unesco_irina_bokova_condemns_the_destruction_of_the_imam_dur_shrine_in_iraq/#.VY-4i_ntmko (accessed online at 14th June 2015).

internally, emerge from the walls and are seen from the outside as overlying levels of small half-domes. The interior surface was further articulated by carved stucco decoration, which multiplied the niches' framing-lines. Comparing this dome with the monuments analysed so far, one can see that such geometrical elements as the spherical-triangular units, which are progressively better defined and become the standard cells of later *muqarnas* vaults, played a minor role in the Mausoleum of the Imām al-Dawr, if any at all. This is even more surprising if we consider that all later instances of sugarloaf domes, documented in both Iraq and Syria, were composed of 'standard' *muqarnas* cells.

On the other hand, the dome of the mausoleum was composed of a progression of drums or eight-niched tiers decreasing in size upwardly, all with a regular octagonal disposition. Each tier was superimposed with a 22.5º rotation with respect to the underlying tier. Despite its relative simplicity, which was hidden by the lavish stucco work, this ancient geometrical system of successive rotations of concentric, regular polygons becomes one of the key features of many later *muqarnas* vaults, which are analysed in the following sections.[256]

[256] For a discussion of how the same geometric scheme was used in Roman, Greek, Byzantine, Armenian and Islamic architecture see Michel Écochard, *Filiation de monuments grecs, byzantins et islamiques: une question de géometrie*, Paris: Librerie Orientaliste Paul Geuthner, 1977.

2.1.2. Discussion

To sum up, the evidence seems to indicate that the spherical-triangular elements, which eventually became one of the key elements of *muqarnas*, originated and evolved as a result of the following process:

1) Initially, spherical triangular panels are documented as halves of split semi-domical elements, such as vaults or squinches (figs. 1-3).
2) These three-dimensional forms were adopted to create units or cells used in a progressively independent way. The cells were used as both architecturally integrated elements –into the squinch– and as more purely decorative devices. Both these uses are documented at Arab-Ata, perhaps the earliest monument showing *muqarnas*.[257]

Somewhere in the middle (from the chronological point of view) of this 'evolutionary' process that eventually led to the formation of Saljūq squinches, described in the following chapter, we find the cornice on Gunbād-i ʿAlī. The mausoleum's cornice, which was solidly-built in rubble masonry bound with mortar, represents a more advanced use of this type of spherical triangles or cells. It is created by combining, in three tiers, units of different shapes (5-7 kinds of cells are evident). Some of the cells' shapes and combinations are more complex than those, but comparable to the analogous units used in the squinches described above. However, for the first time, the whole of the architectural element, i.e. the cornice, is composed of units ordered following a clear geometrical pattern or layout, which defines the entire composition. This kind of three-dimensional cell combination, organized in a clear and

[257] See paragraph '2.2.2. Arab-Ata Mausoleum', of the present work.

regular sequence, resulted in something which is different from and more complex than anything that we have discussed so far, representing a crucial geometrical and aesthetical achievement. Although the squinches of Arab-Ata Mausoleum and the Davāzdah Imām Sanctuary are some decades earlier than the Gunbād-i ʿAlī, in this cornice cells were combined following a more aware and complex patterning or geometric layout, which cannot be a simple by-product or even an incidental development of the *muqarnas* squinches. It is also perfectly executed, from the construction point of view, which suggests that it reflects pre-existing models, which are now lost.

Leaving the question of their exact chronology open, some further observations on the fragments from Nīshāpūr should be made at this stage; these are probably the earliest documented stucco *muqarnas* in Iran. They seemingly belonged to a simple revetment. In fact, the fragments are plaster shells whose thickness is approximately 1.2 centimetres. As the cells have smooth backs and none of the fragments show signs of having been attached to the architecture, Wilkinson inferred that they were made separately and incorporated into a building made of sun-dried brick 'in such a way that when it collapsed or was destroyed, they fell independently'.[258] In the following chapters of the present study, a passage from Ibn Jubayr (1145-1217 AD) is discussed, which describes a wooden ceiling, in the Mosque of Damascus composed of countless pieces of interconnected wood, arching and surmounting

[258] Wilkinson, *Nishapur: Some Early Islamic Buildings*, p. 251.

each other, decorated with stucco (*samā' jass muzayyina*).[259] The ceiling was probably related to known works executed under the government of Tutush (1079-1095 AD). The constructive features of this ceiling, as well as its probable chronology, suggest an alternative explanation for the Nīshāpūr fragments, as the sole remaining example of a wooden or wood-and-stucco *muqarnas*. The uncertainty of the fragments' date, together with the lack of comparative material, preclude its further discussion here, but the potential role of wooden models in the evolution and diffusion of *muqarnas* –which is discussed in the following chapters– should be taken into account, probably from the very origins of the motif.

Besides this Iranian –or documented in Iran– evolution, thanks to the study of the recently-destroyed Mausoleum of the Imām al-Dawr we are able to gain a glimpse of an Iraqi model of domes, composed as a progression of drums –or tiers of niches– organized through successive rotations of concentric polygons. The mausoleum's dome is usually considered as the earliest extant *muqarnas* dome and the precursor of the commonly named 'sugarloaf domes', which are documented –from the twelfth century onwards– in Baghdad, Mosul, Damascus and Basra.

Comparing the dome of Imām al-Dawr with the Iranian examples analysed so far, one can see that such geometrical elements as the spherical-triangular units, which are progressively better defined in Iran and become the standard cells of later *muqarnas* vaults, played a minor role in the Mausoleum of the Imām al-Dawr, if any at all. On the other

[259] Muḥammad ibn Aḥmad Ibn Jubayr (Ed. W. Wright and M.J. De Goeje), *The travels of Ibn Jubayr. Edited from a MS. in the University Library of Leyden by William Wright*, Leiden: Brill, 1907, p. 293.

hand, the geometrical system of superimposed drums rotated with respect to the underlying tiers will become one of the key principles of many later *muqarnas* examples, which are analysed in the following sections.

The almost complete destruction of buildings earlier than the late twelfth century in Baghdad impede establishing whether and to what extent the Iranian evolution of *muqarnas* reflected prototypes from the ʿAbbāsid capital. Perhaps the lack or dematerialization of the cells in the vault of Imām al-Dawr is to be interpreted as a 'baroque' or 'decadent' effect, indicating that this vault was a late stage of a quite extensive tradition, now completely lost, from which the Iranian tradition also stemmed.[260] On the other hand, comparing the squinches in Imām al-Dawr with the evolution of the Iranian squinch, studied in the following chapter, one can observe an opposite esthetic will at play. In fact, while the vault of Imām al-Dawr's decoration is used to 'make the dome appear insubstantial',[261] in Iranian domes the opposite effect is achieved, that of giving to the squinch a certain rational or structural appearance taking advantage of the active form of the *muqarnas* cells and simulating the distribution of the force lines from the dome towards the substructure.[262]

[260] The 'decadent' and 'baroque' character of Imām al-Dawr mausoleum's stucco was pointed out by Herzfeld, 'Damascus, I', p. 20-24.

[261] Tabbaa, 'The Muqarnas Dome', p. 63; Tabbaa, *The Transformation*, p. 112.

[262] Cf. the following chapter of the present work.

2.2. Early Manifestations. The Problem of the Earliest Instances

2.2.1. Nīshāpūr

As reported in the *muqarnas* historiography, the earliest use of *muqarnas* is in the ninth-tenth century for both Eastern Iran and Central Asia. The former being some *muqarnas* fragments, which were brought to light during the excavations by the Metropolitan Museum at Nīshāpūr.[263] They consist of various carved and painted stucco niches – coming from two separate parts of a mound named Sabz Pūshān, not far away from the modern city of Nīshāpūr – these had seemingly been applied to a corner.[264] However, in both cases, the original *muqarnas* disposition is unknown, since none of the fragments was found *in situ*. Even their attribution to one or another of the excavated buildings is hypothetical, given that the fragments had not simply fallen down in the collapse within the original structures to which they belong, but had been thrown as rubbish or else used in backfill, possibly having been brought from elsewhere in the surrounding area.[265] As far as their dating is concerned, the excavators relied on unsafe, random archaeological and historical considerations.

[263] W. Hauser, J. Upton et al., 'The Iranian Expedition, 1937. The Museum's excavations at Nīshāpūr', *Bulletin of the Metropolitan Museum of Art*, 32:2-2 (1938), pp. 3-23.

[264] 'The Iranian Expedition, 1937', pp. 9-10: 'From the debris filling the top of one of the destroyed underground chambers in the fourth block of buildings a large number of fragments of brightly colored plaster were collected, parts of small niche-shaped panels, oval in horizontal section. Only nine fairly complete ones could be assembled; but many pieces unrelated to each other were left over, making it impossible to determine the original number of these "niches"'.

[265] 'The Iranian Expedition, 1937', pp. 11-12.

In 1935 the Museum's first mission was to identify a number of sites, through twelve test trenches among the vast ruin fields of Nīshāpūr, which extend over more than 5,000 hectares.[266] Attention was given to the Sabz Pūshān mound when they found both ceramics and stucco reliefs, which could be *tentatively assigned* to the Sāmānid period (874-999 AD). During the following year, the archaeologists continued excavations on this mound and its surrounding area, obtaining more pottery and stucco decoration, together with some coins, which provided dating evidence for the finds. Since the mound was the first area to be thoroughly excavated in Nīshāpūr, and since the history of ceramic art in the Near East was at its beginnings, scholars could announce this evidence as being 'the first of its kind obtained on the soil of Iran', and established a relative chronology for some Iranian ceramic types.[267]

Of the thirty-eight coins which were found during the first two seasons at Sabz Pūshān, thirty-one were ascribable to the eighth or early-ninth century, three to the late Sāmānid period (after 968 AD), and another four were 'so varied in date as to be of no great significance'.[268] Therefore, according to Upton, it seemed clear that the mound included ruins of both the early Islamic and Sāmānid periods, while later coins

[266] J. M. Upton and Ch. K. Wilkinson, 'The Persian Expedition 1934-1935: Excavations at Nīshāpūr', *The Metropolitan Museum of Art Bulletin* 31:9 (1936), pp. 176-182.

[267] M. S. Dimand and C. K. Wilkinson, 'The Īrānian Expedition, 1936: The Excavations at Nīshāpūr', *The Metropolitan Museum of Art Bulletin*, 32:10-2 (1937), pp. 3-22, see p. 3.

[268] Of these four coins, one was uncertainly ascribed to the 11th century and three to the late 12th and 13th century.

could be considered intrusions.[269] Furthermore, since no coins from about 820 AD up to the rule the Sāmānid, Nūḥ ibn Manṣūr (976-997 AD), were recorded, it was supposed that Sabz Pūshān had two occupational periods separated by a destruction level, which was identified with the *probable* obliteration of Nīshāpūr between the defeat of the last Ṭāhirid governor in 867 AD and ʿAmr ibn al-Layth settling there in 892 AD.[270] According to the mission's report, this reconstruction was confirmed during their third season in 1937, when archaeologists excavated a total of 268 identifiable coins, mostly ascribed to the Abbasid and Sāmānid periods:[271]

[269] J.M. Upton, 'The Coins from Nīshāpūr', *The Metropolitan Museum of Art Bulletin*, 32:10-2 (1937), pp. 37-39, see p. 37: 'Just as one occasionally picks up modern coins on the surface of old ruins, so in digging one finds sporadic coins which have accidentally found their way into the company of a group of coins of another date. They may have been on or near the surface and have fallen into dirt being removed from a lower level, or they may even have been picked up by workmen on their way to the site and placed in the boxes for small objects from the "dig" in the expectation of the usual reward for finds. In any case, their significance for dating is small. A glance at the chart will show three main periods thus far definitely established by our work'.

[270] 'The Coins from Nīshāpūr', pp. 37-39.

[271] 'The Iranian Expedition, 1937', pp. 5-6: 'By far the largest number are ʿAbbasid. There are twelve dating between A. D. 731 and 760; 118 between 760 and 800; twenty four between 800 and 820; and 102 which may be confidently assigned to the same period (that is, between 731 and 820 or a few years later), although their dates cannot be deciphered but must be determined by the character and arrangement of the letters and other details remaining. Last year we had no coins from between 820 and the reign of the Sāmānid Nūḥ ibn Manṣūr (976-997). This year we have a silver coin of Ṭalḥah ibn Ṭāhir, who was Governor of Nīshāpūr from 822 to 828, and one coin from each of two Samanid rulers named Naṣr ibn Aḥmad. The coin of the first Naṣr ibn Aḥmad is dated 884, that of the second 927. The presence of the earlier coin is not of great significance, however, since the Sāmānids did not become established as the rulers of Nishapur until 899. There follows a group of fifteen more Sāmānid coins, of which nine are from the reign of Nūḥ ibn Manṣūr'.

> 'From this evidence it becomes clearer that our tentative dating of last year need not be changed much, if any. The original construction took place in the latter half of the eighth century. It was demolished after the Ṭāhirids had become possessed of Nīshāpūr in 820 - probably during their almost incessant wars with the Ṣaffārids, who made several unsuccessful attempts to seize and hold the city before they finally succeeded in 892 under ʿAmr ibn Layth. Most of the buildings were restored fairly soon, notably the complex of rooms which contained the "shrine." Then came the second and less severe destruction. This could have taken place during the struggles of the Sāmānids to overthrow ʿAmr ibn Layth, which ended in his capture and death in 90l; or equally well it could have been the result of some local and unrecorded earthquake. Earthquakes have always been frequent in the region, and records of the whole city being destroyed in 1145, 1280, and 1405 have come down to us. At any rate the buildings were repaired and occupied during the remainder of the Sāmānid dominion, roughly the whole of the tenth century. […] The abandonment may have been caused by a famine in 1011, or the underground water channels may have hopelessly collapsed or dried up, rendering the buildings uninhabitable. By the time of the coming of the Saljūqs in 1037 this section of the city had certainly become derelict; and covered by the mud of its own walls it gradually sank into the mound we began to excavate three years ago'.[272]

However, once more, a number of numismatic findings were overlooked, such as twenty-eight coins dating from the twelfth century onwards, which were considered of no importance, 'having probably been dropped by peasants and villagers working about the mound'. [273] Typological analysis of ceramic objects was in its infancy, there were no pottery types to establish connections with, so that ceramics dating relied exclusively on the numismatic evidence. This was the assumed chronology for Sabz Pūshān when the *muqarnas* fragments were discovered and first studied, in 1937. It was within this time frame that

[272] 'The Iranian Expedition, 1937', pp. 6-8.

[273] 'The Iranian Expedition, 1937', p. 6.

archaeologists tentatively proposed some more accurate considerations for the fragments' dating, which are analysed below.

As far as these findings are concerned, a group of painted stucco fragments were found in the north-eastern part of the mound. Their painted decoration appeared to be in a bad state of preservation, though ornamental drawings based on vegetal motifs were recognizable. As stated above, the pieces were probably not related to the remains of the buildings in which they were found. These circumstances preclude any further clarification about their dating.[274] Another group, composed of a large number of painted plaster *muqarnas* fragments, was found in the south part of the mound, in a zone classified as 'the fourth block of building' by the Expedition. This group included *muqarnas* cells of three different sizes, all of them decorated according to the same general scheme: vegetal composition organized around a 'vaselike' motif, filled with interlacing palmettes either adorned with flowers or six-petalled rosettes, which were painted symmetrically within the composition.[275]

[274] 'The Iranian Expedition, 1937', p. 12.

[275] 'The Iranian Expedition, 1937', pp. 9-10: 'Variations of detail occur in the painted decoration, but there is only one general scheme. A vaselike shape decorated with or enfolded by palmettes occupies the center. In four examples sprays of flowers in the form of three stems bearing six-petaled rosettes, one in the center and two symmetrically arranged on either side, rise up to fill the point of the niche. From under the base of the 'vase,' leaf shapes and tendrils ending in spirals spring up to fill the space between it and the borders. Sometimes the space below the vase is occupied by rosettes, but in several cases there are two pointed pear shapes which the artist has treated as eyes, indicating the iris by large black circles (see fig. 4). In another case similar forms occur at the top of the vase, giving it an owl-like appearance (see fig. 5). The composition is framed by two bands of red separated by an ocher yellow fillet striped in red or black. The whole design is outlined in black. The palmettes and vines entwining the vases are white, picked out here and there with red and blue against a cream-colored background or, in some cases, are a creamy white, which may have been originally yellow, against a white background.

The decoration's character and motifs were analogous to the first group of fragments, but in this case the paintings were more accurately executed, as well as being better preserved. Despite this, the archaeologists regarded the stylistic analysis of the paintings as being inconclusive, since 'nearly every part of this composition can send one off on the interminable search for origins and development of pattern which usually leads to unending controversy rather than any very solid conclusions'.[276]

However, here was archaeological evidence that seemed decisive in dating the *muqarnas* remains. The fragments were found amongst the debris which filled the top of a collapsed underground room constructed in fired brick. These fragments were not integral to this room, but had been brought from elsewhere, after the room vault or ceiling had collapsed, serving as a rubble fill below a new floor. Almost every excavated house in Sabz Pūshān had at least one of these vaulted chambers, which scholars interpreted as the underground chambers or *serdab* used in modern Iranian houses which serve as shelters from the summer heat. After the destruction of Sabz Pūshān, these rooms were infilled with debris and in the new structures were sealed under new floors.[277] Now, relying on the above given chronological reconstruction, scholars argued that since in 1037 AD that part of the city had already

The tendrils are white and the 'leaves' pushing up with them are red. All this center decoration gives the effect of being set against a bright blue background framed in the red and yellow. Most of the rosettes are white, though there are red ones. The colors used are bright and clear throughout'.

[276] 'The Iranian Expedition, 1937', p. 12.

[277] 'The Iranian Expedition, 1937', pp. 8-9.

become derelict -having been abandoned, perhaps, in 1011 AD- and since the fragments were found under the latest floor level, they 'must belong to the original 'Abbasid construction or to the first period of reconstruction. That is, they cannot be later than the ninth century, and they may belong to the end of the eighth century'.[278]

It was on this basis that these fragments entered *muqarnas* historiography as being the earliest examples ever documented. However, this knowledge and the circumstances which supported their dating were soon forgotten, and additional evidence gradually emerged which allowed for different interpretations. Indeed, several decades of investigations at Islamic Nīshāpūr, as well as on other sites of both Central and Eastern Asia, have contributed to the knowledge of Iranian art and archaeology.[279]

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[278] 'The Iranian Expedition, 1937', see pp. 8 and 12.

[279] As far as Nishapur is concerned see, for instance: W. Hauser and Ch. K. Wilkinson, 'The Museum's excavations at Nīshāpūr', *Bulletin of the Metropolitan Museum of Art*, 37:4 (1942), pp. 83-119; Ch. K. Wilkinson, 'Water, Ice, and Glass', *The Metropolitan Museum of Art Bulletin* New Series 1:5 (1943), pp.175-183; Ch. K. Wilkinson 'Heating and Cooking in Nishapur', *The Metropolitan Museum of Art Bulletin* New Series, 2:10 (1944), pp. 282-291; Ch. K. Wilkinson, 'Life in Early Nishapur' *The Metropolitan Museum of Art Bulletin* New Series, 9:2 (1950), pp. 60-72; Ch. K. Wilkinson, 'The Kilns of Nishapur', *The Metropolitan Museum of Art Bulletin*, New Series, 17:9 (1959), pp. 235-240; Ch. K. Wilkinson, 'The Glazed Pottery of Nishapur and Samarkand' *The Metropolitan Museum of Art Bulletin* New Series 20:3 (1961), pp. 102-115; Ch. K. Wilkinson, 'Christian Remains from Nishapur', in *Forschungen zur Kunst Asiens in Memoriam Kurt Erdmann*, in Oktay Aslanapa and Rudolf Naumann (eds.), Istanbul: Üniversitesi Edebiyat Fakültesi, Türk ve Islâm Sanati Kürsüsü, 1969, pp. 79-87; Charles Kyrle Wilkinson, *Iranian ceramics* [catalogue of an exhibition held at the galleries of Asia House selected by Charles K. Wilkinson], New York: distributed by H.N. Abrams, 1963; Ch. K. Wilkinson, *Nishapur: Pottery of Early Islamic Period*, New York: The Metropolitan Museum of Art, *s.d.* [1973]; Ch.K. Wilkinson, *Nishapur: Some Early Islamic Buildings and Their Decoration*, New York: The Metropolitan Museum of Art, 1986; E. Honigmann and C.E. Bosworth, 'Nishāpur', in EI², vol. 8, p. 62; C. E. Bosworth, 'Nishapur. i. Historical Geography and History to the Beginning of the

The Nīshāpūr archaeological excavations continued for a further two seasons: during 1938 the first; and from July 1939 to August 1940 the second. Eventually World War II forced the Expeditions to terminate.[280] However, 'the rich haul of objects and information' yielded by the excavations were only revealed gradually. Initially, only 'a few of the most important discoveries' were published in a series of articles which appeared mainly in the Museum's *Bulletin*, during the 1940s and 1950s,[281] but due to other commitments it was not until 1973 that the Nīshāpūr pottery monograph was published.[282] At that time, the archaeological history of Islamic Iran was better known, and connections could be established between Nīshāpūr and other Iranian centres, resulting in a reconsideration of the chronology. It became clear that the sequential reconstruction of the mission's first reports was erroneous, and Wilkinson revised some of the site's dating. In general, most of the

20th Century', *Encyclopaedia Iranica,* Online edition, [hereafter EIr] (accessed on 9 June 2014).

280 After the war's end a short season was conducted, as well, 'in order to tidy up and to surrender the concession'. See *Nishapur: Pottery of Early Islamic Period*, p. xxiii.

281 'The Museum's excavations at Nīshāpūr', pp. 83-85 and 92. With regard to the list of articles, see note 279.

282 Thomas Hoving, 'Foreword', in *Nishapur: Pottery of Early Islamic Period*, pp. x-xi: 'The Museum's excavations at Nishapur, begun in 1935, were directed by Joseph M. Upton, Walter Hauser, and Charles Wilkinson, who brought out jointly the preliminary reports in the Museum's Bulletin. Then World War II came, digging halted, and the trio scattered. Upton joined the State Department as a Near Eastern expert. Hauser took up other functions at the Museum, assuming the post of librarian, and then died prematurely. Thus Wilkinson alone carried on the task of doing further research on the finds at Nishapur with the view of eventually publishing the results. […]From the beginning it was planned to publish a volume on the pottery alone, the most outstanding of the finds, but this goal was long delayed due to the lingering illness of Hauser, who was to have been Wilkinson's collaborator'.

supposed 'early Islamic' pottery had to be ascribed to a later period, specifically from the ninth century onwards. At the same time, both the abandonment and the ruin of the excavated city sectors, initially assigned to the early eleventh century, had to be allocated later dates, i.e. to either the twelfth or the early thirteenth century. Unfortunately, as Wilkinson regretted, 'some of the apparently well-based but actually erroneous dates of the first reports have found their way into books by other writers'.[283]

As far as the architectural decoration is concerned, the circumstances were even worst because of the premature death of Walter Hauser, who was in charge of the buildings' study during the expedition. He passed on before the work on the corresponding monograph began. [284] Subsequently, it was Charles Wilkinson who had to supervise the study and the publishing of the monograph, but when it came out in 1986, some fifty years had passed since the *muqarnas* fragments had been

[283] *Nishapur: Pottery of Early Islamic Period*, p. xxiv.

[284] Due to these circumstances, the early dating for the fragments can actually be found in recent literature, for instance see Shani, 'The Muqarnas', pp. 188-192. As will be analysed below, relying on the 9th-10th century dating for the Nishapur's fragments the scholar suggest a 10th century dating, as well, for the stucco *muqarnas* vault at the Mosque of Nāʿīn: 'The non-structural nature of the stucco muqarnas at Nāʿīn and Nīshāpūr may suggest that Persian *muqarnas* did not necessarily begin as a structural element; stucco *muqarnas* designs applied to structural curved surfaces were practiced at least since the 9th century. The stucco muqarnas at Nāʿīn may safely be dated to the 10th century, rather than considered a late addition made by the Saljūqs, as is still argued by some scholars. The earlier dating may be corroborated by the designs painted over the muqarnas cells at Nāʿīn; as at Nīshāpūr, each carries a vegetal design of closed composition, emphasizing the surface division of the stucco cells underneath. This method reflects the basic tendency to surface division characterizing early Muslim aesthetics. Probably made under the Būyids or Kākūyids, the Nāʿīn *muqarnas* is thus another example of a pre-Saljūq *muqarnas*-decorated monument'.

discovered and first published.[285] In this publication Wilkinson ascribed the fragments to the late tenth or eleventh century, but the context of both the fragments' finding and dating was unchanged, and no positive evidence was presented for this new dating.[286]

2.2.2. Arab-Ata Mausoleum

This monument was first reported by N. I. Leonov,[287] and then studied by the Art Institute of the Academy of Science of the Uzbek Soviet Socialist Republic[288] and published in 1963 in a monograph edited by Galina A. Pugachenkova. [289] Due to its considerable architectural significance it has been cited in a number of studies on Islamic architecture. In fact this monument shows: the earliest known dated use

[285] Philippe de Montebello, 'Director's foreword', in *Nishapur: Some Early Islamic Buildings and their Decoration*, pp. 11-12. As a consequence of this delay, most of *muqarnas* literature assumed that they were the earliest, and therefore the oldest, fragments of *muqarnas* ever discovered.

[286] Cf. *Some Early Islamic Buildings and their Decoration*, pp. 251-258: 'By shape and size the mukarnas fall into two distinct groups. Five of them are larger, both wider and taller, than the others, and have an uppermost projecting point. The squinches found at Tim, in Uzbekistan, in the mausoleum of Arab Ata, built in 977-78, have the same two types of plaster mukarnas […] The mukarnas found in the Fatimid bathhouse in Fustat are considered to be work of the late tenth or the eleventh century. These from Sabz Pushan can hardly be earlier, but there is no reason whatsoever why they should be later'.

[287] N.I. Leonov, 'Nouveau monument achitectural en Asie Central', *Sovetskaia Archeologhia* 10:4 (1960), pp. 186-190.

[288] G.A. Pugachenkova, 'Mazar Arab-ata v Time', *Sovetskaia Archeologhia* 11:4 (1961), pp. 198-211.

[289] Galina Anatol'evna Pugachenkova, *Mavzoley Arab-Ata (iz istorii arkhitektury Maverannakhra IX-X vv.)*, Tashkent: Iskusstvo Zodchika Uzbekistana, 1963.

of the *pīshṭāq*;[290] the first appearance of interlaced star-and-polygon decoration typical of the *girih* mode (decorative interlaced strapwork named after the Persian word for 'knot'); and the earliest use of *muqarnas* in the zone of transition to a dome.[291]

The Arab-Ata Mausoleum is located in Tim, a village in the Samarkand region, modern-day Republic of Uzbekistan. The building is a cuboid structure which rests on a base of approximately 8.00×8.70 meters crowned with a brick dome. It has a single façade or screen, higher than the side walls; this feature is commonly known as a *pīshṭāq*, and is important in later Iranian architecture.[292] The portal shows a geometric decoration based on interlaced star-and-polygon patterns. The interior of the building is a simple square room whose sides are about 5.60 meters.[293] The transition from the square to the circular base of the cupola is mediated through an octagon created by trilobed squinches. Each squinch is subdivided into three triangular cells arranged in two rows, in a composition that is commonly considered as the first well-dated example of *muqarnas*.[294]

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[290] The *pīshṭāq* is a kind of door frame, see P.A. Andrews, 'Pīshṭāq', in EI², vol. 8, pp. 313-317 and pls. XIII-XIX.

[291] For instance, see: O. Grabar, 'The earliest Islamic commemorative structures', *Ars Orientalis* 4 (1966), pp. 7-46; Oleg Grabar, 'The visual arts', in CHI, vol. 5 (*The Saljuq and Mongol Periods*), 1968, pp. 626-658; Oleg Grabar, 'The visual arts', in CHI, vol. 4 (*The Period from the Arab Invasion to the Saljuqs*), 1975, pp. 329-363; Necipoglu, *The Topkapı scroll*, pp. 97-100; Tabbaa, *The Transformation*, pp. 106-108.

[292] See P.A. Andrews, 'Pīshṭāq', in EI², vol. 8, pp. 313-317 and pls. XIII-XIX.

[293] Arab-Ata Mausoleum - UNESCO World Heritage Centre, http://whc.unesco.org/en/tentativelists/5290/, accessed 19.07.2014.

[294] Cf. above. See: Grabar, 'The earliest Islamic', pp. 7-46; Grabar, 'The visual arts', pp. 626-658; Neçipoglu, *The Topkapı scroll*, pp. 97-100; Tabbaa, *The Transformation*, pp. 106-108.

In the lower tier, two symmetric cells work as brackets creating the shoulders of the three lobed arches. From a geometrical point of view, these cells may be assimilated as quarters of a spherical dome on a cylindrical tambour subtracted from a prism with a right-angled triangular plane. Between these elements is a different *muqarnas* cell, which may be described as a hemispherical dome on a cylindrical tambour. The upper cell, as well, may be assimilated to the same geometrical form, although in this case the element is developed behind a pointed arch, which forms the upper part of the tri-lobed squinch. Single *muqarnas* units, similar in shape to the lower tiers' *muqarnas* brackets are used at the drum's corners so as to mediate the transition from the octagon to the dome's circular base. According to Grabar:

> 'what we find here is the first architectural use of a uniquely Islamic theme, the muqarnas. It is still rather clumsy and incompletely thought out, just as it will still be clumsy in a 428/1037 mausoleum in Yazd, so far the earliest known occurrence of the theme in western or southwestern Iran'.[295]

The building is dated Rabīʿ al-Aūal of 367 AH (18 October-16 November 977 AD), inscribed in the floriated Kufic inscription which frames the portal published by Sheila Blair.[296] This date was first recorded by G. A. Pugachenkova, whereupon it is cited in the literature as the exact date of the mausoleum's construction. This dating implied the attribution of the mausoleum to the Sāmānid or Qarākhanid patronage.[297] Nevertheless,

[295] Grabar, 'The visual arts', p. 344.

[296] Blair, *The Monumental Inscriptions*, pp. 47-48.

[297] However, in the inscription a title ending in *amīr al-muʿminīn* (commander of the faithful) is used, most probably refers to a Sāmānid ruler (Blair, *The Monumental Inscriptions*, pp. 47).

since the inscription is damaged, it is not clear whether the date refers to the tomb's commission -which does seem reasonable- or to the death of the tomb's occupant. As Sheila Blair observed, should this be the case:

> 'the building could have been ordered at any later date, even two centuries later. Given the extraordinary precociousness of the building in its architectural features, a lingering suspicion remains that this was in fact the case'.[298]

2.2.3. The Gunbad-i Qābūs at Gurgān

The construction of this renowned tomb-tower was ordered by the fourth Ziyārīd sovereign, Qābūs b. Wushmgīr, between 1006 and 1007 AD, according to its foundation inscription. It is relevant here because of the tri-lobed niches or else pendentives which surmount either side of the chamber's entrance. They have been recorded as one of the earliest instances of *muqarnas* in Persia, [299] but in their present state of conservation it is difficult to say anything about them: the tri-lobed profiles of the niches is clearly discernible, but no trace of *muqarnas* cells is appreciable in the photographic documentation available.[300]

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[298] Blair, *The Monumental Inscriptions*, p. 48.

[299] Cf. E. Ehlers, M. Momeni et al. 'Gonbad-e Qābus', in EIr (accessed online 06 August 2014); Blair, *The Monumental Inscriptions*, p. 48. On the monument, among others, see: Grabar, 'The earliest Islamic commemorative structures', p. 22; AA. VV., *Nomination of Gonbad-e Qabus for Inscription on the World Heritage List*, Teheran: UNESCO-World Heritage Convention, 2011.

[300] For instance, *cf*. AA. VV., *Nomination of Gonbad-e Qabus for Inscription on the World Heritage List*, Teheran: UNESCO-World Heritage Convention, 2011, fig. 51 on p. 71, figs. 77-78 on p. 85, figs. 58-59 on p. 288, figs. 64-65 on p. 291, plate 22; Alireza Anisi, 'Early Islamic Architecture in Iran (637-1059)', PhD thesis, Edinburgh: University of Edinburgh, 2007, plate 10.4; A. Godard, *Athar-e Iran*, 4 (1939), fig. 281 at p. 330.

2.2.4. Davāzdah Imām Sanctuary at Yazd

The Davāzdah Imām sanctuary has been discussed in various studies that deal directly with it or else, more generally, with different aspects of Iranian art and architecture dating to the Islamic period.[301] It has a square fired-brick domed shrine with a single entrance doorway on the north side and a *miḥrāb* on the opposite side. Each side of the building measures approximately 11 metres, while the interior's sides are approximately 8.30 metres. Both internally and externally the walls are topped with narrow recessed arched niches, within rectangular frames. Similar recesses, but of a smaller size, decorate the exterior of the dome's octagonal drum, as well. The interior revetment of the room's walls is made of plaster, whilst the external façade has bare brickwork.[302]

The building is noted primarily for the dome's transition zone, which is considered an important antecedent to solutions which were to be used in Iranian Seljuk monuments of the late-eleventh and twelfth centuries. In each corner, the transition from the square room to the octagonal drum is achieved through two-rows of *muqarnas* compositions

[301] For instance, see Eric Schroeder, 'Islamic Architecture. F. Seljūq Architecture' in SPA, vol. 3, pp. 981-1045; Keppel Archibald Cameron Creswell, *The Muslim Architecture of Egypt*, 2 vols., New York: Hacker Art Books, 1978, [hereafter MAE], vol. 1, p. 251; Renata Holod, 'The monument of Duvazdah Imam in Yazd and its inscription of foundation', in Dickran Karnick Kouymjian, *Near Eastern Numismatics. Iconography, epigraphy and history. Studies in honour of George C. Miles*, Beirut: American University of Beirut, 1974, pp. 285-288; Barbara Finster, *Frühe iranische Moscheen vom Beginn des Islam bis zur Zeit salǧūqischer Herrschaft*, Berlin: Dietrich Reimer, 1994, pp. 257-260; Blair, *The Monumental Inscriptions*, pp. 103-107; A. Anisi, 'The Davāzdah Imām Mausoleum at Yazd: a re-examination', *Iran* 47 (2009), pp. 57-68; Shani, 'The Muqarnas', pp. 177-211.

[302] Anisi, 'The Davāzdah Imām Mausoleum', pp. 59-60.

which fill the squinches. The three-lobed shouldered arches generated by the *muqarnas* are set within outer pointed arches placed diagonally over the room's internal corners. From the exterior, at roof level, four brick half-domes can be seen which contain the upper part of the *muqarnas* composition shell forms.[303]

From the point of view of statics, the thrust of the dome is actually supported by the outer arches which span the corners diagonally (i.e. the proper squinches). The external half-domes built against the drum could work as extra supports to the dome's thrust on the squinches. However, on the contrary, although both the three-lobed shouldered arch generated by the *muqarnas* and the *muqarnas* composition itself can be considered as self-supporting,[304] they are not weight-bearing members and their function seems decorative.[305]

The monument is dated thanks to a floriated Kufic inscription painted in the tympanum of the western niche. It is a foundation epigraph where two brothers, Masʿūd al-Bihishtī Abū l-Najm Badr and Muẓaffar Abū Yaʿqūb Isḥāq, are reported to have ordered the *Qubba*'s construction in Ramadan of 429 AH (7 June-8 July 1038 AD). The mausoleum was built most probably under the Kākūyid, a Dailamite family who ruled over Central Iran from the early eleventh century, first under the wing of the Būyids, and then as an increasingly independent dynasty.[306] The family

[303] Anisi, 'The Davāzdah Imām Mausoleum', pp. 57-68, see Figs. 2, 3, 7, 8.

[304] Edwards, 'The Evolution of the Shouldered Arch', p. 75.

[305] Shani, 'The Muqarnas', pp. 177-179.

[306] Cf. C.E. Bosworth, 'Dailamīs in Central Iran: The Kākūyids of Jibāl and Yazd', *Iran* 8 (1970), pp. 73-95.

surrendered to Tughril in 1051 AD and continued to rule as 'atabegs' or vassals of the Seljuks until the second half of the twelfth century.[307]

2.2.5. Gunbad-i ʿAlī

The *Gunbad-i ʿAlī* was built near Abarqūh, in Fars, along the ancient route between Iṣfahān and Yazd. It is an octagonal mausoleum, whose base can be inscribed in a circle of twelve metres. The monument's walls are slightly tapered, so that the structure is narrower below the cornice than it is at its base.[308]

The building is relevant here because it shows one of the earliest instances of extant, *in situ*, *muqarnas* decoration, in the form of a three-tier projecting cornice beneath the present dome, which is a later addition. The cornice, as well as most of the building, is constructed in rubble masonry bound with mortar. Despite the linear use of *muqarnas*, the control of the motive is displayed with a skill which, as far as we know, had not yet been achieved in the previous or roughly contemporary central Iranian instances. The tri-lobed forms and the cells which figure the composition are similar to their analogous units, used in the squinches of the above-described monuments, but here they are better articulated. The purely decorative and non-structural use of *muqarnas*, in this cornice, is unquestionable.[309]

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[307] Blair, *The Monumental Inscriptions*, pp. 103-104.

[308] The mausoleum was first discussed in: André Godard 'Abarkūh (Province de Yazd)', *Athar-e Iran*, 1 (1936), pp. 48-53. See also: SPA, vol. 8, pp. 335-336; Blair, *The Monumental Inscriptions*, pp. 126-127 and 248; Shani, 'The Muqarnas', pp. 186-187.

[309] Shani, 'The Muqarnas' pp. 186-187.

The building is dated through a text recorded in a band of simple Kufic which runs just below the cornice. According to the inscription, it is the mausoleum of ʿAmīd al-Dīn Shams al-Dawla Abū ʿAlī Hazārasp and his wife, members of a Persian tribe of whom many served as local governors in the tenth-eleventh centuries.[310] His construction was ordered by their son Fīrūzān in 448 AH/1056-57 AD, the last known member of the family. There is a stark contrast between the skillful handling of the *muqarnas* decoration and the Kufic inscription, which seems archaic and provincial when compared with the contemporary epigraphic trends documented in the region.[311]

2.2.6. Mausoleum of the Imām al-Dawr

This well-known monument, situated some kilometres north of Samarra, was first studied by Max van Berchem and Ernst Herzfeld in the first volume of *Archäologische Reise im Euphrat- und Tigris-gebiet*. It is currently identified in the literature as being the earliest datable *muqarnas* vaulting.[312]

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[310] For the Fīrūzānid family see Blair, *The Monumental Inscriptions*, pp. 121-121.

[311] The archaic appearance of the inscription has been pointed out by Blair, *The Monumental Inscriptions*, p. 127: 'The closest analogous case is the Pir-i ʿAlamdar at Damghan, which Abu Harb Bakhtyar built for his father, governor of Damghan in 417/ 1026-27. In comparison to the Damghan inscription, however, the one of the Gunbad-i ʿAli is much squarer and more rigid. The letters are entirely angular, lacking curves, knots or elaboration. The base line is flat without bumps. The proportions are much squarer. As the ideas of attenuation, interlacing, and decoration will develop in the 5th/11th century, we can say that the Gunbad-i ʿAli is quite archaic for its rime, an archaism reflecting the provinciality of the site'.

[312] Max van Berchem, 'Arabische Inschriften', in Friedrich Sarre and Ernst Herzfeld, *Archäologische reise im Euphrat- und Tigris-gebiet*, vol. 1, Berlin: D. Reimer, 1911, pp. 1-51, in particular pp. 30-34; Sarre and Herzfeld, *Archäologische Reise im*

The mausoleum is partitioned horizontally into two parts: an elongated cubical base; and a conical dome. The base is a square structure with sides of approximately 10 metres externally and 12 metres high, reinforced with circular corner buttresses. The dome appears as a five-level heap of superimposed drums topped by a small fluted cupola. The entire conical composition is 12 metres high, making the mausoleum an imposing 24-metres tall building. The backs of the niches which form the dome internally emerge from the walls and can be seen from the outside, as overlaying tiers of half-domes. Structures of this type are often called 'sugarloaf domes', in the literature, because of their resemblance to the Near-Eastern traditional sugarloaves.[313]

The building's interior is a simple square chamber of approximately 7.85 metres per side. Its most relevant feature is undoubtedly the dome, which is deliberately fragmentized by a progression of tiers organized through successive rotations of polygons. The surface is further articulated by carved stucco decoration which multiplies the framing lines of the niches. The stucco decoration's lavishness increases in proportion toward the summit.[314]

Despite the 'insubstantial appearance' achieved through this intricate play of light, the geometry of the composition is relatively simple. Above the square room is an octagonal drum generated by four squinches and

Euphrat- und Tigris-gebiet, vol. 1, 231-234. See also: Ernst Herzfeld, 'Damascus: Studies in Architecture: I', *Ars Islamica* 9 (1942), pp. 1-53, in particular pp. 18-24; Ernst Herzfeld, *Geschichte der Stadt Samarra*, Hamburg: Eckardt & Messtorff, 1948, in particular pp. 281-286; Tabbaa, *The Transformation*, pp. 112-114.

313 Terry Allen, *Five Essays on Islamic Art*, Sebastopol (CA): Solipsist Press, 1988, p. 69.

314 Herzfeld, 'Damascus I', p. 20.

four arches. Above the drum are four eight-niched tiers, decreasing in size upwards and crowned by a cupola. In each of the levels, the niches have the same, regular, octagonal disposition, while the compositional variation is introduced with a 22.5º rotation of each tier with respect to the underlying level.[315]

As far as the building's chronology is concerned, the mausoleum's inscriptions do not record a date; possibly it appeared in some of the missing parts unavailable to Herzfeld and van Berchem. According to the epigraphs, the construction was firstly ordered by Sharaf al-Dawla Muslim b. Quraysh, an ʿUqaylid emir, but due to his premature death, the works were continued under the orders of Abū Jaʿfar Muḥammad, and after him under Abū l-Fatḥ Ṭāhīr and Abū l-Maḥāsin ʿAbd al-Jalīl, two brothers, both *ʿamīd al-aʿazz*, i.e. a high rank of the Saljūq court. Additionally, the signature of the architect or master builder, Abū Shākir [b.] Abī l-Faraj b. BʿSVH [Herzfeld's reading], appear on two distinct points respectively in one of the interior panels, and in the brickwork, on the exterior of the building. Despite the lack of a date, Herzfeld could infer that the brick structure was completed before 478 AH/1085 AD, while the inner decoration certainly before 487 AH/1094 AD, and most probably before 482 AH/1089-90 AD.[316]

[315] Tabbaa, *The Transformation of Islamic Art*, p. 112.

[316] Herzfeld, 'Damascus: I', p. 20, Herzfeld, *Geschichte der Stadt Samarra*, p. 286.

3. THE SALJŪQ EXAMPLES IN IRAN

3.1. General Observations

This section consists of a catalogue of nine entries including some Saljūq monuments in Iran, which display *muqarnas* decoration. These entries have been subdivided into three groups, respectively entitled: 'linear *muqarnas*'; 'the squinch'; and 'the vault'.[317]

3.1.1. Linear muqarnas

Although *muqarnas* is a three-dimensional decoration, 'linear *muqarnas*' is identified as being a type of composition that neither covers a real surface nor is it integrated into a vault.[318] In the Demāvend mosque, seemingly ascribable to the late eleventh century, *muqarnas* decoration was used on the principal *miḥrāb*, on some secondary niches decorating the piers of the prayer hall and on some of the *ṣaḥn* arches.[319] *Muqarnas* of the same type as the latter was also used in two niches decorating the main façade of the nearby Demāvend tower. On both monuments it was executed in cut brick, jointed with *gač* or gypsum mortar, the motif being composed of small cells organized in tri-lobed superimposed units. Compared with the earlier instances, analysed in the previous section, the cells are considerably smaller and

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[317] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries.

[318] This definition is taken from D. Behrens-Abouseif, 'Sicily, the Missing Link', in particular pp. 290-291.

[319] The courtyard of a mosque is called a *ṣaḥn*, see J. Pedersen, R. Hillenbrand et al., 'Masdjid', in EI², vol. 6, pp. 644-707. For the *miḥrāb* see also G. Fehérvári, 'Miḥrāb', in EI², vol. 7, pp. 7-15.

their compositions include a greater number of tiers. For instance, the single cells used in the squinches of the Arab-Ata Mausoleum and the Davāzdah Imām Sanctuary were more than one metre high, while the *muqarnas* compositions decorating the niches of both the mosque and the tower at Demāvend included up to nine tiers of cells, the whole composition being slightly more than one metre high.[320] On the other hand, the Demāvend *muqarnas* seems rather ungainly, as if it resulted from empirical imitation, produced by artisans who knew of *muqarnas*, but were unfamiliar with the technique.

Amongst the examples of linear *muqarnas* the cornice on the commonly named 'Ṭughril Tower' at Rayy is included. With its cells of large dimensions and perfect definition, this decoration is hardly comparable with the Demāvend *muqarnas*. It most closely resembles the cornice of Gunbad-i ʿAlī, though in the Ṭughril Tower the composition seems more organically integrated within the overall architecture's geometry. According to Raya Shani, the tri-lobed forms of the cornice are 'a minute replica of the trilobed forms enfolding the articulated deep cavities behind interior arched squinches, a hallmark of Saljūq architecture in Central Iran'.[321] Shani proposed an early eleventh-century dating for the Ṭughril Tower suggesting that it was 'an

[320] Smith did not give the precise height of these elements, but most of his photos included measured ranging rods. See M.B. Smith and Y. Godard, 'Material for a Corpus of Early Iranian Islamic Architecture: I. Masdjid-i Djum'a, Demāwend', *Ars Islamica* 2: 2 (1935), pp. 153-173; M.B. Smith, 'Material for a Corpus of Early Iranian Islamic Architecture: III. Two Dated Seljuk Monuments at Sīn (Isfahan)', *Ars Islamica* 6: 1 (1939), pp. 1-10; M.B. Smith 'The Manārs of Iṣfahān', *Athar-e Iran*, 1: 2 (1936), pp. 313-358, in particular pp. 327-329; M.B. Smith and K.D. Smith, 'Islamic Monuments of Iran', *Asia*, 39: 4 (1939), pp. 214-15.

[321] Shani, 'The Muqarnas', p. 178.

intermediary stage' between the squinches of the Davāzdah Imām Sanctuary and the cornice of the Gunbad-i ʿAlī. However, from the point of view of the chronology, there is no real evidence for assigning the tower to such an early date.[322]

3.1.2. The muqarnas *squinch*

As far as the *muqarnas* squinch is concerned, the domed halls of the Iṣfahān Mosque are included in this group together with some later Saljūq examples, such as the Mosque of Gulpāygān, the Mosque of Zavāreh and the Mosque of Ardestān. The two Iṣfahān domes in the Friday Mosque represent crucial steps in both the integration of *muqarnas* into dome architecture and a definition of the model which follows a structural appearance for the elements filling the squinches.

In the South Hall, the dome's ribs create a link between the dome's structure and the key point of its transitional zone. A sixteen-sided order composed of shallow squinches alternating with blind arches of the same profile mediates the passage from the octagonal drum to the circular base of the dome, efficiently integrating the two structures. The decorative and the structural elements of the squinches –such as the outer pointed arches, the spherical triangles or quarter-dome brackets and the recesses decorating the back walls under the *muqarnas* cells– spring from rounded brick pillars, which seems to distribute the weight through the cornice. The *muqarnas* compositions are perfectly assimilated into this system, giving the impression of participating in the weight distribution. However, in the dome of Niẓām al-Mulk this

[322] Shani, 'The Muqarnas', p. 187.

effort of harmonizing different parts of the building was not extended to the substructure underlying the cornice –i.e. to the pillars and the south wall belonging the chamber– to the point that scholars describing the dome suspected that two building periods were involved.[323]

The transitional zone of the North Dome closely resembles that of the South Dome, but here a further step was taken in the unifying design of all parts of the building, by means of a vertical integration of the vaulted structure with the underlying chamber. In particular, a strong connection between the two parts was generated by the elimination of the cornice marking the springing line of the drum. On the other hand, recessed niches and the brick pillars decorated the chamber's walls vertically, corresponding with the main components of the springing for the drum, which seem to prolong the apparent force lines towards the floor. The builder of the North Dome achieved a harmonious integration of all architectural elements, and a certain rational or structural appearance of the whole building. Schroeder talks of 'a willingness to use structural facts, even, sometimes, when more apparent than real, as the most important aid to aesthetic effect'.[324] In this, the active form of the cells has a crucial role in the apparent distribution of the force lines from the dome towards the ground. Furthermore, their geometric composition submits to a system of geometry and proportions, which harmoniously integrate the motif into the design of the whole building. Yet, exemplary, the *muqarnas* cells are

[323] For instance, Eric Schroeder, 'Standing monuments of the first Period', in SPA, vol. 3, pp. 930-966, in particular pp. 954-956.

[324] Eric Schroeder, 'The Seljūq Period', in SPA, vol. 3, pp. 981-1045, in particular p. 983.

decorative and not structural: an adornment suspended from wooden armatures.

The next entry deals with the Mosque of Gulpāygān's dome, dated to 508 AH/1114-15 AD, which was modelled on the Iṣfahān domes for some decorative solutions, though its *muqarnas* compositions on the squinches are different. In fact, the earlier simple work comprising large cells, organized in two tiers behind a tri-lobed frame, became an articulated *muqarnas* composition of multiple cells disposed in four tiers outlined by a multi-lobed frame. The difference between the transitional zone of this dome and its Saljūq antecedents is remarkable: Gulpāygān representing a further step in the tendency to subdivide the squinch and multiply the *muqarnas* cells. Some scholars, focusing on the squinch evolution, have insisted that this tendency was the earliest developmental stage and the germinal element of *muqarnas*, which gradually evolved in more complex compositions and finally resulted in the later *muqarnas* vaults and portals which will be analysed in the following sections. However, the Gulpāygān squinch model seems to have remained rather isolated –a similar composition is documented, for instance, in the Gunbad-i ʿAlawiyān, Hamadān–[325] while most of the Saljūq dome transition zones were modelled on those of the Iṣfahān mosque.

This is shown in the following entry, which includes the Mosque of Zavāreh and the Mosque of Ardestān, and deals with the influence of the Iṣfahān Mosque's domed halls. The domes of both mosques –especially

[325] For the Gunbad-i ʿAlawiyān see: Raya Shani, *A Monumental Manifestation of the Shiʿite Faith in Late Twelfth-Century Iran. The Case of the Gunbad-i ʿAlawiyān, Hamadān*, Oxford: Oxford University Press, 1996.

with regard to their transition zones– were clearly modelled on those of Iṣfahān, deliberately discarding the decorative extravagance of the Gulpāygān type. The mosques of Zavāreh and Ardestān are the earliest examples of the considerable influence that the Iṣfahān domes had in the region up until the Īlkhānid period (1256-1335 AD).

3.1.3. The muqarnas *vault*

This group includes three entries: the *muqarnas* vault of the Sīn mosque (some 30 km north of Iṣfahān); some of the Saljūq vaults in the Iṣfahān mosque; and lastly the *muqarnas* vault covering the area in front of the *miḥrāb* in the Nāʿīn mosque.

The earliest well-dated Iranian example of a *muqarnas* vault covers the sanctuary of the Sīn mosque. It was built in 529 AH/1134-35 AD by a certain Abū Ghālib Yaḥyā according to the inscription contained in a panel filling the centre of the lower tier of *muqarnas* on the *miḥrāb* side.[326] It has quite a complex composition, in four corbelled tiers of cells, which progressively project from the underlying levels, creating a ten-pointed star pattern crowned by a small hemispherical cupola slightly elliptical in plan.

A skeleton of brick pointed arches sustained the whole vault. This armature consists of four squinches, a couple of large arches that span the room transversally and a rhomboidal set of four quadrants or segmental arches resting on two wall arches built in the middle of the longer sides (see fig. 4). Due to the few compositional relationships of

[326] Smith, 'Material for a Corpus III'; and G.C. Miles, 'Epigraphical Notice', *Ars Islamica* 6: 1 (1939), pp. 11-15.

the *muqarnas* with this substructure, most scholars of Iranian art –after M.B. Smith– have focused on the surface of the vault, considering this kind of *muqarnas* as a 'squinch expanded', i.e., a simple by-product or else an incidental development of the above-described *muqarnas* revetment of the squinches. Therefore, the potential role of the structure in the origins of the model has been disregarded and the Sīn vault has not been studied in the context of a Saljūq vaulted structure, whereas it is in the following entry.

The second entry in this section is the undated Saljūq vaults in the Iṣfahān Mosque, dealing with the architectural context in which the Iranian *muqarnas* vault originated. The *muqarnas* vault of Sīn is the earliest actually dated example of this type. However, it is reasonable to consider it as a chance survival of a model which was established in the Iṣfahān region at that time, and which had almost certainly been developed in the capital. None of the Iṣfahān vaults dating to the Saljūq period is immediately comparable to that of Sīn, but the different elements, which were employed to finally give form to the Sīn model, were already in use or were developed in the works of the Great Mosque of Iṣfahān (see fig. 5, illustrating the vault covering bay number 60, which is the most remarkable example of this type. Compare it with fig. 4).

The last entry in this section is on the moulded stucco *muqarnas* vault covering the area in front of the *miḥrāb* in the Nāʿīn mosque. The mosque underwent successive changes throughout its existence, but there is no evidence for securely dating any of these. Under these conditions different hypotheses have been proposed by scholars,

mostly relying on the analysis of either the mosque's architecture or its decoration. For instance, Schroeder considered the *miḥrāb* vault –together with its counterpart covering the middle bay of the northeast *riwāq*– as later additions to the original building, ascribing them both to the seventh century (thirteenth century AD). On the other hand, some more recent studies have proposed that the vault could be contemporary with the carved stucco decorating the *miḥrāb* and the surrounding part of the mosque, i.e. it may be datable to the tenth century. To my knowledge, nothing has been published on the structure of the vault, which precludes its comparison with the Saljūq vaults described so far.

The simplicity and naivety of the *muqarnas* design at Nāʿīn could date it to earlier than the thirteenth century, as suggested by Schroeder. In particular, the larger cells of the lowest tier are used in an archaic and empiric way, which seems closer to the Arab-Ata Mausoleum and Davāzdah Imām Sanctuary, than to the later Saljūq squinches. However, the comparative arguments provided to place its construction to such an early date as the tenth century seems inconclusive, and the validation of Nāʿīn's *muqarnas* dating through comparison with the Nīshāpūr fragments relies on the assumed dating of the latter to the ninth century, which cannot be established, as discussed in the previous chapter. To conclude, until further investigation –and hopefully an archaeological analysis of the vault– enables scholars to clarify the position, an ascription to the pre-Saljūq period should be considered with caution.

3.1.4. Discussion

Linear *muqarnas* structures described in this chapter are very different from one another. In Demāvend the *muqarnas* was executed in cut brick, jointed with *gač* or gypsum mortar. It is a different technique to that of 'canonical' Saljūq *muqarnas*, which was built using standard bricks held together by mortar filling the joints, the big cells resulting from the curvature allowed by the mortar fillings. It is also different from the Gunbad-i ʿAlī, where the cornice was constructed in rubble masonry bound with mortar. Here, it was the mortar fillings' shaping that formed the *muqarnas*. On the other hand, in Demāvend, the *muqarnas* profiles were drawn with the edges of cut bricks jointed with mortar. The result seems rather ungainly, as if it was an empirical adaptation, produced by artisans who knew of *muqarnas* and tried to translate it into their practices. This technique seems to remain marginal with respect to the development of Saljūq *muqarnas*.

The cornice of the 'Ṭughril Tower' at Rayy, shows cells of large dimensions and perfect definition, built in the standard brick technique and with a notable organic integration within the overall geometry of the building. Raya Shani proposed an early eleventh-century dating for the Ṭughril Tower observing that it would be a perfect intermediary stage between the squinches of the Davāzdah Imām Sanctuary and the cornice of the Gunbad-i ʿAlī. However, from the point of view of the chronology, there is no real evidence for assigning the tower to such an early date and the evidence seems too fragmentary to establish whether the development progressed from architecturally integrated prototypes –such as that of the Ṭughril Tower– and worked towards highly

ornamental models –as that of Gunbad-i ʿAlī– or went in the opposite direction, or whether they were independent developments. If an early date for potential wooden or wood-and-stucco models could be confirmed, the influence of *muqarnas* composed of several small cells (the Nīshāpūr niches are some 30 centimetres high) disposed in a clear geometric composition upon these gigantic compositions (the cornice of the Gunbad-i ʿAlī, for example, measures approximately 3 metres in height), should be taken into account. These compositions of small cells, rather than the big squinches of the Iṣfahān domes, might well have been the reference for the craftsmen who built the Demavend *muqarnas*.

A tendency to integrate *muqarnas* into architecture is documented in the two Iṣfahān domes in the Friday Mosque, which are considered real masterpieces from this perspective. The builders of both domes achieved a harmonious integration of all architectural elements, and a certain rational or structural appearance of the whole building, using *muqarnas* cells in the apparent distribution of the force lines from the dome towards the ground. Yet, exemplary, the cells are suspended panels built of bricks held together by a mortar filling (a similar building technique as in Ṭughril Tower), with a decorative and not a structural function.

The Iṣfahān Mosque's domed halls had a considerable influence in the region, and several similar *muqarnas* structures were built following this model up until the Īlkhānid period (1256-1335 AD). However, in the Saljūq period, in such monuments as the Mosque of Gulpāygān, dated to 508 AH/1114-15 AD, and the later Gunbad-i

ʿAlawiyān (late twelfth century), a different tendency to subdivide the squinch and multiply the *muqarnas* cells is also documented. The size of the cells was reduced creating more fragmented compositions with increasingly complex geometric layouts following a similar decorative process as was described in the cornices of both the Gunbad-i ʿAlī and the Ṭughril Tower.

As regards the Saljūq *muqarnas* vault, the first well-dated example is found in the sanctuary of the Sīn mosque, built in 529 AH/1134-35 AD. The *muqarnas* vault of Sīn is the earliest actually dated example of this type. However, it is reasonable to consider it as a chance survival of a model which was established in the Iṣfahān region at that time, and which had almost certainly been developed in the capital. None of the Iṣfahān vaults dating to the Saljūq period is immediately comparable to that of Sīn, but the different elements, which were employed to finally give form to the Sīn model, were already in use or were developed in the works of the Great Mosque of Iṣfahān. To sum up, it seems that this kind of *muqarnas* vault originated as the result of a process related to both the surface treatment and the construction technique. From the point of view of surface treatment, this *muqarnas* represents a further step in the evolution of *muqarnas* revetments, which have already been discussed. Minor Saljūq vaults, covering some of the hundreds of bays that form the Iṣfahān mosque, show that panels shaped as sections of spherical domes, together with proper *muqarnas* compositions were becoming popular in Iṣfahān in the Saljūq period. None of these is as complex as the Sīn vault, but they usefully illustrate the architectural context in which the model was created. The intrados of the *muqarnas*

cells, as well, show a technique apparently comparable to the Saljūq squinches described so far, of brick panels held together by the mortar.

From the point of view of construction, however, the popularization of ribbed vaults, and specifically the crossed-ribbed vaults allowed for a greater freedom of new patterns for the surface decoration to develop, which finally resulted in the Sīn model of *muqarnas* vaulting. The expansion of *muqarnas* to the whole surface of the vault would not have been possible without the development of adequate supporting substructures.

The vaults of Nāʿīn Mosque are included in this chapter, although scholars specialised in Iranian art, including Bernard O'Kane, Alireza Anisi and Raya Shani, date them, along with the fragments from Nīshāpūr, to the pre-Saljūq period, in particular to the tenth century.[327]

[327] For instance see B. O'Kane, 'Dome in Iranian Architecture': 'This feature [the *muqarnas* dome] was found in brick at the Saljuq congregational mosque at Sīn, and an example covered with painted plaster in the congregational mosque at Nāʿīn may date from as early as the 10th century'; O'Kane, 'Iran and Central Asia', in M. Frishman and H. Khan (eds.), *The mosque: history, architectural development and regional diversity*, London : Thames and Hudson, 1994, p. 122; Anisi, 'Early Islamic Architecture in Iran', pp. 204-212: 'However, this vault is decorated with painting of a simplicity which might be contemporary with the stucco, so it can be normally attributed to the late of the 4th/10th century [...] This decorative vault also can be noted as an earliest *muqarnas* dome, which is surviving in Islamic architecture'. Shani, 'The Muqarnas', p. 188: 'The non-structural nature of the stucco muqarnas at Nāʿīn and Nīshāpūr may suggest that Persian *muqarnas* did not necessarily begin as a structural element; stucco muqarnas designs applied to structural curved surfaces were practiced at least since the 9th century. The stucco muqarnas at Nāʿīn may safely be dated to the 10th century, rather than considered a late addition made by the Saljūqs, as is still argued by some scholars. The earlier dating may be corroborated by the designs painted over the muqarnas cells at Nāʿīn; as at Nīshāpūr, each carries a vegetal design of closed composition, emphasizing the surface division of the stucco cells underneath. This method reflects the basic tendency to surface division characterizing early Muslim

As is discussed above, however, there is no real evidence to confirm this ascription to such an early date and until further investigations enable scholars to clarify the position, it should be considered with care. Nothing has been published on the structure of the Nāʿīn vaults. In particular, it is not clear whether the elongated hexagonal cupola placed at the centre of the *miḥrāb* vault was built in stucco, or merely plastered over. This, together with the unsecure vaults' dating, preclude further discussion here.

aesthetics. Probably made under the Būyids or Kākūyids, the Nāʿīn *muqarnas* is thus another example of a pre-Saljūq *muqarnas*-decorated monument'.

3.2. Saljūq Examples in Iran. Linear *muqarnas*

3.2.1. The Demāvend Mosque

Demāvend is a small town located some 70 km east of Teheran, and some 20 km south of its homonymous mountain. European travellers in the nineteenth century left some descriptions of the town including its ancient mosque, and presented some notes on a small tower immediately to the east of the town, known locally as the 'tomb of Shaikh Shibli'.[328]

As far as the mosque is concerned, it was studied in 1934-35 by M. B. Smith, who surveyed the building, photographed it in detail and recorded its inscriptions.[329] The original building was a mosque of the hypostyle type, organized around a *ṣaḥn* surrounded by galleries, which gave access to the sanctuary through three arches. In his study, Smith was able to identify the ancient parts of the building and its later additions, which essentially complied with the original plan, with the exception of the northeast *riwāq*.[330] Inside the prayer hall he recorded the remains of *muqarnas* decoration, located on both the principal *miḥrāb* and on some of the minor niches which decorated several of the

[328] D. Stronach and T. Cuyler Young, 'Three Seljuq Tomb Towers', *Iran* 4 (1966), pp. 1-20, in particular pp. 1-2.

[329] The results of this study were published in: Smith and Godard, 'Material for a Corpus I'. According to the *Encyclopaedia Iranica* 'the mosque was destroyed and rebuilt in 1337 Š./1958 by a pious notable, who preserved only a few elements from the 11th century', see: B. Hourcade and A. Tafażżolī, 'Damavānd', in EIr (accessed online at 16 September 2014); cf. S. Matheson, *Persia. An Archaeological Guide*, London: Faber, 1972, p. 61.

[330] Smith and Godard, 'Material for a Corpus I', pp. 154-156. Arabic authors used the term *riwāq* to indicate generically 'the space between two rows of pillars', but the term is currently used to indicate a portico open at one side towards a courtyard or garden (See J. Pedersen, R. Hillenbrand et al., 'Masjid', in EI², vol. 6, pp. 644-707).

sanctuary's fired brick piers. He discovered the remains of *muqarnas* on the tympani of two arches, respectively belonging to the eastern and western *riwāq*, facing each other in the northern part of the courtyard.[331]

Regarding the principal *miḥrāb*, it is a niche approximately twice as wide as it is deep, half octagonal in plan, covered by a nine-tiered *muqarnas* vault built in cut fragments of fired bricks, jointed with carved *gač* or gypsum mortar. The vault covers a small area approximately 1.30 metres wide and 0.65 metres deep. In the centre of the composition Smith drew attention to a tri-lobed combination of cells organized according to the same scheme as the squinches of both the Davāzdah Imām Sanctuary at Yazd and the domes in the Iṣfahān Mosque.[332]

Regarding the minor *miḥrāb*s, three of them showed *muqarnas* decoration – pier numbers 5, 12 and 18, of Smith's classification – which the scholar considered noticeably similar to the principal *miḥrāb*'s one, even though the *miḥrāb*s on pier numbers 12 and 18 had been plastered over. A variant of the same type of work decorated the above mentioned *muqarnas* tympani of the courtyard galleries' arches, as well.[333]

As far as dating the monuments, there is no historical or epigraphical notation of the sanctuary's foundation. Relying on the building's

[331] Smith and Godard, 'Material for a Corpus I', figs. 9-10, 13-16, 19-20.

[332] Smith and Godard, 'Material for a Corpus I', pp. 162-164 and fig. 15.

[333] Smith and Godard, 'Material for a Corpus I', in particular pp. 163-164 and figs. 14, 16, 19-20. However, as far as one can judge from Smith's photographs, the *miḥrāb*'s *muqarnas* is far better executed.

features Smith proposed that it was possibly erected in the Saljūq period – on the foundations of a previous mosque, maybe after an earthquake – before the end of the fifth century AH/eleventh century AD or sometime earlier. The 'puzzling incongruities of plan and ornament' which he identified may have become clearer if the builders had reconstructed a primitive mosque copying the Saljūq ornament - which they may have known at Rayy - without really assimilating the 'spirit of the new Saljūq style'.[334]

The epigraphical evidence, studied by Yedda Godard, did not contradict his chronological proposal, as the Kufic inscriptions of the Saljūq phase could be seemingly be ascribed to the fifth century Hijra through stylistic analysis and analogy.[335]

3.2.2. The Demāvend Tower

The monument was first reported in the nineteenth century by some European travellers who mentioned a small tower immediately to the east of the town, locally known as the 'tomb of Shaikh Shibli'. In his travels through Persia in 1934 Robert Byron first photographed the monument and noted its location, but he died during the war before he had a chance to publish anything about it. However, it was his photograph which eventually drew the attention of David Stronach to the monument, and he finally described it, documented it in some

[334] Smith and Godard, 'Material for a Corpus I', pp. 170-171.

[335] Inscriptions on piers 5, 12 and 18 are particularly relevant here, since they decorated the same piers where the *muqarnas* decoration was documented. See: Smith and Godard, 'Material for a Corpus I', pp. 171-173 and figs. 10, 19-20.

detail, and published it in 1966 along with the two mausolea of Karraqān, sited nearby.[336]

The Demāvend Tower is an octagonal building, approximately 10 metres high, with round buttresses at its corners, crowned by an octagonal dome. The interior includes a round chamber (diameter 4.85 metres at floor level) and a small underground crypt. On its exterior, each of its façades is decorated with either rectangular or square panels, showing a wide range of brick patterns, for which the monument is known. Additionally, on the upper part of the entrance façade, over the door, there are twin niches exhibiting *muqarnas* decoration, which is relevant here. These *muqarnas* units are evidently of the same type as those in the nearby mosque, specifically those in the tympani of the *riwāq* arches. In fact, the cells are organized in identical tri-lobed compositions, each resting on the same type of corbel, which appears in plan as being arc-shaped.[337]

Regarding the tower's date, a panel above the entrance may well have held a foundation inscription, but no trace of it remains. However, relying on comparison with other Saljūq monuments – and mostly with the Demāvend Mosque – Stronach proposed to assign the tower to the eleventh century AD, and most probably to the third quarter of this century. In particular, despite their rich variety, the brick patterns used to decorate the monument's façades seem so archaic that it is tempting to propose a pre-Saljūq dating. On the other hand, Stronach considered

[336] Stronach and Young, 'Three Seljuq Tomb Towers', pp. 1-20.

[337] Stronach and Young, 'Three Seljuq Tomb Towers', in particular pp. 3-5; fig. 4; plates IIIb. and IVb.; Smith and Godard, 'Material for a Corpus I', p. 163 and figs. 14 and 16.

the presence of plaster brick-end plugs in many of the brickwork's vertical joints, as well as the two *muqarnas* niches, as definite obstacles to such an early dating. [338]

3.2.3. The commonly named Ṭughril Tower at Rayy

This tower mausoleum was erected in Rayy, an ancient Iranian city now situated within the urban area of south Teheran. The tower is a circular building, composed of triangular flanges, which result in a jagged face on the exterior wall. A three-tier *muqarnas* cornice mediates the transition to the circular base of a supposed dome, of which no trace remains. The building was dated to 534 AH/1139 AD on account of an inscription placed over the south entrance of the tower. However, it has been observed that this inscription may simply refer to the addition of the door to an earlier building. In a recent study, Shani proposed an early eleventh-century date for the tower's construction, because of its 'bold simplicity and plastic strength'.[339]

[338] Stronach and Young, 'Three Seljuq Tomb Towers', pp. 4-6.

[339] Shani, 'The Muqarnas', p. 187, n. 52.

3.3. The squinch

3.3.1. The domed halls of the Friday Mosque of Iṣfahān

The next dated examples of *muqarnas* come from two renowned domes -currently included within the Friday Mosque of Iṣfahān - whose model is considered as the 'hallmark of Saljūq architecture in central Iran'.[340] Ancient travellers and modern scholars have described this monument, which was surveyed archaeologically during the restoration activities carried out during the 1970s.[341] The sum of these studies was published in three volumes by Eugenio Galdieri, who was in charge of these restoration works. These contain photographs, illustrations and

[340] Shani, 'The Muqarnas', p. 178.

[341] For the archaeological investigations, which backed the restoration, see: U. Scerrato, 'IsMeo Acitivities. Archaeological Mission in Iran. Isfahan. Masjed-e Jame', *East and West*, 23: 3/4 (1973), 416-429; U. Scerrato, 'IsMeo Acitivities. Archaeological Mission in Iran. Isfahan. Masjed-e Jameʿ, *East and West*, 24: 3/4 (1974), pp. 416-429; U. Scerrato, 'IsMeo Acitivities. Archaeological Mission in Iran. Isfahan. Masjed-e Jameʿ, *East and West*, 25: 3/4 (1975), pp. 538-558; U. Scerrato, 'IsMeo Acitivities. Archaeological Mission in Iran. Isfahan. Masjed-e Jameʿ, *East and West*, 26: 3/4 (1976), pp. 593-615; U. Scerrato, 'IsMeo Acitivities. Archaeological Mission in Iran. Isfahan. Masjed-e Jameʿ, *East and West*, 27: 1/4 (1977), pp. 451-476; Umberto Scerrato, 'Ricerche archeologiche nella moschea del Venerdì di Isfahan della Missione archeologica Italiana in Iran dell'IsMEO (1972-1978)', in Alfonso Archi (ed.) *Antica Persia. I tesori del Museo Nazionale di Tehran e la ricerca italiana in Iran*, pp. XXXVI-XLIII. Roma: De Luca, 2001. Materials from both the 1970s and recent excavations have been studied recently within the framework of the ADAMJI project (Archaeological Digital Archive for the Masjed-I Jomʿe at Iṣfāhān). Four papers presenting partial results of the project were presented at the 6th International Congress of the Archaeology of the Ancient Near East, see: Paolo Matthiae et al. (eds.) *Proceedings of the 6th International Congress of the Archaeology of the Ancient Near East: 5 May- 10 May 2009. Volume 3: Islamic Session*, Wiesbaden: Harrassowitz Verlag 2010. A monograph on the project recently come out: Bruno Genito and Fariba Saiedi Anaraki (eds.), *ADAMJI Project. From the Excavation (1972-1978) to the Archive (2003-2010) in the Masjed-e Jomʿe, Isfahan*, Teheran: Italian Embassy of Teheran - ICHHTO – IsIAO, 2011.

plans.[342] Among later studies, an important monograph was published in 1990 by Oleg Grabar, dealing with both the history and the significance of the monument.[343]

The early Islamic hypostyle mosque was built during the ninth century, and enriched during the Buyid period (985-1040 AD) with a new court façade, two new minarets and various annexes to the main building, intended for pious purposes. However, the domed halls which are relevant here were added by two rival viziers of the Saljūq sultan, Malik Shāh (r. 1072-1092 AD), namely Niẓām al-Mulk and Tāj al-Mulk, respectively, some decades after the Great Saljūqs conquered Iṣfahān –in 1051 AD– soon returning the city to its former glory.

The commonly named South Dome is the earlier, and was built by Niẓām al-Mulk at the south-western end of the transverse axis of the sanctuary. It is a domed hall of large dimensions built of fired-bricks: approximately 14.30-14.60 metres per inner side, approximately 21 metres on the outer sides, and 27 metres high. A load-bearing wall on the south side of the hall together with eight massive piers support the whole structure. The dome, with a diameter of 15 metres, is sustained

[342] Galdieri, *Iṣfahān: Masǧid-i Ǧumʿa*. Among others, see also A. Gabriel, 'Le Masdjid-i Djumʿa d'Iṣfahān', *Ars Islamica* 2: 1 (1935), pp. 6-44; SPA, vol. 3, pp. 949-964; MAE, vol. I, p. 251; Blair, *Monumental Inscriptions*, pp. 160-167; Sheila Blair and Jonathan M. Bloom, *The Art and Architecture of Islam*, New Haven: Yale University Press, 1994, pp. 53-54; U. Scerrato, 'Sura XXIII 1-6 in a Saljuq Inscription in the Great Mosque at Isfahan', *East and West*, 44: 2/4 (December 1994), pp. 249-257. AA. VV., *Masjed-e Jame of Isfahan. Report for Inscription on the World Heritage List*, Teheran: UNESCO-World Heritage Convention, 2011.

[343] Oleg Grabar, *The Great Mosque of Isfahan*, London: I. B. Tauris, 1990.

by a load-bearing frame of brick ribs intersecting each other in the upper part of the dome.[344]

A *muqarnas* transitional drum mediates the passage from the square hall to the circular dome. Its lower part is composed of four squinches or arched recesses, filled with a *muqarnas* segmented composition, which forms an octagonal register, i.e. the quite usual solution we find in the above-mentioned mausolea. As far as the *muqarnas* is concerned, the cells are disposed in two tiers, behind tri-lobed screens set within outer pointed arches, as in Davāzdah Imām Sanctuary. Yet, the *muqarnas* composition seems here more complex and better handled, especially in the central fraction included between the lateral brackets that give form to the shouldered arch. The passage from the octagon to the springing of the dome is further mediated by eight shallow squinches generating a sixteen-sided base which more effectively integrates the dome with its substructure.

Regarding the monument's dating, the brick Kufic inscription running around the dome's base names both Malik Shāh and his vizier Niẓām al-Mulk who, according to the text, ordered the building's construction. The inscription does not mention a precise date, but relying on the comparative study of the sultan's *laqab*s, Sheila Blair inferred that it was built between the years 479 AH (1086-87 AD) and 480 AH (1087-1088 AD). In particular, the identification of 480 AH (1087-1088 AD) as *terminus ante quem* seems convincing, due to the lack of the title *jalāl al-dawla wa-l-jamāl al-milla*, which was conferred

[344] AA. VV., *Masjed-e Jame of Isfahan. Report for Inscription on the World Heritage List*, Teheran: UNESCO-World Heritage Convention, 2011, p. 18.

by the caliph during Malik Shāh's first visit to Baghdad during the spring of 480 AH (March-May 1087 AD) and was proudly included in most of the sultan's inscriptions and coins thereafter.[345] On the other hand, Blair's suggestion that the building's construction was ordered after 479 AH seems less firm, since she relies on a comparison with the Mosque of Ani's inscription (now in the Turkey's province of Kars, next to the Armenian border), whose dating is likewise unclear.[346]

On the opposite side of Niẓām al-Mulk's dome, on what is currently the north-eastern end of the sanctuary's longitudinal axis,[347] a second domed chamber was built, which is currently known, in the literature, as the 'North Dome of the Iṣfahān Mosque', or else the Gunbad-i Khaki. Indeed, it is a nearly square building which rests on massive piers; it is 20.60 metres high, with approximately 14 metres long exterior sides and between 9.80-10 metres interior sides. The dome has a diameter of approximately 10 metres, is sustained by five couples of ribs

[345] Blair, *The Monumental Inscriptions*, pp. 161-162. On the South Dome, see also Scerrato, 'Sura XXIII 1-6 in a Saljuq Inscription', pp. 249-257.

[346] Blair, *The Monumental Inscriptions*, pp. 158-159.

[347] The domed chamber first stood outside the perimeter of the Abbasid hypostyle mosque, though aligned with it. Its original function is still unexplained, though different suggestions have been made. For instance, see: A. Godard, 'Les anciennes mosquées de l'Iran', *Athar-e Iran*, 1: 2 (1936), pp. 187-210; A. Godard, 'Historique du Masjid-e Djumʿa d'Iṣfahān', *Athar-e Iran*, 1: 2 (1936), pp. 213-282; A. Godard, 'Historique du Masjid-e Djumʿa d'Iṣfahān' (2nd part), *Athar-e Iran*, 3 (1938), pp. 315-327; A. Godard, 'L'origine de la madrasa, de la mosquée et du caravanserail a quatre iwans', *Ars Islamica* 15/16 (1951), pp. 1-9; J. Sauvaget, 'Observations sur quelques mosqueés seldjoukides', *Annales de l'institut d'études orientales*, 4 (1938), pp. 81-120. This issue is summarized in Blair, *The Monumental Inscriptions*, pp. 166-167. See also Lorenz Korn, 'Saljuq Dome Chambers in Iran. A multi-faceted phenomenon of Islamic art', *Archäologische Mitteilungen aus Iran und Turan*, 39 (2007), which analyse the hypothesis of a palatine component of the Seljuk domes.

intersecting in an intricate five-pointed star pattern.[348] Despite the relatively small dimensions, it is one of the most renowned monuments in the history of Islamic architecture, and has been enthusiastically described by numerous scholars.[349]

The building's vertical section is organized according to the usual tripartite system of square room, octagonal transition zone and dome, though in this case there are vertical elements which create a strong connection between the chamber and the transitional zone. As in the south chamber, the transition from the square hall to the circular dome is mediated through a *muqarnas* composition. Its lower part is formed by four squinches or arched recesses, filled with *muqarnas* cells organized in a two-tier composition behind tri-lobed screens set within outer pointed arches. Although more clearly delineated and proportioned, the *muqarnas* work otherwise closely resembles that in the South Dome.[350] As in Niẓām al-Mulk's dome, the passage from the octagon to the dome's springing is mediated by eight shallow squinches

[348] AA. VV., *Masjed-e Jame of Isfahan. Report for Inscription on the World Heritage List*, Teheran: UNESCO-World Heritage Convention, 2011; pp. 24-28.

[349] For instance, see Arthur Upham Pope, *Persian Architecture*, London: Thames and Hudson, 1965, p. 107: 'Aesthetically, the most important unit in the Jameʿ is the small but superlative north dome known as the Gonbad-e Taj al-Molk. This is perhaps the most perfect dome known. Its solemn, memory-gripping power is not a matter of dimensions (65 feet high and 35 feet in diameter), but of design. Every feature has been meticulously studied and after the perfection of a sonnet has been fused into a completely unified whole. Mechanically, it matches the mathematical requirements of the ideal dome. This single-shell dome, having survived without a crack for almost 900 years in a country of earthquakes, testifies to the subtle mathematics and impeccable mechanic of its Seljuq architect'.

[350] Arthur Upham Pope, 'Notes on the Aesthetic Character of the North Dome of the Masjid-i Jāmiʿ of Iṣfahān', in Charles L. Geddes et al. (eds.), *Studies in Islamic art and architecture: in honour of Professor K.A.C. Creswell*, Cairo: The Center for Arabic Studies by the American University in Cairo, 1965, pp. 179-193, in particular pp. 184-185.

giving a sixteen-sided order of pointed arches, beneath the dome. Relying on Myron B. Smith's thesis, Raya Shani has recently pointed out the decorative nature of the *muqarnas* composition filling the squinches of Tāj al-Mulk's dome. Indeed, according to this scholar, despite their structural appearance, the *muqarnas* units, which fill the squinches, are a brick suspended decoration fastened to a wooden armature.[351]

Regarding the monument's foundation, the date of 481 AH (27 march 1088-15 march 1089 AD) can be read, together with the name of Tāj al-Mulk, in a simple Kufic text, made of bricks set in relief, in a single line encircling the interior of the dome's base.[352]

3.3.2. The Mosque of Gulpāygān

This is one of the most important Saljūq monuments of Iran, and has been frequently studied since Arthur Upham Pope discussed it in the *Bulletin of the American Institute for Persian Art and Archaeology* in the 1930s.[353] The mosque is a brick building comprised of a courtyard surrounded by four *riwāqs*, the whole occupying a rectangular area of

[351] Shani, 'The Muqarnas', p. 179: 'Myron Bement Smith observed with regard to the smaller dome that the components comprising the two upper tiers of the system are in fact not integral to the construction; they are brick-revetments suspended from a wooden armature of intersecting arched ribs set into the brick formation behind them to which they are fastened by gach mortar or palm-fibre rope. The upper tiers thus make a false impression of weight-bearing members while in fact they support no real weight'.

[352] Blair, *Monumental Inscriptions*, pp. 158-164.

[353] A.U. Pope, 'The Mosque of Gulpaygan'*, Bulletin of the American Institute for Persian Art and Archaeology,* 3 (1934), pp. 7–8; A. Godard, 'Les anciennes mosques de l'Iran', *Āthār-é Īrān* 1, ii, (1936), pp. 187–210; Lorenz Korn, 'Architecture and Ornament in the Great Mosque of Golpayegan (Iran)', in Lorenz Korn and Anja Heinrich (eds.), *Beiträge zur islamischen Kunst und Archäologie. Hrsg. von der Ernst-Herzfeld-Gesellschaft - bd. 3*, Wiesbaden: Reichert-Verlag, 2012, pp. 212-236;

approximately 75 × 46 metres. The dome chamber, which is relevant here, was inserted into the building close to the *miḥrāb*, after the demolition of a part of the pre-existing hypostyle prayer hall, repeating a model which spread during Saljūq times, following the construction of Niẓām al-Mulk's dome.[354] However, the actual prayer hall has been reconstructed in recent times and the domed chamber is the oldest standing part of the mosque, dated to 508 AH/1114-15 AD, according to the *miḥrāb* inscription.[355]

The common tripartite system organizes the vertical section of the domed hall: a square lower zone, approximately 10 metres on each side and 7.60 metres in height, is built on massive pillars with pointed, stilted arches. As usual, only the *qibla* side of the chamber is an uninterrupted wall. Mediating between the hall and the dome is a zone of transition 5.40 metres high: in each corner of the square chamber the transition to the octagon is obtained through a pointed-arch squinch filled with a *muqarnas* composition. Both the squinches and the wall surfaces in between are framed by tri-lobed blind arches. Eight shallow

[354] Korn, 'Architecture and Ornament' p. 213: 'There is no doubt that it was in the Great Mosque of Isfahan that the first and decisive steps in the history of Saljuq domes were taken. When Niẓām al-Mulk ordered the construction of the *qibla* dome around 479/1086–87, he set an example for dome halls to be constructed in other places on the Iranian highland through the 12th century AD. In many cases, the story was very similar to that of Isfahan: Those parts of an existing hypostyle prayer hall which were closest to the *mihrab* were demolished, and a dome hall was inserted into the building. In most cases, the lateral parts of the prayer hall were left standing, as well as the other wings or *riwāqs* around the courtyard. Evidence for this sequence of events has been produced in Isfahan itself, but can also be seen in the mosques of Barsiyān (with the older minaret still standing at the back of the dome chamber), Ardistān (with some pillars of the older prayer hall preserved within the later brick masonry), Sāva (with parts of the 'Abbasid prayer hall still standing), and Golpayegan'.

[355] Korn, 'Architecture and Ornament', p. 214.

squinches spring from the shoulders of these tri-lobed arches, generating a sixteen-sided support for the dome's circular drum.[356]

The master builder of the chamber clearly demonstrates his knowledge of the Iṣfahān domes, and has designed some decorative solutions copying these prototypes. This seems the case of the tri-lobed-arch frames which enclose both the squinches and the corresponding drum's surfaces in between; or else, the presence of a sixteen-sided order in the transitional zone, just below the dome, as well as the general treatment of the latter. However, the literature draws special attention to the different answers, which were chosen to illustrate several of the building's problems and especially to the *muqarnas* compositions filling the squinches. In fact, the earlier simple composition of large *muqarnas* elements - three or five cells, organized in two tiers behind a tri-lobed frame - became an articulated *muqarnas* work consisting of multiple cells disposed in four tiers behind a multi-lobed frame. Both Shani and Korn have pointed out the remarkable difference between the Gulpāygān dome's squinches and its Saljūq antecedents, the former representing a further advance in the transition corner's surface division, being 'the earliest examples of accomplished "regular" *muqarnas*, with several rows of small cells, as opposed to the compositions of larger niches in earlier buildings, which appear as tentative solutions'.[357]

[356] Korn, 'Architecture and Ornament', p. 215.

[357] Korn, 'Architecture and Ornament', p. 217. In footnotes the scholar indicates, as well, another possible earlier instance: 'Apparently, an inscription at the base of the transition zone in the Great Mosque of Marand has been dated to the 11th century by recent research; personal communication of Robert Hillenbrand 2009'.

3.3.3. The Mosque of Zavāreh, the Mosque of Ardestān, and the influence of the Iṣfahān Mosque's domed halls.

Since André Godard's 1936 study, the Mosques of Zavāreh and Ardestān are often mentioned together in Saljūq architectural literature.[358] Zavāreh was a pre-Islamic city located in central Iran, some 140 km north-east of Iṣfahān, and was an important centre in the Saljūq period. While prosperous in medieval times, today it is a small country village near Ardestān. It is renowned for its medieval monuments, among which is a Saljūq mosque that is usually considered as the earliest dated mosque erected in a single building campaign in accordance with the four-*īwān* plan.[359] Indeed, a date of 530 AH/1135 AD has been established for its construction thanks to a foundation inscription placed on the court façade.[360] This building was designed after a prototype identified as being the Iṣfahān Mosque in its condition after 1121 AD, i.e. after the addition of the North, West and East *īwān*s, when the combination of a domed hall with the four-*īwān* court was established.[361]

As far as the Zavāreh dome chamber is concerned, it is located on the *qibla* side of the prayer hall, behind the south *īwān*. It is square in plan

[358] A. Godard, 'Ardistān et Zavāré', *Athar-e Iran*, 1: 2 (1936), pp. 285-309. For instance, see: X. De Planhol, R. Hillenbrand 'Ardestān', in EIr, (accessed online at 25 August 2014).

[359] In the present work the term *īwān* is used in the meaning of 'a single large vaulted hall walled on three sides and opening directly to the outside on the fourth' (See O. Grabar, 'Īwān', in EI², vol. 4, pp. 287-289).

[360] Godard, 'L'origine de la madrasa, de la mosquée et du caravansérail à quatre īwāns', *Ars Islamica* 15/16 (1951), pp. 1-9; L. Korn, 'Saljuqs vi. Art and Architecture', in EIr, (accessed online at 5 May 2014).

[361] Korn, 'Saljuqs vi. Art and Architecture'.

and closely follows the design of the Iṣfahān prototype, but on a smaller scale. In particular, the *muqarnas* composition on the squinches, the tripartite decoration on the square portions of the drum's wall, between the squinches, as well as the tri-lobed arches' frame and the sixteen-sided upper part of the transition zone repeat that of Niẓām al-Mulk's dome, with only some minor differences.[362]

Ardestān lies around 15 kms away from Zavāreh. It is a small city renowned for its medieval remains, including one of the best preserved Saljūq mosques in Iran. The building contains some remains of an earlier mosque, possibly dating to the Buyids, but it underwent substantial modifications under the Saljūqs and little has survived of the earlier structure. Along with other works, under the Saljūqs a domed chamber was built, which closely resembles that of the Zavāreh Mosque, reiterating -virtually unchanged - some of the Iṣfahān domes' patterns, such as the multiple lower openings and the transition zone. However, both the triple miḥrāb, and in the particular, the chamber's stucco decoration is unusual, compared with that in other Saljūq monuments.[363]

[362] Godard, 'Ardistān et Zavāré', fig. 198.

[363] X. De Planhol, R. Hillenbrand 'Ardestān', in EIr (accessed online at 25 August 2014): 'The dome chamber closely follows the pattern of the Isfahan school in its multiple lower openings and its zone of transition. But its three *meḥrābs* are an unusual feature, as is the use of stucco as a kind of openwork floral embroidery in high relief intended to blend with, not obscure, the underlying brickwork. This plaster decoration makes lavish use of inscriptions and its fresh colors - including purple, yellow, white, and blue - are again hard to parallel in other Saljuq work. This sustained emphasis on color, achieved without recourse to tilework, is best seen in the dome chamber. Here the brickwork, highlighted in red and luminous white, argues continued upkeep over the centuries'.

As far as the chronology is concerned, the Saljūq structure is dated by foundation inscriptions, which give 553 AH/1158 AD and 555 AH/1160 AD, along with the names of both the patron, Abū Ṭāhir Ḥusayn b. Gālī b. Aḥmad and Ustāḏ Maḥmūd Iṣfahānī, who was probably the master builder.[364]

The Iṣfahān Mosque served as a model for other central Iranian mosques. In particular, as mentioned above, it is recognized as being the prototype for the four-īwān typology as well as the domed hall-īwān combination. From this point of view, both the mosques of Zavāreh and Ardestān have been cited as having the closest correspondence to the archetype.[365] In addition, the Iṣfahān domes had a considerable regional influence, becoming long lasting models, which continued to be imitated up until the Ilkhanid period (1256-1335 AD).[366] Indeed, from Zavāreh and Ardestān onwards a number of Saljūq domes were clearly modelled on those of Iṣfahān - especially with regard to their transition zones[367] - deliberately discarding the decorative extravagance of the

[364] X. De Planhol, R. Hillenbrand 'Ardestān'.

[365] L. Korn, 'Saljuqs vi. Art and Architecture'.

[366] Cf. Tabbaa, *The Transformation*, p. 108: 'Such domes continued to be built in central Iran virtually unchanged until the fourteenth century, as for example in the Great Mosque at Veramin, dated 1322-26. In other words, the division of the squinch zone into three or five elements was not taken any farther to produce the divided domes and vaults characteristic of muqarnas. Thus, although the squinch zone was first differentiated in Iran, it does not necessarily follow that the muqarnas dome or portal vault were also first created there'.

[367] B. O'Kane, 'Dome in Iranian Architecture', in EIr (accessed online at 8 August 2014) 'The classic status of this squinch form [in the Niẓām al-Mulk's dome] is clear from numerous copies, not only in the Isfahan oasis (Barsîân, Ardestân, Zavâra), but also in Khorasan (Rebât-e Šaraf) and Transoxania'.

Gulpāygān type, which seems to have remained exceptional, until later dates, in Saljūq Iran.[368]

[368] L. Korn, 'Architecture and Ornament in the Great Mosque of Golpayegan', p. 217: 'The muqarnas-filled squinch was taken up only later and in a different region, e. g. in the Great Mosques of Silvan (Mayyāfāriqīn) and Kızıltepe (Dunaysīr)'.

3.4. The vaults

3.4.1. The mosque of Sīn

Sīn was a medieval caravan station, located some 30 km north of Iṣfahān, which is currently a small village, mostly known for its medieval monuments. Its Saljūq mosque was firstly studied by M. B. Smith in the sixth volume of *Ars Islamica*,[369] though some brief notices on the *manār* of the mosque had been given previously.[370] Smith published a plan of the mosque, a roughly rectangular building organized around a *ṣaḥn*, identifying the Saljūq remains included in the present fabric: the *manār* and the sanctuary, which is almost intact, save for some decoration damage and for the later addition of a masonry *minbar* beside the *miḥrāb*.[371]

The sanctuary is a rectangular hall, constructed in fired bricks, measuring approximately 4 × 5 metres, which may have been a free-standing building originally. The entire chamber is covered by a *muqarnas* vault or dome, built of fired bricks in a herringbone pattern. The *muqarnas* cells are arranged in four corbelled tiers, progressively projecting from the underlying levels. The vaults' corners have tri-lobed *muqarnas* work whose composition reproduces that of the Iṣfahān squinches, with only some minor variation. In the lower tier, these corner tri-lobed compositions are joined together through pointed arches of two different widths: these are relatively narrow at the

[369] Smith, 'Material for a Corpus III', pp. 1-10. The monument's inscriptions were separately published in Miles, 'Epigraphical Notice'.

[370] Smith 'The Manārs of Iṣfahān', pp. 327-329; Smith and Smith, 'Islamic Monuments of Iran', pp. 214-15.

[371] Smith, 'Material for a Corpus III' pp. 1-2 and fig. 1.

shorter sides of the base, and wider on the longer sides. This difference generates a variation in the second tier as well, where double cells correspond to the wider arches. Thus, the two upper tiers of *muqarnas* are disposed according to ten-pointed star patterns, and the whole composition of the vault is crowned by a small hemispherical cupola slightly elliptical in plan.[372]

Thanks to the erosion of the vault's extrados, M. B. Smith was able to document and draw a plan of the brick skeleton, which supports the *muqarnas* vault. According to Smith, the most important elements of this armature are the squinches, along with the couple of big arches, which span the chamber transversally. A couple of segmental arches springing perpendicular to the latter were probably intended to give extra support to the structure. Additionally, in the middle of the two longer sides are wall arches supporting a set of four quadrant or segmental arches, which appear in plan as a rhomboid supporting the cupola. Basing his argument on a modern Iranian construction technique, Smith suggested the possible presence of some wood lintels here, however none remained to document.[373]

Comparing the Sīn *muqarnas* composition with its armature, Smith developed some interesting considerations, which deserve to be reported:

> 'A comparison of the reflected plan with the armature plan reveals amazingly few structural relationships between the armature and the stalactites. Those parts of the stalactite ceiling which do not rest on the side walls or wall arches, or are not cantilevered (with or without the

[372] Smith, 'Material for a Corpus III', p. 3 and figs. 2, 4,19, 21. Cf. Shani, 'The Muqarnas', in particular pp. 180-181.

[373] Smith, 'Material for a Corpus III', p. 3 and figs. 2, 15 and 22.

> help of wood), are therefore pendant from the armature, held by cohesion of the gač mortar or by palm-fiber rope. The stalactites are a revetment; their structural principle is not superimposition but suspension cohesion. Such are the means with which the brilliant effect of the stalactite cupola has been achieved'.[374]

It is important to notice that Smith insisted on the 'squinch expansion' giving an influential interpretation, which was followed by subsequent scholars but – as is discussed below – he disregarded the importance of the rib vaults serving as a necessary substructure for the development of the Iranian type of *muqarnas* vaults.

With regard to the monument's dating, a cursive inscription is contained in a panel, which fills the small arch in the centre of the lower tier of *muqarnas* on the *miḥrāb* side. The early cursive text, written in ten lines on a carved stucco or *gač* panel, records the name of a certain Abū Ghālib Yaḥyā along with the date of 529 AH/1134-35 AD, thus revealing the earliest well-dated Iranian example of a *muqarnas* vault.[375]

The remains of a *muqarnas* balcony can be seen midway up the nearby conico-cylindrical *manār*. Only a single cell survives, belonging to the lower *muqarnas* tier, however parts of a second tier of cells are clearly noticeable. A brick-mosaic inscription at the base of the shaft dates the *manār* to Rajab 526/May-June 1132.[376]

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[374] Smith, 'Material for a Corpus III', pp. 3-4.

[375] For the inscription, see Miles, 'Epigraphical Notice', pp. 11-15.

[376] Smith, 'Material for a Corpus III' pp. 4-5; for the inscription, see Smith 'The Manārs of Iṣfahān', p. 327 and fig. 316; Y.A. Godard, 'Notes épigraphiques sur les minarets d'Iṣfahān', *Athar-e Iran*, 1: 2 (1936), pp. 361-373, in particular pp. 363-364; Miles, 'Epigraphical Notice', pp. 11-12.

3.4.2. Undated Saljūq vaults in the Iṣfahān Mosque

The *muqarnas* vault of Sīn is the earliest dated example of this type. However, it is reasonable to consider it as a chance survival of a model which was established in the Iṣfahān region at that time, and which had been almost certainly developed in the capital. Regarding the origins of the model, Smith and most of the scholars of Persian art subsequently have considered this kind of *muqarnas* as a 'squinch expanded', or an incidental development of the *muqarnas* revetment on the Iṣfahān squinches.[377]

To my knowledge, Smith was the first to describe the decorative nature of the *muqarnas* compositions filling the squinches of Saljūq domes. He was also the first to analyse and draw the ribbed armature of the Sīn vault, finally observing its 'amazingly few structural relationships' with the *muqarnas*. However, these observations led him to mainly focus on the vault's, to a certain extent ignoring the potential role of the structural framework and its origins. In conclusion, he interpreted the *muqarnas* vault as a simple by-product of squinch evolution, and did not attempt to contextualize it, or see it as a ribbed vault, in the evolution of Saljūq vaulted structures.

[377] Smith, 'Material for a Corpus III', pp. 6-8: 'The Sīn stalactite cupola is the earliest actually dated example that I have noted. Its terminal calotte is a vestige of the dome of the traditional Iranian domed cube. Its corner stalactites are the characteristic, trilobed squinch form of the Isfahan district, a form structurally inexplicable until I found its functional, mud-brick prototype. But this complex stalactite cupola of Sin is not functional, nor was its accomplishment possible until the stalactite units had degenerated to revetment. The Isfahan squinch stalactites had reached a revetment stage as early as the great dome of the Djum'a (465-85 H.). I conclude that these Sin stalactites are the Isfahan squinch expanded, not in terms of function, but of form. The brick stalactite cupola, its genesis heretofore enigmatic because of its nonstructural, decorative nature, devolved, in the Isfahan area at least, from the stalactite squinch'.

Unfortunately, apart from the above-described domes of Niẓām al-Mulk and Tāj al-Mulk, hardly any well-dated vaults survive from the Saljūq period. The current Mosque of Iṣfahān, for instance, comprises more than 480 vaulted rooms, which are all different from one another.[378] According to Eugenio Galdieri, up until the 'phase B' of the Saljūq period, all the mosque roofs were almost certainly flat and wooden-made, which means that the conversion to the vaulted rooms happened in the last Saljūq building phase extending over a considerable period, beginning at the end of the eleventh century - and impossible to date precisely. Furthermore, many of the vaults were replaced or reconstructed in later periods, and only a small number of the present structures can be reasonably ascribed to the Saljūq period.[379]

Scholars paid special attention to the ribbed vaults of distinct kinds, surviving in different parts of the mosque. Galdieri subdivided them into 'radial ribbed vaults', which are structurally simpler, and 'non-radial crossed ribbed vaults', in which ribs cross each other leaving free the vault's centre. Structures of this latter type represent an advance over the former and deserve consideration here, being comparable with the Sīn vault's armature. In particular, because of both its formal features and chronological ascription, the most remarkable example of this type is the vault covering bay number 60, belonging to the

[378] Eric Schroeder, 'The Seljūq Period', SPA vol. 3, pp. 981-1045, in particular p. 1029-1035; Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, pp. 77-89. For the various Seljūq phases of the mosque see Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 2, pp. 13-18 and fig. 12 and vol. 3, pp. 19-53. For a more detailed bibliography see above, the paragraph on the Domed Halls of the mosque.

[379] Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, p. 33.

southeastern part of the actual mosque, which is traditionally named the 'library'.[380] The vault is sustained by four pairs of brick ribs, which intersect in an eight-pointed stellated polygon leaving open an octagonal space crowned by a small lantern with a central circular opening used as skylight. The resulting spaces within the ribs are treated as sectors of small spherical domes, alternating with vertical panels, which could originally be windows or else blind niches. In the corners, the panels concealing the space between the ribs are not shaped as simple rounded sectors of spherical dome, but are split by a radial groin.[381]

Bay number 47, belonging to the same part of the mosque and adjoining number 60, is covered by a vault formed by a *muqarnas* composition, which rests on split pendentives and is crowned by an octagonal cupola open at the top. The cells are disposed in two tiers of eight cells. In the lowest tier, cells of big dimensions are used as shallow squinches spanning the corners of the underlying octagonal base created by the pendentives. The cells of the second tier are smaller and jut out beyond those of the first, creating an eight-pointed stellated base for the cupola. The *muqarnas* composition is similar, as a general

[380] Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, p. 54: 'It must be stressed that the quite arbitrary name of library is a traditional one which is, however, supported by a reference by al-Mafarroukhi, according to which the mosque was flanked by a large library. We have used the term solely for the purpose of topographical identification'.

[381] On vault no. 60 see: Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, pp. 79-80, figs. 90-91, pls. 145-147.

arrangement, to that of the nearby bay number 62, which could also be ascribable to Saljūq times.[382]

None of the remaining Saljūq structures in the Iṣfahān mosque is immediately comparable to that of Sīn, because of either formal differences or chronological gaps.[383] On the other hand, the different elements, which were used to finally give form to the Sīn model, were already in use or were developed in the works of the mosque. These structures usefully illustrate the architectural context in which this kind of *muqarnas* vault was created.

From the point of view of surface treatment, *muqarnas* revetments were already in use by the second half of the eleventh century, which is monumentally displayed in the squinches of both the North and the South domes of the Iṣfahān mosque. Some of the vaults built during the Saljūq period show that panels shaped as sections of spherical domes or else proper *muqarnas* compositions were in use at that time, though it is difficult to be more precise about their dating.

At the same time, from the construction point of view, both the radial ribbed vaults and the crossed-rib vaults were in use in the mosque. Both prototypes, could be related, respectively, with the domes of Niẓām al-Mulk and Tāj al-Mulk. The model of interlacing ribs

[382] On vault no. 47 see Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, pp. 54-57, Eric Schroeder, 'Standing monuments of the first Period', in SPA, vol. 3, pp. 930-966, in particular pp. 958-962. On vault n. 62 see SPA, vol. 8, p. 303.

[383] For instance, in the bay no. 183, belonging to the building of the North Iwān, is a vault whose *muqarnas* composition -developed around a central elliptic figure- could be compared with that of Sīn. However, Galdieri ascribed it to the 14th century. One could speculate on whether this *muqarnas* could had been inspired by a no longer existing Seljuk antecedent within the mosque itself (see Eugenio Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, p. 40 and figs. 39-43).

represented a considerable advance over the simple radial prototype and presented the possibility to subsequent designers to develop new kinds of patterns for the surface decoration, including the *muqarnas* vault of Sīn.

3.4.3. Mosque of Nāʿīn

Nāʿīn is a small city, which lies approximately 140 km east of Iṣfahān. The city has one of the most ancient extant mosques of Iran, probably constructed during the tenth century when Nāʿīn –together with Rayy– was the most important cultural centre of Būyid Iran. The mosque was organized according to a traditional hypostyle plan, which subsequent alterations basically respected.[384]

The space over the central bay, in front of its renowned *miḥrāb*, is covered by a rectangular *muqarnas* ceiling, in moulded stucco, which veils the oval brick vault, visible from the exterior of the building. The lower tier of the vault is composed of eight quarter-domical cells, two for each side of the vault, articulated by a series of mouldings, which

[384] The monument was 'discovered' by Henri Viollet, who drew a plan and took a series of photographs in 1912. S. Flury first studied its carved stucco decoration, relying on Viollet's photographs. This material was first published in H. Viollet and S. Flury, 'Un Monument des premiers siècles de l'Hégire en Perse', *Syria* 2: 3 (1921), pp. 226-234, continued in S. Flury, 'Un monument des premiers siècles de l'Hégire en Perse: II. Le décor de la mosquée de Nâyin', *Syria* 2: 4 (1921), pp. 305-316. Among later bibliographies see: Ernst Diez, *Islamische baukunst in Churâsân*, Hagen: Folkwang-verlag, 1923, in particular p. 44, 117 and 124; S. Flury, 'La mosquée de Nâyin', *Syria* 11: 1 (1930), pp. 43-58; SPA, vol. 3, pp. 934-939; S. Blair, 'The Octagonal Pavilion at Natanz: A Reexamination of Early Islamic Architecture in Iran', *Muqarnas*, 1 (1983), pp. 69-94; R. Hillenbrand, 'Abbasid Mosques in Iran', *Rivista degli Studi Orientali* 59 (1987): 175-212; Finster, *Frühe iranische Moscheen*, pp. 209-223; Blair, *The Monumental Inscriptions*, pp. 38-40; Anisi, 'Early Islamic Architecture in Iran', pp. 200-213, figs. 8.1-8.3, plates 8.1-8.16; Shani, 'The Muqarnas', pp. 188-192.

gradually reduce the vault's geometry to an elongated hexagon supporting a small *muqarnas* cupola. Apart from the *muqarnas* composition of the latter, the vault does not give the impression of being true *muqarnas* work as such. However, *muqarnas* cells are used in the lower tier of the vault and a single geometrical grid has been recognized –and conjecturally reconstructed– which seems to underlie the whole vault's composition.[385]

Though it is clear that the mosque underwent successive changes throughout its life, there is no evidence for the secure dating of any part. Under these conditions different hypotheses have been proposed by scholars, mostly relying on the analysis of either the mosque's architecture or its decoration. Henri Viollet, who first described and illustrated the vault, emphasized its architectural poverty and its lack of harmony with the lavish ornamentation of the underlying *miḥrāb*, while Samuel Flury did not analyse it, for his part being mostly interested in the carved stucco decoration.[386] In his contribution for Pope's *Survey* Eric Schroeder considered the *miḥrāb* vault –together with its

[385] For the hypothetical reconstruction of the vault's design process see Shani, 'The Muqarnas', p. 210, fig. 13f.

[386] Viollet and Flury, 'Un Monument des premiers siècles de l'Hégire en Perse', p. 229: 'Cette sorte de calotte qui part directement sur plan rectangulaire, sans 'pendentifs' pour arrondir les angles, déroute le constructeur. Ses parois d'angle montent verticalement comme on peut s'en rendre compte sur la planche XXXI et viennent la sectionner brutalement par des pénétrations horizontales qui défient toutes les règles de la stéréotomie. Ce problème délicat du passage du plan carré au plan circulaire, pour la solution duquel l'architecte oriental a eu recours aux combinaisons les plus variées et les plus heureuses, est ici escamoté. La pauvreté de cette voûte est un peu corrigée par l'inscription d'arcs en ogive qui s'y dessinent gauchement, sans toutefois parvenir à l'harmoniser avec la riche ornementation qu'elle couronne'. Finally, Viollet did not propose any date for the *miḥrāb*. On the other hand, in the Pl. XXVII he published a sketch of the *miḥrāb*'s vault with the caption: '-Détail du Mihrab- Partie la plus ancienne de la mosquée'.

counterpart covering the middle bay of the north-east *riwāq*– as later additions to the original building, ascribing them both to the seventh century AH/thirteenth century AD.[387] On the other hand, some more recent studies which have dealt with the vault's dating, have proposed that it could be contemporary with the carved stuccos decorating the *miḥrāb* and the surrounding part of the mosque, i.e. it may be datable to the tenth century.[388] Raya Shani, for instance, corroborated this idea in a recent study, arguing that the vegetal motives painted over the *muqarnas* are closed compositions, which emphasize the surface division of the stucco cells, as at Nīshāpūr. According to her vision, this 'reflects the basic tendency to surface division characterizing early Muslim aesthetics', which would indicate that the *muqarnas* vault at Nāʿīn may be dated to the tenth century, and that it was probably made under the Būyids or Kākūyids, rather than the Saljūqs.[389]

[387] Eric Schroeder, 'Islamic Architecture. C: Standing Monuments of the First Period', in SPA vol. 3, pp. 930-966, see in particular p. 939.

[388] For instance see B. O'Kane, 'Dome in Iranian Architecture': 'This feature [the *muqarnas* dome] was found in brick at the Saljuq congregational mosque at Sīn, and an example covered with painted plaster in the congregational mosque at Nāʿīn may date from as early as the 10th century'; O'Kane, 'Iran and Central Asia', in M. Frishman and H. Khan (eds.), *The mosque: history, architectural development and regional diversity*, London: Thames and Hudson, 1994, p. 122; Anisi, 'Early Islamic Architecture in Iran', pp. 204-212: 'However, this vault is decorated with painting of a simplicity which might be contemporary with the stucco, so it can be normally attributed to the late of the 4th/10th century [...] This decorative vault also can be noted as an earliest *muqarnas* dome, which is surviving in Islamic architecture'.

[389] Shani, 'The Muqarnas', p. 188: 'The non-structural nature of the stucco muqarnas at Nāʿīn and Nīshāpūr may suggest that Persian *muqarnas* did not necessarily begin as a structural element; stucco muqarnas designs applied to structural curved surfaces were practiced at least since the 9th century. The stucco muqarnas at Nāʿīn may safely be dated to the 10th century, rather than considered a late addition made by the Saljūqs, as is still argued by some scholars. The earlier dating may be corroborated by the designs painted over the muqarnas cells at Nāʿīn; as at

The simplicity of the *muqarnas* design of Nāʿīn, could fit in a date earlier than the thirteenth century AD, suggested by Schroeder. However, there is no clear reason to assign its construction to the tenth century AD. To emphasize the *muqarnas* decorating them with closed compositions fitting within the cells was quite a common practice in the later period, and the validation of the dating through the comparison with the Nīshāpūr paintings relies on an assumed dating of these fragments to the ninth century AD, which cannot be verified, as discussed above. Until further investigations –and hopefully an archaeological analysis of the mosque's standing structures, including the vault– eventually enable scholars to clarify its *muqarnas* dating, any ascription to the pre-Saljūq period should be considered with care.

Nīshāpūr, each carries a vegetal design of closed composition, emphasizing the surface division of the stucco cells underneath. This method reflects the basic tendency to surface division characterizing early Muslim aesthetics. Probably made under the Būyids or Kākūyids, the Nāʿīn *muqarnas* is thus another example of a pre-Saljūq *muqarnas*-decorated monument'.

4. *MUQARNAS* IN EGYPT

4.1. General Observations

The catalogue in this section includes 14 entries for Egyptian monuments with *muqarnas* decoration. These entries are subdivided into two different groups, namely: 'The problem of the earliest examples'; and 'The evolution of the "stalactite pendentive" in Fatimid Egypt'. Later Egyptian *muqarnas* portals, documented from the Bahri Mamluk period (1250-1382 AD), are not discussed here and are included in the section that deals with stone *muqarnas* portals (chapter 7).

4.1.1. The problem of the earliest examples

The first entry is the painted *muqarnas* fragments excavated in 1932 in a *ḥammām* in al-Fusṭāṭ. Researchers have generally agreed on a Fatimid dating for these, basing their argumentation on a stylistic analysis of the painting. However, some scholars have attributed them to the Abbasid period.[390] The entry includes both an analysis of the fragments and a discussion of their historiography. Virtually no comparable wall paintings have survived in Egypt from either the early Islamic or the Fatimid periods, so that these pictorial representations have been compared with similar examples executed on different media, such as paper or ceramics. In turn, this evidence is extremely poor and fragmentary too, and few of these pieces are securely dated. The lack of well-dated comparative material has made any stylistic attribution

[390] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries.

difficult, resulting in divergent interpretations, which must be considered with care. The proposed pre-Fatimid dating for these fragments should be revised, and the only reasonable dating –at least until further investigations can clarify this– seems to rely on the *terminus ante quem* established by the abandonment and burning of al-Fusṭāṭ in 1168 AD.

The second entry is dedicated to a description of the Qarāfa Mosque, as reported by al-Maqrīzī, which is relevant because it contains the description of a painted *trompe l'oeil*, seemingly representing a wooden *muqarnas* ceiling or cornice. Nothing remains of the painting, but the description has great importance, firstly because the painting of a *muqarnas trompe l'oeil* would imply that *muqarnas* was familiar to the painter (observations about wooden *muqarnas* are developed below in this section and in the following chapters of the present work).

The following two entries are, respectively, the cornice on the minaret of the Mosque of al-Juyūshī, in the Muqaṭṭam Hills to the east of Cairo, and a stone *muqarnas* decoration belonging to a rather enigmatic door in the north wall of Cairo, near the *Bāb al-Futūḥ* (but this could be a later addition to Fatimid walls). Both monuments are related to Badr al-Jamālī, the *Amīr al-Juyūsh* (commander of the armies) and vizier of the Fatimid caliph al-Mustanṣir (1036-1094 AD).[391] The cornice at the

[391] On Badr al-Jamālī see Seta B. Dadoyan, *The Fatimid Armenians: Cultural and Political Interaction in the Near East*, Leiden – New York – Köln: Brill, 1997, pp. 107-127. A recent study on Badr al-Jamālī's political power as view by Coptic-Arabic authors (and in particular by the Arabic Apocalypse of Pseudo Athanasius II) has been read by Juan Pedro Monferrer-Sala at the conference at Saint Louis University 'Religious Alterity and Political Power in Medieval Polities', held in Madrid from 10-11 April 2015 (Juan Pedro Monferrer-Sala, '"And the Lord will raise a great emir in a land".

summit of the minaret's first stage is composed of two tiers of brick and stucco *muqarnas*, which is possibly the earliest extant instance of this motive in Egyptian architecture (according to a foundation inscription, the sanctuary was built by Badr al-Jamālī in 1085 AD). The north wall of Cairo is slightly later, belonging to a section of the city's walls that was constructed between 1087 and 1092 AD. Creswell considered that the *muqarnas* decoration is contemporary with the gate's construction and presented this *muqarnas* as the first known attempt to translate the motif into carved stone.[392] However, Professor Behrens-Abouseif, after a recent inspection of this decoration ascribed it to the late Ottoman period, when restoration work was carried out at the wall.[393]

The last entry for this group is the *muqarnas* decorating the façade of al-Aqmar mosque (built in 1125 AD). In particular, above the niches that flank the doorway, *muqarnas* is used to create cornices of four tiers of cells covering two flat niches approximately 1.27 metres wide and 0.25 metres deep. Each tier of the composition seems to have been carved out from a single ashlar block, and the whole composition is achieved by the superimposition of blocks placed at the top of a window. Compared with the stone *muqarnas* compositions, which will be analyzed below in the following chapters, this Egyptian technique reduces, or else avoids the stereotomic problems related to the assemblage of several blocks into a complex composition, which is the usual technique for achieving

Muslim political power viewed by Coptic-Arabic authors: A case in the Arabic Apocalypse of Pseudo Athanasius II'. I thank Professor Monferrer for kindly making this manuscript available to me).

[392] Creswell, MAE, vol. 1, p. 189.

[393] Personal communication (email 20/05/2017).

complex stone *muqarnas* structures in both the Levant and in Sicily. This, along with the slight depth of the *muqarnas* covering the niches (just 0.25 metres deep), is an important indication of archaism.

Creswell considered the 'stalactite cornice' as an Iranian motif most probably transmitted to Egypt through Armenian intermediaries.[394] Bloom, more generically, suggested that whatever its ultimate origins were, the motif was introduced into Egypt via Syria during the building

[394] Creswell, MAE, vol. 1, p. 159: 'This is the earliest existing example of a stalactite cornice in Egypt, but there is a slightly earlier example in Persia - the cornice of the octagonal mausoleum at Abarqūh known as Gunbad-i 'Ali, which is dated 448 H. (1056/7). The next example in point of date is the minaret of Ani in Armenia, built in 465 H. (1073). Then comes the minaret of al-Guyūshī, then the example in the Wall of Cairo next the Bāb al-Futūh, and then the Mosque of al-Aqmar. As the first two examples in Egypt are due to the Armenian Wazīr Badr al-Gamālī, and the next oldest example is in Armenia, it very much looks as if Armenians were the intermediaries whereby this Persian motif was transmitted to Egypt'. It should be noted that there is no evidence for assigning the minaret of Ani to 1073 AD and none of the authors referred to by Creswell, who first studied the monument actually ascribed the minaret to such an early date. *Cf.* Nicholas Khanykov, 'Excursion à Ani en 1848', in Marie-Félicité Brosset, *Rapport sur un voyage archéologique dans la Géorgie et dans l'Arménie*, St. Petersbourg: Imprimeries de l'Académie Impériale de Science, 1849, pp. 121-152, in particular, pp. 138-139; Marie-Félicité Brosset*, Les ruines d'Ani, capitale de l'Arménie sous les rois Bagratides, aux Xe et XIe s. Histoire et description*, St. Petersbourg: Imprimeries de l'Académie Impériale de Science, 1860, pp. 30-31; Henry Finnis Blosse Lynch, *Armenia. Travels and Studies. Vol. 1, the Russian Provinces*, London: Longman, Greens and Co., 1901, pp. 376-377; Josef Strzygowski*, Die Baukunst der Armeniers und Europa*, Wien: Kunstverlag Anton Schroll & Co., 1918, p. 822; Gaston Wiet, *Repertoire chronologique d'épigraphie arabe, tome septième*, Cairo: Imprimerie de l'IFAO, 1936, p. 189. Creswell relied either on an inscription belonging to the congregational mosque, which bears the name of Manuchar, first Muslim prince of Ani between 1073 and 1110 AD, and the name of Malik Shāh (r. 1072-1092 AD), or on a second known inscription from Ani, where the date of 1073 together with the name of a certain Khwāja Ḥamza b. Qubād-shah is actually recorded. However, the latter inscription seems to belong to another mosque. On these epigraphs, see the more recent Sheila Blair, *The Monumental Inscriptions from Early Islamic Iran and Transoxiana*, Leiden: Brill, 1992, respectively pp. 158-159 and pp. 140-141.

campaign of Badr al-Jamālī.[395] However, if we try to illustrate these plausible connections through a comparison of the earliest Fatimid *muqarnas* with their Syrian and Armenian counterparts (minarets of Aleppo and Ani, respectively), a number of difficulties arise. In fact, regardless of the chronological aspect –the mosque of Badr al-Jamālī predates both minarets of Aleppo and Ani– neither the compositional arrangement nor the cells' shape, nor the material employed and the construction technique are comparable.

4.1.2. The evolution of the 'stalactite pendentive' in Fatimid Egypt

This group consists of nine entries including a series of domed Fatimid mausolea and two domes in the Coptic complex of Abū l-Sayfayn, Old Cairo. Emulating Creswell, the evolution of the transitional zone is followed, with special attention to the origins and development of the element that he styled as the 'stalactite pendentive' – the Egyptian counterpart to the Central Asian *muqarnas* squinch. Although in most cases there is no precise evidence for the buildings' dating, Creswell inferred a chronology relying on the buildings' architectural features. In particular, he assigned the whole group to the first third of the twelfth century AD, giving a precise sequence of the buildings based on their

[395] J. Bloom, 'The Introduction of the Muqarnas into Egypt', *Muqarnas*, vol. 5 (1988), pp. 21-28, in particular p. 22: 'in its broad outlines the derivation is clear. New forms appear in Fatimid Egyptian architecture toward the end of the eleventh century. Wherever those forms ultimately originated, they came to Egypt via Syria just at the time when the new vizier Badr al-Jamali, who had been twice governor of Damascus, had embarked on a campaign of major constructions in the capital and had brought builders from Edessa for the purpose'.

evolutionary types.[396] With the important exception of the Mausoleum of Shaykh Yūnus, Creswell's chronological framework is assumed, and it is discussed only where some scholars have expressed major objections to it.

The most relevant considerations on the materials discussed in this group of entries can be summarized as follows:

1) The Egyptian *muqarnas* squinch was developed from the end of the eleventh century; the first documented example being the Mausoleum of Shaykh Yūnus, which was correctly identified with the tomb of Badr al-Jamālī (who died in 1094 AD).

2) In comparing the Egyptian squinches with their Iranian counterparts Creswell concluded that the evolution of the former was an 'entirely local creation' and subsequent scholars agreed with him. Specifically, there are major differences: a) the squinch composition: Fatimid examples lack the outer arch enclosing the whole composition, which is a typical Iranian arrangement; b) the *muqarnas* layout: the compositional arrangement of the cells is different from the Iranian prototype, first documented at Yazd, which eventually became canonical with the domes of Malik-Shāh. In particular, the back of the lower tier in Fatimid compositions is shaped as a central niche, or else a 'small squinch', which is unparalleled in Iranian instances.[397]

[396] Creswell, MAE, vol. 1, pp. 222-224.

[397] Creswell, MAE, vol. 1, pp. 227-228. However, the *muqarnas* layout of Fatimid squinches is similar to that of the Arab-Ata Mausoleum, which was still unknown to

3) I essentially agree with Creswell's opinion that Fatimid *muqarnas* squinches evolved independently from similar Iranian examples. In fact, not only does the Egyptian squinch lack any influence from the canonical Saljūq model (the two domes of the Iṣfahān Mosque), but they also ignored the tendency to squinch fragmentation and to cell multiplication as at Gulpāygān (Fatimid builders were content with two-tier *muqarnas* squinches, and the three-tier composition was introduced only under the Ayyubids).[398]

The theories of both Creswell and Bloom about the origins of the *muqarnas* squinch are discussed. Creswell found in the church of Abū l-Sayfayn, Old Cairo, two domes with examples of 'stalactite pendentives' which he considered to be the first step in the evolution of the model. Yet, his main argument to support the idea that Coptic *muqarnas* was earlier than Fatimid was that it provides, from the structural point of view, a perfect missing link between the simple squinch and the Fatimid *muqarnas* squinch. On the other hand Creswell's dating to the tenth century for the chancel dome of Abū l-Sayfayn is inconsistent with the church's history (Abū Ṣāliḥ expressly states that after the fire of al-Fusṭāṭ in 1168 AD nothing remained of the church of Abū l-Sayfayn, except the walls and a small chapel).[399] As regards the St. George chapel's dome, it

scholars when Creswell completed his study (this similarity was first observed by Shani, 'The Muqarnas', p. 178). The remoteness of this antecedent in both time and space, together with the current lack of any known, or else plausible link between them could suggest that this composition – whose geometry is rather obvious - was obtained independently, by applying a similar motif (*muqarnas*) to the same architectural element (the squinch).

398 L. ʿAlī Ibrāhīm, 'The Transitional Zones of Domes in Cairene Architecture', *Kunst des Orients* 10 (1975), pp. 5-23, in particular pp. 6-7.

399 Creswell, MAE, vol. 1, pp. 231-232.

is ascribable to the restoration promoted by Shaykh Abū l-Faḍl Yuḥannā, who was secretary to al-Afḍal (Badr al-Jamālī's son and successor, as Fatimid vizier, from 1094 to 1121 AD). Thus, the presence of a *muqarnas* zone of transition in this chapel has more to do with promoting relations with the Fatimid court through emulation, than with a supposed Coptic *muqarnas* tradition. Since the chapel was promoted by a prominent personage related to the Fatimid court, it seems reasonable to suggest that the chapel was built in the fashion of the latest Fatimid domes.

The last entry in this group, which is dedicated to the Aswān Mausolea, includes a discussion on an article written by Jonathan Bloom on the introduction of *muqarnas* into Egypt. Briefly, in Bloom's opinion, because of its proximity to the Hijāz, this region was 'the first place in Egypt to receive the *muqarnas* squinch'.[400] In particular, he theorized that domes of the same type as the Imām al-Dawr mausoleum, located in or around Mecca and Medina, were the intermediaries for the transmission of this model from the eastern Islamic lands. These hypothetical domes would link Egypt with the eastern Islamic lands, explaining the appearance of the *muqarnas* squinch in Egypt. He proposed that the peculiarities of the Aswān domes are the result of modest levels of patronage, which prevented skilled artisans familiar with the technique being imported. This compromise would also explain the absence of *muqarnas* squinches in such buildings as the dome of al-Juyūshī or that of al-Ḥāfiẓ in al-Azhar. In fact, according to Bloom, 'muqarnas squinches belonged to vernacular architecture in the Fatimid period, and would have been inappropriate

[400] Bloom, 'The Introduction of the Muqarnas', p. 27.

for buildings commissioned by the court. The architects of Badr and al-Ḥāfiẓ would thus have been thought gauche to include them in their buildings'. [401] However, there are important aspects of Bloom's interpretation that should be reconsidered, since his hypothesis relies on historiographical and archaeological assumptions, which seem rather speculative and need to be revised:

1) The mausolea' chronology. Bloom's theory relies on an eleventh century dating for the Upper Egyptian Mausolea, which is far from clear.

2) There is no evidence for the existence of Hijāzī sugarloaf domes in the eleventh century AD. The passage of Ibn Jubayr that Bloom cites is late and inconclusive in this regard.

3) Bloom's socioeconomic interpretation on the vernacular origin of the Egyptian *muqarnas* squinch, which supposedly made it inappropriate for buildings commissioned by the court, neglected the fact that the caliph himself commissioned an important monument –the mausoleum of Sayyida Ruqayya– which has a *muqarnas* zone of transition that could be considered as 'Fāṭimid-canonical'.[402]

[401] Bloom, 'The Introduction of the Muqarnas', p. 27.

[402] The caliphal patronage of the mausoleum is recorded in the *Miṣbāḥ al-dayājī* by Ibn ʿAyn al-Fuḍalāʾ, who relied on a contemporary author, Muḥammad b. Asʿad al-Jawwānī (d. 1192). The text of Ibn ʿAyn al-Fuḍalāʾ has been published, translated and analysed in Y. Rāġib, 'Les mausolées fatimides'.

4.1.3. Discussion

In the last quarter of the eleventh century *muqarnas* was used in Egypt, in monuments related to Badr al-Jamālī, the *Amīr al-Juyūsh* (commander of the armies) and vizier of the Fatimid caliph al-Mustanṣir (1036-1094 AD). With regard to *muqarnas* compositions, if the formal features of the earliest extant *muqarnas* in Egypt are compared with the origins and development of the Central Asian model, we find no evidence in Egypt for an equivalent formation process. From the beginning, the compositions are handled with a mastery, which suggests that the craftsmen who created Egyptian *muqarnas* were seemingly reproducing, or imitating an extant developed model, which employed small cells disposed in different tiers according to a clear geometric layout.

The cornice on the minaret of Badr al-Jamālī's Mosque (1085 AD), in the Muqaṭṭam Hills to the east of Cairo is composed of two tiers of brick and stucco *muqarnas*, which is possibly the earliest extant instance of this motive in Egyptian architecture. From the point of view of the *muqarnas* composition it is comparable with that of the Gunbad-i ʿAlī. From the construction point of view, however, there is not a direct and clear filiation either from the Gunbad-i ʿAlī, or from other eastern models described so far, since no virtual eastern antecedent of this brick and stucco *muqarnas* work is documented. On the other hand, the evidence analysed so far allows to glimpse at least two possible connections by which *muqarnas* could have been introduced. The first is through an Iranian connection. In this case, the technique was seemingly introduced by craftsmen associated with the atelier responsible for the Iranian style stucco decoration of such monuments as the Mosque of al-Juyūshī, the

commonly named Ikhwat Yūsuf and the Mashhad of Sayyida Ruqayya.[403] The same artists or else other stucco workers belonging to the same group may have realized the cornice of al-Juyūshī in an imported brick and stucco technique whose oriental antecedents are now lost. Within a few years, Egyptian builders familiarized with the principle of *muqarnas* through this technique were later responsible for the development of the Fāṭimid *muqarnas* squinch (less than ten years separate the Mosque of Badr and his tomb, where the *muqarnas* squinch is first documented). This mausoleum is the earliest of a series of seven Fāṭimid monuments, all showing similar *muqarnas* squinches. Here again, there are no plausible direct connections indicating the import of a building technique. In fact, from the construction point of view there is neither a direct, clear filiation from the eastern models of squinches described so far, nor are the Fāṭimid squinches comparable to later Syrian pendentives built in stone. However, there is a clear awareness of the *muqarnas* principle and it is translated into the local building technique without any hesitation.

A second possible way by which *muqarnas* could have been introduced into Egypt is through an Iraqi connection, around the mid-eleventh century. The passage of al-Quḍā'ī (d. 464 AH/1062 AD), describing a painted *trompe l'oeil* in the Qarāfa Mosque perhaps representing a *muqarnas* ceiling or cornice which looked to be made of

[403] On this Iranian connection of Fatimid architecture, *cf.* Creswell, MAE, vol. 1, pp. 221-222; Behrens-Abouseif, *Islamic Architecture in Cairo*, p. 18, p. 54 and p. 67. A specific article on this subject is L. Korn, 'Iranian Style "Out of Place"? Some Egyptians and Syrian Stuccos of the 5-6th/11-12th Centuries', *Annales Islamologiques* 37 (2003), p. 237-260.

wood, would imply that wooden *muqarnas* was familiar to the painter. A contest organized by the Fāṭimid vizier al-Yāzūrī (1050-55 AD) between a local and an Iraqi artist, both working in *trompe-l'oeil* techniques is known from the sources.[404] Other Iraqi artists from Basra, the Banū Muʿallim, and specifically the masters Kutāmī and Nāzūk, are also known in references to *trompe-l'oeil* painting in Fāṭimid Egypt. One could propose that either the painter of the Qarāfa *trompe-l'oeil* was also an Iraqi familiar with wooden *muqarnas*, or that wooden *muqarnas* was actually introduced into Egypt by craftsmen who were called from Iraq together with the painters mentioned above (al-Quḍāʿī explicitly mentions that artists from Basra were among the decorators of the Qarāfa Mosque).[405] A now lost wooden model could be proposed as either alternative or complementary explanation for the familiarity with *muqarnas* demonstrated by Egyptian builders from the first moment.

The dimension of Fāṭimid examples of *muqarnas* seems to confirm that either stucco workers or carpenters were responsible for the introduction of *muqarnas* into Egypt. The cells of al-Juyūshī cornice have been calculated as measuring approximately 30-35 centimeters in height, which is comparable to the dimension of Nīshāpūr cells, as well as later *muqarnas* built in wood or stucco.

[404] Taqiyy al-Dīn Aḥmad al-Maqrīzī (ed. Ayman Fūʾād Sayyid), *Kitāb al-mawāʿiẓ wa-l-Iʿtibār bi dhikr al-khiṭaṭ wa-l-āthār*, (4 vols.), London: Mūʾassasat al-Furqān lil-Turāth al-Islāmī, 2002-2004, vol. 2 pp. 288-294.

[405] Doris Behrens-Abouseif, 'Architectural patronage of the Fatimid caliphs in Cairo', [forthcoming]. I thank Professor Behrens-Abouseif for bringing this information to my attention and kindly making the manuscript of her article available to me.

As regards the carving of first stone *muqarnas* in Cairo, it most probably happened in al-Aqmar, around 1125 AD. The Egyptian carvers did not deal with the problem of assembling several blocks into a complex composition which is the usual technique for achieving complex stone *muqarnas* structures in both the Levant and in Sicily. The *muqarnas* tiers are not carved out from ashlar courses, but from either one or two blocks, so that the whole composition is achieved by the juxtaposition and superimposition of a few blocks placed at the top of a window. The dimension of the cells, approximately 30 centimeters high, confirm that the prototype was either a wooden or a stucco *muqarnas*. There is no evidence in Egypt for an evolution towards the creation of more complex *muqarnas* vaults during the 140 years that elapsed between the foundation of the Aqmar mosque and the earliest documented stone *muqarnas* vaults of the Bahri Mamluk period (the portals of the Madrasa of al-Ẓāhir Baybars and the mausoleum of Zayn al-Dīn Yūsuf in Cairo, dated respectively to 1262-63 and 1298 AD).[406] Fatimid craftsmen in Cairo were content with simple compositions. In stone masonry they avoided complex *muqarnas* structures carved out of multiple blocks and in the transitional zone of domes, they never expanded the two-tiered *muqarnas* pendentives into multiple or more complex compositions. Neither does any *muqarnas* vault survive in Cairo from the Ayyubid period, to suggest a continuity. On the contrary, as will be described in detail in Chapter 7, there is evidence indicating that the earliest *muqarnas* vaults in Cairo are related to the series of more than fifteen

[406] See below, paragraphs '7.1. General Observations'; and '7.3.2. The Portals of Madrasa Ẓāhiriyya and Mausoleum of Zayn al-Dīn in Cairo'.

Ayyubid examples documented between Aleppo and Damascus, and that the introduction of *muqarnas* portals to Cairene architecture is related to the presence of Syrian builders.

As far as *muqarnas* cells are concerned, Egypt created its own variety, whose most representative feature is a unit shaped as a keel-arched niche with a hollow centre and flat back, instead of the eastern spherical triangular cell.[407] This type of *muqarnas* cell was later used either as an independent decorative element –angle corbels, in the recessed panels on the façade of al-Aqmar mosque– or in different kinds of *muqarnas* compositions, such as the pyramidal work above the chamfered corners of al-Aqmar and the squinches of Fatimid mausolea. In addition, keel-arch cells were used in *muqarnas*-influenced decoration, i.e. the stalactite frame of the conch, or the sunrise-motif, at the top of *miḥrābs* and other decorative niches. This kind of element, whose most famous example is the *miḥrāb* of Sayyida Ruqayya, became a typical Cairene decoration, appearing on Fatimid and later monuments.

[407] Creswell, MAE, vol. 1, p. 251.

4.2. The problem of the earliest examples

4.2.1. The al-Fusṭāṭ bath

During the 1930s' excavations carried out by the Egyptian Authorities at al-Fusṭāṭ several painted-stucco architectural fragments were discovered in a *ḥammām* or bath complex located near the sanctuary of Abū l-Suʿūd. Two separate compositions were restored from these fragments, which have been recognized as *muqarnas* decoration.[408] They are currently held in the Museum of Islamic Art in Cairo catalogued under Museum Inventory Number 12880.[409]

The first composition is approximately 60 cm wide and 25 cm high, which includes three cells in a single register.[410] None of the cells is

[408] R. Ettinghausen, 'Painting in the Fatimid Period: A Reconstruction', *Ars Islamica*, 9 (1942), pp. 112-124, in particular p. 121 and figs. 23-24. See also Gaston Wiet, *Exposition d'art persan*, Cairo: Imprimé pour la Société des amis de l'art par l'imprimerie de l'Institut français d'archéologie orientale du Caire, 1935, vol. 1, 75-76, Nos. 1-7, vol. 2, pls. 52-53; Zakī Muḥammad Ḥasan, *Kunūz al- Fāṭimiyīn*, Cairo: Maṭbaʿat Dār al-Kutub al-Miṣriiyya, 1356 H [1937-38 AD], pls. 3-5; Janine Sourdel-Thomine and Bertold Spuler, *Die Kunst des Islam*, Berlin: Propylën Verlag, 1973, p. 202, pl. XXXIV; E. J. Grube, 'A Drawing of Wrestlers in the Cairo Museum of Islamic Art', *Quaderni di studi arabi*, 3 (1985), pp. 89-106; Bloom, 'The Introduction of the Muqarnas', pp. 21-28; D. Behrens-Abouseif, 'Mukarnas', in *Encyclopédie de l'Islam*, P. Bearman, T. Bianquis et al. (eds.), t. VII, Leyden/New York/Paris: Brill, 1993, pp. 501-506; E.J. Grube and J. Johns, *The Painted Ceilings of the Cappella Palatina*, Genova: Bruschettini Foundation for Islamic and Asian Art; New York: East-West Foundation, 2005, p. 118.

[409] Al-Sayyed Muhammad Khalifa Hammad 'Frescoed architectural fragment from a bathhouse' in *Discover Islamic Art. Museum with No Frontiers*, 2014. available online at: http://www.discoverislamicart.org/database_item.php?id=object;ISL;eg;Mus01;2 6;en, (accessed online at 23 October 2014);

[410] See Grube, 'A Drawing of Wrestlers', fig. 3; Ettinghausen, 'Painting in the Fatimid Period', fig. 23; Al-Sayyed 'Frescoed architectural fragment from a bathhouse'. See also 'Painted muqarnas with design of musician' in Qantara. Mediterranean Heritage, available online at: http://www.qantaramed.org/qantara4/public/show_document.php?do_id=803&lang=en, (accessed online at 23 October 2014).

complete, though their nature is clearly recognizable from the photographs. Painted figures are set within pearl-framed borders, which emphasize the pointed arched shape of the cells. They are executed in black and red pigment against a white background. Apart from three or four full circles placed seemingly randomly in the main pictures, the background is plain. Outside the pearl frame, on the contrary, there is a simple, sinuous interlocking vegetal decoration sprouting from both sides of the central niche. The central cell, which is both wider and higher than the flanking ones, is preserved in a fragmentary state, but sufficient remains to identify a picture of a female dancer wearing a long white dress. Parts of the painting, including the upper part of the dancer's body and her face, have been lost.[411] To the right side, inside a smaller cell, there is a cross-legged seated youth, in a three-quarters view, holding a cup or a goblet in his right hand. A white turban covers his head, which is enclosed in a circular halo. He is dressed in a patterned robe with red rosettes or vegetal motifs and a white scarf, wrapped around his back, with both ends visible on each side of his torso, as if floating mid-air. This figure is the best preserved part of the painted composition, while almost nothing remains of the left cell, except for some traces of a pearl-band.[412]

[411] The actual reconstruction of this cell is seemingly wrong. The fragment including the remains of the head's painting has been pasted too near to the dancer's legs leaving no real place for the dancer's face and body. This imply that the shape of the *muqarnas* cell has been erroneously reconstructed as well.

[412] See Grube, 'A Drawing of Wrestlers', fig. 3; Al-Sayyed 'Frescoed architectural fragment from a bathhouse'; 'Painted muqarnas with design of musician'.

The second block includes the remains of three *muqarnas* cells arranged in two tiers.[413] As in the first block, the shape of the *muqarnas* composition is emphasized by means of pearl borders, though the similarity between them ends here. Elaborate interlacing motifs of both geometric and vegetal character, are used to fill the resulting spaces between the cells as well as the background against which the main figures are painted. It is a strikingly different treatment compared with the generally plain background of the first block's cells, and the sinuous and uncomplicated vegetal motif, which decorates the small area between the cells. Besides which, the main figures on the second block are in a fragmentary state, but enough remains to enable additional remarks. The left hand side of the second fragment is composed of two niche-shaped, superimposed cells of equal width. In the upper cell two confronted birds surmounting a vegetal heart-shaped composition are depicted. In the lower cell, immediately beneath, are the remains of a cross-legged seated figure. Less than half of the figure is preserved: the whole of his face is lost, but enough remains to see that the figure was treated in a completely different manner when compared with the paintings of the first block. Here the painter paid attention to the body's details depicting particulars such as the loose ends of the turban's folds that hang to the left side of the figure's head. It contrasts with the elegant

[413] See Grube, 'A Drawing of Wrestlers', fig. 2; Ettinghausen, 'Painting in the Fatimid Period', fig. 24; Bloom, 'The Introduction of the Muqarnas', fig. 4.

economy of the first block, where the continuous outlines only define the major design features, giving little detail.[414]

As regards the fragments' dating, scholars have generally agreed with the Fatimid attribution for the work basing their arguments on a stylistic analysis of the paintings. Only Ernst Grube, in the context of a tentative discussion on the development of the Fatimid figurative painting style, suggested an eighth century date.[415] Such a dating difference illustrates clearly how problematic a stylistic comparison for these paintings can be. Few comparable wall paintings have survived in Egypt from both the early Islamic and the Fatimid periods, so scholars have studied and compared pictorial representations in other media, such as on paper and ceramics. In turn, this evidence is extremely poor and fragmentary too, notwithstanding that very few of these pieces are securely dated. Furthermore, most of the evidence – including al-Fusṭāṭ paintings – comes from old or poorly documented excavations. In this instance it is known that the fragments were excavated in an ancient bathhouse in al-Fusṭāṭ, but the only documentation on the archaeological context is the following note:

> 'Archaeological excavations undertaken by the Centre of Arab Antiquities in 1932 revealed the presence of a Fatimid bathhouse in the region of Fustat. Some of its constituent parts, including this architectural fragment, were transferred and registered as acquisitions of the Museum of Islamic Art in Cairo in 1934'.[416]

[414] See Grube, 'A Drawing of Wrestlers in the Cairo Museum of Islamic Art', fig. 2; Ettinghausen, 'Painting in the Fatimid Period', fig. 24; Bloom, 'The Introduction of the Muqarnas', fig. 4.

[415] For instance, see D.S. Rice, 'A Drawing of the Fatimid Period', *Bulletin of the School of Oriental and African Studies, University of London* 21: 1/3 (1958), pp. 31-39, in particular p. 31; Grube, 'A Drawing of Wrestlers', p. 94.

[416] See Al-Sayyed 'Frescoed architectural fragment'.

Under these conditions, from the archaeological perspective, the only dating possibility relies on the historical fact that al-Fusṭāṭ was reported to be abandoned and burnt in 1168 AD to prevent it from falling into the Franks' hands. This date has been considered as a reasonably secure *terminus post quem* for the bath's destruction during the burning of the city, but provides no date for its construction.[417]

To sum up, the decoration of these *muqarnas* fragments provides a rare surviving example of wall painting in Islamic Egypt. The lack of well-dated comparative materials makes any stylistic attribution difficult, resulting in divergent interpretations, which should be considered with caution. Specifically, Grube's early dating should be revised, at least until further investigations enable us to clarify both the evolution of painting in the Islamic world and the introduction of *muqarnas* into Egypt.[418]

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[417] For instance, see Grube, 'A Drawing of Wrestlers', pp. 93-94; 'Painted muqarnas with design of musician', where the date of 1136 AD, instead of 1168 AD, is erroneously reported.

[418] After I had completed the redaction of this entry on al-Fusṭāṭ's bath, Prof. Behrens-Abouseif mailed me an article by Laylā ʿAlī Ibrāhīm and ʿĀdil Yasīn, which exhaustively collected the archaeological and historical information available on the bath and its surroundings: L. ʿAlī Ibrāhīm and Ā. Yasīn, 'A Tulunid Hammam in Old Cairo', *Dirāsāt al-āthārīyah al-Islāmīyah (Islamic Archaeological Studies)*, vol III (1988), pp. 35-50. The authors assign the building to the Tulunid period, relying on architectural analyses and the study of its location compared with historical sources on the surroundings of the bath. On the other hand, as far as the *muqarnas* fragments are concerned, they draw some conclusions similar to mine (p. 43): 'We have studied these alveoles in plan, elevation and section: they cannot possibly have formed a transitional zone. At best, they might have been part of a polygonal drum or set above corner pendentives similar to those in the Hammam Qalaʿun, asserted by Pauty to be Fatimid. Taking into consideration the restored dimensions of the two types of alveoles and the dimensions of an octagonal transitional zone for the heated rooms, the second type of alveole would barely fit one side of the octagon, and the first type would not fit at all. The alveoles may have belonged to the first room, the oblong room (maslakh) they might be a later addition perhaps part of a later restoration or come from another building altogether. […] These painted fragments

4.2.2. The Mosque of the Qarāfa

According to al-Maqrīzī, this mosque's foundation was ordered in 366 AH/966-67 AD by the mother of the Fatimid caliph al-ʿAzīz. The building was destroyed in the burning of al-Fusṭāṭ, so the historian was reliant on earlier sources for this information. This includes an account of a painted *trompe l'oeil*, perhaps representing a *muqarnas* ceiling or cornice, described by al-Quḍāʿī (d. 464 AH/1062 AD). The text describes a wall painting in which the viewer, from a given point, perceived a stepped relief, apparently projecting outwards from the surface, and looked to be wooden-made and of a *muqarnas* (*kal-muqarnaṣ*) construction. However, moving closer to the wall it became apparent that it was a painting on a flat surface, which the author considered to be the pinnacle of painter's art. As Doris Behrens-Abouseif observed, the painting of such a *trompe l'oeil* would imply that the painter was familiar with *muqarnas*. A contest organized by the Fāṭimid vizier al-Yāzūrī (1050-55 AD) between a local and an Iraqi artist, both working in *trompe-l'oeil* techniques is known from sources.[419] Other Iraqi artists from Basra, the Banū Muʿallim and specifically the masters Kutāmī and Nāzūk, are also known in references to *trompe-l'oeil* painting in Fāṭimid Egypt. One could propose that either the painter of the Qarāfa *trompe-l'oeil* was also an Iraqi familiar with wooden *muqarnas*, or that wooden *muqarnas* was actually introduced into Egypt by craftsmen who were called from Iraq

are the only extant pre-ottoman Islamic wall paintings in Egypt. In the absence of comparative material, one can never assert that they are Fatimid, earlier, or later'.

[419] Al-Maqrīzī (ed. Ayman Fūʾād Sayyid), *Kitāb al-mawāʿiẓ*, vol. 2 pp. 288-294.

together with the painters mentioned above (al-Quḍāʿī explicitly mentions that artists from Basra were among the decorators of the Qarāfa Mosque).[420] The fact that this *muqarnas* was painted as a wooden structure has some important implications, which are discussed in paragraph '4.1. General Observations' and below in the following chapters of the present work.[421]

4.2.3. The Mosque of al-Juyūshī

This monument was built on top of the Muqaṭṭam Hills by Badr al-Jamālī, the *Amīr al-Juyūsh* (commander of the armies) and vizier of the Fatimid caliph al-Mustanṣir (1036-1094 AD).[422] The inscription above the

[420] Doris Behrens-Abouseif, 'Architectural patronage of the Fatimid caliphs in Cairo', [forthcoming]. I thank Professor Behrens-Abouseif for bringing this to my attention and kindly making the manuscript of her article available to me.

[421] Behrens-Abouseif, 'Sicily, the Missing Link'. The cited text is in al-Maqrizi, *Kitab al-suluk li-ma'rifat duwal al-muluk*, 4 vols, Cairo: Lajnat al-Ta'lif wa al-Tarjama wa al-Nashr, 1956-1973 vol. 2, p. 318; a translation of the passage was published in G. Wiet, 'L'exposition d'art persan a Londres (second article)' *Syria*, T. 13, Fasc. 2 (1932), pp. 196-212, in particular p. 201. On the mosque, see also J.M. Bloom, 'The mosque of the Qarafa in Cairo', *Muqarnas*, IV (1987), pp. 7-20; Y. Rāġib, 'La mosquée d'al-Qarāfa et Jonathan M. Bloom', *Arabica*, T. 41, Fasc. 3 (Nov., 1994), pp. 419-421.

[422] M. van Berchem, 'Une mosquée de l'époque des fatimide au Caire. Notice sur le Gāmi al-Goyūshi', *Mémoires de l'Institut Égyptien* (1889), pp. 605-619; M. van Berchem, 'Notes d'archéologie arabe', *Journal Asiatique*, 17 (1891), 411-495, in particular pp. 478-484; Creswell, MAE, vol. 1, pp. 155-160; Grabar, 'The earliest Islamic' pp. 27-28; D. Behrens-Abouseif, *The Minarets of Cairo*, Cairo: The American University of Cairo Press, 1985, pp. 59-60; Y. Rāġib, 'Un oratoire fatimide au sommet du Muqaṭṭam', *Studia Islamica* 65 (1987), pp. 51-67; Farīd Shāfiʿī, 'The Mashhad al-Juyushi: Archaeological notes and studies', in Charles L. Geddes et al. (eds.), *Studies in Islamic art and architecture: in honor of Professor K.A.C. Creswell*, Cairo: The Center for Arabic Studies by the American University in Cairo, 1965, pp. 237-252; D. Behrens-Abouseif, *Islamic Architecture in Cairo. An Introduction*, Leiden-New York-København-Köln, 1989, pp. 66-67.

sanctuary's entrance, at the minaret's base, identifies it as a *mashhad*, without giving any indication as to whose life it commemorates. The same inscription gives the date of Muḥarram 478 AH, together with a list of the founder's titles, which undoubtedly points to Badr al-Jamālī as being the patron.[423]

This small edifice, a rectangle of approximately 18x15 metres, is built around a rectangular courtyard whose dimensions are approximately 5.60 metres long by 6.40 metres wide. The entrance is positioned on the sanctuary's axis, beside the minaret. Both the courtyard and the minaret are flanked by rooms. The prayer hall has a tripartite façade composed of a large keel arch, resting on two pairs of columns, and flanked by smaller arches. Six bays constitute the prayer hall; all covered with cross-vaults except the one in front of the *miḥrāb* that is crowned by a dome on plain squinches, whose diameter is approximately 4.60 metres.[424]

The minaret consists of a tall rectangular shaft integrated in the centre of the façade carrying a narrower square tier with arched openings on each face and chamfered corners. A domed structure with a high octagonal drum, similar to the dome above the prayer hall, surmounts the whole. According to Creswell, the minaret has a total height of 20 metres, and above roof level is built in brick, as are all the vaults, drums

[423] The inscription was first published in van Berchem, 'Une mosquée de l'époque des fatimide'. Initially van Berchem erroneously read 498, attributing the *mashhad* to Badr's son and successor al-Afdal Shahanshah.

[424] Creswell, MAE, vol. 1, pp. 155-160; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 66-67; F. Shāfiʿi, 'West Islamic influences on architecture in Egypt', *Bulletin of the Faculty of Arts. Cairo University*, XVI (1954), pp. 1-49 and pls. 1-17, in particular pp. 12-13.

and squinches. The cornice at the summit of the minaret's first stage is composed of two tiers of brick and stucco *muqarnas*, which are possibly the first appearance of this motif in Egyptian architecture.[425] In its current condition, due to twentieth-century restoration, the *muqarnas* composition does not present a straight façade, but a divided or indented edge.

The *muqarnas* composition and some of the cells' shapes have a visual similarity to the cornice at Gunbad-i ʿAlī (dated to 1056-1057 AD) near Abarqūh, mentioned above. In particular, the lower tier is a straight line of *muqarnas* cells used as jutting brackets alternating with blind arches (or niches). The way in which the cells of the second tier rise from the lower one - spanning the angle between the apex of the bracket and the apex of the blind arch or niche - is the same in both monuments. A horizontal section of the Abarqūh cornice below the third tier would result in an indented edge with a profile comparable with the current remains of al-Juyūshī cornice. Creswell recorded that the stucco workers who repaired the cornice in 1947 suggested that originally there was a further tier of cells, but it was decided not to reconstruct it, since there was no documentary evidence.[426] The plausible presence of a third tier in the original composition would further enhance the similarity with the Gunbad-i ʿAli cornice.

[425] Creswell, MAE, vol. 1, p. 160.

[426] *Cf.* Creswell, MAE, vol. 1, p. 159, note 2.

4.2.4. The Bāb al-Futūḥ

Substantial portions of the walls built by Badr al-Jamālī between 1087 and 1092 AD have survived on the northern side of Fatimid Cairo, including the *Bāb al-Futūḥ*, one of the most famous monuments of Fatimid Egypt and a masterpiece of stone architecture.[427] According to the historical sources, this segment of the new wall was moved northwards to incorporate the mosque of al- Ḥākim within al-Qāhira's walls.

The Bāb al-Futūḥ is a monumental gate flanked by a pair of oblong towers with rounded façades. A stone dome on pendentives covers the passage behind the façade's archway. According to Creswell, the entire structure is 22.85 metres wide, 25.22 metres deep, and 22.33 metres high, including the crenellations at its top. The Byzantine origins of its extensive carved-stone decoration is easily identifiable, and scholars have often claimed a specific North-Syrian provenience for Badr al-Jamālī's master builders and stone masons who, responding to the call of

[427] On the walls and gates of Badr al-Jamālī see: Creswell, MAE, vol. 1, New York: Hacker Art Books, 1978, pp. 161-196; Shāfi'i, 'West Islamic influences', pp. 13-14; Terry Allen, *A classical Revival in Islamic Architecture*, Wiesbaden: Dr. Ludwig Reichert Verlag, 1986, pp. 29-35; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 67-72; N. Warner, 'The Fatimid and Ayyubid Eastern Walls of Cairo: missing fragments', *Annales Islamologiques* 33 (1999), p. 283-296; N. Warner, *The monuments of historic Cairo: a map and descriptive catalogue*, Cairo: American University of Cairo Press, 2004, in particular pp. 72-75, 87-88, 124, 146-147, 173; S. Pradines and O. Talaat, 'Les fortifications fatimides du Caire: Bâb al-Tawfiq et l'enceinte en briques crues de Badr al-Gamâlî', *Annales Islamologiques* 41 (2007), pp. 229-274; J. Den Heijer, S. Pradines, 'Bâb al-Tawfîq: une porte du Caire fatimide oubliée par l'histoire', *Le Muséon* 121 (2008), pp. 143-170; S. Pradines, 'Les murailles de Creswell. Approche historiographique des fortifications du Caire', *Mishkah* 5 (2012-2013), pp. 67-107; S. Pradines, 'The Fortifications of Cairo: The wall of Gawhar, Egypt, Mission Report 2012', *Nyame Akuma* 79 (2013) pp. 4-12.

caliph al-Mustanṣir, had come himself from Syria some years earlier to pacify the Delta at the head of a Syrian army. This well-known decoration includes, classical mouldings, round arches with cushion voussoirs and a row of carved lozenges filled with crosses and rosettes.[428]

In addition, on the inner face of the curtain wall –just below the staircase that runs up to the platform over the gateway– there is a rather enigmatic opening whose stone head is decorated with a *muqarnas* composition. Regarding this element, Creswell only published the following note, without photograph or illustration: 'The latter [window] opens into a shallow recess with a rectangular head enclosing two tiers of stalactites, the second earliest example in Egypt'. To my knowledge, scholars have seemingly ignored this and no further studies have been published to date, apart from a short mention and a photograph given by Bloom.[429] On the other hand, if the decoration is contemporary with the gate's construction, this *muqarnas* is the first known attempt to translate the motif into carved stone, which deserves some further study. Each tier of this composition seems to have been carved out from a single ashlar

[428] Regarding this decoration, see Creswell, MAE, vol. 1, pp. 177-178 and vol. 2, p. 201; J.M. Rogers, 'A Renaissance of Classical Antiquity in North Syria (11th-12th Centuries)', *Annales Archéologiques Arabes Syriennes*, 12 (1971), pp. 347-56; Terry Allen, *A classical Revival*; D. Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 67-72; Y. Tabbaa 'Survivals and Archaisms in the Architecture of Northern Syria, ca. 1080-ca. 1150' *Muqarnas* 10 (1993), pp. 29-41; J. Raby; 'Nur Al-Din, the Qastal al-Shuʿaybiyya, and the Classical Revival' *Muqarnas*, 21 (2004), pp. 289-310.

[429] Creswell, MAE, vol. 1, p. 189; Bloom, *City Victorious*, p. 126 fig. 93 (Bloom agrees with Creswell in attributing it to the Fatimid period). At least two photographs of this feature are now available in the Creswell Archive, at the Ashmolean Museum (negs. EA.CA. 3607 and EA.CA. 3609). However, Professor Behrens-Abouseif, after a recent inspection of this decoration ascribed it to the late Ottoman period, when restoration work was carried out at the wall (personal communication, email 20/05/2017).

block, the whole composition consisting of the superimposition of two blocks used at the head of the window. This is an important indication of archaism, since it is a good way of reducing, or else avoiding the stereotomic problems related to the assembly of several blocks in a complex composition.

4.2.5. Al-Aqmar mosque

This mosque, located in the very heart of the Fatimid Cairo, was built by Ma'mūn al-Baṭā'iḥī, the vizier of the Fatimid caliph al-Āmir (r. 1101-1130 AD). It is a small brick building that is organized around a roughly square court or *ṣaḥn* –approximately 10 metres a side– bounded by three-arched façades corresponding to three *riwāq*s and a prayer hall. Despite its dimensions, the building is of major importance for the city's architectural heritage, especially because some of the peculiar features in its façade inspired several subsequent Cairene buildings. For instance, the façade orientation is dominated by the line of the street while the rest of the building, which is otherwise regular in plan, is properly oriented to the *qibla* direction.[430] Furthermore, it displays a complex decoration, including epigraphic and geometric carvings, symmetrically organized at both sides of the entrance.[431] The meaning of the façade has been

[430] Creswell, MAE, vol. 1, pp. 241-245; Shāfiʿi, 'West Islamic influences', p. 16; C. Williams, 'The Cult of ʿAlid Saints in the Fatimid Monuments of Cairo Part I: The Mosque of al-Aqmar', *Muqarnas* 1 (1983), pp. 37-52; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 72-74; D. Behrens-Abouseif, 'The Façade of the Aqmar Mosque in the Context of Fatimid Ceremonial' *Muqarnas* 9 (1992), pp. 29-38.

[431] The actual aspect of the façade's right wing is mostly the result of a modern restoration, after later buildings that hid it, were demolished. See Warner, *The monuments of historic Cairo*, 2004, p. 94: 'The building has undergone three major

diversely interpreted,[432] but both its lavish decoration and its location –overlooking the main artery of al-Qahira, on the corner of the great esplanade encompassed by the two Fatimid palaces– left no doubt about its substantial importance.[433] Among other decorative motives, *muqarnas* is used on the façade to create cornices above the niches that flank the doorway and corbels above the chamfered corners of the façade. Single cells of *muqarnas* are also used as angle corbels in the recessed panels at both side of the entrance salient.

According to Creswell the *muqarnas* cornices consist of four tiers of cells covering two flat niches approximately 1.27 metres wide and 0.25 metres deep. This cell composition represents an advance compared with both the brick and stucco cornice on al-Juyūshī's minaret and the above-described window head on the north wall.[434] However, here as well, every tier of cells seem carved from either one or two ashlar blocks, which along with the slight depth of the niches, seems to denote a degree of archaism.

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restorations in its history. The first of these was carried out by the amir Yalbugha (a mamluk of Barquq) in AD 1396. The second was executed by the Comité under the direction of Max Herz at the beginning of the twentieth century (including the partial clearance of encroachments from both inside and outside the mosque). The last restoration was that of the Bohra Isma'ili sect in the 1990s, during which the southern half of the façade was rebuilt and much of the mosque's decoration replaced'.

[432] In particular, C. Williams argued that the façade should be seen in the context of an officially sponsored cult of 'Alid martyrs and saints used by Fatimids to generate support for their government. On the contrary, D. Behrens- Abouseif considered that the façade could be related to a specific moment of ceremonial revival rather than to religious doctrine. *Cf.* Williams, 'The Cult of 'Alid Saints, Part I' pp. 37-52 and Behrens-Abouseif, 'The Façade of the Aqmar Mosque', pp. 29-38.

[433] Behrens-Abouseif, 'The Façade of the Aqmar Mosque', p. 30.

[434] Creswell, MAE, vol. 1, p. 242.

Stalactite or *muqarnas* corbels at the exterior corners support the upper part of the wall above the chamfered corners.[435] This device, which is first documented here, was used later on various gates and wall towers in Marrakesh, as well as at the southwest corner of the Madrasa Shuʿaybiyya, Aleppo.[436]

Four single *muqarnas* units are in the recessed panels within the keel-arched niches that decorate the street façade, at both sides of the entrance. They are used as corbels in the upper corner of the recesses. The conch at the top of these niches is composed of flutes emanating from a central medallion, reproducing the central sunrise motif above the mosque's entrance. In the case under discussion, along the arch's edge is a frame composed of a single line of carved *muqarnas* cells. This could be considered as the first step of a *muqarnas*-influenced decoration, from which the stalactite frame on the main *miḥrāb* in the mausoleum of Sayyida Ruqayya derived, amongst others.

Though parts of the inscriptions are lost, the exact date of 519 AH (1125 AD) is recorded in the Kufic inscription which runs beneath the

[435] Creswell, MAE, vol. 1, pp. 242-243 and pl. 84d; Behrens-Abouseif, *Islamic Architecture in Cairo*, p.73. Creswell called this device 'stalactite angle corbel', other names such as '*muqarnas* cutoff' (T. Allen) are also used in literature.

[436] As far as Marrakesh is concerned, see B. Pavón Maldonado, 'Arte, arquitectura y arqueología hispanomusulmana', *Al-Qantara* 15-1 (1994), pp. 201-240; María Marcos Cobaleda, 'Los Almorávides, territorio arquitectura y artes suntuarias', PhD thesis, Granada: Universidad de Granada, 2010, pp. 277-282. However, most of the remaining gates of the city may be dated to the Almohad times or later (Patrice Cressier, 'Les portes monumentales urbaines almohades', in Patrice Cressier, Maribel Fierro et al. (eds.), *Los almohades: problemas y perspectivas*, (2 vols.) Madrid: Consejo Superior de Investigaciones Científicas, 2005, vol. 1, pp. 149-187, see pp. 152-154 and 156-157). Regarding the Madrasa al-Shuʿaybīya see Allen, *A classical Revival*, Wiesbaden: Dr. Ludwig Reichert Verlag, 1986, p. 3 and p. 119, fig. 11.

cornice, along with the names of both the vizier al-Maʾmūn and the caliph al-Āmir.[437]

[437] The inscriptions were first published by M. van Berchem, 'Notes de archéologie arabe' *Journal Asiatique*, tome XVIII (1891), pp. 46-86. See also M. van Berchem, *Materiaux pour un Corpus Inscriptionum Arabicarum*, *1ere Partie, Egypte*, Fascicule I, Paris : Ernest Leroux Editeur, 1894, pp. 67-71 ; Gaston Wiet, *Repertoire chronologique d'épigraphie arabe*, vol. 8, Cairo: Imprimerie de l'IFAO, 1937, pp. 146-147.

4.3. The evolution of the 'stalactite pendentive' in Fatimid Egypt

4.3.1. The Mashhad at Aswān

The Mashhad at Aswān was built on the top of a hill in the Aswān cemetery. Because of its architectural features –size, careful construction, drum and pendentive typology– both Monneret de Villard and Creswell connected it with contemporary Cairene architecture, rather than to a local tradition.[438]

The transition from the square sanctuary to the dome is mediated by four squinches alternating with trefoil windows shaped on the same outline as the squinches. An octagonal drum, pierced by a trefoil window at the centre of each side, springs from this, and is crowned by a brick dome. The squinch composition is organized in two tiers. The lower tier is composed of three cells, the central one being a small niche whose form may be assimilated to the half of a pointed dome on a cylindrical tambour. This central element is flanked by two symmetrical cells of the same height, which work as corbels or brackets, creating the shoulders of the tri-lobed squinches. The upper cell rests on the right-angled triangle determined by the lower composition. At its back is a rib, which is developed towards the apex in a geometric form, which Creswell considered 'one quarter of cross-vault'.[439]

Monneret de Villard dated the building to 1098 AD, using an inscription from Aswān, held in Berlin, which refers to a mosque built at

[438] U. Monneret de Villard, *La necropoli musulmana di Aswān*, Le Caire: Imprimerie de l'Institut français d'archéologie orientale, 1930, p. 36; Creswell, MAE, vol. 1, pp. 222-224; see also Shāfī'i, 'West Islamic influences', pp. 10-11.

[439] Creswell, MAE, vol. 1, p. 228.

that date. However, Creswell verified that the inscription did not fit the empty recess where it was presumed to have been placed originally. This invalidated Villard's dating. Based on an evaluation of the building's architectural features, Creswell suggested an attribution to the first decade of the twelfth century.[440]

4.3.2. The mausoleum opposite the Khānqā of Baybars al-Jāshankīr

Creswell documented a small mausoleum located in Cairo, at the rear of a shop next to the Sharīʿ al-Jamālīya, just opposite the Khānqā of Baybars al-Jāshankīr (1309-1310 AD). It is composed of a square room, approximately 3 metres on each side, and covered by a dome. The zone of transition, which has suffered some minor restoration, was originally an octagonal drum, approximately 1.20 metres high, composed of two-tier *muqarnas* squinches alternating with windows of similar outline. The composition of the squinch is similar to that of the Mashhad at Aswān, but here its profile is flattened, with the arch's height being equal to its width (approximately 1.20 metres). The proportions of the individual *muqarnas* cells are flattened, as well, when compared with those in Aswān. In addition, the lower central cell has a rather different aspect, being formed of two small brick arches set one within other, in a recess. Creswell considered this monument, together with the mausolea of Muḥammad al-Jaʿfarī and Sayyida ʿĀtika, as the 'first step' in development of the *muqarnas* squinch in Cairo.[441]

[440] Creswell, MAE, vol. 1, pp. 223-224.

[441] Creswell, MAE, vol. 1, pp. 227-228.

4.3.3. The mausolea of Muḥammad al-Jaʿfarī and Sayyida ʿĀtika

They are in al-Fusṭāṭ, in the same cemetery as the mausoleum of Sayyida Ruqayya, a few metres away from it. The mausoleum of Muḥammad al-Jaʿfarī is a small domed building, composed of a square room (sides approximately 3.80 metres), covered by a brick dome resting on a transitional zone of special interest, being the 'prototype of the Egyptian stalactite pendentive', according to Creswell. The squinches are almost identical in shape with those of the small mausoleum opposite the Khānqā of Baybars al-Jāshankīr, but the central element in the lower tier is a simple niche. In the intermediate spaces between the squinches there are trefoil windows, with the same profile as the squinches.[442]

The mausoleum of Sayyida ʿĀtika was built against the mausoleum of Muḥammad al-Jaʿfarī, having one wall in common. The transition zone on both domes is identical. Here a greater part of the stucco ornamentation is preserved, including decoration bordering the windows and an inscription in decorated Kufic, just below the zone of transition. The dome has sixteen ribs, which join in a small circle at the top of the dome. Creswell considered it the earliest example of a fluted dome in Egypt,

[442] Creswell, MAE, vol. 1, pp. 228-229; Y. Rāġib, 'Les mausolées fatimides du quartier d'al-Mašahid', *Annales Islamologiques* 17 (1981), pp. 1-30, in particular see pp. 11-18. These mausolea have been sparsely mentioned in other works such as G. Marçais, 'Les échanges artistiques entre l'Egypte et les pays musulmans occidentaux' *Hespéris* 19 (1934), pp.95-106, in particular, p. 99; G. Marçais, *L'Architecture musulmane d'Occident (Tunisie, Algérie, Maroc, Espagne, Sicile)*, Paris: Arts et Métiers Graphiques, 1954, p. 87 note 2 and p. 232; Shāfīʿi, 'West Islamic influences', p. 16; L. Golvin, 'Note sur quelques fragments de plâtre trouvés à la Qala des B. Hammâd', *Mélanges d'histoire et d'archéologie de l'Occident musulman*, (2 vols.), Algiers: Imprimerie Officielle, 1957, vol. 2, pp. 75-94, in particular, pp. 88-91; Grabar, 'The earliest Islamic commemorative structures', pp. 35-36.

apart from those of Aswān, and suggested a North-African origin for the model.[443]

As to the date of these mausolea, Creswell suggested approximately 1100-1120, by comparing their architectonic features with other securely dated Fatimid buildings, such as the Mashhad of Sayyida Ruqayya and the mosque of al-Juyūshī.

4.3.4. The mausoleum of Shaykh Yūnus

The commonly named mausoleum of Shaykh Yūnus is located in the ancient cemetery north of the Bāb al-Naṣr. It has a zone of transition similar to that of the above-described mausolea, but its dimensions are larger (room sides approximately 4.40 metres), and it displays an octagonal drum between the squinches and the dome, similar to that of the Mashhad of Aswān. On the exterior, it shows *muqarnas* brackets crowning its chamfered corners similar to those found in later Fatimid monuments. According to al-Maqrīzī, Badr al-Jamālī was the first to be buried in the north cemetery. Since he died in 1094 AD Creswell considered that the mausoleum was constructed between that date and 1125 AD, but most probably towards the end of this period, due to its architectural features. On the other hand, he rejected the interpretation that it could be the tomb of Badr himself, as was proposed by Ḥassan ʿAbd al-Wahhāb. [444] Yūsuf Rāġib, however, finally confirmed this interpretation citing a map of Cairo dated to 1798, where the mausoleum is marked as 'Zâouyet el-Seyd Badr'. In fact, it was only later that the

[443] Creswell, MAE, vol. 1, pp. 229-231.

[444] Creswell, MAE, vol. 1, pp. 232-234; Shāfīʿi, 'West Islamic influences', p. 14.

mausoleum was 'usurped' and ended up being devoted to Shaykh Yūnus, a historically inconsistent figure, who was venerated as a saint during the nineteenth and early twentieth centuries.[445] This evidence reliably links the first appearance of the *muqarnas* squinch in Egypt to the vizierate of Badr al-Jamālī, who is also associated with the above-described monuments where the earliest extant *muqarnas* in Egypt is also documented (mosque of al-Juyūshī and the Bāb al-Futūḥ).

4.3.5. The Fatimid mausoleum at Qūṣ

This is a rather irregular structure, roughly square in plan, built against the east corner of the congregational mosque of Qūṣ. According to Creswell, the structure of the building has suffered major intrusions, since it was modified to serve as a thoroughfare from a lateral yard of the mosque and giving northeastern access to the sanctuary, by both opening a doorway into the original *mihrab* position and removing the northwestern wall of the mausoleum, where its entrance was evidently placed. Its zone of transition, which is relevant here, has *muqarnas* squinches comparable to those described above. However, this dome is different from all of them, from the point of view of both its architectural details and the general effect achieved. The *muqarnas* composition of the squinches, for instance, has a similar trefoil outline, but the cells that fill the squinches are different. The upper parts of both the squinches and the windows between them are framed and jointed by a continuous

[445] Y. Rāġib, 'Le mausolée de Yūnus al-Saʿdī est-il celui de Badr al-Ǧamālī?', *Arabica* 20: 3 (Oct., 1973), pp. 305-307. See also ʿAlī Ibrāhīm, 'The Transitional Zones' p. 5; Behrens-Abouseif, *Islamic Architecture in Cairo*, p. 66.

moulding. In the spandrels, or resulting spaces, between the heads of the squinches and the windows, are openings in the form of three circles, juxtaposed in the shape of trefoils. Above this zone is a drum composed of a further order of eight pointed-arched windows, alternating with niches or shallow squinches of similar outline, giving a sixteen-sided composition, which is framed by a moulding. The fluted dome rests above this sixteen-sided drum, the ribs or groins between its lobes originate from just above the apex of the niches between the windows. Six-pointed and ovoid openings pierce the lower part of each lobe. From the exterior, projecting from the octagon, four half domes can be seen which correspond with the central element of the lower tier of *muqarnas*. Directly above, rests the sixteen-sided drum, which is concave-sided and has protruding corners resting above *muqarnas*-like brackets. Relying essentially on a comparative study of the transition zone, Creswell dated the monument to 1120-1130 AD, relating its peculiarities to practices observed in Aswān.[446]

4.3.6. The mausoleum of Sayyida Ruqayya

What remains of this building is a tripartite prayer hall, preceded by a portico, which opens directly on to the cemetery. Its original configuration possibly resembled that of the mashhad of al-Juyūshī, including its own courtyard, which no longer exists.[447]

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[446] Creswell, MAE, vol. 1, pp. 236-238. See also Bloom, 'The Introduction of the Muqarnas', pp. 21-28.

[447] On this mausoleum, see Creswell, MAE, vol. 1, pp. 247-251; Rāġib, 'Les mausolées fatimides', pp. 18-30; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 74-75.

A dome resting on *muqarnas* squinches, which is relevant here, covers the central bay of the prayer hall. The *muqarnas* composition is similar to that of the mausolea of Muḥammad al-Jaʿfarī and Sayyida ʿĀtika, but the windows that occupy the spaces between them are strengthened with Y-shaped reinforcers, which divide the trefoil windows in three. Creswell suggested that this device was intended to 'remedy the weakness of the earlier type'. On each face of the octagonal drum, above the zone of transition, there are two windows with a similar profile to that on the drum of the mausoleum of Shaykh Yūnus.[448] Twenty-four ribs converge towards a central circle supporting the fluted dome, which is similar to that of Sayyida ʿĀtika.[449]

The mausoleum's main *miḥrāb* is considered 'one of the greatest masterpieces of the stucco decoration in Egypt';[450] its composition displaying considerable differences compared with the preceding prayer niches. It is relevant here because of the large *muqarnas* frame crowning the fluted conch, which covers the niche. The immediate antecedents of

Some mentions could be found in other works such as: Shāfīʿi, 'West Islamic influences', pp. 16-17; Marçais, AMO, pp. 118 and 247 (on the wooden *miḥrāb*); Grabar, 'The earliest Islamic commemorative structures', p. 36.

[448] 'The curious outline referred to, which recalls a window in the western minaret of al-Ḥākim, is never again employed in Egypt for windows. It resembles that of the panels decorating the inner face of the salients of the Bāb Zuwayla; it may also be seen in the stucco decoration inside the dome at the entrance to the transept of al-Azhar; in the tympanum of the arch under the minaret of Sayyidnā al-Ḥusayn; in the Mosque of al-Ṣāliḥ Ṭalāʾiʿ; and in the great corner tower at the Burg aẓ-Ẓafār. It may also be recognized, slightly modified, in the *mabkhara* finials of thirteenth-century minarets.' (Creswell, MAE, vol. 1, p. 248).

[449] Creswell, MAE, vol. 1, pp. 247-250; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 74-75.

[450] Creswell, MAE, vol. 1, p. 249.

this element are those on the façade of al-Aqmar, but here there are nine pairs of shallow cells enclosed by nine much larger ones which double the fluted edge. The niched conches under the portico are framed by a similar, but rather simpler, *muqarnas* decoration.[451]

A painted Kufic inscription, runs immediately beneath the dome which gives the date of *Dhū l-Qaʿda* 527 AH (September 1133 AD), thus securely dating the mausoleum's foundation and providing an important reference for the dating of the above-described group of Fatimid mausolea.[452]

4.3.7. The mausoleum of Yaḥyā al-Shabīh

In the southern cemetery of Cairo there is a building known as the mausoleum of Yaḥyā al-Shabīh. Its central part is composed of a large domed room, (more than 7.50 metres per side), open on all four sides by a means of keel arches. It is bordered on three sides by a corridor or ambulatory. The dome is bigger than, but similar to, that of the mausoleum of Sayyida Ruqayya, save for the lack of an octagonal drum with twin windows on each side. Internally the zone of transition is almost identical, displaying the same configuration of both the squinches and the windows. On the *qibla* side of the ambulatory, opposite the

[451] Creswell, MAE, vol. 1, p. 249; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 74-75. Later in the Fatimid period this element was adopted in the niches of several sanctuaries, for instance in the mausoleum of Muḥammad al-Ḥaṣawati or the mausoleum of Yaḥyā al-Shabīh. The same decorative element was developed in later monuments such as the madrasa of al-Ṣāliḥ Najm al-Dīn Ayyūb or the mausoleum of Shajarat al-Durr. Also on the minarets of both the madrasa-mausoleum of Sultan al-Nāṣir Muḥammad and the khānqah-mausoleum of Sultan Baybars al-Jashankir.

[452] Creswell, MAE, vol. 1, pp. 250-253.

entrance, is a *miḥrāb* decorated with a *muqarnas*-frame, the area in front of this is covered by a small dome. Creswell assigned the mausoleum to approximately the same period as that of Sayyida Ruqayya, due to their similarities, but a little later, for the more elaborate design of the *miḥrāb*, 'with its quadruple-scalloped edge'.[453]

4.3.8. The church of Abū l-Sayfayn, in Old Cairo

Creswell considered the *muqarnas* squinch as a local creation, and he posited that the first step in its evolution, with all probability, was rooted in Coptic architecture. In particular, he found in the church of Abū l-Sayfayn, Old Cairo, two examples of 'stalactite pendentives' which he considered an 'important missing link' in the evolution of the model. The ancient church was apparently destroyed during the burning of al-Fusṭāṭ in 1168 AD. According to the sources, 'nothing remained except the walls and a small chapel within it, which was not burnt'. However, according to the same source, 'in the upper storey of this church was the chapel of Māri Girgis, with a lofty dome restored by the Shaykh Abū l-Faḍl Yuḥannā […] The dome, the sanctuary that is to say the altar, and the wall of this

[453] Creswell, MAE, vol. 1, pp. 264-268; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 75-76. For some sparse mentions in other works see: Marçais, AMO, p. 87 note 2. A recent study by Bernard O'Kane and Bahia Shehab includes the decipherment of the mausoleum's foundation inscription at the apex of the dome, which bear the names of the Fatimid Caliph al-Fa'iz (r. 1154–1160 AD) and his vizier Salih Tala'i' yielding a narrow range for the building (B. O'Kane and B. Shehab, 'The Mausoleum of Yayha al-Shabih Revisited', in M. Rogers, A. Ohta and R. Wade Haddon, *Art, Trade, and Culture in the Islamic World and Beyond. from the Fatimids to the Mughals. Studies Presented to Doris Behrens-Abouseif*, London: Gingko Library, 2016, pp. 50-57). I thank Dr Rosalind Wade Haddon for alerting me to this publication and kindly sending it to me.

chapel remained intact and undamaged at the time of the fire'.[454] In the chapel of St. George we find the first example of Coptic *muqarnas*, which actually resembles Fatimid examples, and 'may very well have preceded the Muslim type', because it shows some 'rather clumsy and misshapen' details. Regarding its dating, Shaykh Abū l-Faḍl Yuḥannā, who was secretary to al-Afḍal (Badr al-Jamālī's son and successor, as Fatimid vizier, from 1094 to 1121 AD), thus the chapel can be dated between these years.[455]

The second Coptic example is the squinches of the chancel dome of Abū l-Sayfayn's main church. In this case, the dome's squinch was flanked by a pair of *muqarnas* brackets, and its rear occupied by a small niche, exactly as in the standard Fatimid squinch, but without the upper tier. According to Creswell, 'they provide, from the structural point of view, a perfect missing link between the squinch and the pendentives of the six little mausoleums we are studying'. This consideration led him to believe that the chancel dome must be earlier than the chapel of St. George, and ascribed it to the restoration of the Patriarch Ephrahim the Syrian (975-978 AD). On the other hand, the text of Abū Ṣāliḥ soundly disproves this reconstruction. In fact, Creswell assumed that the fire of 1168 AD left not only the chapel of St. George, but the chancel dome as well, rejecting the explicit statement in the text, which minutely described the remaining parts of the complex after the fire. Describing the church, Abū Ṣāliḥ expressly said that nothing remained of Abū l-Sayfayn, except the walls and a small chapel. It is rather problematic to imagine that the same

[454] Creswell, MAE, vol. 1, pp. 231-232. The source quoted by Creswell is Abū Ṣāliḥ.
[455] Creswell, MAE, vol. 1, p. 232.

author who so exhaustively enumerated the undamaged parts of a secondary chapel (St. George), neglected to mention that the dome over the chancel of the main church had survived the fire.[456]

As far as the chapel of St. George is concerned, the presence of *muqarnas* squinches in the transitional zone of its dome must therefore have another explanation, which may be related to personnel within the Fatimid court. Indeed, as noted above, Shaykh Abū l-Faḍl Yuḥannā was employed at court in exactly those years during which the *muqarnas* squinch became a common feature of Fatimid architecture. It seems reasonable to conclude that this dome was built in the fashion of the Fatimid ones, rather than the contrary.

4.3.9. The Aswān Mausolea

Ugo Monneret de Villard was the first to study these ancient tombs and mausolea in the Aswān cemetery during the 1920s. They were subsequently studied by Creswell. The story of the cemetery's destruction –as a result of an exceptional tropical storm– and the systematic removal of its inscribed stelae is well known.[457] Since no record was kept of their original placement, a typological study of the mausolea assumed a crucial importance. Indeed, their chronology had to be hypothesized relying on a typological sequence, whose relative chronology was established thanks to several cases of mausolea

[456] Creswell, MAE, vol. 1, pp. 231-232.

[457] Creswell, MAE, vol. 1, pp. 131-133.

adjoining one another or being superimposed over earlier ones belonging to different types.[458]

A detailed analysis of these types is irrelevant here except for a specific group of mausolea, which according to Bloom, played a significant role in the introduction of *muqarnas* into Egypt. These are the six mausolea which Creswell grouped together due to common characteristics in their zones of transition. According to Bloom's description: 'the actual transition is effected by squinches, but the space between them is occupied by V-shaped recesses with a semi-domed niche above each, these niches extended upwards between the windows which are placed above the squinches. The squinches, the V-shaped recesses, and the semi-domed niches all project externally, their rounded forms producing a very bizarre effect. The whole arrangement may be described as a needless and useless elaboration of type 5 [the previous one in Creswell's classification, in which the transition to the dome is mediated by ordinary squinches]'.[459] According to Creswell, these were late, provincial monuments, and consequently irrelevant for the

[458] See Monneret de Villard, *La necropoli musulmana*; Creswell, MAE, vol. 1, pp. 131-145; Bloom, 'The Introduction of the Muqarnas', pp. 21-28. Since 2006 the Deutsches Archäologisches Institut, in partnership with the Egyptian Ministry of Antiquities and the Technische Universität of Berlin has orchestrated a project of documentation and investigation of the cemetery's development, under the direction of Dr. Philipp Speiser, which included the restoration of some of the mausolea at issue. A study of the grave stelae dispersed in the reserves of different museums was planned, but little information has been published, to my knowledge, up to the present date: P. Speiser, M. Fior (et al) 'Umayyad, Tulunid, and Fatimid Tombs at Aswan', *Sonderschrift des Deutschen Archäologischen Institut, Abteilung Kairo* 36 (2013), pp. 211-220; P. Speiser, 'Die frühislamische Nekropole von Assuan, Die Arbeiten der Jahre 2012 und 2013', *e-forschungsberichte des deutschen archaeologischen institute*, faszikel 2 (2014), pp. 21-25.

[459] Creswell, MAE, vol. 1, pp. 136.

development of *muqarnas* in Egypt; Bloom disagreed, proposing a different hypothesis, that will be discussed below.

The American scholar observed that *muqarnas* was used in Egypt to accomplish three different functions: to separate parts of a building (as in the cornice on the minaret of al-Juyūshī); to fill spaces with a decorative motif (as in al-Aqmar niches); to form transitional elements. In fact, while an outside influence for the linear use of *muqarnas* can be traced easily, Bloom agreed with Creswell in considering that the evolution of the *muqarnas* squinch in Egypt was an 'entirely a local creation' and developed independently from that in Iran.[460] However, Bloom found Creswell's suggestion that Coptic churches were the first step in this evolution from the simple squinch to the 'stalactite

[460] 'The technical mastery with which stalactite vaulting was used from the beginning suggests that the developed technique was imported wholesale from elsewhere. Neither the Juyushi cornice nor the Aqmar façade can represent an artisan's first attempt at making it. The facts surrounding the reintroduction of stone architecture to Egypt and the contemporary historical situation suggest that some outside influence was at work in both these buildings. Syria is the most likely conveyer, but few monuments remain there from this period. The minaret of the Great Mosque of Aleppo is only five years later than Badr al-Jamali's in Cairo, and also has a cornice of stalactites: perhaps they both stem from a common source. Since the muqarnas on the Aqmar façade do not derive from the Juyushi cornice, we may imagine a similar Syrian source, but lacking other monuments for comparison, the question must remain open. Nevertheless, in its broad outlines the derivation is clear. New forms appear in Fatimid Egyptian architecture toward the end of the eleventh century. Wherever those forms ultimately originated, they came to Egypt via Syria just at the time when the new vizier Badr al-Jamali, who had been twice governor of Damascus, had embarked on a campaign of major constructions in the capital and had brought builders from Edessa for the purpose. In only one case did the muqarnas originate in Fatimid Egypt. Creswell traced the development of the "stalactite pendentive" in Egypt and concluded that it was entirely a local creation, quite distinct from the stalactite squinch as it developed in Iran (e.g., the north dome of the Masjid-i Juma in Isfahan)'. (Bloom, 'The Introduction of the Muqarnas', pp. 21-22).

pendentive' unconvincing. In its place, he suggested that the Aswān mausolea were the intermediaries in this transmission process.

Regarding the mausolea's chronology, Bloom observed that both Monneret de Villard and Creswell proposed a later dating for them which was inconsistent with the majority of the inscriptions. In fact, Monneret de Villard observed that 559 out of 600 inscriptions were prior to the eleventh century AD. Yet, the Italian scholar's opinion was that these mausolea were possibly built between the eleventh and thirteenth centuries.[461] Creswell substantially agreed with Monneret de Villard's conclusions, except he did attempt to be more precise with the dating. In particular, he reasoned, if he was right in dating the Mashhad of Aswān to the first decade of the twelfth century AD,[462] this was a reliable *terminus ante quem*, 'on account of its zone of transition, which represents a later stage of evolution than any of the other devices found in the cemetery'.[463] Bloom assumed this dating, and in addition he associated the building with a period of prosperity for Aswān, due to its importance as an entrepôt on the commercial and pilgrimage routes.[464] For instance he cited both Nāṣir-i Khusraw (1004-1088 AD) and Ibn Jubayr (1145-1217 AD) attesting that the city, together with ʿAydhab and Qūṣ, 'were all substantial towns, with economies founded on the

[461] Monneret de Villard, *La necropoli musulmana*, p. 51.

[462] Creswell, MAE, vol. 1, p. 224, (see above: *The Mashhad at Aswān*).

[463] Creswell, MAE, vol. 1, p. 138.

[464] 'The number of tombstones salvaged from Aswan's cemetery indicates that a Muslim community flourished there in the middle of the ninth century, but Aswan's real prosperity came in the eleventh century when the Fatimids were unable to control the commercial and pilgrimage routes along the Red Sea'. (Bloom, 'The Introduction of the Muqarnas', p. 23).

tourist trade […] Hardly the sleepy backwaters which later geopolitics has made them, these cities were important entrepots through which virtually all Egyptian and Maghribi pilgrims and merchants would pass and return'.[465]

Briefly, in Bloom's opinion, because of this close relationship with the Hijāz this region could have been 'the first place in Egypt to receive these new architectural ideas [the *muqarnas* squinch]'. In particular, he theorized that domes of the same type as that of the Imām al-Dawr mausoleum, located in or around Mecca and Medina, were the intermediaries for the transmission of the model from the eastern Islamic lands. Bloom gave the example of the Bāb Ibrāhīm, the annexe to the Masjid al-Ḥarām built under al-Muqtadir –caliph from 908 to 932 AD– described by Ibn Jubayr:

> 'Over the portal is a large dome (*qubba*), remarkable because it is almost as high as the adjacent minaret (*sawmaʿa*). Its interior is covered with marvellous plaster work and *qarnasi* carvings which defy description. The exterior is also made of carved plaster, resembling interlaced column drums'.[466]

Which he commented:

> 'Perhaps Ibn Jubayr used the word *qarnasi* here to mean "intricate work," for he uses the same word to describe the carvings on the minbar of Nur al-Din, then in Aleppo. But it is tempting to imagine that he was trying to describe a muqarnas dome such as remains over the tombs of Imam Dur and Hasan al-Basri in Iraq. No Hijazi examples are extant, but one can easily imagine that the type might have been used in buildings other than the Bab Ibrahim dome, such as the numerous tombs and shrines which both Nasir-i Khusraw and Ibn Jubayr described around Mecca and Medina. The existence of these hypothetical domes would

[465] Bloom, 'The Introduction of the Muqarnas', pp. 26-27.

[466] Bloom, 'The Introduction of the Muqarnas', p. 27.

> link the development of muqarnas vaulting in the eastern Islamic lands with its sudden appearance in eleventh-century Egypt'.

Regarding the peculiar aspect of the Aswān domes, Bloom considered that it depended on the modest level of patronage, which made the bringing of artisans familiar with the technique into the region impossible. As a result, 'local workers had to do the best they could with what they had, thereby explaining both the crudeness and the fantastic elaboration of the domes. These odd domes are, then, Upper Egyptian vernacular interpretations of the muqarnas domes and squinches that pilgrims had seen in the Hijaz'. This humble origin would explain, as well, the absence of *muqarnas* squinches in such buildings as the dome of al-Juyūshī or the dome of Al-Ḥāfiẓ in al-Azhar. In fact, 'muqarnas squinches belonged to vernacular architecture in the Fatimid period, and would have been inappropriate for buildings commissioned by the court. The architects of Badr and al-Ḥāfiẓ would thus have been thought gauche to include them in their buildings'.[467]

There are important aspects of Bloom's interpretation that should be reconsidered, since his hypothesis relies on historiographical and archaeological assumptions, which seem rather speculative and need to be revised. With regard to the mausolea's dating, there is no proof that they were built in the eleventh century. Indeed, Creswell dated them through a typological study of their zones of transition, creating a sequence of groups which relies on the principle that 'evolution is

[467] Bloom, 'The Introduction of the Muqarnas', p. 27.

admittedly from the simple to the complex'.[468] Because of its elaboration, he assumed that our group came last, just before the Mashhad of Aswān was built, in the first decade of the twelfth century, which supposedly represented the last stage of evolution found in the cemetery. However, one should not forget that Creswell's dating of the Mashhad, in turn, did not rely on objective proof, being rather speculative as well.[469] Moreover, a few chapters later in his description of the Mashhad of Aswān, he recognized that this was not a local, provincial development, being soundly alien to the local building tradition and obviously connected to the architectural mainstream of Cairo.[470]

Regarding the importance of Upper Egypt as an intermediary for the transmission of the *muqarnas* squinch, if one admits the existence of Hijāzī sugarloaf domes in the eleventh century AD, which has yet to be proven,[471] their relevance in the evolution of the *muqarnas* squinch in Egypt remains unclear. In particular, Bloom's socioeconomic interpretation that the architects of Badr and al-Ḥāfiẓ discarded the stalactite squinch for its vernacular connotation, which made it 'inappropriate for buildings commissioned by the court' is unsupported.

[468] Creswell, MAE, vol. 1, p. 135.

[469] Creswell, MAE, vol. 1, pp. 135-136.

[470] 'This Mashhad, which crowns the summit of the hill in front of the Cataract Hotel, is by far the most important building in the cemetery of Aswan, being differentiated from all the others not only on account of its size and careful construction, but by its pendentives and its drum, the sides of which are flat instead of concave, and do not curve outwards at the corners. As Monneret has emphasized, it is connected with the contemporary architecture of the capital and is not related to the traditional local school'. (Creswell, MAE, vol. 1, p. 222).

[471] For instance, regarding the text of Ibn Jubayr - apart from the inherent difficulty of deducing architectural forms from the written sources - it is problematic to prove that the Andalusi traveller was describing in 1183 the same decoration that al-Muqtadir's governor in Mecca had sponsored almost two centuries earlier.

In fact, as far as the mosque of al-Juyūshī is concerned, the *muqarnas* squinch could not be deliberately discarded simply because it did not exist in Egypt yet. At the time when al-Ḥāfiẓ's dome was built at al-Azhar, on the other hand, the *muqarnas* squinch had already been in use for some decades. However, there is no reason for arguing that it was inappropriate for a building commissioned by the court. The mausoleum of Sayyida Ruqayya, for instance, has a *muqarnas* zone of transition, which we could consider as canonical. Not only was it built at approximately the same time as al-Azhar's dome, but it was commissioned by al-Ḥāfiẓ himself.[472] Thus, the choice of the simple squinch in al-Azhar dome must have another explanation. At any rate, that the *muqarnas* squinch was already in use does not mean that every single dome built at that time must have had a *muqarnas* zone of transition.

To conclude, although I agree with Bloom that the mausolea of Aswān could be vernacular interpretations – made by local builders unfamiliar with the technique – of some kind of *muqarnas* dome or squinch, I think his conclusions should be considered with caution. In any case, with regard to the evolution of the *muqarnas* squinch in Egypt, Creswell was seemingly right in considering them irrelevant. The results of the German investigations may perhaps enable us to clarify their dating, along with other questions that currently remain open.

[472] The caliphal patronage of the mausoleum is recorded in the *Miṣbāḥ al-dayājī* by Ibn ʿAyn al-Fuḍalāʾ, who relied on a contemporary author, Muḥammad b. Asʿad al-Jawwānī (d. 1192). The text of Ibn ʿAyn al-Fuḍalāʾ has been published, translated and analyzed in Y. Rāġib, 'Les mausolées fatimides'.

5. *MUQARNAS* IN SYRIA

5.1. General Observations

This section's catalogue includes 20 entries, all Syrian monuments displaying *muqarnas* decoration. The entries are subdivided into two different groups, namely: 'The earliest examples'; and 'The stone *muqarnas* pendentive in Syria'. The famous stone *muqarnas* portals of Aleppo and Damascus are not discussed in this chapter, but in the following one, which is specifically dedicated to the topic of stone *muqarnas* portals.[473]

5.1.1. The earliest examples

The first catalogue entry describes a wooden ceiling in the Damascus Great Mosque, described by Ibn Jubayr in 1184 AD apparently placed on the axial nave supporting the dome, in a position that is not easy to understand (the term *bayna-hu wa-bayna-hā*, is used, being unclear as to which elements of the mosque both possessive pronouns refer). The ceiling was decorated with stucco (*samā' jass muzayyina*) and assembled within it were countless pieces of interconnected wood, arching and surmounting each other, in an amazing way.[474] This description immediately calls to mind a similar technique to that used in the *muqarnas* ceiling of the Cappella Palatina in Palermo, which is described below in Chapter 8. The Damascene ceiling was most probably built

[473] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries.

[474] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, pp. 292-294.

following the fire of 1069 AD, perhaps one of the known works executed under the government of Tutush (1079-1095 AD).

The second entry deals with the recently destroyed minaret of Aleppo's Friday mosque (1094-1095 AD) and, more specifically, with the *muqarnas* or *muqarnas*-like cornice, which crowned it. The cornice was composed of three tiers of small corbelled arches –if not shallow niches– executed in relief, arranged in straight lines, positioned above the minaret's façade decoration. All of the cells are disposed in the same direction, without any rotation, except the corner cells, which are rotated by 45°. The different tiers progressively project outwards one above the other and the cells of the second tier spring from the apexes of the underlying elements creating a simple vertical alternation. It seems clear that the builder deliberately imitated a *muqarnas* construction, providing one of the earliest documented attempts to transpose the motif into stone.

As mentioned above, this cornice differs from the stone *muqarnas* found on al-Aqmar's façade in several respects and formal analysis does not identify a direct connection between the two.

In the next entry two capitals flanking the *miḥrāb* of the Maqām Ibrāhīm at al-Ṣaliḥīn, Aleppo (505 AH/1112 AD) are described. After this, there is a gap of almost forty years until *muqarnas* is documented again in Syria. This could be due to less intense artistic production, perhaps related to military activity with an increased Crusader threat, or may simply be the result of a distorted picture due to a lack of remaining evidence. The next few examples of Syrian *muqarnas* are catalogued in the following entries: the *muqarnas* corbel above a corner chamfer of the

Madrasa Shuʿaybiyya, Aleppo (built after 545 AH/1150-1151 AD); two capitals decorating the portal of the Madrasa Halāwiyya, Aleppo (1149 AD); and the flat stucco *muqarnas* cornice decorating Turba Najmiyya, Damascus (plausibly built after 543 AH 1148-49 AD).

This section also includes two major Damascene examples of *muqarnas* belonging to the Māristān of Nūr al-Dīn (dated to 549 AH/1154 AD) and the Madrasa of Nūr al-Dīn (approximately dated to the lustrum preceding 1172 AD). In both these monuments the peculiar type of *muqarnas* vault, which is commonly named a 'sugarloaf dome', is used. However, the former has a rather clumsy and tentative aspect, while the latter seems to be built more methodically.

According to Herzfeld, the *madrasa*'s vault was built on a geometrical grid, whose basic ratio was obtained by the subdivision of the vault's diameter into six equal parts, while the *māristān*'s vault was built empirically, without an underlying geometrical framework. However, submitting both vaults to the same geometric grid it seems that the *muqarnas* composition of the *māristān* vault also relies on a clear geometrical system, similar to that of the *madrasa* though it is less explicitly emphasized (see fig. 6). In particular, a grid based on the vault's diameter subdivision into six equal parts clearly coincides with vital points of the *muqarnas* composition. For instance, the sixteen-sided stellate base for the mini-dome, which crowns the *māristān* vault, is generated by an imaginary circle whose diameter forms one-third of the vault's side. Additionally, in the *madrasa*'s vault, at two-thirds from the centre, the *muqarnas* composition presents straight fronts, which form an octagon in plan, regular but for four small appendages, developed

towards the vault's corners. In the *māristān*, at two-thirds from the centre, a square underlies the muqarnas composition, as well. Although in this case there are no straight fronts drawing it, there are four clear right-angled pairs of niches, which unmistakably mark a square whose sides measure exactly two-thirds of the vault's side. This geometric subdivision depends on the same principles exactly that Herzfeld observed in the *madrasa*'s scheme, except that in the latter the fronts of the *muqarnas* tiers are physically shaped on the geometric figures. In the *māristān*, the same circle and the same square are recognizable, although they are concealed systematically –and perhaps deliberately– behind stellated polygons or indented fronts. This correspondence between the two vaults can hardly be fortuitous and indicates, beyond the visual similarity, that they belong to the same tradition, and in particular that the *madrasa*'s vault is derived from that of the *māristān*.

The next entry is the transition zone of the Mausoleum of Ibn al-Muqaddam, Damascus (most probably built during the second half of the twelfth century), which shows a double order or drum of *muqarnas* cells built in stone and covered by stucco decoration. The passage from the square room to the base of the drum, which is dodecagonal, is mediated by segmented pendentives. The angles of the dodecagon are spanned by large *muqarnas* cells, alternated with brackets that form the base of the upper tier, which is also dodecagonal. The cells of the second tier have the same disposition and geometry as the first, but sensibly smaller dimensions. The bases of both orders are rotated by 15° relative to one another, so that the cells of the upper tier spring from the apex of the lower. The geometric system underlying the *muqarnas*, is based on

superimposition, with simple rotations, of similar concentric polygons, as in the Imām al-Dawr dome (the same system was used in contemporary and later portals, which are describe in chapter 7).

The final entries, are dedicated to some minor and later examples of *muqarnas*, such as the *miḥrāb* of the Mosque of the Ḥanbalīs or Muẓaffarī Mosque, Damascus (possibly built at the beginning of the thirteenth century); the dome of the mosque in the Madrasa Sharafiyya, Aleppo (built before May 1205); the sparse *muqarnas* decoration displayed in various parts of the Damascus Citadel (the monumental vault that covers the East Gate is discussed in Chapter 7, dedicated to stone *muqarnas* portals); the *muqarnas* capital in the Lower Maqām Ibrāhīm, Aleppo (possibly dated to 619 AH/1219-20 AD); and two corbels or consoles in the Upper Maqām Ibrāhīm, Aleppo (609 AH/ 1213 AD).

5.1.2. The stone muqarnas *pendentive in Syria*

The documented examples indicate that *muqarnas* was in use to decorate domes, such as that in the Turba Najmiyya, around the middle of the twelfth century AD, the Mausoleum of Ibn al-Muqaddam, during the second half of the same century, or the dome of hall B10, Damascus Citadel, beginning of the thirteenth century. In the foremost case, two orders of squinches alternating with windows with a similar profile mediate the transition from a square to the sixteen-sided base of the cupola. Beneath this transition zone is the above-described flat stucco *muqarnas* decoration, but this *muqarnas* was not used as a transitional device. In the Mausoleum of al-Muqaddam, the real transition is carried out through the pendentives, which create the dodecagonal base. The

two tiers of *muqarnas* units reduce the width of the base supporting the twelve-lobed cupola, but do not create any variation in the dodecagonal geometry generated by the pendentives. *Muqarnas* is used in a similar way, but on a larger scale, in the drum of the dome in hall B10.

From the late twelfth century, at least, true *muqarnas* pendentives were used in the zones of transition of Syrian monuments, which are described in the eight entries included in the following section: Madrasa Shādhbakhtiyya; the Mashhad al-Muḥassin; Mashhad al-Ḥusayn; the Madrasat Abī l-Fawāris, Maʿarrat al-Nuʿman; the Madrasa Ẓāhiriyya; the Madrasa Kāmiliyya; the Madrasat al-Firdaws; and the Khānaqā of Dayfa Khātūn. All these monuments are located in Aleppo and its surroundings, or else in the nearby region (Madrasat Abī l-Fawāris). This Aleppine manner of creating the *muqarnas* pendentive was through straight horizontal courses of small stone blocks set at 45° across the angles, rising from either a single or a double bracket, progressively projecting outwards one over the other. Unlike the Iranian and Egyptian models described above, these are not geometrical variations of cell disposition and the *muqarnas* composition can be considered as linear. Creswell thought that the origins of this model were the stone blocks set across the corners like beams, as in the Madrasat al-Mabrak, Boṣrā (1136 AD), which were eventually carved with niches in Aleppo and Damascus.[475] Distinct and more complex types of *muqarnas* squinch appeared later, as in: the dome of the north wing of the Mashhad al-Ḥusayn, probably built between 1216 and 1237 AD; in the Madrasat al-Firdaws, built before

[475] Creswell, MAE, vol. 1, p. 253.

1242 AD; or in the Madrasa Kāmiliyya, most probably built around the same time.

5.1.3. Discussion

The first examples of *muqarnas* in Damascus belong to the Māristān of Nūr al-Dīn (dated to 549 AH/1154 AD). They are located in key points of the monumental entrance to the complex, such as the main entrance's bay, the dome above the monumental vestibule and the two vaults covering the niches at the north and south side of the vestibule, respectively. All of them are constructed in stucco, although they show some relevant differences from one another.

The vault above the main entrance's bay is a flattened stucco *muqarnas* vault, approximately one-quarter as deep as its width, composed of nine tiers of cells corbelled out from a register of lobed arches and topped by a conch-shaped element. In this case, the making principle of the *muqarnas* seems the adherence of the stucco to an underlying brick structure, in which perhaps the different tiers of bricks project outwards the one over the other approximating the profile of the vault's intrados. The modules or clusters of stucco cells were presumably built separately and glued with mortar to the brick substructure and the whole was finished with a stucco cover. The cells are approximately 40-45 centimeters high.[476]

[476] To my knowledge there are no specific studies on the stucco technique used in this building. I suggest this reconstruction of the building procedure, relying on better-known Western Islamic stuccowork. Among other works, see in particular Ramon Rubio Domene, *Yeserias de la Alhambra. Historia, tecnica y conservación*, Granada: Patronato de la Alhambra y Generalife: Universidad de Granada, 2010; Gaspar

The vaults covering the niches at the vestibule's sides were also built of stucco modules composed of clusters of cells, perhaps consolidated with mortar at their rear, and connected with the presumed reinforcement of small brick arches and/or wooden ties. Once the vault was composed it was covered with stucco surface finishing. The side vaults are different from the entrance bay vault in the sense that they are stucco shells or false ceilings separated from the real vault. In the side vaults, the cells are approximately 30-35 centimeters high.

The 'sugarloaf' dome over the monumental vestibule most probably used a similar technique as the portal, although some parts of the *muqarnas* work, especially in the lower tiers, may be suspended –in a similar way as the vaults covering the side niches– from arches or ties spanning the vestibule's corners. These cells are approximately 65 centimeters high.

In a recently published study,[477] I observed that the vaults above the side niches of the *māristān*'s vestibule share some important features with Sicilian vaults, which in the Sicilian context derived from the

Aranda Pastor, 'La técnica del mocárabe en el *īwān* SE. del patio de Comares en la Alhambra, in Antonio Fernández-Puertas and Purificación Marinetto Sánchez, *Arte y Cultura. Patrimonio Hispanomusulmán en al-Andalus*, Granada: Editorial Universidad de Granada, 2009, pp. 179-232; Gaspar Aranda Pastor, 'La alcoba O. de la galería meridional del patio de Comares: la bóveda de mocárabe', in Florencio Sevilla Arroyo and Carlos Alvar Ezquerra (eds.), *Actas del XIII Congreso de la Asociación Internacional de Hispanistas, Madrid 6-11 de julio de 1998*, Granada: Editorial Castalia, 2000, pp. 43-55. A different stucco *muqarnas* technique is described in Harb, *Ilkhanidische Stalaktitengewölbe*, Berlin: Reimer, 1978.

[477] Maurizio Massaiu, 'The Stone Muqarnas Vaults of Norman Sicily and their Syrian Counterparts: Transmission of Building Techniques', in Charles Burnett and Pedro Mantas-España (eds.), *Ex Oriente Lux. Translating Words, Scripts and Styles in Medieval Mediterranean Society*, Córdoba: UCOPress-CNERU-The Warburg Institute, 2016, pp. 75-105.

wooden model of the Cappella Palatina's ceiling (these arguments are discussed in more detail in Chapter 8). Similar features observed in the *māristān* vestibule's domes suggest that these were also inspired or reproduced from some kind of wooden prototype, which seems to have had several features remarkably similar to the ceiling of the Cappella Palatina. The cited passage of Ibn Jubayr, describing a wood and stucco ceiling belonging to the Great Mosque of Damascus provides a potential antecedent for the wooden technique employed in the Cappella Palatina's ceiling, as well as a plausible link between the Damascene and the Sicilian *muqarnas*. In fact, in the vaults of the side niches of the *māristān* a stucco composition with remarkably similar details to the original wooden technique was employed. Such a profound familiarity of stucco workers with wooden *muqarnas* is not surprising, if we consider that the original wooden prototype was covered in stucco (*samā' jass muzayyina*) according to Ibn Jubayr.[478] Under these conditions the transition from the wood technique –which seems highly complex– to the simpler stucco substitute was just a question of time.

As regards the *māristān*'s portal bay's and sugarloaf dome's *muqarnas*, they show some macroscopic differences with the *muqarnas* of the side niches. For instance, the cells dimensions of the three varieties are not the same. In the side niches, similarly to Palermo, the tiers are approximately 30-35 centimetres high. In the portal, they are approximately 40-45 centimetres and in the dome approximately 65

[478] Ibn Jubayr (ed. W. Wright and M.J. De Goeje), pp. 252-253.

centimetres high.[479] The cells' disposition seems also different and the similarity of both the portal's and the sugarloaf dome's *muqarnas* with Sicilian examples appears unclear. However, there are reasons to suggest that the stucco workers who built the *muqarnas* vaults of the side niches were also responsible for both the sugarloaf dome's and the portal bay's *muqarnas* (there is a similarity of some cells' and brackets' forms, as well as comparable combinations of cells). If this was the case, macroscopic differences in shape, dimension and disposition could be explained with the need of adapting the technique to different structures, which required some important changes. The vaults of the side niches, in fact, were suspended ceilings which left a greater freedom in respecting and reproducing the features of the wooden model, while in the case of both the portal and the dome, the point was to adapt to the necessities of the building and transform brick-built vaults into *muqarnas*. In this, stucco workers took advantage of the plasticity of the material and scaled the size of the cells to the larger dimensions of the architectural structures, playing with some more freedom with the geometry to adapt their work to a new creation that was not intended to resemble a wooden prototype, but to mimic Iraqi sugarloaf domes.

Ernst Herzfeld, who first proposed Baghdadi origins for the prototype, thought that the model of the *māristān* vault was a direct import which was reworked by the Syrian architect who built the *madrasa*.[480] Terry

[479] Measurements are taken from Herzfeld's and Ecochard's drawings, digitized and scaled. In particular Herzfeld, 'Damascus I', figs. 3-4 at pp. 8-9, fig. 10 at p. 12; Écochard, 'Travaux de restauration', fig. 4 at p. 34, fig. 3 at p. 36.

[480] Herzfeld, 'Damascus: I', in particular p. 14.

Allen, arguing that 'the sugarloaf dome is not a type of construction easily imitated from observation', imagined that the model was introduced by an Iraqi master builder who came to Damascus and that Nūr al-Dīn's domes were his work or that of a successor.[481] However, the Iraqi prototype was built of superimposed drums with real arched niches whose backs emerged from the dome's exterior, which means that they were integral to the structure. In Damascus, on the contrary, the vaults are conical brick structures covered, both internally and externally, with purely decorative *muqarnas* work. While the visual similarity and the allusion to the original type seem obvious, the profound differences in both the dome's structure and the *muqarnas* geometry suggest that there was not a direct transmission and development of the same technique, but rather a transposition of an idea into a different building practice. Without prejudice to the ultimate Baghdadi origins of the sugarloaf domes, this changes the prospective origins of the Syrian examples. In particular, the evidence evaluated so far does not corroborate that the domes of Nūr al-Dīn were built with an imported technique and that of the *māristān* could well be a specimen of the first stage in the formation of a new model. In fact, though its *muqarnas* was designed with a clear geometric system, the vault presents evident deformations that could be interpreted as either construction inaccuracies or later structural failures. This corroborates the dome's experimental or tentative nature and disproves the idea of an imported advanced building practice, already developed elsewhere. On the existing evidence it is difficult to confirm whether the development of this new technique extended

[481] Allen, *Ayyubid Architecture*, chapter 2.

beyond Damascus. The same builder of the *māristān* or his successor perhaps eventually built the *madrasa*, which demonstrates an improvement in the technique, but unfortunately no later instances are known.[482] Later *muqarnas* domes documented in Mosul seem comparable to the Syrian rather than the Baghdadi type, since the *muqarnas* decoration is suspended as opposed to supporting structures like the earlier Iraqi domes. However, the similarity is restricted to specific aspects, while there are some macroscopic differences, which cannot be described here, that could suggest the Syrian and Upper-Mesopotamian type were not related.[483]

As far as Aleppo is concerned, all Aleppine examples of *muqarnas* are built in stone. This includes architectural elements composed of multiple ashlar blocks assembled in *muqarnas* compositions, and members carved out from single blocks, such as capitals and corbels. To the former type belong the *muqarnas* or *muqarnas*-like cornice, which crowned the recently destroyed minaret of Aleppo's Friday mosque (1094-1095 AD); the *muqarnas* corbel above a corner chamfer of the Madrasa Shuʿaybiyya (built after 545 AH/1150-1151 AD) and the later examples of *muqarnas*

[482] Allen, *Ayyubid Architecture*, in particular chapter 2.

[483] The next documented examples, the Mausoleum of Imam Yaḥyā ibn al-Qāsim (637 AH/1239-40 AD) and the Mausoleum of Shaikh ʻAwn al-Din (646 AH/1248-49 AD), Mosul, have been reported as destroyed recently. See: 'The Shrine of Mashhad al-Imam 'Awn al-Din has been destroyed', *Conflict Antiquities*, available online at: https://conflictantiquities.wordpress.com/2014/07/28/syria-iraq-islamic-state-destruction-shrine-mashhad-al-imam-awn-al-din/ (accessed online at 4 September 2015); and 'August in Iraq: More Destruction, Humanitarian Catastrophes', *Gates of Nineveh*, available online at: https://gatesofnineveh.wordpress.com/2014/08/14/august-in-iraq-more-destruction-humanitarian-catastrophes/ (accessed online at 10 September 2015).

pendentives (late twelfth-thirteenth century). The Aleppine manner of creating the *muqarnas* was through straight horizontal courses of stone blocks progressively projecting outwards one over the other without geometrical variations of either cell disposition or the *muqarnas* composition. This is also valid for the Aleppine pendentives, in which the flexibility of *muqarnas* as a system of transition and articulation is completely overlooked. Until later dates pendentives were built through straight horizontal courses of small stone blocks set at 45° across the angles, rising from either a single or a double bracket, progressively projecting outwards one over the other.[484] Unlike the Iranian and Egyptian models described above, these are not geometrical variations of cell disposition and the *muqarnas* composition can be considered as linear.

Another use of *muqarnas* was the decoration of members carved out from single blocks, such as capitals and corbels. The earliest examples are the capitals flanking the *miḥrāb* of the Maqām Ibrāhīm at al-Ṣaliḥīn, Aleppo, dated to 505 AH/1112 AD. These are followed by the two capitals decorating the portal of the Madrasa Halāwiyya, dated to 1149 AD; the *muqarnas* corbel above a corner chamfer of the Madrasa Shuʿaybiyya, built after 545 AH/1150-1151 AD; the capital in the Lower Maqām Ibrāhīm, possibly dated to 619 AH/1219-20 AD: and two corbels or consoles in the Upper Maqām Ibrāhīm, 609 AH/ 1213 AD (these dates refer to the buildings in which the elements were actually placed, but

[484] More complex zones of transition were not developed before the period when al-Malik al-ʿAzīz ruled in Aleppo, between 613 and 637 AH (1216-37 AD), and perhaps later. See entries '5.3.3. Mashhad al-Ḥusayn, Aleppo'; '5.3.6. Madrasa Kāmiliyya, Firdaws, Aleppo'; and '5.3.7. Madrasat al-Firdaws, Aleppo' of the present study.

some of the capitals may have been carved for earlier buildings and reused later).

Twelfth-century Syria is a region which one immediately associates with stone buildings, but there must have been a corresponding tradition of woodwork in architectural fittings.[485] Ibn Jubayr's description of the wooden dome and ceiling in the Damascus Great Mosque, which are mentioned above, illustrates this. The same author, who visited Aleppo in 1184 AD, describes the quite general use of woodwork in the city. According to his description, all the market streets (*aswāq*) around the main mosque were roofed in wood, so that people could always walk in the shade. Most of the shops of the *qaysāriyya* had wooden storage cupboards (*khazā'in min al-khashab*) of exquisite craft, which seemed like a single closet (*khizāna*) housing shops with wooden windows of magnificent carving. Some lines below, when describing the Aleppo mosque, he focuses on wooden elements, such as the *minbar* and *miḥrāb*, together with inlay decoration, which adorned the entire *qibla* wall in between the two.

Within this context, the potential influence of wooden *muqarnas* in Aleppo must be taken into account. Wooden capitals and other wooden elements carved with *muqarnas* were certainly more common than hitherto understood.[486] Above the *muqarnas* cornice of the minaret is a

[485] Allen, *Ayyubid Architecture*, chapter 2.

[486] Wooden *muqarnas* capitals were common in late thirteenth-fourteenth century mosques of Turkey such as the Eşrefoğlu Mosque, the Mosque of Afyonkarahisar, see Aslanapa, *Turkish Art*, pp. 120-123; Henri Stierlin, *Turquía. De los Selyuquíes a los Otomanos*, Köln: Taschen, 2002, pp. 29-30; Markus Hattstein and Peter Delius (eds.) *El Islam, Arte y Arquitectura*, Köln: Könemann, 2001; pp. 372-73, John D. Hoag, *Arquitectura islámica*, Madrid: Aguilar, 1976, p. 229). According to Aslanapa, *Turkish*

band of *ovulus* decoration surmounted by a row of consoles, which imitate wooden brackets. This kind of brackets was reproduced in stone from antiquity, and it is perhaps from the study and imitation of ancient monuments within the 'classical revival' that Syrian masters took the idea of transposing wooden prototypes into stone in a realistic and recognisable way.[487] This was perhaps the case for the *muqarnas* cornice, as well.

Approximately one century after the minaret of Aleppo Great Mosque was completed, a similar effort of rendering realistically the details of two wooden ceilings was made by the builder of the Mashhad al-Ḥusayn's portal. As is illustrated in Chapter 7 of the present study, this confirms the importance of wooden models in twelfth-century Aleppo and enables us to gain a glimpse of a wooden structural form which was behind an important branch of Syrian stone *muqarnas*, even though architectural fittings of this time do not survive.

Art, pp. 120-121: 'This type was brought to Anatolia as a continuation of the ʿArūs al-Falak (Bride of Heaven) Mosque of the Ghaznevid Sultan Maḥmūd, which we know from written sources, and the wooden-pillared Karakhanid mosques in the cities of medieval Turkestan. Richly ornamented wooden capitals in the museums of Samarkand and Tashkent, two wooden pillars, one from the Oburdan Mosque the other from the Kurut Mosque, in the museums of Tashkent and Pyandzhikent, and 24 wooden pillars from the Friday Mosque at Khiva, are all that remains of the wooden mosques of the 10th to the 12th centuries'. Illustrations of modern wooden *muqarnas* capitals from Mosul and Baghdad in Herzfeld, 'Damascus III', pp. 18-19.

[487] See Creswell, MAE, vol. 1, pp. 177-178 and Vol. 2, p. 201; J.M. Rogers, 'A Renaissance of Classical Antiquity in North Syria (11th-12th Centuries)', *Annales Archéologiques Arabes Syriennes*, 12 (1971), pp. 347-56; Terry Allen, *A classical Revival*; D. Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 67-72; Y. Tabbaa 'Survivals and Archaisms in the Architecture of Northern Syria, ca. 1080-ca. 1150' *Muqarnas*, 10 (1993), pp. 29-41; J. Raby; 'Nur Al-Din, the Qastal al-Shuʿaybiyya, and the Classical Revival' *Muqarnas*, 21 (2004), pp. 289-310.

5.2. The Earliest Examples

5.2.1. A wooden ceiling in the Damascus Great Mosque

On an August morning in 1184 AD Ibn Jubayr climbed up to the roof of Damascus' Great Mosque with a group of companions, and from there had access to investigate the structures of both the dome and a wooden ceiling, which is relevant here.[488]

According to his report, it consisted of a double dome composed of an exterior leaded shell, enclosing an inner dome. The inner cupola was composed of some kind of wooden panels, set one beside the other, gilded and decorated in the most beautiful manner. The length of each panel was not less than six spans, with a breadth of four spans, though as seen from the interior of the mosque, because of their height from the ground, they looked like small points, and seemed like one or two spans wide. The supporting frame or structure of the shell was built in wood, as well, and reinforced with some form of iron bands.

In the same passage, Ibn Jubayr also describes a ceiling (*samā'*), apparently placed on the axial nave supporting the dome, in a position that is not easy to understand (the term *bayna-hu wa-bayna-ha*, is used, being unclear as to which elements of the mosque both possessive pronouns refer). The ceiling was decorated with stucco (*samā' jass muzayyina*), and assembled within it were countless pieces of interconnected wood, arching and surmounting each other, in an amazing way. As much as one is conscious of the extreme difficulty of extrapolating technical conclusions from a literary source, in a recent

[488] Ibn Jubayr (ed. Wright and De Goeje), *The Travels*, pp. 292-294.

study I suggested that this description immediately calls to mind a similar technique to that used in Roger II's *muqarnas* ceiling, in Palermo.[489]

Both the dome and the ceiling were most probably built following the fire of 1069 AD. As far as the dome is concerned, a source expressly mentions that fire damaged it, while the inscriptions on its supporting pillars, recorded by Max van Berchem, explained that, under the caliphate of al-Muqtadī during the reign of Malik Shāh, under the government of his brother Tutush, and during the vizierate of Niẓām al-Mulk, the lord Abū Naṣr Aḥmad ibn al-Faḍl, ordered the construction (*ʿimāra*) of the dome (*qubba*), the *maqsūra*, the ceiling (*saqf*), the arcades (*ṭāqāt*) and the pillars (*arkān*) at his own expense, in the year 475/1082-83 AD.[490]

5.2.2. The minaret of the Friday Mosque, Aleppo

Ernst Herzfeld, who considered this minaret as 'the principal monument of medieval Syria', first published it in the second issue of *Damascus: Studies in Architecture*.[491] Though differently interpreted by various

[489] Maurizio Massaiu, 'The Stone Muqarnas Vaults of Norman Sicily and their Syrian Counterparts: Transmission of Building Techniques', in Charles Burnett and Pedro Mantas-España (eds.), *Ex Oriente Lux. Translating Words, Scripts and Styles in Medieval Mediterranean Society*, Córdoba: UCOPress-CNERU-The Warburg Institute, 2016, pp. 75-105.

[490] M. Van Berchem, 'Inscriptions arabes de Syrie', *Memoires de l'Institut Egyptien* 3 (1900), pp. 417-520, in particular, pp. 430-431 and pp. 506-511.

[491] Herzfeld, 'Damascus: II', in particular, pp. 34-35 and *passim*. See also Ernst Herzfeld, *Materiaux pour un Corpus Inscriptionum Arabicarum. 2e Partie. fasc 2: Syrie du Nord. Inscriptions et monuments d'Alep*, 2 vols, le Caire: Institut Français d'Archéologie Orientale, 1954-56, [hereafter: Herzfeld, MCIA/Alep] pp. 150-164.

authors, it was unanimously considered as one of the masterpieces of Near Eastern art before the Crusades.[492] On the days following 24th of April 2013 the media reported that the minaret had been destroyed in Syria's civil war, the government and the opposition blaming each other for the damage.[493]

The minaret was built in ashlar masonry, decorated with inscriptions, mouldings and ornamental bands carved with a variety of patterns. What is interesting here is a *muqarnas* or *muqarnas*-like cornice, which crowned the fifth storey, composed of three tiers of small corbelled arches –if not shallow niches– executed in relief. The tiers of cells are arranged in straight lines, positioned above the minaret's decorated façades. All of the cells are disposed in the same direction, without any rotation, except for the corner cells. The different tiers progressively project outwards one over the other and the cells of the second tier spring from the apexes of the underlying elements creating a simple vertical alternation. Though there may be disagreement as to whether

[492] For instance, see Allen, *A Classical revival*, pp. 23-28; Tabbaa, 'Survivals and Archaisms', pp. 29-41; Tabbaa, *The Transformation*, p. 84-86 and passim; Allen, *Ayyubid Architecture*, passim and in particular chapter 2: 'the ornamented style in Aleppo and Damascus'; J. Raby, 'Nur Al-Din, the Qastal al-Shuʿaybiyya', pp. 290-294 and passim.

[493] See for instance: 'Minaret of historic Syrian mosque destroyed in Aleppo', *The Guardian (online edition)*, available online at: http://www.theguardian.com/world/2013/apr/24/minaret-historic-syrian-mosque-destroyed-aleppo (accessed online at 13 June 2013); H. Saad and R. Gladstone, 'Minaret on a Storied Syrian Mosque Falls', *The New York Times (online edition)* available online at: http://www.nytimes.com/2013/04/25/world/middleeast/syria.html?hp&_r=0 (accessed online at 13 June 2013). Since then, several others medieval Syrian buildings have been damaged or destroyed.

the cornice is proper *muqarnas* work,[494] it seems clear that the builder deliberately imitated its effect, providing one of the earliest documented attempts to transpose the motif into stone. Although none of the inscriptions record a precise date, the construction of the minaret had to have been completed before the death of Tutush (the Saljūq ruler of Damascus, who took Aleppo in 1094 and died at the beginning of 1095), since his name is recorded in the top storey's inscription.[495]

5.2.3. Two capitals flanking the miḥrāb *of the Maqām Ibrāhīm at al-Ṣaliḥīn, Aleppo*

A pair of capitals flanking the *miḥrāb* of the Maqām Ibrāhīm at al-Ṣaliḥīn, Aleppo show *muqarnas* decoration, which Allen described as 'a sort of compromise between Corinthian (on which their composition is based) and *muqarnas* (whence the form of their "leaves")'.[496] The *miḥrāb* was built in 505 AH/1112 AD.[497]

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[494] For instance, see Tabbaa, *The Transformation*, p. 84, who defines it 'rudimentary *muqarnas* cells'; Allen, *A Classical revival*, pp. 87-88 wrote that it 'mimics the effect of a *muqarnas* cornice'; Allen, *Ayyubid Architecture*, chapter 2 described it as follows: 'Even the muqarnas-like cornice at the top of the shaft, supporting the balcony, only imitates the look of a muqarnas, using local forms arranged on alternating axes (splayed, flat-backed, round-headed arches instead of pointed quarter-hemispheres)'.

[495] Herzfeld, 'Damascus: II', p. 34: 'The ground story was finished in 483, under the reign of Malikshāh, the governorship of Aksonkor, grandfather of Nūr al-Dīn; the top story is dated in the reign of Tutush. Tutush took Aleppo in Djumādā I, 487 H. (May-June, I094 A.D.) and was killed in battle near Rayy (Teheran) in Muharram 488 H. (January, I095 A.D.); hence, the completion of the minaret is exactly dated without an epigraphical date'.

[496] Allen, *A Classical Revival*, p. 29.

[497] Herzfeld, MCIA/Alep, pp. 175-180, Allen, *A Classical Revival*, p. 29 and fig. 36 p. 134.

5.2.4. Madrasa Shuʿaybiyya, Aleppo

The *madrasa* was built by Nūr al-Dīn in 545 AH/1150-51 AD on the site of Aleppo's first mosque built by the caliph ʻUmar ibn Al-Khaṭṭāb (d. 644 AD) who took the city for the Muslims. It is relevant here because it displays a '*muqarnas* cutoff' or corbel above the chamfer of the south-west corner. It is composed of three cells, in a pyramidal disposition, each one carved from a single ashlar.[498]

5.2.5. Madrasa Halāwiyya, Aleppo

The portal, which is possibly the unique remains of Nūr al-Dīn's original building, has an inscription recording a date of 543 AH (1149 AD). It displays two *muqarnas* capitals, seemingly carved out of single blocks, which close the outer ends of the cornice above the inscription band.[499]

5.2.6. Turba Najmiyya, Damascus

Brief references to this mausoleum are found in both Herzfeld and Sauvaget, but the chief reference work is found in Terry Allen's *Ayyubid Architecture*. Allen gives a detailed revision of both the written sources and the stylistic studies. The Turbat al-Najmiyya has a square chamber, built of stone, surmounted by a brick dome resting on a double zone of transition, also in bricks. The first transition, from the square to an octagon, is accomplished through simple pointed, arched squinches, the

[498] Herzfeld, 'Damascus: II', pp. 30-32; Allen, *A Classical Revival*, pp. 1-7; Allen, *Ayyubid Architecture*, chapter 2.

[499] Allen, *A Classical Revival*, pp. 12-13, figs. 25-26; Allen, *Ayyubid Architecture*, chapter 2.

squinch hood having a semi-dome shape. In the spaces between the squinches are recesses, whose outlines are similar to those of the squinches. Twin pointed-arched windows open on each recess. The passage to the dome is further mediated through eight pointed-arched shallow niches alternating with windows of the same profile, which generate a hexadecagonal drum. The dome is formed of sixteen flutes, whose groins spring from above the apexes of the sixteen arches, which form the drum. Beneath the lower squinch zone there is a stucco *muqarnas* cornice, composed of two tiers of almost flat, low-relief elements. Allen noticed in this cornice possible signs of unfamiliarity with the *muqarnas* technique, since the composition does not adapt to such elements as the squinches and the recesses, which he judges awkward in a 'notoriously flexible system of articulation'.[500]

For the dating, Allen carried out a detailed analysis of both the historical sources and the visible architectural features, concluding that the mausoleum was plausibly built between 1146, when Najm al-Dīn Ayyūb first arrived in Damascus, and 1166, when Fath al-Dīn died, being buried in a *qubba* besides his cousin Shāhanshāh b. Ayyūb, as recorded by Abū Shāma (1203-1298 AD). Allen cautiously suggested that the mausoleum might have been built for Shāhanshāh after his death in 543 AH (1148-49 AD).[501]

[500] J. Sauvaget, *Les monuments historiques de Damas*, Beyrouth: Presses de l'Ifpo, 1932, n. 25; E. Herzfeld, 'Damascus, studies in Architecture: III', *Ars Islamica*, vol. 11/12 (1946), pp. 1-71, In particular, pp. 43-44; Allen, *Ayyubid Architecture*, chapter 1.

[501] Allen, *Ayyubid Architecture*, chapter 1.

5.2.7. The Māristān of Nūr al-Dīn, Damascus

The first description of this monument was given by Jean Sauvaget, together with a sketch plan, in his monograph on the historical monuments of Damascus. A more detailed study was published by Ernst Herzfeld in the first issue of *Damascus: Studies in Architecture* and afterwards the monument was included in a number of studies on Islamic architecture.[502]

The main building of the hospital is assigned to Nūr al-Dīn, although it had been enlarged and modified more than once by the late-thirteenth century AD.[503] However, following Herzfeld, the *muqarnas* decoration that is relevant here has been unanimously attributed to the first building phase.[504] The *māristān*'s date was established through an inscription, reported by Herzfeld, which states that Nūr al-Dīn ordered

[502] Sauvaget, *Les monuments historiques de Damas*, n. 19 and fig. 14; Herzfeld, 'Damascus: I', pp. 1-53. Among other studies see also: J. Sauvaget 'Notes sur quelques monuments musulmans de Syrie, à propos d'une étude récente' *Syria* 24: 3/4 (1944), pp. 211-231, in particular, pp. 213-215; N. Elisséeff, 'Les monuments de Nûr ad-Dîn: inventaire, notes archéologiques et bibliographiques' Bulletin d'Études Orientales, v. 13 (1951), pp. 5-43, in particular, pp. 23-24; M. Écochard, 'Travaux de restauration de quelques monuments syriens', *Revue des Études Islamiques*, v. 53 (1985), pp. 21-140; in particular, pp. 33-37 and pls. IV-VII; Allen, *A Classical revival*, pp. 57-71; Allen, *Ayyubid Architecture*, *passim* and in particular chapter 2; Tabbaa, *The Transformation of Islamic Art*, pp. 119-122 and *passim*.

[503] For instance, an inscription recording the hospital's restoration under sultan Qalāwūn (r. 1277-1290) was reported by H. Sauvaire, 'Description de Damas', *Journal Asiatique* 7 (1896), pp. 369-421, in particular pp. 411-412.

[504] Sauvaget, originally doubted the originality of the *muqarnas* work. See: Sauvaget, *Les monuments historiques de Damas*, p. 50; but changed his opinion later on see: Sauvaget 'Notes sur quelques monuments', p. 214.

the completion of the building in 549 AH (1154 AD), i.e. shortly after he conquered the city.[505]

Over the main entrance's bay is a flattened stucco *muqarnas* vault, approximately one-quarter as deep as its width, composed of nine tiers of cells corbelled out from a register of lobed arches and topped by a conch-shaped element. The portal is framed, on the three sides of the spandrel, by a band decorated with geometrical motifs based on rather simple star and polygon patterns, of which only a fragment remains. Though the portal was built in brick, both the geometrical decoration of the frame and the *muqarnas* were carved in the overlying stucco cover. This monumental hood is considered to be the earliest documented *muqarnas* portal in both eastern and western Islamic architecture.

Behind the entrance door there is a monumental room or vestibule, covered by a *muqarnas* vault which has been commonly associated with the Iraqi type of sugarloaf domes. On the outside, the actual appearance can be dated to the 1930s' French restoration. In fact, the dome originally showed *muqarnas* work on its external surface but this decoration had either been destroyed or had fallen before the dome was plastered over. The dome's smooth appearance is documented in earlier photographs of the monument, while the remains of the *muqarnas* work were brought to light during the restoration. [506] With regard to the internal composition, the cells spring from a square cornice, whose internal side is little more than 5 metres, and are disposed in eleven tiers surmounted

[505] E. Herzfeld, 'Damascus: Studies in Architecture: I', *Ars Islamica* 9 (1942), pp. 1-53, in particular pp. 3-4.

[506] See Écochard, 'Travaux de restauration', in particular pls. IV-VII.

by an eight-lobed cupola. There are four pointed-arch windows, one in the centre of each side, which open directly above the cornice and extend into the lower three tiers of cells. If compared to the Mausoleum of Imām al-Dawr –as well as the later Baghdadi examples– you can see that the main geometric principle of the *māristān*'s dome is not the same. In fact, in the Baghdadi examples the *muqarnas* work is organized through rotations of star-shaped polygons, while the main geometric order underlying the *muqarnas* disposition of the *māristān*'s dome is supported by different principles, which I shall analyze below.

Mostly relying on Herzfeld's opinion, this dome is frequently said to lack an underlying geometrical study or else to have been built empirically. In this regard, indeed, the German scholar stated the following:

> 'Comparing the domes of the mūristān and the madrasa, one can sense - but only when drawing the plan- that the first one, of 549 H., has no underlying geometrical framework. The conch has eight sectors over sixteen of the lower zones, but is turned 11° 15' so that no axes coincide. This looks capricious, but examples will be encountered where it is a technical necessity: it is another atavism. There are no other dominating lines but the main axes of symmetry. The cells grow like a living organism, an art form of nature, that is to say, the dome is the result of empiricism, not of scientific study'.[507]

However, some observations should be noted about Herzfeld's account. Regarding the lack of an 'underlying geometrical framework', the German scholar referred to an elementary grid based on the subdivision of the dome's diameter into six equal parts, which he identified in the Mausoleum of Nūr al-Dīn's dome but not in the *māristān*. This led him to

[507] Herzfeld, 'Damascus: I', p. 13.

conclude that 'the spirit of the second plan is totally different from that of the first. What happened is that an old, foreign pattern has first been directly imported and then eighteen years later has been reworked by a Syrian architect'.[508]

On the other hand, Allen observed that in spite of the differences in design between the two examples, they are not necessarily the work of different designers and the considerable interval between their construction could well explain the differences between the two vaults.[509]

I agree that the *madrasa*'s vault is more evidently systematic, but the *muqarnas* composition of the *māristān*'s vault does rely, as well, on a clear geometrical system. In the illustration included in Volume II – Plates CD, in the part dedicated to the Madrasa of Nūr al-Dīn, I have submitted the plan of both vaults –as Herzfeld drew them– to the same geometric grid, which show that both systems have some important similarities, specifically:

- Herzfeld observed that in the *madrasa*, the diameter of the vault was divided into six equal parts, and this subdivision underlay the geometry of the *muqarnas* composition. In the *māristān*'s vault, though the relation is less explicitly emphasized, perhaps deliberately, there are clear coincidences in the *muqarnas* composition with a grid based on the same ratio.

[508] Herzfeld, 'Damascus: I', p. 13-14.

[509] Allen, *Ayyubid Architecture*, chapter 2.

- Dividing the diameter of the *madrasa's* vault into six equal parts, Herzfeld observed that a circle whose diameter is one third of the vault's side is perfectly designed in the centre of the composition. Analogously, the sixteen-sided stellated base for the mini-dome, which crowns the *māristān* vault circumscribes an imaginary circle whose diameter is one-third of the vault's side. In the *madrasa*, the drum's base is physically circular, which is not the case of the *māristān*, but the presence of an analogous geometrical element governing both compositions is reasonably clear.
- In the *madrasa*'s vault, at two-thirds from the centre, the *muqarnas* composition presents straight fronts, which form an octagon in plan, regular but for four small appendages, developed towards the vault's corners. In the *māristān*, at two-thirds from the centre, a square underlies the *muqarnas* composition, as well. Although in this case there are no straight fronts drawing it (which perhaps was consciously avoided, here, in the whole of the composition), there are four clear right-angled pairs of niches, which unmistakably mark a square whose sides measure exactly two-thirds of the vault's side.

Undoubtedly, the geometry of the *madrasa* vault is unequivocal, not to say that the straight cell fronts and the circular base of the drum were built to correspond with the key lines of the geometric grid, in order to emphasize it. In addition, the *māristān* vault presents some macroscopic deformations, due either to construction inaccuracies or to a later structural failure, which give a rather clumsy aspect to the vault and

further disguise the geometric grid underlying the composition.[510] However, in my opinion, the matches described above between the two vaults can hardly be coincidental and indicate, beyond the gross visual similarity between both vaults, that they belong to the same tradition, and in particular that the *madrasa*'s vault derives from that of the *māristān*.

Two *muqarnas* vaults cover the deep niches at the north and south sides of the vestibule, respectively. The *muqarnas* composition is organized in nine tiers of cells, and is crowned by mini-domes. The *muqarnas* domes themselves are approximately twice as deep as their width, though, thanks to the use of frontal arches, they cover deeper niches.

5.2.8. Madrasa of Nūr al-Dīn, Damascus

Similarly to the case for the Māristān of Nūr al-Dīn, the Madrasa of Nūr al-Dīn was first described by Sauvaget, followed by Herzfeld and

[510] On the other hand, a number of comparable inaccuracies could well have happened elsewhere, perhaps having been ignored, in literature, whenever *muqarnas* vaults were either less accurately surveyed or less realistically reproduced. One should not neglect that geometric studies on *muqarnas* analyze pure or idealized forms, deliberately ignoring imperfection as an obvious simplification. For instance, *cf.* the realistic representation of the *muqarnas* vaults in Christian Ewert and Jens Peter Wisshak, *Forschungen zur almohadischen Moschee, II: Die Moschee von Tinmal*, Mainz am Rhein: Philipp von Zabern, 1984, Beilage 21-22; Antonio Almagro Gorbea et al, *Atlas arquitectónico de la catedral de Sevilla*, Sevilla – Granada: Cabildo de la Santa, Metropolitana y Patriarcal Iglesia Catedral de Sevilla, Escuela de Estudios Árabes, 2007, pl. 39. See also F. Agnello, 'The Painted Ceiling of the Nave of the Cappella Palatina in Palermo: An Essay on Its Geometric and Constructive Features', *Muqarnas*, 27 (2010), pp. 407-447, where the results of the laser-scanning survey of the *muqarnas* ceiling of the Cappella Palatina are discussed.

afterwards included in several studies on Islamic architecture. The monument is not merely a *madrasa*, but an architectural complex which also includes a mosque and the founder's mausoleum, the latter being covered with a *muqarnas* vault, which is relevant here.[511]

The mausoleum has a square chamber, measuring approximately 6.5 metres on each side. It adjoins the *madrasa*'s entry vestibule. It is built in *ablaq* masonry, with alternating courses of white and reddish ashlars.[512] The chamber is covered with a *muqarnas* dome or vault, organized in ten tiers of small cells. In order to facilitate its description, the vault's composition, can be divided into three different zones, corresponding to the three main subdivisions of the above-described grid:

- The lowest part includes six tiers of cells. The lowest three are partitioned by twelve arched windows, three on each side of the base. The windows are flanked by *muqarnas* pillars, whereas *muqarnas* elements are used as small squinches across the corners. The upper three tiers of *muqarnas* cells are organized as projecting linear cornices with straight fronts emphasizing the sides of an octagon, and are bridged by *muqarnas* elements similar to those described in the lowest part of the composition. The upper tier of *muqarnas* is composed of five cells, the central three are extremely shallow squinches without a real three-dimensional development, while only

[511] Sauvaget, *Les monuments historiques de Damas*, n. 22 and fig. 15; Herzfeld, 'Damascus: I', pp. 1-53. Among other studies see: Sauvaget 'Notes sur quelques monuments', pp. 215-219; Elisséeff, 'Les monuments de Nûr ad-Dîn', pp. 24-25; Allen, *A Classical revival*, pp. 92-93; Allen, *Ayyubid Architecture*, chapter 2; Tabbaa, *The Transformation*, pp. 119-122 and *passim*.

[512] Allen, *Ayyubid Architecture*, chapter 2.

the lateral ones are proper *muqarnas* cells which are used to link with the corners' cells, mediating the transition from the square to the octagonal composition.[513]

- The second level is composed of four tiers of cells, organized radially by axes or dominating lines diverging from the centre. This composition mediates, through star-shaped polygons, the passage from the octagonal disposition of the lower level to the circular base of the cupola. Four windows pierce the bottom of this level, one for each side of the mausoleum; these cover the height of approximately one and half *muqarnas* tiers.
- The third level consists of a drum, decorated with ten intersecting arches, and a ten-lobed cupola which crowns the composition.

With regard to the proportions for the *muqarnas* design, Herzfeld recognized the use of a grid or else a framework, based on a square's side divisions into six parts. This modulus, with its multiples, was used to determine the radius of the central circle, as well as the projecting *muqarnas* elements.[514]

On the exterior only the upper part of the dome emerges from the mausoleum's flat roof, starting from what I have designated as the second level of cells. The *muqarnas* work on the outer surface is composed of cells shaped both as small triangular pyramids and as spherical triangles. It is difficult evaluating, from the documentation available, to what extent the external *muqarnas* work effectively

[513] Though an octagon is clearly visible in the orthogonal projection, none of the vault's section is effectively a real octagon. *Cf.* Herzfeld, 'Damascus: I', fig. 10 and p. 14.

[514] Herzfeld, 'Damascus: I', in particular fig. 10 and pp. 13-14.

corresponds to the internal cells. In either case, in the Damascene domes of Nūr al-Dīn, both the internal vault and the external *muqarnas* are applied decorations, glued or suspended to the smooth surface of a real vault. Their prototype ultimately originated in Baghdad, and is documented by the sole remaining provincial example - Imām al-Dawr. However, in the original 'sugarloaf domes' the exterior *muqarnas* was the back of real niches or else squinches, which means that it emerged as the result of constructive logic, whereas here it is a purely decorative device.

As far as the monument's dating is concerned, the inscription over the lintel of the *madrasa*'s portal records the date of 1172 AD for the building's completion. Since the date of the *mādrasā*'s foundation is also known (563 H/1167-68 AD), its construction must have been carried out between these two dates.[515]

5.2.9. Mausoleum of Ibn al-Muqaddam, Damascus

It was built in the Daḥdaḥ cemetery, north of Damascus, outside the ancient Bāb al-Farādīs, most probably during the second half of the twelfth century AD.[516] The mausoleum consists of a square room, surmounted by a dome whose diameter is approximately 4.90 metres. It has a pointed-arched opening on each side, originally closed by wooden shutters and latticework screens, according to K. Moaz. The monument is built in ashlar masonry, except for the small dome, or cupola, which is

[515] Allen, *Ayyubid Architecture*, chapter 2.

[516] K. Moaz, 'Le mausolée d'ibn al-Muqaddam', *Mélanges de l'Institut Français de Damas. Section des Arabisants* 1 (1929), pp. 65-74; Herzfeld, 'Damascus: I', pp. 14-18; Allen, *Ayyubid Architecture*, in particular chapter 6.

brick. It is relevant here because of its transition zone, which shows a double order or drum of *muqarnas* cells built in stone and covered by stucco decoration.[517]

The transition from the square room to the base of the drum, which is dodecagonal, is mediated by segmented pendentives. The angles of the dodecagon are spanned by large *muqarnas* cells, alternating with brackets that form the base of the upper tier, which is also dodecagonal. The cells of the second tier have the same disposition and geometry as the first, but are sensibly smaller. The bases of both orders are rotated by 15° relative to one another. A twelve-lobed cupola crowns the whole composition.

5.2.10. The Mosque of the Ḥanbalīs or Muẓaffarī Mosque, Damascus

According to the historical sources, the mosque was founded in 598 AH (1201-1202 AD) by Abū ʿUmar Muḥammad b. Aḥmad b. Muḥammad b. Qudāma al-Muqaddasī, a member of a well-known family, a native of a small town near Jerusalem and active in Damascus at that time, who was related to the local Ḥanbalī community. Yet, the building was completed - and later enlarged - thanks to the patronage of Gūkbūrī Muẓaffar al-Dīn (1154-1233 AD), governor of Mosul and Irbil and Saladin's brother-in-law, who also endowed the mosque.[518]

The *miḥrāb* shows a *muqarnas* vault, built in stone masonry, composed of three tiers of cells crowned by a lobed semi-dome. No

[517] Moaz, 'Le mausolée d'ibn al-Muqaddam', pp. 67-68.

[518] E. Herzfeld, 'Damascus, Studies in Architecture – IV', *Ars Islamica* 13 (1948), pp. 118-138, in particular pp. 120-123; Allen, *Ayyubid Architecture*, in particular chapter 6.

transitional device was necessary to place the *muqarnas* composition over the niche, because it is semicircular in plan. The first tier has flat cells alternated with pointed projecting corbels that support the second tier. This is composed of pointed niches whose spandrels are built as brackets; each niche is split into two halves and each half houses a smaller smooth pointed cell. The upper tier, similarly to the second, is composed of alternating niches and brackets, but here the niches are decorated with single gored elements and the brackets appear both simpler and less protruding. There is also a carved capital in the prayer hall with three tiers of *muqarnas* cells, each tier decreasing in height from the bottom upwards.[519]

5.2.11. The dome of the mosque in the Madrasa Sharafiyya, Aleppo

According to the historical sources, this building was founded as a mosque, and later enlarged and endowed as *madrasa*. The present prayer hall, placed in the south wing of the building, could belong to or include parts of this original mosque. It is relevant here because of its *muqarnas* vault, which was first cited by Creswell.[520] Terry Allen, who also published some photographs of the structure, described it as follows:

> 'a muqarnas vault built either of plaster or of stone covered with a thick coating of plaster. The present exterior is a tall octagon of stone with a small dome in the center. Inside, three tiers of muqarnas support a

[519] Herzfeld, 'Damascus: IV', pp. 120-123; Allen, *Ayyubid Architecture*, in particular chapter 6.

[520] K.A.C. Creswell, 'The origin of the cruciform plan of Cairene Madrasas', *Extrait du Bulletin de l'Institut Français d'Archéologie Orientale t. XXI,* Cairo: Imprimeries de l'Institut Français d'Archéologie Orientale, 1922, in particular, p. 16.

> sixteen-gored dome. The lowest tier is much taller than the second tier, which in turn is somewhat taller than the third tier. In the lowest tier I noted while restoration was under way in 1983 a geometric pattern of small holes drilled into the plaster and connected by incised lines, implying some decoration in relief. This vault is unlike contemporary muqarnas vaults in Aleppo and is reminiscent of the sugarloaf muqarnas over the tomb of Nûr al-Dîn in its proportions and in that its sides are squared: most of the transition from square to round is in the uppermost tier. It may have been intended to recall some particular sugarloaf prototype'.[521]

Regarding the monument's dating, Allen recorded an inscription over the *miḥrab* bearing the epithet of *al-Nusba*, which he associated with Abū Bakr al-Nusba al-Marāghī, a known personage, related to the mosque, who died the day before Friday 15 Ramaḍān 601 AH (15th May 1205 AD), according to his funerary inscription.[522]

5.2.12. The Damascus citadel

The fortress, which is of the greatest interest for the history of medieval architecture, was founded by the Saljūq Turks during the eleventh century and repeatedly modified during the following decades. At the beginning of the thirteenth century, a systematic campaign of rebuilding was carried out under al-Malik al-ʿĀdil (emir of Damascus, 1196-1218 AD), the younger brother and successor to Saladin (d. 1193 AD).[523]

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[521] Allen, *Ayyubid Architecture*, in particular chapter 8.

[522] Allen, *Ayyubid Architecture*, chapter 8. For the inscription, see Herzfeld, MCIA/Alep, pp. 260–62.

[523] From 2000 to 2006 the citadel was the subject of an extensive Franco-Syrian research project. Archaeological works were carried out under the supervision of the La3m (Laboratoire d'Archéologie Médiévale et Moderne en Méditerranée), a team of researchers belonging to both the Université d'Aix-Marseille and the CNRS.

The monumental vault that covers the East Gate will be discussed separately, in the chapter regarding stone *muqarnas* portals. [524] However, various scholars have reported on the sparse *muqarnas* decoration in various parts of this building complex, which will be discussed here. Apart from the aforementioned East Gate, the most important example is in the big reception hall known in French literature as *salle à colonnes*, and commonly classified (after Hanspeter Hanisch) as hall B10.[525] A large dome, supported by four huge columns, covers the central space in the hall. The transition from the square hall to the base

The results of these works are being published in several articles and studies. A monographic supplement to the 'Bulletin d'études orientales' was dedicated to these works: Sophie Berthier and Edmond El-Ajji (eds.) *Bulletin d'études orientales. T. 53/54, Supplément.* É*tudes et travaux à la Citadelle de Damas 2000-2001: un premier bilan (2001-2002)*, Damas: Institut Français d'Études Arabes de Damas, 2002 (refer to the introduction in this work, for the earlier bibliography). Among other publications, see in particular: Sophie Berthier, 'La fortification de la citadelle de Damas au XIIème siècle: les apports d'une étude archéologique', in Hugh Kennedy (ed) *Muslim Military Architecture in Greater Syria: From the Coming of Islam to the Ottoman Period*, Leiden: Brill, 2006, pp. 151-164; Andreas Hartmann-Virnich, 'Les portes ayyoubides de la citadelle de Damas: le regard de l'archéologie du bâti' in Jean Mesqui and Nicolas Prouteau, *La fortification au temps des croisades. Actes du colloque de Parthenay, 26-28 Septembre 2002*, Rennes: Presses universitaires de Rennes, 2004, pp. 287-311; A. Hartmann-Virnich, 'Regards sur un grand chantier ayyoubide: les portes de la citadelle de Damas. L'apport de l'étude archéologique des élévations', *Arqueología de la Arquitectura*, 4 (2005), pp. 217-236; J.C. Bessac and M. Boqvist, 'Les chantiers de construction de la citadelle de Damas: méthodologie et résultats préliminaires', *Arqueología de la Arquitectura*, 4 (2005), pp. 237-249; A. Hartmann-Virnich 'Les portes de la citadelle de Damas. La contribution de l'archéologie du bâti à l'histoire cachée d'un monument', *Bulletin d'études orientales*, LXI (2012), pp. 41-66. See also: J. Sauvaget, 'La citadelle de Damas', *Syria* 11 (1930), pp. 59-90 and 215-241; Allen, *Ayyubid Architecture*, in particular chapter 6.

[524] See paragraph '7.2.4. The East Gate of the Citadel, Damascus', of the present work.

[525] H. Hanisch, 'Die seldschukidischen Anlagen der Zitadelle von Damaskus', *Damaszener Mitteilungen*, bd. 6 (1992), p. 479-499; H. Hanisch, *Die ayyūbischen Toranlagen der Zitadelle von Damaskus: ein Beitrag zur Kenntnis des mittelalterlichen Festungsbauwesens in Syrien*, Wiesbaden: Ludwig Reichert, 1996.

of the dome was mediated by four large split pendentives generating a dodecagonal drum, decorated with two tiers of carved stone *muqarnas*. The lower cells have a pronounced protrusion and serve as corbels to support the upper *muqarnas* tier. This is composed of gored cells, which are smaller in height and flatter than the lower units.[526] The hall seemingly belongs to the same building campaign as that of the East Gate, which is dated to 610 AH (1213/1214 AD) by an inscription, which is discussed below.[527]

Two more examples of *muqarnas* decoration are found in towers T03 and T10, respectively, as well as in passage B14, decorating both imposts of a transverse arch.[528] The latter use of *muqarnas* has a parallel in the consoles supporting the springing of a vault, on both sides of the *miḥrab*,

[526] Sauvaget, 'La citadelle de Damas', pp. 88-89.

[527] S. Berthier, 'Introduction', in Berthier and El-Ajji, *Bulletin d'études orientales T. 53/54, Supplément*, pp. 29-44, in particular p. 43.

[528] Sauvaget, 'La citadelle de Damas', p. 224: 'La citadelle contient encore deux autres exemples d'alvéoles (tour I et tour A). D'autres ont disparu et il n'en reste que des éléments isolés: les belles niches remployées au milieu de blocs à bossage dans les quais du Baradâ devaient faire partie, si l'on en juge d'après leurs dimensions et la perfection de leur exécution, d'un ensemble considérable et particulièrement soigné : portail (de la Grande-Mosquée, du Palais) ou coupole (coupole du mihrab de la Grande-Mosquée, Coupole Bleue). Une telle profusion de stalactites à Damas, dans les premières années du XIIIe siècle, n'est explicable, après ce qui vient d'être dit, que par l'influence de la Syrie du Nord'; Bessac and Boqvist, 'Les chantiers de construction', p. 247: 'Dans le seul domaine de la géométrie, la variété des compétences des équipes est prouvée par le tracé des ostentatoires *muqarnas*, comme ceux de la porte orientale et de la salle aux colonnes et des discrets décors des escaliers (tours 3 et 10)'. See also Hartmann-Virnich, 'Regards sur un grand chantier ayyoubide', p. 225; M. Boqvist 'L'étude technique du bâti: l'état des recherches dans le secteur de la salle à colonnes' *Bulletin d'Études Orientales*, tome 53/54 (supplément, 2002), pp. 77-97, in particular, p. 85.

in the Upper Maqām Ibrāhīm, though in that case there is a double-tier and a more complex composition of the cells.[529]

5.2.13. A capital in the Lower Maqām Ibrāhīm, Aleppo

One of the two columns used in the prayer hall of the Lower Maqām Ibrāhīm is topped by a *muqarnas* capital, with a three-tier composition carved out of a single block. Allen dated this piece to some restoration to the sanctuary, possibly dated to 619 AH (1219-20 AD).[530]

5.2.14. Two corbels or consoles in the Upper Maqām Ibrāhīm, Aleppo

Stone *muqarnas* corbels or consoles, composed of two tiers of cells, are used on both sides of the *miḥrab* to support the springing of the vault, which covered the area in front of the niche. These elements seemingly belong to the sanctuary's reconstruction by al-Malik al-Ẓāhir after the original building was burnt, together with the palace, in 609 AH (1213 AD).[531]

[529] Allen, *Ayyubid Architecture*, chapter 8.

[530] Allen, *Ayyubid Architecture*, chapter 4.

[531] Allen, *Ayyubid Architecture*, chapter 8. Allen discusses separately the historical sources on the monument, in the paragraph regarding the Lower Maqām Ibrāhīm (in Allen, *Ayyubid Architecture*, chapter 4).

5.3. The Stone *Muqarnas* Pendentive in Syria

The documented examples indicate that *muqarnas* was in use to decorate domes, such as the Turba Najmiyya, around the middle of the twelfth century AD, the Mausoleum of Ibn al-Muqaddam, during the second half of the same century, and the dome of hall B10 in the Damascus citadel, at the beginning of the thirteenth century AD. In the first case, two orders of squinches alternating with windows of similar profile, mediate the transition from the square to the sixteen-sided base of the cupola. Beneath this transition zone there is flat stucco *muqarnas*, as described above, but *muqarnas* was not used as a transitional device here. In the Mausoleum of al-Muqaddam, the real transition is carried out through the pendentives, which create the dodecagonal base. The two tiers of *muqarnas* units reduce the width of the base supporting the twelve-lobed cupola, but do not create any variation in the dodecagonal geometry created by the pendentives. *Muqarnas* is used in a similar way, but on a larger scale, in the drum of the dome of hall B10, in the Damascus citadel. On the other hand, as I shall discuss below, true *muqarnas* pendentives were used in the zones of transition of Syrian domes from the late twelfth century at least.

5.3.1. Pendentives in the portal of the Madrasa Shādhbakhtiyya

This is one of two madrasas –both Ḥanafī– built by Jamāl al-Dīn Shādhbakht, who is mentioned in the historical sources as being an Indian eunuch of Nūr al-Dīn Zangī (r. 1146-1174 AD). However, he is better known through the inscriptions connected with his building patronage, which he cultivated when Nūr al-Dīn had already died and the

Ayyubids were ruling. According to Allen, this monument displays the earliest extant examples in Aleppo of both a *muqarnas* semi-dome and an *īwān*-hall.[532]

The portal on the north-western corner of the building is covered by a stone vault, which displays two tiers of *muqarnas* crowned by a lobed semi-dome. The base of the vault is semi-octagonal, the transition from the underlying rectangle being mediated by triangular pendentives. Each pendentive is composed of a couple of brackets supporting a horizontal course –decorated with a straight composition of two niches and three brackets– that spans the angle. As far as these pendentives are concerned, the *muqarnas* is used as decoration of the linear elements, which are set at 45° across the back angles, progressively projecting one over the other. The two upper tiers of *muqarnas*, which properly belong to the vault, are used to mediate the passage from the octagon to the sixteen-pointed star, underlying the lobed semi-dome.

Above the monolithic door lintel there is a relieving arch, with a circular inscription at its centre bearing the name of a Qāsim b. Saʿīd, who seemingly was the architect. The *waqf* inscription, placed directly above, recorded the name of the founder, Jamāl al-Dīn Shādhbakht, and the precise date of 589 AH (1193 AD).[533]

[532] Allen, *Ayyubid Architecture*, chapter 4. On the building see: Creswell, 'The origin of the cruciform plan', pp. 5-6 and 11-12; Creswell, MAE, vol. 1, p. 253.

[533] 'Herzfeld speculated that this man was the son of Saʿîd al-Muqaddasî, who signed the Shuʿaybîyah in a similar roundel, also in the center of an arch. This seems entirely likely; Qâsim is likely to have been the son of an architect, and if so, he may have referred to his father by given name because that name was publicly known in the city'. (Allen, *Ayyubid Architecture*, chapter 4).

5.3.2. The Mashhad al-Muḥassin, Aleppo

This monument is located on a hill west of the old city, named after a 'Shaykh Muḥassin', fancifully identified as a son of Ḥusayn, whose tomb was supposedly discovered in the tenth century. From that moment, the building passed through different periods of construction, which both Herzfeld and Allen have tried to clarify. It is relevant here because *muqarnas* pendentives were used in both the portal and the dome covering the area in front of the *miḥrāb*. The portal was added to an earlier building which Allen dated to 594 AH/1197-98 AD, relying on Lorenz Korn's reading of the last part of an epigraphic panel that Herzfeld was unable to access to read.[534]

As in the portal of the Madrasa Shādhbakhtiyya, *muqarnas* pendentives are used to create a semi-octagonal base for the dome. At the base of each pendentive is a split bracket that supports two tiers of *muqarnas*, composed of alternating niches and brackets. The *muqarnas* elements are more deeply carved than those in the Madrasa Shādhbakhtiyya, but have the same linear disposition in superimposed courses set diagonally across the back corners of the portal bay. Here again, two further tiers of *muqarnas* mediate the passage to the cupola, whose base is half a hexadecagon. The cells belonging to the pendentives, as well as the lower tier of the proper vault, are constructed with two courses of stone each. Only the upper tier, which is thinner, is carved out from of a single course of blocks. A frontal arch, with the same profile as

[534] Herzfeld, MCIA/Alep, vol. I, t. I, pp. 193-201; Allen, *Ayyubid Architecture*, chapter 4, who cites Korn's personal communication.

the vault, is used to fit the perfect half-domed composition above the portal bay, which is deeper than a half-square.[535]

The south wing of the *mashhad* includes a prayer hall, composed of three juxtaposed square chambers. A dome, whose transition zone is formed by a *muqarnas* composition, covers the central square, in front of the *miḥrāb*. The composition includes *muqarnas* pendentives of the usual type reducing the square to an octagon, and a further order - or low drum - composed of 24 cells, creating the circular base for the dome. Turning to the dome's dating, Allen cites a passage of Ibn Shaddād's that reports that the south wall of the *mashhad* was rebuilt under al-Malik al-Ẓāhir, after it had collapsed. Allen linked this information with an inscription, placed in the courtyard, on the prayer hall's façade, which bears the date of 609 AH (1212–13 AD) and the name of al-Malik al-Ẓāhir.[536]

5.3.3. Mashhad al-Ḥusayn, Aleppo

The Mashhad al-Ḥusayn was built on the same hill as the Mashhad al-Muḥassin, a few hundred metres away from it. An explosion destroyed the monument shortly after the end of the World War I, while it was being used as an ammunition store, the actual building is largely a reconstruction. Although parts of the ancient structure remains, Herzfeld's graphic documents, which recorded the original building

[535] Allen, *Ayyubid Architecture*, chapter 4.

[536] Allen considered that the dome at issue might be later than the inscription. On the other hand, one should take into account the possibility that the inscription's date is indeed correct, given the close resemblance of the dome with its counterpart in the nearby Mashhad al-Ḥusain, which I shall analyse below (see: Allen, *Ayyubid Architecture*, chapter 4).

before the explosion, thus hold an importance equivalent to those of primary sources.[537]

The prayer hall, in the south wing of the building, consists of five juxtaposed square domed rooms. The central dome, which covers the area in front of the *miḥrab* is both higher and more richly decorated than the others. The transition from the square chamber to the circular dome is mediated by a *muqarnas* composition that includes corner pendentives and two orders of *muqarnas* decorating the drum. The pendentives consist of two tiers of *muqarnas*, the lower has a simple central bracket supporting a horizontal course with a linear composition of two carved cells. Through these elements, an octagonal base created a cavetto moulding, upon which two tiers of *muqarnas* rest. In the first tier, the corners of the octagon are spanned by shallow cells, slightly protruding, alternating with flat carved arches of similar profile. The upper tier is composed of sixteen cells, in the shape of flat, pointed niches disposed radially, flanked by brackets that create a circular base for further circular moulding supporting the stone dome.[538]

With regard to the dome's dating, although the Mashhad al-Ḥusayn underwent several different building phases throughout the Ayyubid period, both Herzfeld and Allen observed that the south wing, including the dome, physically belonged to the same building campaign as the

[537] Herzfeld, MCIA/Alep, vol. I, pp. 236-248 and vol. II, Pls. XCVIII-CII. On the monument see also J. Sauvaget, 'Deux sanctuaires chiites d'Alep', *Syria* Tome 9, fascicule 3 (1928), pp. 224-237; Allen, *Ayyubid Architecture*, chapter 5.

[538] Allen, *Ayyubid Architecture*, chapter 5.

portal, which can be dated to 592 AH (1195-96 AD) thanks to a cursive inscription above the portal.[539]

At a later date, seemingly during the period when al-Malik al-ʿAzīz ruled in the city between 613 and 637 AH (1216-37 AD), an annexe was added to the *mashhad*, to the north of the building, which included a double domed hall. The zone of transition of the eastern dome, is formed by a *muqarnas* composition. In the corner are single brackets supporting pendentives, composed of two further tiers of cells. The upper unit of each pendentive is part of an order composed of 24 cells flanked by brackets, which create a circular base for the moulding which supports the stone dome. Allen raised some doubts as to whether these works belonged to al-Malik al-ʿAzīz's original building or a later refurbishment.[540]

5.3.4. The Madrasat Abī l-Fawāris, Maʿarrat al-Nuʿmān

This city, which was the scene of a famous genocide during the First Crusade, was recently the focus of protests against the Syrian government and subsequent battles during the civil war. The Madrasat Abī l-Fawāris, was built in 1199 AD according to an inscription carved on

[539] Herzfeld, MCIA/Alep, pp. 236-248; Allen, *Ayyubid Architecture*, chapter 5.

[540] Allen, *Ayyubid Architecture*, chapter 5: 'Thierry Grandin has suggested to me, very plausibly, that the muqarnas and corbels of the eastern chamber are secondary and that the chamber was originally unvaulted. (It may be that the corbels only appear to be inserted and that the disruption of coursing around them is the result of cutting special ashlars for special shapes. But they do look as if they were inserted in existing, plain masonry)'.

the rear wall of the entrance bay, published by Herzfeld in the third edition of *Damascus*.[541]

This monument is largely known for its monumental stone portal, but it is relevant here because of some *muqarnas* decoration displayed in the dome's pendentives, which covers the central area of the prayer hall, in front of the *miḥrāb*. Both Herzfeld and Allen described it, but neither of them published a photograph.[542] I record here Allen's description, which is more detailed:

> 'It [The dome over the miḥrāb] is set on muqarnas pendentives of restricted scope. Each pendentive has only two tiers of cells, rising from brackets, themselves formed like small split pendentives. Although there are some minor differences among the four pendentives, they all appear to follow a pattern in their outlining: the bracket, at the bottom, is clearly outlined against a slightly raised background; above the bracket, the lower tier of muqarnas is outlined, but there is no raised background; and in the top tier there is no outlining at all, but a smooth transition between the surfaces of the muqarnas cells and the adjacent surfaces. This pattern of outlining appears in the previous year in the portal of the Mashhad al-Muhassin, and it is the idiosyncratic detail from which I conclude that the Aleppo shrine is a work of Qāhir b. ʿAlī. The pendentives come up short against the octagonal drum, opened by eight small windows topped alternately with shell nicheheads and cusped trilobes with chamfered edges. At the level of the top of the windows a transition to a short sixteen-sided section is made by means of small trapezoidal shapes resembling extremely shallow split pendentives. This sixteen-sided section is fudged into the cavetto molding beneath the dome itself, which might have been bevelled horizontally, like the dome of the vestibule of the Madrasah al-Shādhbakhtīyah. Another signature of Qāhir b. Alī is carved in relief (in naskhî) on the cavetto on the qiblah side'.[543]

[541] Herzfeld, 'Damascus: III', pp. 5-6.

[542] The German scholar did publish a drawing of a pendentive in Herzfeld, 'Damascus: III', fig. 4.

[543] Allen, *Ayyubid Architecture*, chapter 4.

With regard to the dome's dating, as the same architect was seemingly responsible for both the dome and the portal, it can be assigned to approximately the same period, i.e. around the last years of the twelfth century AD.

5.3.5. Madrasa Ẓāhiriyya, Aleppo

The Madrasa Ẓāhiriyya was built a few hundred metres south of the Bāb al-Maqām by al-Malik al-Ẓāhir. According to Ibn Shaddād, it was completed in 610 AH (1213-14 AD) and it was intended for the burial of civil and military leaders of the Ayyubid entourage. It is a rectangular building organized around a central courtyard. Its main entrance is a monumental *muqarnas* portal –which is discussed in the next chapter– placed in the centre of its northern façade, giving direct access to the courtyard. However, there is *muqarnas* decoration, which is relevant here, in the burial hall placed inside the west wing's southern half. The central dome of this hall rests on three-tier *muqarnas* pendentives, supported by single brackets. These pendentives are similar in general shape to the Ayyubid examples we have described so far, except that they are composed of a higher number of *muqarnas* tiers. In each corner, a single bracket supports three superimposed courses, gradually corbeling inwards, decorated with linear compositions of alternating cells and brackets (the lowest tier is composed of a single pointed-arched cell, flanked by two brackets, the second of three cells and the third of four cells). Through the pendentives, an octagonal base is created for a cornice supporting a further tier of eight windows alternating with *muqarnas* cells with a similar profile which serve as squinches. The

whole of this transitional zone was built in stone. It supported a dome, which no longer existed when Herzfeld documented the monument and was restored at a later date. However, the German archaeologist could still see and describe traces of the original structure, which was erected in brick. Single *muqarnas* cells were also used to decorate the squinches of the southeastern domed chamber. These are not true *muqarnas* squinches, but ordinary ones, with some *muqarnas* elements used as decorative device.[544]

5.3.6. Madrasa Kāmiliyya, Firdaws, Aleppo

This building is roughly square and composed of four wings ordered around a courtyard. The central dome of the prayer hall, situated in the south wing, springs from a *muqarnas* composition including two-tier pendentives supported by split brackets. The corners' composition is developed as quarter-spherical lobed squinches or pendentives included in a two-tier polygonal *muqarnas* zone mediating the passage to the circular base of the dome. This work is similar to that in the eastern dome of the north annexe to the Mashhad al-Ḥusayn, but in the Kāmilīya the composition appears less organic and the way in which the builder adjusted the *muqarnas* decoration to the architecture is quite anomalous. In fact, the two-tier composition does not adapt to the underlying architecture and gives the impression that it is cut by the supporting arches. This rigidity vividly contrasts with the common view of *muqarnas* as a flexible device for linkage, or else transition, between architectural

[544] Herzfeld, MCIA/Alep, pp. 273–76, pl. 118–121; Allen, *Ayyubid Architecture*, chapter 8.

elements. Regarding the monument's dating, the precise attribution of the Madrasa Kāmiliyya is hypothetical, since the spaces prepared for housing the foundation inscriptions were left blank and scholars have identified it with various different buildings known through historical sources. Its ascription to the Ayyubid period is acceptable, considering both the architectural and decorative features of the building.[545]

The *muqarnas* portal giving access to this building will be discussed in the next chapter.[546]

5.3.7. Madrasat al-Firdaws, Aleppo

The Madrasat al-Firdaws, the city's most famous Ayyubid *madrasa*, is located in the same southern suburb of Aleppo as both the Madrasa Ẓāhiriyya and Madrasa Kāmiliyya. It is a large rectangular edifice, whose dimensions are approximately 44 metres x 55 metres, built around a rectangular courtyard, measuring around 13 metres x 16.50 metres.[547]

The south wing of the *madrasa* includes a prayer hall composed of three juxtaposed square rooms, each covered by a dome. The central dome, which covers the area in front of the famous *miḥrab* is higher and more richly decorated than the flanking ones. The corner *muqarnas* compositions are used to mediate the transition from the square to a

[545] Herzfeld, MCIA/Alep, pp. 305-306; Allen, *Ayyubid Architecture*, chapter 8.

[546] See paragraph '7.2.8. The portal of the Madrasa Kāmiliyya, Firdaus (Aleppo)', of the present work.

[547] Creswell, 'The origin of the cruciform plan', pp. 7 and 16; Herzfeld, MCIA/Alep, pp. 297-302; Yasser Tabbaa, 'Geometry and Memory in the Design of the Madrasat al-Firdows in Aleppo', in Sevcenko, M. B. (ed), *Theories and Principles of Design in the Architecture of Islamic Societies*, Cambridge, Massachusetts: Aga Khan Program for Islamic Architecture, 1988, pp. 23-34; Allen, *Ayyubid Architecture*, chapter 8.

dodecagonal drum. The lower part of these corners is spanned by *muqarnas* squinches, each flanked by two triangular pendentives decorated with flat cells. Through these devices, a dodecagonal base is generated, supporting a cornice decorated with a tier of shallow *muqarnas*. In addition, all but two of the capitals used in the arcades around the courtyard have *muqarnas* decoration. They are all of a similar size and display three-tier compositions, but each one is decorated with different sets of cells.[548]

As to the building's dating, the monumental inscription carved in a recessed band on the main façade gives both the name and titles of the founder, Dayfa Khātūn, and the precise date of 633 AH (1235-36 AD). However, the epigraph contains an apparent incongruence, as it records the name of al-Malik al-Nāsir as ruling sovereign, whilst his reign began the following year. Either way, as the founder is named as a living person, scholars agree that the date of 640 AH (1242 AD), when she died, is a secure *terminus ante quem*.[549]

5.3.8. Khānaqā of Dayfa Khātūn, Aleppo

This building is in the Fārafrā quarter, north of the Aleppo citadel; it is also generally known as the Khānaqā fi l-Fārafrā. The cursive inscription over its entrance gives the date of 635 AH (1237-38 AD) and the name of the then-ruling sovereign, al-Malik al-Nāsir, but does not record the founder, who was identified by Herzfeld based on the Arabic sources.[550]

[548] Allen, *Ayyubid Architecture*, chapter 8.
[549] Allen, *Ayyubid Architecture*, chapter 8.
[550] Herzfeld, MCIA/Alep, pp. 302-305.

In the prayer hall, included in the south wing of the *khānaqā*, *muqarnas* is used to decorate the dome's transitional zone in front of the *miḥrāb*. Triangular pendentives with carved *muqarnas* cells mediate the passage from the square chamber to the low octagonal drum that supports the dome. Allen considers the Khānaqā of Dayfa Khātūn, the Madrasa Kāmiliyya and the Madrasat al-Firdaws as works of the same architect, whose identity is unknown.[551]

[551] Allen, *Ayyubid Architecture*, chapter 8.

6. THE USE OF *MUQARNAS* IN THE ISLAMIC WEST

6.1. General Observations

This chapter is subdivided into four parts: '*Muqarnas* in Ḥammādid Art (1014-1152 AD)'; '*Muqarnas* in Almoravid Art (1040-1147 AD)'; '*Muqarnas* in Almohad Art (1121-1269 AD)'; and '*Muqarnas* on the Iberian Peninsula'.[552]

[552] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries. Terminology on western *muqarnas* or *muqarbas* is taken from a referenced Spanish bibliography on the topic, such as A. Fernández-Puertas 'Mukarbaṣ', in EI², vol. 7 (1993), pp. 500-501 and pls. XLIV-XLV, Antonio Fernández-Puertas, *The Alhambra*, London: Saqi Books, 1997, pp. 93 and 434-443, A. Fernández-Puertas, 'Los dibujos arquitectónico-geométricos del Rollo del Topkapi Saray', *Miscellanea de Estudios Árabes y Hebraicos*, 46 (1997), pp. 359-371. In the present chapter reference will be made to some studies on Naṣrid monuments dated to the late 13th-15th centuries which have not been included in the catalogue due to their late date. On the materials technology of stucco in Naṣrid times see, among others, Ramon Rubio Domene, *Yeserias de la Alhambra. Historia, técnica y conservación*, Granada: Patronato de la Alhambra y Generalife: Universidad de Granada, 2010. On the building procedure of Naṣrid *muqarnas* vaults see Gaspar Aranda Pastor, 'La alcoba O. de la galería meridional del patio de Comares: la bóveda de mocárabe', in *Actas del XIII Congreso Nacional de Historia del Arte, Granada, 31 de octubre 3 de noviembre 2000*, Granada: Universidad de Granada, 2000, vol. 1, pp. 43-55; Gaspar Aranda Pastor, 'La técnica del mocárabe en el *īwān* SE. del patio de Comares en la Alhambra, in Antonio Fernández-Puertas and Purificación Marinetto Sánchez, *Arte y Cultura. Patrimonio Hispanomusulmán en al-Andalus*, Granada: Editorial Universidad de Granada, 2009, pp. 179-232. Spanish scholars basically relied on the 17th-century treatise of Diego López de Arenas, *Primera y segunda parte de las reglas de la carpinteria*, Madrid: Instituto de Valencia de Don Juan, 1966 [with introduction and glossary of technical terms by Manuel Gomez-Moreno]. E. Nuere revised this terminology relying on a manuscript of Fray Andrés de San Miguel –a Carmelite friar, approximately contemporary with Diego López de Arenas, who wrote in Mexico a treatise on carpentry independent from that of López de Arenas– which was not known to previous generations of scholars (see Nuere, *La carpintería de Lazo. Lectura dibujada del manuscrito de Fray Andrés de San Miguel*, Málaga: Colegio de Arquitectos de Málaga, 1990). Other authors use as either alternative or complementary reference, Andrée Paccard, *Le Maroc et l'artisanat traditionnel islamique dans l'architecture* (2 vols.), Annecy: Atelier 74, 1983, which rely on contemporary Moroccan craftsmen's terminology.

6.1.1. Muqarnas *in Ḥammādid Art*

This section describes *muqarnas* fragments from Qalʿat Banī Ḥammād, which are generally regarded as being the earliest extant remains of *muqarnas* decoration documented in the Islamic West. These fragments were initially dated as early as the eleventh century, relying heavily on historiographical evidence that is in need of revision in the light of some neglected textual and archaeological evidence. The commonly accepted eleventh-century dating for some of Qalʿa's buildings and their architectural decoration, including the *muqarnas* fragments, can be refuted and a later date should be considered. In particular, if the introduction of *muqarnas* at Qalʿa dates back to the Ḥammādid period, which has yet to be proven, this might have happened during either the reign of al-ʿAzīz (1105-1121 AD) or Yaḥyā (1121-1152 AD), the two last Ḥammādid rulers. If this is the case, then the introduction of *muqarnas* in Ḥammādid art does not anticipate the evolution of new models, but would plainly fit in with a progression that started in the last decades of the Almoravid period and spread more widely under the Almohads.

6.1.2. Muqarnas *in Almoravid Art (1040-1147 AD)*

The first entry describes the Qubbat al-Bārūdiyyīn, in Marrakesh, where stucco *muqarnas* decoration is displayed mediating the superimposition of the central cupola on the ribs that sustain the dome, as well as in four small corner cupolas, which fill the rhomboidal areas resulting from the ribs' intersections, at the corners of the building. This entry includes a discussion on the traditional dating of the building to the first part of the reign of ʿAlī b. Yūsuf (r. 1106-1146 AD) –based on a dubious reading

of the monument's foundation inscription, together with tenuous historical reasoning–[553] and an argument for its chronological reassessment to the 1130s-1140s, at a time when we know that ʿAlī commissioned renovations at some of the major monuments in his emirate.

The second entry is dedicated to the Great Mosque of Tlemcen, where the earliest well-dated examples of *muqarnas* in Almoravid art are found (530 AH/1136 AD according to the inscription beneath the dome's drum). This dome, which covers the area in front of the *miḥrāb*, displays stucco *muqarnas* in both the transitional zone and in the small cupola at its apex. If the reservations exposed so far about the traditional dating of both the Qalʿa fragments and the Qubbat al-Bārūdiyyīn can be substantiated, then this is the first well-dated instance of *muqarnas* in the Islamic West.

The next entry deals with the *muqarnas* vaults datable to ʿAlī b. Yūsuf's building works at the Mosque of al-Qarawiyyīn, which included the *miḥrāb* vault, a set of *muqarnas* vaults in the raised nave which transversed the aisles facing the *miḥrāb*, as well as the vault of the commonly named Mosque of the Dead, an annex placed behind the western half of the *qibla* wall. Although the use of *muqarnas* is documented in the Great Mosque of Tlemcen, and perhaps in the Qubbat al-Bārūdiyyīn a little earlier, in the Mosque of al-Qarawiyyīn the management of the motive is displayed with a complexity that, as far as is known, had not been achieved hitherto in the Islamic West.

[553] G. Deverdun, 'Étude épigraphique', in J. Meunié and H. Terrasse, *Nouvelles recherches archéologiques à Marrakech*, Paris: Arts et métiers graphiques, 1957, pp. 49-52.

Western *muqarnas* vaults usually rest on cornices and spring from angular squinches which mediate the superimposition of the *muqarnas* polygonal geometry on the square, or else the rectangular portion of the nave which they cover. The vaults are all different from one another, both in their profile and in their plan. Except in the cases of both the circular dome of al-Qarawiyyīn and the small *muqarnas* cupola that crowns the ribbed vault in a house adjacent to the 'Patio de Banderas' –which are described in the corresponding entries– the geometrical composition of the western vaults is based on a 45° rotation of squares. The vaults are composed of up to ten tiers of *muqarnas* cells, ordered around sets of small stucco-lobed or gored cupolas with an eight-pointed star layout. One of the small cupolas occupies the vault's midpoint, marking the composition's higher point and centre. In the case of square vaults, one or two of the lower ranges of cupolas –as is the case– are arranged in squares around the central one. In the oblong vault at al-Qarawiyyīn, the central small cupola is in the middle of a row of five-cupolas, aligned along the vault's main axis. This row is surrounded, at a lower level, by a set of eight more small cupolas, arranged in a rectangle. From the geometrical point of view, every cupola works as a point of rotation, thus the monotony of the cells is broken not by varying the angles of rotation around the centre, but by multiplying the composition's rotation points. Furthermore, these cupolas result in a shady hollow, which generates light and dark effects breaking the uniformity of the vaults.

The following entry includes the *muqarnas* 'cutoff' or corbels supporting the upper part of walls upon chamfered corners in the gates

of Marrakesh. As cited in the previous chapters, similar devices are known in Cairo, firstly on the façade of al-Aqmar Mosque and later in Aleppo, at the southwest corner of the Madrasa Shuʿaybiyya.

6.1.3. Muqarnas *in Almohad Art (1121-1269 AD)*

This group includes three entries on Moroccan monuments showing *muqarnas* vaults: the Mosque of Tīnmal; the Kutubiyya Mosque in Marrakesh; and the Ḥassan Tower in Rabat. Almohad examples of *muqarnas* in the Iberian Peninsula are discussed in the following section. Almohad vaults seem to be derived directly from their Almoravid antecedents, and it is reasonable to suppose that craftsmen trained within the same tradition, if not the same craftsmen, were responsible for the vaults ascribable to both the Almoravid and the first Almohad periods. In both cases the geometry of the *muqarnas* is based on a 45°-rotation of squares around the lobed or gored cupolas. However, in Almoravid examples the disposition of the points of rotation is ordered more rigidly –they are always arranged in a square or rectangle– whilst in the Almohad vaults they are more freely disposed. In addition, in the latter highly contrasting light-and-dark effects were also generated, by placing the lobed or gored cupolas in deeper recesses.

6.1.4. Muqarnas *in the Iberian Peninsula*

In the entries belonging to this part of the chapter, the evidence for the introduction of *muqarnas* into the Iberian Peninsula is described and discussed. The first entry deals with the question as to whether

muqarnas was in use in the first Taifa period (eleventh century),[554] a theory that has been proposed relying on a text of al-ʿUdhrī (geographer and historian of al-Andalus who lived between 1003 and 1085 AD), containing a description of the royal palaces in the *qaṣba* of Almeria, in which the term *muqarnas* is used. However, this tenuous linguistic evidence, together with the absolute lack of material evidence makes it doubtful that al-ʿUdhrī used the term '*muqarnas*' in the precise context that we associate it with today.

Amongst the remains of architectural decoration discovered during both old and recent excavations, no indication that *muqarnas* was in use in the Iberian Peninsula during the Almoravid period has been found to date. Our present state of knowledge on the earliest remains of *muqarnas* decoration is limited to some painted stucco fragments found in 1985 during the archaeological excavations at the site of the monastery of Santa Clara, Murcia. Local scholars credibly assigned these fragments to the palace of Muḥammad b. Saʿad ibn Mardanīsh (1147-1172 AD), who apparently instigated an architectural campaign in the region, as part of his programme of military and political efforts to oppose Almohad expansion in the peninsula. The fragments have been interpreted as part of a *muqarnas* vault built in bricks and stucco and most likely reinforced with wooden beams, in a similar manner to the Almoravid examples cited above.

[554] The Taifa Kingdoms, from the Arabic *ṭā'ifa* (pl. *ṭawā'if*), were more or less small principalities declared independent by local Muslim leaders after the Umayyad Caliphate of Córdoba collapsed in 1031 AD. Second and third Taifa Kingdoms arose after the respective disintegration of Almoravid (around 1145 AD) and Almohad power (from the 1220s AD) in the Iberian Peninsula.

An in situ *muqarnas* dome is amongst the sparse remains of the Almohad Mosque, Seville. The building, which was similar to the Kutubiyya in its structure but rather greater in its dimensions, was destroyed in the fifteenth century and replaced by the Christian cathedral. However, one of the ancient *ṣaḥn* gateways, the commonly named 'Puerta del Lagarto', includes a small stucco *muqarnas* dome, rectangular in plan, approximately 2 metres wide by 1.35 metres deep. Similar to the North African vaults described above, it is a suspended stucco ceiling, most probably reinforced by way of wooden ties and/or bricks. It is most probably part of the *ṣaḥn* expansion which began in 1196 AD under the reign of Abū Yūsuf al-Manṣūr. Other Almohad samples of *muqarnas* are found –in Seville, as well– within the remains of the ancient Almohad palaces, in a house adjacent to the 'Patio de Banderas' in the Alcázar of Seville, and a pair of small *muqarnas* vaults are in a part of the Almohad palace which was later included within the palace of Peter of Castile, near the 'Patio de Doncellas'.

I also included in this section the first existing example of Mudéjar *muqarnas*, found in the Cistercian Abbey of Santa María la Real de Las Huelgas, near Burgos. This *muqarnas* decoration (composed of three small cupolas) is ascribable to the palace built by Alfonso VIII within the first quarter of the thirteenth century and is considered by scholars to be pure Almohad work within Christian domains, being a perfect counterpart to the Almohad *muqarnas*, from the point of view of both the building technique and the geometry.

6.1.5. Discussion

The date for the introduction of *muqarnas* into the Islamic West is tenuous. Qalʿa's fragments are most probably dated to the first half of the twelfth century. They are reasonably contemporary with the first Almoravid examples, dated to the 1130s-1140s AD. The first clearly dated evidence for the use of *muqarnas* is the dome of Tlemcen's mosque, dated to 1136 AD, with the Qubbat al-Bārūdiyyīn most probably being roughly contemporary.

All Western examples of *muqarnas* from the period considered (twelfth to mid-thirteenth century, approximately) were built in stucco. Small *muqarnas* cupolas were used in the rhomboidal areas resulting from the ribs' intersection at the Qubbat al-Bārūdiyyīn's corners. Simple flat *muqarnas* was used in the same monument to mediate the superimposition of a lobed cupola on the ribs comprising the internal dome. In the dome of Tlemcen's mosque, stucco *muqarnas* is used both to fill the squinches and in the small cupola crowning the dome's apex. Both the key elements of later Western *muqarnas* vaults are used together, but separately, in these domes:

- A structure supporting brick-built, intertwined arches (these ribs are usually traced to the prototype ribbed domes of the *maqṣūra* of the Great Mosque of Córdoba (ca. 353 AH/965 AD).
- A stucco *muqarnas* work composed of perfectly defined cells disposed according to a clear geometric layout.

However, these are not *muqarnas* vaults and the *muqarnas* decoration is limited to the reduced areas of the transition and to the small cupolas.

The cupolas show no evident load-bearing substructure supporting their *muqarnas* work, which perhaps was unnecessary because of their small dimensions (the cupola crowning the dome of Tlemcen's mosque has a diameter of little more than one metre, being comparable to the small corner cupolas of the Qubbat al-Bārūdiyyīn). Therefore, they seem to be pure and simple stuccowork, with only the potential reinforcement of embedded wooden supports or bricks laid at the edge.[555]

During the 1130s-1140s a Western building technique of *muqarnas* vaults, as a suspended decorative ceiling reinforced with brick and wooden ties, was well defined. Terrasse described this constructive procedure as follows:

> 'Le mode de construction de ces coupoles à *muqarnas* apparait nettement. Elles n'avaient aucune valeur structurale: aussi bien elles sont protégées par la toiture de la nef surélevée qui les contient. Ce ne sont que des concrétions légères de plâtre –renforcées en quelques

[555] The presence of these types of vertical wooden elements, together with other wooden beams and supports was first reported –referring to the case of Almohad vaults– by Henri Basset and Henri Terrasse, *Sanctuaires et forteresses almohades*, Paris: Maisonneuve et Larose, 1932, pp. 49-50: 'A Tinmel, aux coupoles ruinées du miḥrāb et de l'ouest, de longues pièces de bois, poutres a peine équarries, et peut être même rondins, coupaient à des hauteurs diverses les angles du curré. Certaines d'entre elles se rattachaient aux longrines qui servent de linteau de décharge au-dessus des arcades trilobées. D'autres madriers s'enfonçaient dans la maçonnerie, à des niveaux variables. À l'intérieur des murs, à quelque distance des angles et au-dessus des arcatures, l'alignement régulier des briques s'interrompt: une pile de briques posée en oblique ménageait de chaque côté un ongle rentrant où devaient prendre place les extrémités d'une série de madriers superposés. C'était là que venait s'accrocher la partie supérieure de la coupole. Des pièces de bois verticales venaient même servir d'ossature aux stalactites les plus basses [note that only lower tiers of cells are preserved in the vaults that authors are decribing]. Ce dôme léger était donc plutôt suspendu à sa charpente que posé sur des mures. Les poussées étaient presque nulles: il n'était pas besoin d'épaissir les murs de support, moins encore d'épauler les retombées'. See also, in the same book, figs. 17 and 19 and pl. VIa.

> points de briques posées sur la tranche– et parfois reliées aux murs extérieurs de la nef par des tirants de bois. Pour chaque coupole en avait préparé, au moyen de madriers et de planches une forme en creux à l'intérieur de laquelle les *muqarnas* étaient modelés. Cette forme se composait d'étages en retrait vers le haut qui correspondaient aux registres de stalactites des coupoles. Certaines planches ont subsisté. En d'autres endroits, lorsque l'extrados n'a pas été remanie par des réparations de détail, l'empreinte des planches ou des madriers est encore visible dans le plâtre. Ainsi ces coupoles, simples agglomérats de matériaux légers, renforcés et soutenus par des madriers, n'avaient aucune valeur architecturale: ce n'étaient que de somptueux décors'.[556]

As regards the *muqarnas* composition, one of the key features of Almoravid *muqarnas* (as well as several later *muqarbaṣ*, or Western *muqarnas*) are ribs composed of *muqarnas* brackets, called *medina* in later *muqarnas* literature.[557] These brackets are usually thinner than the standard *muqarnas* cells. According to Antonio Fernández-Puertas, their proportional width is 1/5 of the width of the *adaraja* or standard cell,[558] although the width of the *medina* may vary, according to other authors, from 1/5 to 1/7 of the width of the table from which the standard cells are obtained.[559]

In Almoravid vaults bands of brackets similar to the *medina* are clearly visible in the intrados of the vault, although it is not clear whether they correspond to real ribs (i.e. reinforcers for the stucco composition) or not, because the structure of the vaults has not been

[556] H. Terrasse, 'La Mosquée d'Al-Qarawīyīn à Fès et l'Art des Almoravides', *Ars Orientalis* 2 (1957), pp. 135-147, in particular, p. 143.

[557] See the definition of *medina* in Aranda Pastor, 'La técnica del mocárabe', p. 199: 'cinta o nervio continuo que articula las diferentes piezas en grupos o módulos y forma la estructura'.

[558] Fernández-Puertas, 'Mukarbaṣ', p. 500.

[559] *Cf*. Nuere, *La carpinteria de armar*, pp. 340-341.

studied in depth. Following A. Fernandez Puertas,[560] G. Aranda Pastor suggests that in later Western examples, this was usually the case.[561] According to his interpretation, the *medina* was a key element in the building process of a Naṣrid vault in the Alhambra. In particular, after the geometry of the vault was decided, *medina*s were built to form a basic structure of mixed crossed arches (see figs. 7-8, illustrating the example of the south-west alcove in Comares courtyard, Alhambra). This basic structure left between the ribs 27 empty spaces, more or less wide. The empty spaces were consequently filled with modules composed of clusters of joined cells, designed to fill them exactly (a total of 6 different kinds of aggrupation were necessary, each composed of 11-71 *adarajas* or cells).[562]

In the previous chapter of this study, compositions of cells similar to these were noted in Damascene *muqarnas* as evidence for the technique's ultimate derivation being from a wooden prototype. Indeed, this form is comparable to the wooden ceiling of the Cappella Palatina, where the composition of brackets similar to those of the *medina* can be

[560] Fernández-Puertas, 'Muqarbas', p. 501: 'It [the medina] is used in mixed crossed arches, which derived from the Hispano-Muslim caliphate vaults.'

[561] See, for example, Aranda Pastor, 'La alcoba oeste', p. 44: 'la medina funciona como arcos mixtilíneos entrecruzados que derivan de las bóvedas del Califato hispanomusulmán'; Aranda Pastor, 'Fragmento de una bóveda', p. 8: 'Como ya se ha visto, entre las adarajas hay acopladas unas piezas con forma de taco rectangular, llamada medina, que discurren a modo de cinta o nervadura continua y articulan las adarajas en grupos o módulos y estructuran el trazado geométrico básico de la composición. La medina es el verdadero esqueleto de la bóveda, cuya concepción deriva de los arcos entrecruzados de las bóvedas califales de Córdoba, y los espacios intermedios resultantes son como los plementos de las mismas, que ahora se rellenan con las adarajas del mocárabe'. See also Aranda Pastor 'La técnica del mocárabe', p. 209.

[562] The full geometric and constructive procedure of building a Naṣrid *muqarnas* vault is illustrated in Aranda Pastor, 'La técnica del mocárabe', pp. 204-222.

observed, generated by wooden panels called EL-1 and EL-2. In addition, a ceiling in the Damascus mosque described by Ibn Jubayr was proposed as being a specimen of the 'common ancestor' of the side vaults of the *māristān* in Damascus and the wooden technique later imported to Sicily. It seems reasonable to argue that Almoravid stucco *muqarnas* ultimately derived from a similar or exactly the same prototype.

It is interesting to observe that in the partially ruined vaults of Tinmal small wooden panels placed vertically are visible, in correspondence with the *medina*. It is not clear, in the photographic documentation available, whether these panels were shaped as the EL-1/EL-2 panels of the Cappella Palatina, being used not only as reinforcement, but also as a guide to profile the stucco brackets.[563] Be that as it may, there is no doubt that stucco workers used similar wooden templates to obtain the profile of *muqarnas* cells as were used to shape the panels which form the structure of wooden ceilings. Perhaps, they also employed the embedded wooden elements –such as thin panels and fillets vertically placed within the stucco– to shape the geometric net underlying the *muqarnas* layout (which is also very similar to the original wooden *muqarnas*).[564] This is not surprising if we consider that wooden tablets or other kinds of elements were

[563] See Christian Ewert and Jens Peter Wisshak, *Forschungen zur almohadischen Moschee, II: Die Moschee von Tinmal*, Mainz am Rhein: Philipp von Zabern, 1984, p. 66, tab. 64 b.

[564] Basset and Terrasse, *Sanctuaires et forteresses*, pp. 50, 60 (fig. 17), 67 (fig. 19) and pls. VI a; Ewert and Wisshak, *Die Moschee von Tinmal*, p. 66 and tabs. 64 a-b, 65 a-b.

ubiquitous under the stucco to define mouldings and brackets in both Almoravid and Almohad monuments.[565]

The important similarities that can be observed between the Western *muqarnas* and the side vaults of the Nūr al-Dīn Māristān's vestibule in Damascus as well as Sicilian instances, confirm that the ultimate prototype for Western *muqarnas* was also a wooden technique. There is no evidence, however, suggesting that similar ceilings to that of the Cappella Palatina were ever built in the Western Islamic world, and later evidence of Western wooden *muqarnas* suggest that this was not the case. Actually, Western wooden *muqarnas*, documented during the late thirteenth-early fourteenth centuries under the dynastic heirs of the Almohads,[566] were not in the form of *muqarnas* ceilings, but only decoration on non-*muqarnas* wooden ceilings and eaves.[567] In addition,

[565] These wooden elements are visible almost every time that the stucco covering falls down from mouldings and brackets. See, for instance, Jacques Meunié and Henri Terrasse, *Nouvelles recherches archéologiques à Marrakech*, Paris: Arts et métiers graphiques, 1957, fig. 16 at p. 26, fig. 18 at p. 27, ph. 28 at p. 89, ph. 38 at p. 94, ph. 39 at p. 95, ph. 42 at p. 97, phs. 44-47 at pp. 98-99. Examples of this are uncountable in the Tinmal mosque, where the stucco covering has fallen down from most of the walls.

[566] Marçais, AMO, pp. 261-360.

[567] See, for instance, Naṣrid wooden ceilings of the palace of the Partal (end of the 13th-beginning of 14th centuries) or the famous wooden ceiling of the Comares Palace (built by Yūsuf I, 1333-1354 AD), both in the Alhambra, displaying *muqarnas* corniches and small cupolas (see figs. 9-11). On these palaces see, among others, Cabanelas Rodríguez and A. Fernández Puertas, 'Inscripciones poéticas del Partal y de la fachada de Comares', *Quadernos de la Alhambra* 10-11 (1974-75), pp. 117-199, Darío Cabanelas Rodríguez, *El techo del Salón de Comares en la Alhambra. Decoración, Policromía, Simbolismo y etimología*, Granada: Patronato de la Alhambra y Generalife, 1988. In north Africa wooden *muqarnas* consoles or corniches are in the eaves of the Abū l-Ḥasan Madrasa, Fez (1342 AD); and in the Bou Inania Madrasa, founded by Abū ʿInān Fāris in 1351-1356 AD, see Marçais, AMO, pp. 289-290 and 291-293; Catherine Cambazard-Amahan, 'Arquitectura

the Western technique of building wooden *muqarnas* was through fixing together prefabricated solid wooden prisms or *adarajas* (see figs. 12-14), which is not a comparable technique to that used in the ceiling of the Cappella Palatina.[568] In Roger II's ceiling a supporting structure like a skeleton or net of superimposed wooden panels was built and the empty spaces left by this structure were covered by thin wooden elements defining the surface of the cells (this technique is illustrated in detail in chapter 8). The final surface of the intrados in both techniques is comparable to a certain extent, because some of the cells have a similar profile, but the building process is not the same (see figs. 11-14, compare with fig.) .[569]

It has been observed that Western Islamic and later *Mudéjar* carpentry seemingly 'knew' *muqarnas* through the mediation of stuccowork.[570] They used similar templates and similar geometric

marīní', in López Guzmán (ed.), *La arquitectura del Islam occidental*, pp. 221-231. In the north west aisle of the Bou Inania Madrasa is a wooden *muqarnas* vault built on square base, which is the earliest existing wooden *muqarnas* vault of the Islamic west, to my knowledge. Alfred Bel, who could inspect the vault's extrados, confirmed that it is built in the western wooden *muqarnas* technique described below in this chapter. See A. Bel, 'Inscriptions arabes de Fés (suite)', *Journal Asiatique*, 12 (1918), pp. 337-399, in particular, p. 355: 'Ces stalactites sont faites d'un assemblage de perches de cèdre, à section horizontale rectangulaire, disposés verticalement et dont les extrémités inférieurs sont découpées de la façon voulue pour constituer le décor à stalactites. Une visite, par les terrasses, au sommet de la coupole, abritée par un toit en pyramide quadrangulaire, permet de se faire une idée de ce mode d'assemblage'.

568 On the constructive features of Western wooden *muqarnas* see Fernández-Puertas, 'Muqarbaṣ', Nuere, *La carpintería de lazo*, pp. 68-72 and pp. 263-283; Nuere, *La carpintería de armar*, pp. 159-167.

569 On the Cappella Palatina ceiling's construction features see paragraph *8.3.3. The Cappella Palatina*, in the present study, with a full bibliography.

570 Marçais, AMO, p. 345; Nuere, *La carpintería de armar*, p. 159; Rafael Manzano Martos, 'Discurso de contestación del Excmo. Sr. D. Rafael Manzano Martos', in Enrique Nuere Matauco, *Dibujo, geometría, y carpinteros en la arquitectura*,

principles as that of the stucco workers –whose ultimate origin was oriental carpentry– but those same templates and principles were re-applied to wood in a different way, compared with the original oriental technique.

To conclude, despite certain important geometric similarities with the ceiling of the Cappella Palatina in both the cells' shapes and disposition, the Almoravid masters –or master– who introduced *muqarnas* into the Islamic West, most probably did not acquire the skill –or even complete knowledge– in the original wooden technique. They seem to have imported the stucco variant of *muqarnas* only, which was later developed into superb Naṣrid and *mudéjar* examples.

Madrid: Real Academia de Bellas Artes de San Fernando, 2010, pp. 59-67, in particular pp. 64-65.

6.2. *Muqarnas* in Ḥammādid Art (1014-1152 AD)

Between 1957 and 1974 Lucien Golvin published some *muqarnas* stucco fragments that he discovered in the course of his archaeological excavations at Qalʿat Banī Ḥammād, Algeria. These fragments came from two separate parts of the city and were classified in two different groups. The first group was found in 1956, in the lower part of the so-called *Qaṣr al-Salām*, which is a set of buildings located in the southwest of the city. It included four easily recognizable blocks of stucco that were discovered, together with some other small and unrecognizable artefacts, within the remains of an oblong hall. The French scholar assumed that they corresponded to the vestiges of a *muqarnas* semi-dome, which might have covered the niche facing the hall's entrance, matching those that still exist, for example, in the Norman palaces of Sicily. The second group was found some years later in the eastern part of the city, near to the entrance of the commonly named *Qaṣr al-Manār*. These fragments were better preserved than the others and retained traces of painted decoration. Despite this, Golvin was unable to indicate precisely whether they came from a *muqarnas* vault or if they belonged to the transitional zone of a dome.[571]

[571] Golvin, 'Note sur quelques fragments de plâtre'; Lucien Golvin, *Recherches archéologiques à la Qala des Banû Hammâd*, Paris: Maisonneuve et Larose, 1965, pp. 123-127; L. Golvin, 'Kalʿat Banî Hammâd' in EI², vol. 4, pp. 499-502; L. Golvin, 'Les plafonds à Muqarnas de la Qala des Banû Hammâd et leur influence possible sur l'art de la Sicile à la période normande', *Revue de l'Occident musulman et de la Méditerranée* 17 (1974), pp. 63-69. During the archaeological campaigns conducted by an Algerian team a third group of *muqarnas* fragments was discovered, but only the following notice was published, together with a sketch of the hall where they were found: 'Quant à la pièce de 8 m de long, nous y avons mis au jour des stucs, des vitraux sur plâtre et surtout des stalactites ou muqarnas. Nous l'avons appelée *Salle des muqarnas*' (Rachid Bourouiba, *Les H'ammadites*,

These well-known fragments have long been considered the earliest extant remains of *muqarnas* in the Islamic West ever since, according to the French scholar, they could be dated either as early as the eleventh century, or to the very beginning of the twelfth century. However, recently I proposed a revision of Golvin's study, arguing that his chronology for the fragments relied expressly on an historical reconstruction that underestimated or directly neglected some textual and archaeological evidence which allows for an alterntive interpretation.[572]

In short, Golvin proposed a parabolic evolution of the city and assigned its peak to the reign of al-Nāṣir (1062-1088 AD). According to his view, during the reign of al-Manṣūr (1088-1105 AD), al-Nāṣir's son, the progressive deterioration of the state began, which was as 'un grand corps atteint d'une lente anémie pernicieuse',[573] due to the continuous infiltration of Arab tribes. These circumstances caused al-Manṣūr to move the capital to Bejāya in 1090, contributing de facto to Qal'a's decline. After this sovereign's death, life in the city continued in an insecure fashion, with its communications compromised, its supplies became eratic. Due to these problems, 'que les successeurs d'al-Manṣūr ne résoudront qu'au prix de difficiles expéditions',[574] and after what seems to have been a 50-year-long siege, in 1148 AD, Yaḥyā (r. 1121-

Algiers: Entreprise national du Livre, 1984, pp. 226-227). Excluding this brief note, no other picture or description of these fragments has been published to date. For this reason, these pieces have been ignored by scholars and are still virtually unknown.

572 Maurizio Massaiu, 'The use of muqarnas'.

573 Golvin, *Recherches archéologiques*, p. 32.

574 Golvin, *Recherches archéologiques*, p. 33.

1152 AD), the grandson of al-Manṣūr, 'sauve de la cité menacée tout ce qui a quelque valeur et transporte ces richesses, a Bougie'.[575]

This study established that both the idea of Qalʿa's parabolic evolution and the explanation for its decline as a result of Arab invasions seem to be derived from the work of Ibn Khaldūn (1332-1406 AD).[576] Golvin's whole argument is seemingly based on three short passages written by the Muslim historiographer, whilst he neglected a number of texts which expressly contradict his chronology. In addition, after the hasty departure of the French mission, due to the Algerian crisis of 1962, excavations at Qalʿa continued with several archaeological campaigns extended over many years, providing relevant evidence which contradicts the alleged ruin of Qalʿa either at the end of the eleventh century or beginning of the twelfth century.

As a result of Golvin's historical reconstruction, while the importance of the city during the eleventh century was rightly recognized, the fact that Qalʿa continued as an important city during the twelfth century and perhaps part of the thirteenth century was overlooked. Therefore, from

[575] Golvin, *Recherches archéologiques*, pp. 32-33. I suggested that what happened in 1148 had nothing to do with Hilalian looters, but with the Almohad threat. In fact, the Almohads had just conquered Marrakesh (1147) and put an end to the Almoravid's power and were destined to do the same with the Banū Ḥammād. Ibn Khaldūn neither refers to a removal of valuable objects to Bejāya nor says anything about the insecurity of Qalʿa, both of these being Golvin's deductions. Actually, the source could be a record of the economic and military effort that Yaḥyā was sustaining to face the Almohad pressure. Among his expenses, in those years, there would likely be the payment of troops (including the Arab ones) that were protecting the kingdom and perhaps the army itself that would defend Qalʿa in 1152. See Massaiu, 'The use of muqarnas', pp. 209-230.

[576] Ibn Khaldūn, transl. de Slane, II, p. 51, 'Ce fut sous le règne de ce prince [al-Nāṣir] que la dynastie hammadite atteignit au faîte de sa puissance'; Golvin *Recherches archéologiques*, p. 32, '[Le règne d'al-Nāṣir] se déroulera presque entièrement à la Qala, marquant, nous l'avons dit, le sommet de la courbe d'évolution de la cité'.

the point of view of art history, Ḥammādid architecture and architectural decoration have often been considered an eleventh-century avant-garde precursor to characteristics which would spread in Western Islamic art during the twelfth century. In my opinion this idea was generated when the city was summarily supposed to be an eleventh-century site and its official buildings were believed to have been abandoned at a given moment, under al-Manṣūr (r. 1088-1105 AD). Since these assumptions are proven to be false, I proposed that the commonly accepted 11th-century dating of some of Qalʿa's buildings and their architectural decoration, including the *muqarnas* fragments, should be refuted and a later date should be proposed for them. If the introduction of *muqarnas* at Qalʿa dates back to Ḥammādid times, which has yet to be proven, I proposed that it might have happened during either the reign of al-ʿAzīz (1105-1121 AD) or Yaḥyā (1121-1152 AD), the last Ḥammādid rulers. In this case, the introduction of *muqarnas* in Ḥammādid art announced or anticipated the evolution of forms towards new models, but would plainly fit in with a progression that started in the last decades of the Almoravids and finally spread under the Almohads. Unsurprisingly, the existence of *muqarnas* at Qalʿa at such an early date seemed extraordinary in 1965, except by those scholars who had no doubt that sooner or later further proof of its usage would be discovered throughout Ifrīqiya's capital cities. However, no such remains have been discovered to date at tenth- or eleventh-century sites such as Ashīr, Mahdiyya, Ṣabra Manṣūriyya, or elsewhere in both North Africa and the Iberian Peninsula.[577]

[577] See Massaiu, 'The use of muqarnas', pp. 209-230.

6.3. *Muqarnas* in Almoravid Art (1040-1147 AD)

6.3.1. The Qubbat al-Bārūdiyyīn

This monument was reported in a small monograph article by Boris Maslow in 1948, who first drew scholars' attention to it.[578] Soon after Henri Terrasse described the *Qubba* in three different interventions, namely in two communications presented at the *XXI Congrès des Orientalistes* and at the *Academie des Inscriptions et Belles-Lettres* respectively, and in a study published in the *Mélanges Louis Halphen*.[579] Subsequently on different occasions Manuel Gómez-Moreno, Leopoldo Torres Balbás and Georges Marçais dedicated some paragraphs or sections of their work to the *Qubba*,[580] but the principal reference work on the monument is *Nouvelles recherches archéologiques à Marrakech* of Jacques Meunié and Terrasse. This monograph was published after the works carried out between 1952 and 1954, incorporating archaeological excavations, an architectural survey of the monument and the surrounding remains, a study of the architectural decoration

[578] B. Maslow, 'La Qoubba Barūdiyyīn à Marrākuš', *Al-Andalus* 13:1 (1948), pp. 180–85.

[579] H. Terrasse, 'Les monuments almoravides de Marrakech', *Actes du XXIe Congrès des Orientalistes, Paris, 23-31 juillet 1948*, Paris: Société Asiatique de Paris, 1949, pp. 326-327; H. Terrasse, 'Découvertes archéologiques à Marrakech', *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres* 94:2 (1950), p. 209; H. Terrasse, 'Les conséquences d'une invasion berbère: le rôle des Almoravides dans l'histoire de l'Occident', *Mélanges Louis Halphen*, Paris: Presses Universitaires de France, 1951, pp. 674-681.

[580] Manuel Gómez-Moreno, *Arte español hasta los Almohades. Arte Mozárabe*, Madrid: Plus Ultra, 1951, pp. 279-296; L. Torres Balbás, 'Nuevas perspectivas sobre el arte de al-Andalus bajo el dominio de los almorávides', *Al-Andalus* 17: 2 (1952), pp. 402-432; Leopoldo Torres Balbás, *Artes almorávide y almohade*, Madrid: C.S.I.C., 1955, pp. 24-26, Marçais, AMO, p. 87.

and epigraphy.[581] More recently Yasser Tabbaa dedicated an article to the monument proposing some considerations on the political, religious and artistic, context of the Almoravid court and finally interpreting the *Qubba* as an Almoravid homage to the Abbasids.[582]

The Qubbat al-Bārūdiyyīn is located in Marrakesh, near the site of both the Mosque of ʿAlī b. Yūsuf and his palace complex, which have now disappeared. It is a domed kiosk approximately 10.8 metres tall which rests on a rectangular base whose dimensions are approximately 7.3 metres long by 5.4 metres wide.[583]

From the exterior, the building is partitioned into three horizontal levels separated by mouldings. On the first level, four corner piers sustain the whole structure. Along each longer side of the base are twin pointed horseshoe arches, supported by slender pillars, whereas on each shorter side the opening consists of a single five-foiled lobed arch. Above the first moulding, in the central zone, are sets of small arched windows, five along each length and three along each width of the structure. A variety of arches, such as a pointed horseshoe, tri-lobed and foliate ones are displayed here. All of them, as well as the arches of the lower level, are set within recessed frames. No other decoration is displayed on the *Qubba*'s exterior, on these levels. The moulding topping the second zone is crowned by a stepped crenellation, behind which rises the outer dome, with a diameter of 3.8 metres. It is decorated with interlacing blind arches on its lower part and on the

581 Meunié and Terrasse, *Nouvelles recherches*.

582 Y. Tabbaa, 'Andalusian Roots and Abbasid Homage in the Qubbat al-Barudiyyin in Marrakech', *Muqarnas* 25 (2008), pp. 133-146.

583 Meunié and Terrasse, *Nouvelles recherches*, pp. 21-22.

upper one with chevrons emanating from a seven-pointed star situated at the dome's summit.

The interior organization of the building is articulated so as to create a central square space, which probably housed an ablution fountain. Except for the geometric decoration on the intrados of two small vaults at the entries on the shorter sides, the lower level is essentially plain, up to the height of the interior cornice beneath the inner cupola, where a sumptuous decoration begins. A cursive inscription, to be examined below, written on an arabesque background runs along all four sides of the cornice itself.

The dome is sustained by eight mixtilineal ribs, resting directly on the cornice, and intersecting in an eight-pointed star pattern, composed of two rotated squares. The resulting wide octagonal area is surmounted by a level of tri-lobed arches with notched shoulders filled with flat *muqarnas* cells which mediate the superimposition of a lobed cupola on the ribs. This intricate structure incorporates four other small cupolas, one for each corner, which rest on two tiers of *muqarnas* cells. They are used to fill the rhomboidal areas resulting from the ribs' intersection at *qubba*'s corners. In these cases, the rhomboidal base of the composition does not allow for a geometric *muqarnas* disposition based on the usual rotation of squares or polygons. As a result, the corner cupolas seem arranged artificially, so as to fit into a residual space. The use of seven pointed stars –which in turn are irregular– to crown the *muqarnas* composition is anomalous as well, and enhance the impression of experimentation of a *muqarnas* motif which is achieved empirically rather than relying on real *muqarnas* geometry.

Almost the entire surface of the interior cupola is filled with lavish stuccowork, mainly carved with vegetal motifs, generally considered as an influence of Andalusi decorative style. According to Meunié and Terrasse all the interior decoration had to have been polychrome originally, with today's uniform-grey aspect an effect of the painted plaster's oxidation.[584]

For the most part the *Qubba* is a stone and brick structure based on stone foundations. The façade of the whole building was originally covered with plaster on both the interior and exterior, but before restoration the degraded condition of this coating allowed scholars to document and describe the exposed masonry work. The main structural work was realized in roughly shaped stone blocks laid in coursed rows intercalated with sporadic brick layers in order to level the courses horizontally. However, only bricks were employed to build the arches, vaults, mouldings, as well as the upper part of the building in its entirety.[585]

In addition, wood was widely employed. Wooden supports sustain the lower ends of the twin pointed horseshoe arches on the longer façades of the monument, as well as at the lower ends of the cupola's ribs; wooden lintels were employed in the recessed frames; two wooden beams were used below the two opposite sides of the epigraphic cornice in order to narrow the gap between them and to adjust it to the central square and wooden ties reinforce the lobed cupola that crowns the structure. Wooden supports were also

[584] Meunié and Terrasse, *Nouvelles recherches*, p. 41.

[585] Meunié and Terrasse, *Nouvelles recherches*, p. 25.

embedded in the walls, over the impost of the lateral entry vaults, in order to sustain the centrings. Once the vaults were completed and the centrings removed, the projecting parts of these supports were sawn off whilst the remaining part was concealed with plaster.[586]

The structure is datable to the reign of ʿAlī b. Yūsuf (r. 1106-1143 AD) thanks to a cursive inscription that runs along all four sides of the interior cornice, beneath the cupola. The inscription was deliberately disfigured, most probably by the Almohads after they conquered Marrakesh in 1147 AD. Even though, Gaston Deverdun and Charles Allain were able to finally read a part of it, including the name of ʿAlī b. Yūsuf, and a date, which lacks the year: Wednesday the last day of Rabīʿ al-Awwal.[587] Deverdun proposed a more accurate dating, observing that the 30 of Rabīʿ al-Awwal fell on Wednesday four times during ʿAlī's reign: in 1109, 1117, 1125 and 1140, and finally picked the year 1117 relying on the following historical considerations:

> 'S'il n'est pas déraisonnable de songer que la qoubba a été construite dans la période la plus glorieuse du règne, c'est-à-dire dans sa première moitié, et, en particulier avant l'édification du rempart de Marrakech, daté de 1126 à peu près sûrement, et qui marque avec éloquence le temps des appréhensions était venu, il semble qu'on puisse retenir, avec l'appui de M. G. Marçais, les années 1109 ou 1117. Cette inscription remonterait ainsi à une date inférieure à 1142-43 (mort de ʿAli) et sûrement à 1126, peut-être à 1117, voire même à 1109. La date de 1117 nous paraîtrait assez acceptable si on veut bien se rappeler que la mosquée de ʿAli, dont cette qoubba fut une annexe nécessaire, était déjà livrée au culte en 514 H (= 1120-22 J- C) puisque le Mahdi Ibn Toumart y rencontra le prince 'Ali cette année là'.[588]

[586] Meunié and Terrasse, *Nouvelles recherches*, p. 25, see also figs. 14, 16-18, 22 and photos n. 28, 33, 38-39, 42, 44, 47, 53-55, 59-60, 106,

[587] Deverdun, 'Étude épigraphique', pp. 49-52.

[588] Deverdun, 'Étude épigraphique', p. 50.

This dating, which is largely accepted,[589] is actually problematic and should be considered with care. The fact that Deverdun himself warned against the accuracy of the weekday in Morocco's Arabic inscriptions, and not to forget how he emphasized that the reading of the inscription was *very speculative*, has been ignored subsequently.[590]

Furthermore, the notation of the date was mutilated and ambiguous, since according to Deverdun the inscription reads:

[يوم الاربعا)?([ء اخر ربيع ا .وللعام المورخ

Which he translated: '[le mercre]di (?), dernier jour de Rabīʿ I, de l'an sus indiqué', *Wednesday, last day of Rabīʿ I of the above mentioned year*, though stipulating in a note 'on pourrait aussi lire *awâkhir*, les derniers jours', *the last days*, which would invalidate the whole preceding computation leaving open the possibility that the inscription could have originally borne any date within the reign of ʿAlī, i.e. between 1106 and 1143 AD.[591]

Some further observations should be made about Deverdun's historical reasoning. As we have seen, the French scholar assumed that the *Qubba* was built during the 'most glorious period' of the reign of ʿAlī

589 For instance, *cf.* Tabbaa, *The Transformation*, p. 66; Tabbaa, 'Andalusian Roots', pp. 133-146: 'Although it was deliberately defaced by the Almohads [the inscription] upon their takeover of Marrakech in 1147, enough of the text remained in 1957 to allow the epigraphist Gaston Deverdun to assign the Qubba to Ali b. Yusuf and even to tease out from the inscription an exact date of 511 (1117)'.

590 'Encore que l'expérience nous ait prévenu contre la précision de la férie dans les inscriptions arabes marocaines et autant qu'une lecture très conjectural puisse nous le permettre, on peut faire remarquer que pendant le règne de ʿAli b. Yousouf le 30 rabîʿ I est tombé quatre fois un mercredi: en 1109, 1117, 1125 et 1140', (Deverdun, 'Étude épigraphique', p. 51).

591 Deverdun, 'Étude épigraphique', p. 50.

b. Yūsuf, i.e. its first half, and supposedly before 1126 AD, when the walls of Marrakesh were built indicating 'with eloquence' that the 'time of apprehensions' was come. However, it should be noted that some of the most important Almoravid monuments were constructed, enlarged or enriched during the last decade of ʿAlī's reign. Examples of which, such as both the Great Mosque of Tlemcen and the Mosque of al-Qarawiyyīn, that will be analysed below, and the commonly named 'minbar of the Kutubiyya Mosque' whose magnificent Andalusi workmanship was ordered in 1137 AD by ʿAlī b. Yūsuf himself specifically for his mosque in Marrakesh.[592]

Now, given the early dating proposed by Deverdun and commonly accepted, the Qubbat al-Bārūdiyyīn has often been considered as an antecedent to a certain formal development that was first documented in Almoravid art during the 1130s and 1140s AD. However, since this traditional dating does not rely on objective proof, I think there is no reason to retain the notion that it was built at such early dates as 1109, 1117 or even 1125 AD.[593] In my opinion, later dates would be acceptable, such as the 1130s and 1140s AD, when ʿAlī ordered some of the major monuments in his emirate to be renovated resulting in the evolution of forms towards new models, with a shift towards the use of cursive in monumental inscriptions and the introduction of *muqarnas*, which is well-documented in Almoravid art.

[592] Jonathan M. Bloom, Ahmed Toufiq et al., *The Minbar from the Kutubiyya Mosque*, New York: The Metropolitan Museum of Art, 1998.

[593] The date of 1125 has been proposed recently by María Marcos Cobaleda, 'Los Almorávides', p. 302.

6.3.2. The Great Mosque of Tlemcen

As far as Almoravid art is concerned, it seems that the fashion for *muqarnas* spread relatively late, during the last decade of ʿAlī b. Yūsuf's reign. If our considerations for dating the Qubbat al-Bārūdiyyīn can be confirmed, the Great Mosque of Tlemcen houses the earliest well-dated examples.

The entire building, which is approximately 60 metres deep and 50 metres wide, consists of two parts, a rectangular prayer hall and a trapezoidal asymmetric court surrounded by galleries which include the minaret standing opposite the *qibla*. The prayer hall is composed of 13 aisles based on rows of five pillars which run perpendicular to the *qibla* wall. All of them are divided transversally into two parts by an arcade composed of horseshoe arches which runs parallel to the *qibla*. The aisles are covered with a hipped tiled roof carried by exposed structural timbers resting on sculpted corbels. The central nave, leading to the *mihrab*, is both wider and more richly decorated than all the others. It receives further emphasis by the presence of two domes above it, both covered by square tiled roofs that slope on four sides.[594]

Marçais considered that the mosque was founded by ʿAlī's father, Yūsuf b. Tāshūfīn (r. 1061-1106 AD), because of both its severe style and its architectural similarities with his other buildings, such as the Alger and Nedroma mosques. In fact, there is a striking contrast between the general austerity of the edifice and the lavish decoration of

[594] Marçais, AMO, pp. 192-195.

its central nave, soundly ascribed to ʿAlī's reign by two different inscriptions.[595]

The famous dome which covers the area in front of the *miḥrāb*, is sustained by brick ribs intersecting each other in a star-shaped pattern and is decorated with carved-plaster openwork screens composed of vegetal motifs. The dome displays stucco *muqarnas* decoration in both its transitional zone and in the small cupola at its apex.

In the dome's transitional zone, in order to mediate the superimposition of the dome on a square cornice, there are angular squinches, composed of tri-lobed arches with notched shoulders, which rest directly on the cornice. Each squinch is filled with a two-tier *muqarnas* composition which includes a square recess which develops into the second tier of cells.

As far as the apex cupola is concerned, it rests on a dodecagonal base, resulting from the ribs' intersection. Its geometrical composition is based on 45° rotations of squares and generates from a central eight-pointed star. Four recessed cupolas are disposed in a square around this central star, at a lower level, to introduce a compositional variation. Thus, the monotony of the composition is broken not by varying the angles of rotation around its centre, but by multiplying its rotation points.[596] Only the lower tier's *muqarnas* cells do not comply with this

[595] Marçais, AMO, pp. 196-197; L. Golvin, 'Quelques réflexions sur la grande mosquée de Tlemcen', *Revue de l'Occident musulman et de la Méditerranée* 1 (1966), pp. 81-90, expresses a contrary opinion.

[596] This system, which is documented here for the first time, is the basic pattern which regulates the composition of both Almoravid and the Almohad *muqarnas* vaults, which will be analysed below.

pattern, being arranged to mediate the passage to the cupola's dodecagonal base.

The importance of this dome lies in the fact that it links together Andalusi motifs (the interlaced arches, the dwarf arcades, the two-tone decoration of the *miḥrāb* arch, the style of the carved vegetal decoration, not to forget the Andalusi tradition of the ribbed dome itself) with oriental novelties such as *muqarnas* and cursive inscriptions. Furthermore, a cursive inscription runs along the interior cornice, beneath the drum of the dome, first reported by Jean Joseph Leandre Bargès, which dates the structure to 530 AH/1136 AD.[597] If my reservations about the traditional dating for both the Qalʿa fragments and the Qubbat al-Bārūdiyyīn are accurate, this *muqarnas* decoration is the first well-dated instance of *muqarnas* in the Islamic West.

6.3.3. The Mosque of al-Qarawiyyīn

The Mosque of al-Qarawiyyīn was founded in the ninth century as a private oratory and became a congregational mosque in the following century. It was enlarged in 956 firstly, and then during the reign of ʿAlī b. Yūsuf, who expanded it to its present size, making it one of the largest mosques in the Islamic West. The primitive prayer hall was formed by aisles running parallel to the *qibla* wall, which determined that any later enlargements should follow the same direction. This, gave a rather

[597] J.J. Léandre Bargès, *Tlemcen, ancienne capitale du royaume de ce nom: sa topographie, son histoire, description de ses principaux monuments, anecdotes, légendes et récits divers, souvenirs d'un voyage*, Paris: B. Duprat, 1859, pp. 435-436; Torres Balbás, *Artes almorávide y almohade*, p. 39; Meunié and Terrasse, *Nouvelles recherches*, p. 51.

unusual disposition in the contemporary Maghreb where, as a rule, mosques were formed by aisles running perpendicular to the qibla wall, following the commonly named 'T-shaped plan' or 'T-plan'.[598]

This mosque, one of the most renowned of the Islamic West, was poorly known to scholars because access to its prayer hall was strictly forbidden to non-Muslims. In 1923 E. Pauty was able to survey the structure and publish its general plan, with the assistance of a Muslim collaborator whom he had to guide from outside.[599] In the 1930s Terrasse and Maslow, respectively, published two studies on the commonly named Mosque of the Dead,[600] an Almoravid annexe to the main building. Under these restrictive conditions, the monument continued to be studied essentially through the written sources up until the 1950s, when French scholars were permitted to access the sanctuary during the building's restoration period.[601] Then, Terrasse was able to precisely document the main stages of the building's construction and –even more importantly– he discovered and was able to make an extensive study of its Almoravid decoration, which had been plastered over by the Almohads when they conquered the city (1145 AD). The earlier decoration was uncovered during the restoration. He summarized the first results of this work in an article published in 1957, and subsequently published an extensive monograph in 1968,

[598] Marçais, AMO, pp. 197-200.

[599] E. Pauty, 'Le plan de l'Université Qarawiyin à Fès', *Hesperis* 3 (1923), pp. 519-523.

[600] H. Terrasse, 'Le Jamaʿ el-Gnaïz de la mosquée d'Al-Qarawiyin', *Actes du VIII Congrès de l'Institut des Hautes Études Marocaines*, Paris: Larose, 1933, pp. 68-69; Boris Maslow, *Les mosquées de Fès et du Nord du Maroc*, Paris: Les Éditions d'art et d'histoire, 1937, pp. 167-173.

[601] *Cf.* Marçais, AMO, pp. 197-201, who still depended on Pauty's work and Arabic sources.

highlighting the mosque as being a major extant example of Almoravid art.[602]

The Almoravid works at the Qarawiyyīn included both the enlargement and the enrichment of the building. According to Terrasse they were carried out between 528 AH/1134 AD and 537 AH/1143 AD, except for the *minbar* which was finished on Shaʿbān 538 AH/February 1144 AD.[603] The mosque's enlargement was carried out from its southern extremity by adding three aisles. At the same time the main axis in front of the *miḥrāb* took the form of a raised nave, generously decorated, covered with a set of sumptuous vaults, including five *muqarnas* ones. An additional *muqarnas* dome was built next to the central entrance, on the opposite side to the *miḥrāb*. During the Almoravid works an annexe was built behind the western half of the *qibla* wall; this originally consisted of a triangular courtyard and a pavilion. It is known as the Mosque of the Dead and it is included here, since a *muqarnas* dome covers its pavilion or *qubba*.[604]

The *muqarnas* vaults of the al-Qarawiyyīn prayer hall have a simple disposition in the mosque's plan. With the exception of the *miḥrāb*'s ceiling niche and the dome placed by the side of the central entrance, which according to Terrasse was built to replace an earlier one, all of them are included in the raised nave built in the 1130s in front of the

602 H. Terrasse, 'La Mosquée d'Al-Qarawīyīn à Fès et l'Art des Almoravides', *Ars Orientalis* 2 (1957), pp. 135-147; H. Terrasse, *La mosquée al-Qaraouiyin a Fès*, Paris: Librairie C. Klincksieck, 1968.

603 H. Terrasse, *La mosquée al-Qaraouiyin*, pp. 18-20, or between 1134-1143 according to Rafael López Guzmán, 'La arquitectura de los almorávides', in Rafael López Guzmán (ed.), *La arquitectura del Islam Occidental*, Granada: Lunwerg Editores, 1995, p. 107.

604 Terrasse, *La mosquée al-Qaraouiyin*, pp. 21-22 and pp. 32-33.

miḥrāb, transversal to the aisles. This nave was raised over the six aisles leading to the *miḥrāb*, i.e. the last three of the ancient prayer hall and the three belonging to the Almoravid extension.[605]

The *miḥrāb* vault is a small *muqarnas* dome which rests on an octagonal base. The transition from the small hexagonal room to the octagonal cornice that supports the dome is accomplished, on the north side, by three tiers of *muqarnas* squinches. These squinches are developed in small recessed lobed or gored cupolas which rise from the first *muqarnas* tier and are developed into the second. In the south part of the room the squinches were unnecessary since the room's ground plan was semi-octagonal. On each side of the dome's base, the *muqarnas* decoration, save an area in the shape of twin-lambrequin arch, is carved with vegetal decoration composed of symmetric palms springing from a central stalk.[606]

Adjacent to the *miḥrāb* is the raised nave, which covers the width of six aisles and includes five vaults. Each vault covers the width of one aisle, except for the oblong vault, which covers two, being approximately twice as long as its width. From the *miḥrāb* northward the first vault is a *muqarnas* dome as wide as the nave which rests on a square base. The next is the oblong *muqarnas* vault. The remaining group of three domes, which were built above aisles belonging to the ancient building, is composed of two *muqarnas* domes flanking a ribbed one. The first dome, of this group is a *muqarnas* one which rests on a square base as is usual. More interestingly, at the end of the raised nave

605 Terrasse, *La mosquée al-Qaraouiyin*, p. 32.

606 Terrasse, *La mosquée al-Qaraouiyin*, p. 32.

is a *muqarnas* dome which rests on a circular base. Its geometrical composition is based on diversified rotations of polygons and it is the only Almoravid instance of a *muqarnas* vault in which the cells' disposition does not rely on the 45° rotations of squares. The transition from the square to the circular base is accomplished by three-tier *muqarnas* squinches. In our present state of knowledge this variant of a *muqarnas* dome seems unique in Almoravid architecture; neither model seems to have been copied or developed in the following Almohad period.[607]

The domes raised above the Almoravid extension to the mosque are sustained by arches which are significantly higher than the rest. In order to mediate this height difference, the preceding three domes, which are also included in the new nave but are supported by tenth-century arches, were raised upon progressively taller drums. Thereby, a gradual slope was accomplished without having to rebuild the whole supporting structure which sustain the domes. The lavishness of the domes' drums' decoration increases in proportion to their proximity to the *miḥrāb*.[608]

Next to the central entrance, on the opposite side to the *miḥrāb*, is a different *muqarnas* dome, which rests on a square base. According to Terrasse this dome is lower than the others because it replaced an earlier vault and had to be adapted to a pre-existing structure.[609]

[607] Terrasse, *La mosquée al-Qaraouiyin*, pp. 31-32.
[608] Terrasse, *La mosquée al-Qaraouiyin*, pp. 32-33.
[609] Terrasse, *La mosquée al-Qaraouiyin*, p. 32.

Finally, in the Mosque of the Dead,[610] an Almoravid annexe of al-Qarawiyyīn originally consisting of a triangular courtyard and a *qubba* or pavilion, situated behind the western half of the *qibla* wall, there is a further *muqarnas* dome which covers the pavilion, and is located under a square hipped tile roof.[611]

We have noted that the main Almoravid works in the Qarawiyyīn, including the *muqarnas* vaults, were carried out between 528 AH/1134 AD and 537 AH/1143 AD. Some more accurate remarks can be made thanks to inscriptions found in the mosque, which were published and studied by Deverdun in his appendix to Terrasse's monograph.[612]

The first one is a foundation inscription situated in a medallion above the *miḥrāb*'s central window. It consists of four lines of cursive script written on an unadorned background. This inscription includes the name of one ʿAbd Allāh b. Muḥammad, who is said to have terminated the work during the month of Ramaḍān, year 531 AH (23rd May - 21st June 1137 AD).

[610] This is how Terrasse explained the function of the Mosque of the Dead: 'La Qaraouiyin possède une mosquée des morts qui permet, avant l'inhumation, de dire une prière pour le mort sans que celui-ci entre dans la mosquée elle-même. Cette annexe concilie parfaitement le pieux souci de prier sur le défunt à la mosquée même et la nécessité de ne pas souiller l'oratoire par la présence impure d'un cadavre. Les mosquées de morts sont rares dans l'Islam occidental et sont aujourd'hui à peu près inconnues en orient. Toutefois il en a existé une au moyen âge à Damas. Un passage du traité de *hisba* d'Ibn-Abdun atteste qu'il y avait une mosquée des morts à la grande mosquée de Seville. E. Lévi-Provençal se demandait si, au maghrib et en Espagne, ces annexes funéraires des grandes sanctuaires n'étaient pas dues aux almoravides' (Terrasse, *La mosquée al-Qaraouiyin*, 1968, pp. 21-22).

[611] Terrasse, *La mosquée al-Qaraouiyin*, pp. 21-22 and pp. 32-33.

[612] G. Deverdun, 'Les inscriptions historiques', 1968, pp. 77-81.

The second one is a sovereign inscription in the *miḥrāb*'s dome. It consists of a single line of Kufic script which runs along all four sides of the interior cornice, beneath the vault. Apart from the name of ʿAlī b. Yūsuf, the inscription includes the name of Qādī Abū Muḥammad ʿAbd al-Ḥaqq b. ʿAbd Allāh and the date of 531 AH (1136-1137 AD).

The same date of Ramaḍān, year 531 AH (23rd May - 21st June 1137 AD), is also given in the Kufic inscription which runs all along the cornice of the oblong *muqarnas* vault. Again, both the name of the sovereign ʿAlī b. Yūsuf, and Qādī Abū Muḥammad ʿAbd al-Ḥaqq b. ʿAbd-Allāh are shown together in the inscription.

These inscriptions give the exact date of 1137 AD for the conclusion of, at least, some of the *muqarnas* vaults in the Qarawiyyīn. Furthermore, although the use of *muqarnas* is documented in the Great Mosque of Tlemcen and possibly in the Qubbat al-Bārūdiyyīn shortly earlier, here the control of the motive is displayed with a complexity which, as far as is known, was hitherto unknown in the Islamic West.

The Almoravid stucco *muqarnas* vaults in the Mosque al-Qarawiyyīn consist of a suspended decorative ceiling whose structure is reinforced with bricks and wooden ties. They do not have any structural function and they are all covered with tiled roofs. According to Terrasse, the framework for each dome was prepared by a means of wooden beams and planks which created a concave form in which the *muqarnas* were modelled. These matrixes featured progressively recessed levels in which the *muqarnas* tiers originated. The marks for such temporary structures were still visible to Terrasse on the vaults' plaster; in

addition, traces of the framework's planks had survived, which he duly recorded.[613]

All the *muqarnas* vaults of al-Qarawiyyīn Mosque rest on cornices and spring from angular squinches which mediate the superimposition of the *muqarnas* polygonal geometry on the rectangular portion of the nave which they cover. The vaults are all different from one another, both in profile and plan. Except in the case of the circular dome, described above, the geometrical composition of the Almoravid vaults is based on 45° rotations of squares. The vaults are composed of up to ten tiers of *muqarnas* cells, ordered around sets of small stucco lobed or gored cupolas. One of the small cupolas occupies the vault's midpoint, marking the composition's highest point and centre. In the case of square vaults, one or two lower ranges of cupolas - as in these cases - are arranged in a square around the central one. In the oblong vault, the central lobed or gored cupola lies in the middle of a five-cupola row, aligned along the vault's main axis. This row is surrounded, at a lower level, by a set of eight more lobed or gored cupolas, arranged in a rectangle. From the geometrical point of view, every cupola works as a point of rotation, thus the monotony of the cells is broken not by varying the angles of rotation around the centre, but by multiplying the composition's rotation points. Furthermore, these small cupolas result in shady hollows which generate light and dark effects breaking the uniformity of the vaults.[614]

[613] Terrasse, *La mosquée al-Qaraouiyin*, pp. 23-24.

[614] Terrasse, *La mosquée al-Qaraouiyin*, p. 32; López Guzmán, 'La arquitectura de los almorávides', pp. 107-116.

6.3.4. Muqarnas *Cutoff or Corbels in the Gates of Marrakesh*

Simple *muqarnas*, or rather pseudo *muqarnas* cutoffs, are found at the corners of various gates and wall towers in Marrakesh.[615] This device is used as a corbel to support the upper part of a wall upon chamfered corners. A similar device was used firstly in Cairo, on the façade of al-Aqmar mosque, and later in Aleppo, at the southwest corner of the Madrasa Shuʿaybiyya.[616]

[615] Pavón Maldonado, 'Arte, arquitectura y arqueología', pp. 201-240; Marcos Cobaleda, 'Los Almorávides', pp. 277-282. However, most of the remaining gates of the city can be dated to the Almohad period or later, according to Cressier, 'Les portes monumentales', pp. 152-154 and 156-157.

[616] Creswell, MAE, vol. 1, p. 243 and Pl. 84 d; Behrens-Abouseif, *Islamic Architecture*, p. 73; Allen, *A classical revival*, p. 3 and p. 119, fig. 11. The term '*Muqarnas* cutoff' is used by Allen to define this kind of element.

6.4. *Muqarnas* in Almohad Art (1121-1269 AD)

6.4.1. The Mosque of Tīnmal

Tīnmal is the village from where the Almohads started their military incursions against the Almoravids. It is a small mountain settlement situated in the almost inaccessible valley of the Nfīs river, some 100 km south of Marrakesh, in the High Atlas mountains.[617] Here Ibn Tūmart, the *mahdī* of the Almohad movement, lived surrounding himself with his followers and acting as military leader, judge and imam of the community he founded, deliberately imitating Muḥammad and the first Muslims in Medina.[618] For this reason Tīnmal was probably the most venerated sanctuary of the Almohads and when Ibn Tūmart died, around 1130 AD, was chosen as his place of burial. Near his tomb, in 1153 AD according to the *Rawḍ al-Qirṭās*, ʿAbd al-Muʾmin, the first Almohad Caliph (r. 1130-1163 AD), built a new mosque.[619]

The Almohad mosques of Morocco, including the ruins of the Tīnmal Mosque, were extensively studied during the 1920s in a series of missions led by Henri Basset, Henri Terrasse and Jacques Hainaut. The results of this investigation were summarized in different monograph articles published in the review *Hesperis* during that decade, and finally revised and collected in a volume, published in 1932 under the title *Sanctuaires et forteresses almohades*.[620] Since this period, the

[617] Henri Basset and Henri Terrasse, *Sanctuaires et forteresses almohades*, Paris : Maisonneuve et Larose, 1932, pp. 1-2.

[618] Basset and Terrasse, *Sanctuaires et forteresses*, pp. 18-19.

[619] Marçais, AMO, p. 200.

[620] L. Golvin ‘Henri Terrasse (1895-1971) - Publications d'Henri Terrasse’, *Revue de l’Occident musulman et de la Méditerranée* 12 (1972), pp. 7-21. The mosque was

monument has been included in different studies on Almohad architecture or else, more generally, Islamic art and architecture.[621] In 1984 Christian Ewert and Jens-Peter Wisshak dedicated the mosque –which Ewert considered to be the clearest existing example of what he called 'the classical phase' of Almohad religious architecture–[622] to a whole volume in their series entitled *Forschungen zur almohadischen Moschee*.[623]

The building, which is rectangular in plan, is approximately 48 metres long and 43 metres wide. It is similar in its organization, proportions and ornamentation to contemporary Almohad mosques, such as the two Kutubiyya Mosques in Marrakesh, but its dimensions are sensibly smaller. The prayer hall is composed of nine aisles based on rows of five pillars which run perpendicular to the *qibla* wall; the central aisle is wider than the others. The lateral aisles, two per side, are prolonged to form galleries which surround a rectangular *saḥn*. This extends over the width of the central five aisles and over the length of the four arched bays. Along the south side of the building, adjacent to

firstly reported by D. Ferriol, 'Les ruines de Tinmel', *Hesperis* 2 (1922), pp. 161-174.

621 For instance, Marçais, AMO, p. 200-202 and *passim*; R. Ettinghausen and O. Grabar, *The Art and Architecture of Islam: 650-1250*, New Haven: Yale University Press, 1987, pp. 141-143; Sergio Martínez Lillo, 'La continuidad en la arquitectura beréber en el Maghreb. Ciertos Ejemplos en lo militar y religioso', in Rafael López Guzmán, *La arquitectura del Islam Occidental*, pp. 147-163; Marianne Barrucand and Achim Bednorz, *Moorish Architecture in Andalusia*, Cologne: Rolf Taschen, 1992; Robert Hillenbrand, *Islamic Architecture*, Edinburgh: Edinburgh University Press, 1999, pp. 422-423 and *passim*.

622 C. Ewert, 'Tipología de la mezquita en Occidente: de los Omeyas a los Almohades', *Actas II Congreso de Arqueología Medieval Española*, Madrid: Dirección General del Patrimonio Cultural, 1987, t. I, pp. 179-204, p.195.

623 C. Ewert and J.-P. Wisshak, *Forschungen zur almohadischen Moschee, II: Die Moschee von Tinmal*, Mainz am Rhein: Philipp von Zabern, 1984.

the *qibla* wall, there is an additional transversal aisle which emphasizes the T-disposition. It is as wide as the axial nave and receives further prominence by means of three *muqarnas* domes placed respectively in front of the *miḥrāb*, at the intersection with the axial nave, and at the aisle ends, i.e. above the southern corners of the building. The *miḥrāb* niche was covered by another *muqarnas* vault, which is smaller than the others. It is integrated in an oversized projecting body which formed the base for the minaret.[624]

Only two of the original *muqarnas* vaults have survived in their entirety. The *miḥrāb* vault is a small *muqarnas* dome which rests on an octagonal base. Both the *miḥrāb* niche and the vault closely resemble the Qarawiyyīn's analogous structures in their plan, proportions and size. As in the Fāsī mosque, the *miḥrab* niche takes the form of a small hexagonal room, approximately 2 metres wide. Here too, the transition from the hexagonal base to the octagonal dome is accomplished, on the north side, by three-tiers of *muqarnas* squinches whilst on the south part, where the room's ground plan is half-octagonal, this device was unnecessary.[625] However, in this case, the squinch composition is sensibly simpler and it does not include recessed cupolas.

The eastern vault has a *muqarnas* dome, which rests on a square base, whose side is given by the width of the transversal nave. All the four corners of the vault are developed into recessed cupolas rising from the second into the third tier of *muqarnas*. Eight other recesses,

[624] Basset and Terrasse, *Sanctuaires et forteresses*, pp. 41-51, Ewert and Wisshak, *Forschungen zur almohadischen Moschee II*, pp. 1-21.

[625] Basset and Terrasse, *Sanctuaires et forteresses*, pp. 57-59 and 197-208; Ewert and Wisshak, *Forschungen zur almohadischen Moschee II*, pp. 63-79 and 119-125.

analogous to the latter but rising from the third tier, ring the central zone arranged in an octagon. A central-lobed cupola crowns the vault resting on two additional tiers of *muqarnas*.

Both the central and the western domes of the transversal nave had already collapsed in the 1920s, when the French mission studied the monument. In these cases, the scholars were able to document some remains of the vaults but, more importantly, their ruinous state enabled them to study the supporting structures of the *muqarnas* dome, which will be examined below, in the following paragraph.

6.4.2. The Kutubiyya Mosque

Having conquered Marrakesh in 1147, ʿAbd al-Muʾmin (r. 1130-1163 AD) ordered the construction of a new mosque, quite far from the medina's centre. This mosque, which is currently known as 'the first Kutubiyya', was a huge building, approximately 90 metres wide and 60 metres deep, consisting of a prayer hall and a *saḥn*. The sanctuary was composed of 17 aisles based on rows of six pillars which ran perpendicular to the *qibla* wall. The lateral aisles, four per side, were prolonged to form galleries which surrounded a rectangular *saḥn* that extended over the width of the nine central aisles and over the length of four arched bays. According to the historiography, just a few years after the completion of the work the mosque's orientation was deemed to be imprecise and, as a consequence, ʿAbd al-Muʾmin ordered a second mosque to be built, rectifying the *qibla*'s orientation and eventually replacing the first one. The new Kutubiyya was built just behind the first mosque's *qibla* wall. The new building, which was an almost

perfect copy of the first, is known amongst scholars as 'the second Kutubiyya'. According to Arab sources, during a short period at least, both mosques worked concurrently, perhaps intercommunicating through openings in the primary mosque's *qibla* wall, then the first Kutubiyya was abandoned and fell into ruin,[626] whilst the second continues in use today, being one of the major existing Almohad monuments of North Africa. This mosque is relevant here since it includes a set of six *muqarnas* vaults, one above the *miḥrāb* sanctuary, and five above the transversal nave which runs parallel to the *qibla* wall.

The *miḥrāb* sanctuary is a pentagonal space, covered by a *muqarnas* dome which follows the models of both al-Qarawiyyīn and the Tīnmal mosque, described above. In particular, the squinches which mediate the transition to the octagonal cornice are an almost perfect copy of the Fāsī prototype, both in their geometry and decoration.

All the remaining *muqarnas* domes are disposed along the transversal nave which runs parallel to the *qibla* wall, one in front of the *miḥrāb*, two at the nave's ends, above the southern corners of the building, and two in the middle points between the former and the latter, respectively. The Almohad stucco *muqarnas* vaults form a decorative ceiling whose structure is reinforced with wooden ties, as in the above described Almoravid instances. The destroyed domes of the Tīnmal Mosque –one in front of the *miḥrāb* and the other at the western

[626] The remains of the building, which served as a first prototype for Almohad major mosques, were studied firstly in 1923 in an archaeological campaign conducted by Terrasse and Basset, then more extensively by Meunié who published the results of his work in a monographic study: J. Meunié, *Recherches archéologiques à Marrakech*, Paris: arts et métiers graphiques, 1952.

end of the transversal nave– gave the opportunity to document the wooden skeleton which both reinforce and sustain these stucco shells. According to Basset and Terrasse it consisted of roughly squared beams diagonally intersected at different heights of the domes' corners. At the lower part of the dome, some of the beams were connected to wooden lintels which were embedded in the wall over the tri-lobed arches. In addition, a series of superimposed beams bear the upper part of the *muqarnas* domes. In this case, the extremities of the beams were secured to the external walls which sustained the roof. Some vertical wooden elements were also documented, employed to reinforce the *muqarnas* lowest tiers.[627] Thanks to this auxiliary structure, most of the vault's weight was suspended by means of the wooden ties and did not rest on the underlying wall which, in fact, did not need to be strengthened or buttressed.[628]

Almohad vaults appear to be evolutions of Almoravid models in their structure, geometry, and composition. Both the shapes and dimensions of the *muqarnas* cells remained unchanged, though the Kutubiyya

[627] 'A Tinmel, aux coupoles ruinées du mihrab et de l'ouest, de long pièces de bois, poutres à peine équarries, et peut être même rondins, coupaient à des hauteurs diverses les angles du carré. Certaines d'entre elles se rattachaient aux longrines qui servent de linteaux de décharge au-dessus des arcades trilobées. D'autres madriers s'enfonçaient dans la maçonnerie, à de niveaux variables. A l'intérieur des murs, à quelque distance des angles et au-dessus des arcatures, l'alignement régulier des briques s'interrompe: une pile de briques posées en oblique ménageait de chaque coté un angle rentrant où devaient prendre place les extrémité d'un série de madriers superposé. C'était là qui venait se raccrocher la partie supérieure de la coupole. Des pièces de bois verticales venaient même servir d'ossature au stalactites les plus basses'. Basset and Terrasse, *Sanctuaires et forteresses*, pp. 49-50 and figs. 17, 19.

[628] Basset and Terrasse, *Sanctuaires et forteresses*, 1932, p. 50. According to Ewert the stucco walls at the base of the *muqarnas* vaults measure approximately 10 cm thick, Ewert and Wisshak, *Forschungen zur almohadischen Moschee II*, p. 66.

craftsmen were able to generate more elastic *muqarnas* compositions.[629] In both cases the geometry of the *muqarnas* is based on the above described 45° rotation of squares around the cupolas. However, in the Almoravid examples the disposition of the rotation points was more rigidly ordered - they were always arranged in a square or a rectangle - whilst in the Kutubiyya they were more freely disposed. In the Almohad vaults more vivid light-and-dark effects were also generated, by placing the small lobed cupolas in deeper recesses.[630]

6.4.3. The Ḥassan Tower

The commonly named 'Ḥassan tower' was intended to be the minaret of a gigantic mosque in Rabat, whose construction was ordered by Abū Yūsuf Yaʿqūb al-Manṣūr (r. 1184-1199 AD). The works –which had begun around 1196 AD– were stopped when the Almohad caliph died, so that both the minaret and the mosque were left incomplete. Their vestiges were studied by Jacques Caillé and Jacques Hainaut, who surveyed the superficial remains of the mosque and even carried out some test excavations, in order to reconstruct the appearance of the planned building.[631]

[629] For instance, Almoravid vaults were used only upon square spaces, or else a double square in the case of the Qarawiyyīn's barlong vault, whilst Almohad vaults were used to cover a wider range of rectangular surfaces.

[630] Terrasse, *La mosquée al-Qaraouiyin*, p. 31.

[631] The study was published in a two-volume monograph: Jacques Caillé, *La mosquée de Hassan à Rabat*, Paris: Arts et Métiers Graphiques, 1954. See also Lucien Golvin, *Essai sur l'architecture religieuse musulmane. Tome IV. L'art hispano-mauresque*, Paris: Klincksieck, 1979; pp. 257-260 and 282-285.

The Ḥassan tower is roughly contemporary with the minaret of the Almohad mosque in Seville, whose remains are included in the actual bell tower (the *Giralda*). They both developed, on an albeit larger scale, the structure of the Kutubiyya minaret, but the Ḥassan tower was planned to be the biggest among all three of them. According to Caillé, less than two-thirds of the minaret's planned elevation was completed.

The tower's thick walls are built in ashlar masonry, and its inner structure consists of superimposed square vaulted rooms. Six, out of the planned nine levels, were completed. To climb the minaret, between the rooms and the walls, there was a ramp without stairs, as in Seville's *Giralda*. On the fourth level of the tower, the inner room is covered by a *muqarnas* dome similar in both its geometry and proportions to the above described *miḥrāb* rooms. The vault rests on a square base whose side –approximately 3 metres– is given by the room's width. This square is reduced to an octagonal cornice, through four angular squinches, from which the *muqarnas* composition springs properly. The vault was plausibly crowned by a cupola, which collapsed together with the *muqarnas* upper tiers, and has disappeared. Through the gap the true vault of the room is visible, revealing a brick dome resting on pendentives. As is usual in Almohad examples, the *muqarnas* vault is a decorative stucco-shell, with no structural value, which was suspended or hung by a means of wooden ties.

6.5. *Muqarnas* in the Iberian Peninsula

6.5.1. *The problem of* muqarnas *in the first Taifa period (eleventh century)*

In the eighth issue of the journal *Cuadernos de Historia del Islam*, dated 1977, two interrelated articles were published, concerning a text of al-ʿUdhrī, a geographer and historian of al-Andalus who lived between 1003 and 1085.[632] The text contains a description of the royal palaces in the *qaṣba* of Almeria, which had already been translated by Luis Seco de Lucena and Manuel Sánchez Martínez.[633] These articles are relevant here because they deal with the description of a hall in the palace of al-Muʿtasim –king of Almeria between 1052 and 1091 AD– where a *muqarnas* decoration was perhaps displayed, in the opinion of Wilhelm Hoenerbach and Jacinto Bosch Vilá, the authors of the two studies.[634]

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[632] W. Hoenerbach, 'Observaciones al estudio la cora de Ilbira (Granada y Almeria) en los siglos X y XI, segun al-ʿUdrī (1003-1085)', *Cuadernos de historia del Islam* 8 (1977), pp. 125-137; J. Bosch Vilá, '¿Mocárabes en el arte de la taifa de Almeria?' *Cuadernos de historia del Islam* 8 (1977), pp. 139-160. The text of al-ʿUdhrī is the commonly named *Tarṣīʿ al-ajbār wa-tanwīʿ al-āṯār, wa-l-bustān*. For the Arabic text: ʿAbd al-Aziz al-Ahwani (ed.), *Nuṣuṣ ʿan al-Andalus min Kitāb Tarṣīʿ al-ajbār wa-tanwīʿ al-āṯār, wa-l-bustān fi garā'ib al-buldān wa-l-masālik ilà ŷamīʿ al-mamālik*, Madrid: Maṭbaʿat Maʿhad al-Dirāsāt al-Islāmiyya, 1965; see also L. Molina, 'Las dos versiones de la geografía de Al-Udri', *Al-Qantara* 3 (1982), pp. 249-260.

[633] L. Seco de Lucena, 'Los palacios del taifa almeriense al-Muʿtaṣim', *Cuadernos de la Alhambra* 3 (1967), pp. 15-20; the same translation of this passage was reproduced by M. Sánchez Martínez, 'La cora de Ilbira (Granada y Almería) en los siglos X y XI, según al-ʿUdrī (1003-1085)', *Cuadernos de historia del Islam* 7 (1975-1976), pp. 5-82.

[634] Relying on these articles, other scholars have alluded to the possibility that *muqarnas* was actually in use in Almeria as early as the 11th century. Amongst others, see Basilio Pavón Maldonado, *Tratado de arquitectura hispanomusulmana*, III, Madrid: Consejo Superior de Investigaciones Científicas, 2004, pp. 795-799; Antonio E. Momplet, *El arte hispanomusulman*, Madrid: Ediciones Encuentro, 2008, p. 98: 'La alcazaba de Almería, que ha experimentado múltiples transformaciones

The first article is a series of notes on M. Sánchez Martínez's translation of al-ʿUdhrī's book commonly named *Tarṣīʿ al-akhbār wa-tanwīʿ al-āthār wa-l-bustān*, and included some new translations and interpretations of the text. The description of al-Muʿtasim's palace is of interest, whose text follows:[635]

وليه في قلته مجلس عظيم مقرنس بالرفوف المزوقة المنقوشة المنزول فيها الذهب الطيب
فمروش بالرخام بالأبيض وقد أزر بالرخام المنقوش ... المنزل فيه بغرائب الأنزال

Hoenerbach translated it as follows:

> 'Sigue por la parte sur una gran sala de recepciones, decorada con almocárabes de células pintadas, talladas, con oro fino incrustado, pavimentada con mármol blanco. [En las paredes o zócalos] había sido revestida de mármol esculpido ... aplicado allí de la manera más sorprendente'.

The German scholar translated the term *muqarnas* as 'decorada con almocárabes', *decorated with muqarbas/muqarnas*, proposing that al-

desde su primera construcción en tiempos del califato, se alza como un formidable bastión sobre la ciudad. Desde su perímetro parten líneas de murallas que completan un sofisticado complejo defensivo procedente en buena medida del siglo XI, aunque con notables reconstrucciones posteriores. Dentro de un segundo recinto se ubicaban palacios con jardines y salones de los que solo quedan restos de unos baños a un lado de un gran patio, además de unas pequeñas albercas, un aljibe y vestigios de un edificio de cinco naves que debió de ser una mezquita. Es en este palacio donde se menciona la existencia de *mocárabes*, lo que sería evidencia de una utilización temprana en al-Andalus de este tipo de decoración arquitectónica'. The same idea has been recently repeated and developed by A. Carrillo, 'Architectural exchanges between North Africa and the Iberian Peninsula: Muqarnas in al-Andalus', *The Journal of North African Studies* 19:1 (2014), pp. 68-82.

635 Al-ʿUdhrī (Edited by ʿAbd al-Aziz al-Ahwani, Madrid 1965), p. 85. The passage is reported by both W. Hoenerbach, and J. Bosch Vilá.

ʻUdhrī could have used this term referring to the same kind of decoration that we know as *ʻmuqarnas*' today too.[636]

This proposal was developed in a second article by Bosch Vilá, who presented a linguistic and art-historical study on the *mocárabes/muqarnas*, opening the question on whether it had been used in the Iberian Peninsula during the Taifa period. In agreement with Hoenerbach, the Spanish scholar intended that al-ʿUdhrī used the expression *majlis ʿaẓīm muqarnas bi-l-rufūf* alluding to a *muqarnas* decoration of a hall ceiling: 'se trataba – pensé – de una sala grandiosa, *mocarabada*, es decir, con mocárabes en la techumbre o en las cornisas, colgados del techo'.[637] Bosch Vilá stated that his interpretation had arisen by comparison with the term *qubba muqarbasa*, which according to Bel and Marçais was used by al-Jaznāʿī to indicate a pavilion, supposedly decorated with *muqarbas*, built next to the Mosque of al-Qarawiyyīn in Fes.[638]

From the point of view of material evidence the scholar relied on a then recent article of Golvin's, where the fragments of *muqarnas* decoration he discovered in the *Qaṣr al-Manār*, at the Qalʿat Banī Ḥammād were published. We have seen above how Golvin ascribed them to the reign of the Ḥammādid sovereign al-Manṣūr, i.e. either as early as the eleventh century, or the very beginning of the following

[636] Hoenerbach, 'Observaciones', pp. 128-130.

[637] Bosch Vilá, 'Mocárabes', p. 141; The term *mocarabada* is of the author's own coinage. However, such terms as *muqarnicised* and *muqarnatised* had been employed in E. Diez, 'Mukarnas', in EI[1], vol. 9 (suppl.) 1927, pp. 153-154.

[638] Al-Jaznāʿī, *Zahrat el-Ās* (edited and translated by Alfred Bel), Alger: Jules Carbonel, 1965, p. 54 and translation p. 120; Marçais, AMO, p. 237.

century.[639] However, since Golvin was not able to date the *muqarnas* remains exactly, Bosch Vilá speculated that they could be even older. More precisely, Bosch Vilá believed that the *Qaṣr al-Manār* had to be the oldest of the Qalʿa palaces and most probably was built not by al-Manṣūr, but by one of his predecessors, perhaps his father al-Nāṣir (1062-1088 AD).[640] If this was true, he reasoned, and *muqarnas* was known at such an early period in a mountainous and eccentric region of Algeria, it was surely possible that the technique was introduced to Almeria at about the same time? After all, during the eleventh century it was the most important Mediterranean port of al-Andalus, constantly communicating with the Central Maghreb, Ifrīqiya and the East. Finally, since the Ḥammādid art was a prolongation of the Zīrīd art, there could be little doubt that sooner or later further proof of *muqarnas* usage would be discovered throughout Ifrīqiya's capital cities, giving the missing link in the transmission of this oriental element to both Central Maghreb and Almeria.[641]

Now, the evidence on which Bosch Vilá based his article needs to be re-examined, in the light of our increased knowledge on the subject provided so far by this investigation. We have seen that Bosch Vilá –as his other contemporaries– believed that *muqarnas* spread throughout

[639] Golvin, 'Les plafonds à Muqarnas', pp. 63-69.

[640] 'Pero, habida cuenta de que ningún texto permite determinar la cronología de los palacios de la Qalʿa ni conocer con exactitud a sus constructores, como reconoce el propio L. Golvin, y aún admitiendo que el palacio de *al-Manar* pudiera ser el más antiguo de los cuatro conocidos de la Qalʿa, ¿sería excesiva audacia pensar en la existencia de construcciones monumentales o palatinas anteriores a al-Mansur, de tiempos de al-Nasir (454-481/1062-1088), por ejemplo?', Bosch Vilá, 'Mocárabes' p. 153. Bosch Vilá relied, for these considerations, on the work of L. de Beylié, who first excavated at Qalʿa in the early twentieth century.

[641] Bosch Vilá, 'Mocárabes', pp. 152-156.

the Islamic West during the eleventh century. Since it was known in such a remote fortress as Qalʿa they reasoned that it must had been in use, before or at the same time, in important cities such as Mahdiyya, Ṣabra Manṣūriyya, Bejāya and Almeria amongst others. It was only a matter of time before its discovery would take place. However, we have noted above that the dating of the Qalʿa fragments was based on unreliable historiographical evidence and if we discard them then the first well-dated Western examples of *muqarnas* documented on North African Almoravid monuments were most probably about the 1130s. No evidence for the use of *muqarnas* has been discovered to date at eleventh-century sites in both North Africa and the Iberian Peninsula. In addition, though not much remains of the Taifa period buildings, the material evidence does not suggest that *muqarnas* was known in al-Andalus at this period. It was not used in either the Aljafería of Saragossa, the best preserved palace of the period, built under Abū Jaʿfar Aḥmad al-Muqtadir bi l-Lāh (1046-1081 AD), or in the slightly later palace of his brother Yūsuf, in Balaguer,[642] or indeed in Malaga,

[642] The reference work on the Aljaferia is: Christian Ewert, *Spanisch-islamische Systeme sich kreuzender Bagen. III. Die Aljaferfa von Zaragoza*, (2 vols.) Berlin: Madrider Forschungen, 1978-1980. See also Christian Ewert (et al.), *Hallazgos islámicos en Balaguer y la Aljafería de Zaragoza*, Madrid: Servicio de Publicaciones del Ministerio de Educación y Ciencia, 1979; Manuel Martín Bueno (et al.), *La Aljafería: investigación arqueológica*, Zaragoza: Cortes de Aragón, 1987; Carlos Esco (et al.), *Arqueología islámica en la marca superior de al-Andalus : exposición celebrada en la Diputación de Huesca 10-31 de mayo de 1988*, Huesca: D. L., 1988; J. Giralt i Balagueró, 'Ciutat de Balaguer', 'Castell Formós (o de Balaguer)' and 'Jaciment arqueològic del pla d'Almatà' in Pladevall i Font, A. (dir.), *Catalunya romànica*, XVII (*La Noguera*), Barcelona, 1994, pp. 219-243; Ewert, *Forschungen zur almohadischen Moschee II*, pp. 361-385 and pl. 56-63; B. Cabañero Subiza, 'La Aljafería de Zaragoza', *Artigrama* 22 (2007), pp. 103-129; B. Cabañero Subiza, 'Hipótesis de reconstitución del palacio taifal del Castell Formós de Balaguer (Lleida)', *Artigrama*, 25 (2010), pp. 283-326; Gonzalo M. Borrás Gualis and

where the Naṣrid *qaṣba* still has some structures belonging to the eleventh century palace preserved,[643] or elsewhere in the Iberian peninsula until the second half of the twelfth century, as is analysed below.[644]

Bernabé Cabañero Subiza (eds.), *La Aljafería y el Arte del Islam Occidental en el siglo XI. Actas del Seminario Internacional celebrado en Zaragoza los días 1, 2 y 3 de diciembre de 2004*, Zaragoza: Institución «Fernando el Católico», 2012.

643 L. Torres Balbás, 'Hallazgos arqueológicos en la Alcazaba de Malaga', *Al-Andalus* 2 (1934), pp. 344-357; L. Torres Balbás, 'Excavaciones y obras en la alcazaba de Malaga', *Al-Andalus* 9 (1944), pp. 173-190; Gómez-Moreno, *Arte español*, pp. 244-253; Christian Ewert, 'Spanisch-Islamische Systeme sich kreuzender Bögen. II: Die Arkaturen eines offenen Pavillons auf der Alcazaba von Málaga', *Madrider Mitteilungen* 7 (1966), pp. 232–253.

644 On Taifa art and architecture see: Fernando Valdés Fernández, 'Arqueología de al-Andalus. De la conquista árabe a la extinción de las primeras taifas', in *Historia general de España e Hispanoamérica. III*. Madrid: Editorial Rialp, 1988, pp. 545-617; Gonzalo M. Borrás Gualis, *El Islam. De Córdoba al mudejar*, Madrid: Silex, 1990; Barrucand and Bednorz, *Moorish Architecture*; Cynthia Robinson, 'Las artes de los reinos taifas', in Jerrilyn D. Dodds (ed.), *Al-Andalus. Las artes islámicas en España*, Madrid, 1992, pp. 46-61; Gonzalo M. Borrás Gualis, 'El arte hispanomusulmán en la época de las primeras taifas', in Rafael López Guzmán, *La arquitectura del Islam Occidental*, pp. 83-91; C. Robinson, 'Ubi Sunt: Memory and Nostalgia in Taifa Court Culture', *Muqarnas* 15 (1998), pp. 20-31; Fernando Valdés, 'El arte de las primeras Taifas: una cuestión de cronología', in Fernando Valdés, *la peninsula iberica y el mediterraneo entre los siglo XI y XII*, Aguilar de Campo (Palencia): Fundación Santa María la Real, 1998, pp. 167-185; B. Cabañero Subiza and V. Herrera Ontañón, 'La casa palacio del Temple de Toledo: Un monumento taifa recientemente recuperado', *Artigrama* 15 (2000), pp. 177-230; Manuel Acién Almansa, 'Del estado califal a los estados taifas: la cultura material', *Actas del V Congreso de Arqueología Medieval Española (Valladolid, 22 a 27 de marzo de 1999)*, Valladolid: Junta de Castilla y León - Consejería de Educación y Cultura, 2001, pp. 493-513; Pavón Maldonado, *Tratado*, pp. 157-228; S. Calvo, 'El arte de los reinos taifas: tradición y ruptura', *Anales de historia del arte* Número Extraordinario 2 (2011), pp. 69-92. Some interesting remains of a palace in Toledo have been discovered by F. Monzón Moya and published in F. Monzón Moya and C. Martín Morales, 'El antiguo convento de Santa Fe de Toledo', *Bienes Culturales: Revista del Instituto del Patrimonio Histórico Español*, 6 (2006), pp. 53-76; these remains have been ascribed to the Taifa period by J. C. Ruiz Souza, 'Toledo entre Europa y Al-Andalus en el siglo XIII: Revolución, tradición y asimilación de las formas artísticas en la Corona de Castilla', *Journal of Medieval Iberian Studies* 1:2 (2009), pp. 233-271, see p. 236. In the opinion of their original discoverer they could be ascribed to the Taifa period or even later: Fabiola Monzón Moya, 'El antiguo convento de Santa

In addition, turning to Almeria, we have already seen above that during the 1960s and 1970s the city and its citadel had been the subject of study in some published articles, which relied essentially on the descriptions given by the written sources. A study of the Arabic inscriptions had been published in 1964 by Manuel Ocaña Jiminez,[645] but from the archaeological point of view very little was known about the medieval city, most of which had been destroyed by a series of violent earthquakes in the early modern period.[646] However, over the past three decades various interventions have been developed on Islamic Almería[647] enhancing our knowledge of the city's medieval monuments to the extent that, in a recent investigation, Natascha Kubisch was able to give a satisfactory description of the architectural

Fe: la desmembración del aula regia islámica y su transformación en un cenobio cristiano', Jean Passini and Ricardo Izquierdo Benito (eds.), *La ciudad medieval: de la casa principal al palacio urbano. Actas del III Curso de Historia y Urbanismo Medieval organizado por la Universidad de Castilla-La Mancha*, Toledo: Consejería de Educación, Ciencia y Cultura, 2011, pp. 243-275.

645 M. Ocaña Jiménez, *Repertorio de inscripciones árabes de Almería*, Madrid: Consejo Superior de Investigaciones Científicas, 1964.

646 L. Torres Balbás, 'Almería Islámica', *Al-Andalus* 22:2 (1957), pp. 411-457, see pp. 432 and 447; Seco de Lucena, 'Los palacios', p. 17.

647 Lorenzo Cara Barrionuevo, 'La alcazaba de Almería. Primeras intervenciones (mayo-diciembre de 1987) - Informe sobre las actuaciones llevadas a cabo en la alcazaba de Almería', in *Anuario Arqueológico de Andalucía. 1989. Actividades de urgencia informes y memorias*, Sevilla: Dirección General de Bienes Culturales, 1989, pp. 7-21; Lorenzo Cara Barrionuevo, *La alcazaba de Almería en la época califal. Aproximación a su conocimiento arqueológico*, Almería: Instituto de Estudios Almerienses, 1990; Lorenzo Cara Barrionuevo, *La Almería islámica y su alcazaba*, Almería: Cajal, 1990; José Luís García López (et al.), 'Características urbanas del asentamiento almohade y nazarí en la ciudad de Almería a la luz de los últimos hallazgos arqueológicos', *in Almería entre culturas*, Almería: Instituto de Estudios Almerienses, 1990, vol. 1, pp. 91-114; Ángela Suárez Márquez (ed.), *La Alcazaba. Fragmentos para una historia de Almería*, Sevilla: Consejería de Cultura, Dirección General de Museos, Dirección General de Bienes Culturales 2005; Lorenzo Cara Barrionuevo (et al.), *La ciudad de Almería. Guías de Almería: territorio, cultura y arte*, Almería: Instituto de Estudios Almerienses, 2008.

decoration in Almeria during both the Taifa and the Almoravid periods. She had the opportunity to analyse more than 500 fragments of plasterwork, about 300 of them from the citadel, but no *muqarnas* remains were presented or catalogued.[648]

Though existing material is not decisive evidence, given the conditions cited above, a supposition that *muqarnas* was known and in use in Almeria or elsewhere in al-Andalus as early as the eleventh century AD seems to be an ill-found and hazardous proposal. Until further investigation or new evidence eventually enables us to clarify this point, there is no concrete proof that al-ʿUdhrī used the term *muqarnas* referring to the same kind of decoration by which we currently associate it with.

6.5.2. *Architecture of the Almoravid Period in Spain*

When the Almoravids arrived in al-Andalus the peninsula already had a long artistic tradition whose architectural and decorative models were soon integrated with the major monuments of Algeria and Morocco. [649]

[648] N. Kubisch, 'El tránsito de la decoración taifal a la almorávide a la luz de las yeserías de Almería', in Gonzalo M. Borrás Gualis and Bernabé Cabañero Subiza (eds.), *La Aljafería y el Arte*, pp. 249-290. For a more extensive catalogue of fragments see Felix Arnold, *Der islamische Palast auf der Alcazaba von Almería*, Wiesbaden: Reichert, 2008.

[649] The first Taifa period includes the years between the formal abolishment of the Umayyad Caliphate in 1031 AD and the Almoravid expedition which lead to the conquest of Granada (1090 AD), Cordoba and Seville (1091 AD), Badajoz (1094 AD), Valencia (1102 AD) and Zaragoza (1110 AD) among others. From the point of view of art history, the art of the Almoravid period in Spain seems to be the result of the smooth evolution of the Taifa art. Furthermore, certain local rulers who had either arranged with the Almoravids to keep their realm, or else had held out against them, were involved in patronizing architecture. For these reasons, I prefer using the term 'architecture of the Almoravid period' or 'Almoravid period architecture' rather than 'Almoravid architecture' in Spain. *Cf*. Torres Balbás,

The Almoravids left many well-known monuments in North Africa, analyzed above. However, few innovations appear to have been introduced to the architecture of al-Andalus during this period, at least as far as we have observed to date. It has been documented that the Almoravid sovereigns did not promote any major building campaigns in Spain, possibly because none of them was sufficiently well established and settled, their only reason for going there was, after all, in order to lead military campaigns.[650]

Granada is generally considered to have been a quasi capital or headquarters of the Almoravid domains in Spain.[651] According to a passage of Ibn al-Khaṭīb, between 1115 and 1122 AD the city's mosque was restored and, among other works, the roof was repaired or renovated. Nothing remains of this covering, but the monument was admired and described by several travellers,[652] both medieval and modern, without any of them mentioning the presence of outstanding domes or ceilings. This has been cited to argue that most likely it had

'Nuevas perspectivas', pp. 402-433; Barrucand and Bednorz, *Moorish Architecture*, pp. 144-146.

650 Barrucand and Bednorz, *Moorish Architecture*, pp. 141-146.

651 Jacinto Bosch Vilá, *Los almorávides*, Tetuán: Editora Marroquí, 1956 (Reed. Granada: Universidad de Granada 1990), p.177; María Jesús Viguera Molins, *Los reinos de Taifas y las Invasiones Magrebíes*, Madrid: Editorial MAPFRE, 1992, p. 177.

652 The text was first cited by L. Torres Balbás, 'La mezquita mayor de Granada', *Al-Andalus* 10 (1945), pp. 409-432, see p. 414; then translated by A. Fernández-Puertas, 'La mezquita aljama de Granada', *Miscelánea de estudios árabes y hebraicos. Sección Árabe-Islam* 53 (2004), pp. 39-76, see p. 41; Antonio Fernández-Puertas, 'La Catedral-Mezquita de Granada', in Antonio Calvo Castellón, (ed.) *La Catedral de Granada. La Capilla Real y la Iglesia del Sagrario*, vol. 2, Granada: Cabildo de la S. I. Catedral Metropolitana de Granada, 2007, pp. 421-438; the latter author gives an updated and more complete compilation of both written descriptions and graphic representations of the mosque.

not,[653] either way there is no indication that it did. More importantly, amongst the remains of architectural decoration discovered during both the old and more recent excavations, no indication that *muqarnas* was in use in Spain during the Almoravid period has been found to date.[654]

6.5.3. *Architecture of the Almohad Period in Spain*

As far as it is known, the earliest remains of *muqarnas* decoration in the Iberian Peninsula are some painted stucco fragments, probably the remains of a *muqarnas* vault, which were found in 1985 during the archaeological excavations at the actual site of the monastery of Santa Clara, in Murcia.[655] The same site had successively housed no less than

[653] Torres Balbás, 'La mezquita mayor de Granada', p. 432; López Guzmán, 'La arquitectura de los almorávides', p. 111.

[654] These materials have been collected recently and studied by Marcos Cobaleda, 'Los Almorávides', pp. 579 and ff.

[655] Julio Navarro Palazón and Alejandro García Avilés, 'Aproximación a la cultura material de Madînat Mursiya', in Francisco J. Flores Arroyuelo (ed.), *Murcia Musulmana*, Murcia: Centro de Estudios Almudí, 1989, pp. 253-356; Alejandro García Avilés, 'Arte y poder en Murcia en la época de Ibn Mardanîsh (1147-1172)', in Joaquín Bérchez, Mercedes Gomez Ferrer et al (eds.), *El Mediterráneo y el arte español: actas del XI Congreso del Comité Español de Historia del Arte*, Valencia: CEHA, 1998, pp. 31-37; Julio Navarro Palazón, 'La Dar al-Sugrà de Murcia. Un palacio Andalusí del siglo XII', in Roland-Pierre Gayraud (ed.), *Colloque international d' archéologie islamique*, Cairo: IFAO, 1998, pp. 97-139; Julio Navarro Palazón and Pedro Jiménez Castillo, 'Arquitectura Mardanisí', in Rafael López Guzmán, *La arquitectura del Islam Occidental*, Granada: Lunwerg Editores, 1995, pp. 117-137; Julio Navarro Palazón and Pedro Jiménez Castillo, 'La yesería en época Almohade', in Patrice Cressier, Maribel Fierro et al. (eds.), *Los almohades : problemas y perspectivas*, Madrid: Consejo Superior de Investigaciones Científicas, 2005, v. I, pp. 249-303; F. Dahmani, 'Remarques sur quelques fragments de peinture murale trouvés à Murcie', *Tudmir* 1 (2009), pp. 163-176; Julio Navarro Palazon and Pedro Jiménez Castillo, 'La arquitectura de ibn Mardanîsh: revisión y nuevas aportaciones', in Gonzalo M. Borrás Gualis and Bernabé Cabañero Subiza (eds.), *La Aljafería y el Arte*, pp. 291-350.

two Islamic palaces, between the twelfth and the thirteenth centuries AD. The earliest structures had been destroyed and the debris deliberately used to raise the floor of a new palace, possibly under Ibn Hūd al-Mutawakkil (1228-1238 AD). It was in this backfill that the group of *muqarnas* fragments was found, which precluded their clear attribution to a specific palace room or sector.[656] The incompleteness and disconnectedness of the fragments made a reconstruction of the vault impossible, although it was evident that the original structure was built in brick and stucco, which was most likely reinforced with wooden beams, as is the case for Almoravid *muqarnas* vaults.[657] The

[656] For instance, J. Navarro Palazón, firstly excluded the idea that they could belong to a pavilion or *qubba* located near their find spot, whilst in a recent publication, he supported the contrary. Cf. Julio Navarro Palazón, 'La Dar al-Sugrà', p. 107: 'Difícilmente se puede vincular la decoración arquitectónica aparecida en el transcurso de la excavación al pabellón que ahora nos ocupa. Más bien nos inclinamos por pensar que las yeserías, los fragmentos de pintura mural y las adarajas de una cúpula de mocárabes, pertenecieron a otras dependencias del palacio. Su ubicación en los estratos más altos es determinante para creer que fueron transportados como escombros en la colmatación ya comentada. Si se hubieran desprendido del pabellón estarían concentrados en sus inmediaciones y próximos a los pavimentos'; Navarro Palazón and Jiménez Castillo, 'Arquitectura Mardanisí', p. 127: 'No podemos relacionar los mocárabes con el kiosco o *qubba* que había en el centro del patio de crucero, ni tenemos datos que nos permitan precisar el emplazamiento de la cúpula que nos ocupa. El análisis estratigráfico demuestra que los restos aparecieron en un nivel de escombro que se empleó para rellenar el área sobre la que se levantó el nuevo palacio. Por lo tanto, los fragmentos decorativos pudieron ser acarreados desde cualquier punto del regio edificio'; the opposite interpretation is given in Navarro Palazón and Jiménez Castillo, 'La arquitectura de ibn Mardanîsh', p. 307: 'Los restos exhumados eran parte de un potente estrato de nivelación, formado por una gran cantidad de escombros procedentes de la completa demolición de la Dâr as-Sugrà, depositados allí con el fin de construir encima la residencia hudí del siglo XIII. Por este motivo no es posible asociarlos con seguridad a un espacio concreto del palacio, aunque lo más probable es que pertenecieran a la qubba que presidía el centro del gran jardín de crucero, pues las numerosas adarajas de la bóveda de mocárabes que allí se exhumaron se encontraron a escasos metros de ella'.

[657] Navarro Palazón and Jiménez Castillo, 'Arquitectura Mardanisí', p. 127.

fragmentary state of these remains, together with their poor state of preservation does not allow for a consistent idea of the painting style, though something of their iconographic repertory is recognizable: figurative representations, including both human and animal figures, as well as ornamental drawings based on vegetal motifs.[658] As far as their dating is concerned, J. Navarro Palazon and P. Jiménez Castillo have both proposed that these fragments could have belonged to Muḥammad b. Saʿad Ibn Mardanīsh's (r. 1147-1172 AD) palace originally. According to these two scholars this ruler patronized an architectural programme in the region, as a counterpart to his military and political efforts to oppose Almohad expansion in the peninsula.[659]

An in situ *muqarnas* dome is among the few traces of the Almohad Mosque in Seville.[660] This building, which was similar to the Kutubiyya in its structure but rather greater in its dimensions, was destroyed in the fifteenth century and replaced by the Christian cathedral. However, both the renowned minaret and part of the original *ṣaḥn* were adapted

[658] Dahmani, 'Remarques sur quelques fragments', p. 170-171.

[659] Different hypothesis, of either Almoravid or late Almohad period, respectively, have been proposed in Indalecio Pozo Martínez, I., Alfonso Robles Fernández et al. *Las artes y las ciencias en el Occidente musulmán. Catálogo de la Exposición*, Murcia: Museo de la Ciencia y el Agua, 2007 and Indalecio Pozo Martínez, 'Arquitectura y arqueología islámicas en el monasterio de Santa Clara la Real (Murcia)', in Indalecio Pozo Martínez, Cristóbal Belda Navarro et al. *Paraísos perdidos. Patios y claustros*, Murcia: Caja Murcia – Obra Cultural, 1999, pp. 53-104. Both proposals seem unconvincing, see their discussion in Navarro Palazón and Jiménez Castillo, 'La arquitectura de ibn Mardanîsh', pp. 332-334.

[660] Leopoldo Torres Balbás, *Arte almohade, arte nazarí, arte mudéjar*, Madrid: Plus Ultra, 1949, pp. 17-29; Gonzalo M. Borrás Gualis, *Historia del arte Español. Vol. 3, Crisol de tres culturas: lo islámico, lo judío y lo cristiano*, Barcelona: Planeta - Lunwerg, 1996, pp. 59-67; Gonzalo M. Borrás Gualis, *El Islam. De Córdoba al mudéjar.* Madrid: Sílex, 2000, pp. 126-128; Almagro Gorbea et alii, *Atlas arquitectónico*; A. Jiménez Martín, 'Notas sobre la mezquita mayor de la Sevilla almohade', *Artigrama* 22 (2007), 131-153.

to the needs of the new rulers and preserved. One of the *sahn* gateways, the commonly named 'Puerta del Lagarto', includes a small stucco *muqarnas* dome which is rectangular in plan, approximately 2 metres wide by 1.35 metres deep. Similar to the Almohad vaults described above, it is a suspended stucco ceiling, most probably reinforced with wooden ties and/or bricks. Its geometry, seen from beneath, is also similar to the vaults described above; it is basically generated through 45° rotations of several squares which are enclosed in an orthogonal grid.[661]

We know that these Almohad works were certainly carried out by 1172 AD and that most of the mosque was finished in 1176 AD, although it was not until 1182 AD that the first *khuṭba* was pronounced in it.[662] The new mosque was firmly linked to the major Almohad buildings of Morocco[663] and it is credible that at least some of the now vanished domes arranged over the transversal nave adjacent to its *qibla*, were decorated with *muqarnas*.[664] However, the vault in question must be rather later in date, as it is the 'Puerta del Lagarto' ascribable to

[661] For plans, elevations and sections of the '*Puerta del Lagarto*' see Almagro Gorbea et al., *Atlas arquitectónico*, Pl. 39.

[662] Ibn Ṣāḥib al-Salā, translated by Ambrosio Huici Miranda, *Al-mann bil-Imāma*, Valencia: Anubar, 1969, pp. 195-199.

[663] According to Ibn Ṣāḥib al-Ṣalā, master builders and craftsmen were brought from Marrakesh and Fes to work together with local ones. See Ibn Ṣāḥib al-Ṣalā, [trans. by Huici Miranda], p. 195: '[...] y se encargó de ello al jeque de los arquitectos Aḥmad b. Baso y a sus colegas, los arquitectos constructores de Sevilla, y a todos los arquitectos de al-Andalus, y con ellos a los arquitectos constructores de la capital Marrākuš y de la ciudad de Fez y de la gente de allende al Estrecho y se reunieron en Sevilla de ellos y de las distintas clases de carpinteros y aserradores y obreros para las diferentes construcciones en gran numero, hábiles cada uno en cada especialidad de las obras'.

[664] Torres Balbás, *Arte almohade*, p. 20; Borrás Gualis, *El Islam*, p. 126.

the *ṣaḥn*'s expansion works which began in 1196 under the reign of Abū Yūsuf al-Manṣūr.[665]

The next Spanish example does not come from a mosque, or from any Islamic building of al-Andalus, but from a Cistercian monastery near Burgos, right in the heart of Christian Castile: the Abbey of Santa María la Real de Las Huelgas. The monastery was founded by Alfonso VIII (r. 1170-1214 AD) together with his wife Leonor in 1187 AD. In a document of 1199 AD it was referred to as a finished work.[666] Three small *muqarnas* cupolas, which rest on square bases, are located in the 'Capilla de la Asunción', whose walls - together with the adjacent 'Claustrillas' cloister - represent the most ancient remains of this architectural complex. However, all the stucco decoration, which includes the cupolas, was added at a second stage,[667] within the first quarter of the thirteenth century. This is according to Torres Balbás, who proposed that the chapel could had been part of the royal palace built by Alfonso VIII in the immediate vicinity of the monastery.[668] The

[665] Ibn Ṣāḥib al-Salā [trans. Huici Miranda], p. 203, Torres Balbás, *Arte almohade*, p. 22.

[666] Leopoldo Torres Balbás, 'Las yeserías descubiertas en las huelgas de Burgos', *Al-Andalus* 8 (1943), pp. 209-254, see p. 237.

[667] Leopoldo Torres Balbás, 'Las yeserías', pp. 240-241: 'Una de las jambas del arco que separa la nave del presbiterio obstruye una de las puertecillas de ladrillo del muro Sur, prueba de que la organización interna de la capilla responde a una modificación del primitivo plan con arreglo al cual se levantaron sus muros'; Leopoldo Torres Balbás, *Arte almohade, arte nazarí, arte mudéjar*, p. 41: 'En el muro de la derecha y en la parte que cierra a mediodía el presbiterio se empotró, por el exterior y rompiendo para ello la fábrica de ladrillo, un sepulcro de piedra, de arte parejo al de las inmediatas Claustrillas, que Gómez-Moreno supone encerró el cadáver de Fernando, hijo de Alfonso VIII, muerto en 1211 y primer adulto allí enterrado. [...] Ante, pues, de ese año debieron de levantarse los muros de la capilla, cuya organización actual y decorado revelan una modificación del primitivo plan, bien patente por interceptar el arco perpiaño una de las puertas'.

[668] Torres Balbás, *Arte almohade*, p. 43.

muqarnas decoration is a perfect example of Almohad *muqarnas*, from the point of view of both the building technique and the geometrical composition. It is considered as 'pure' Almohad work in Christian domains.[669]

Roughly contemporary with the Castilian vaults are the fragmentary remains of the Almohad palaces in Seville, which was the Almohad capital from 1163 AD;[670] this includes some with *muqarnas* decoration. The best known example is a small *muqarnas* cupola that crowns a ribbed ceiling in a house adjacent to the 'Patio de Banderas' in the Alcázar of Seville. The structure of this dome is to a large degree similar to that of the dome in front of the *miḥrāb* in the Great Mosque of Tlemcen, to which it is often compared. As in the Algerian mosque, the dome is sustained by brick ribs intersecting each other in a star-shaped pattern. However, this Spanish example shows no traces of carved-stucco decoration and the *muqarnas* cupola's geometry, radial and uncomplicated, is noticeably simpler then the Almoravid model.[671]

R. Manzano Martos reported on two more *muqarnas* vaults, at present included in Peter of Castile's Palace, which he considered

669 Torres Balbás, 'Las yeserías', pp. 242-243; Torres Balbás, *Arte almohade*, p. 39; see also Barrucand and Bednorz, *Moorish Architecture*, pp.174-177; Navarro Palazón and Jiménez Castillo, 'La yesería en época Almohade', pp. 259.

670 María Jesus Viguera Molins, 'Los almohades en Sevilla: 1147-1248', in Magdalena Valor Piechotta and Ahmed Tahiri (eds.), *Sevilla Almohade*, Sevilla-Rabat: Fundación de las Tres Culturas del Mediterráneo, 1999, pp. 19-23.

671 Torres Balbás, *Arte almohade*, p. 31; Magdalena Valor Piechotta*, La arquitectura militar y palatina en la Sevilla musulmana*, Sevilla: Diputación provincial, 1991, p. 89; Barrucand and Bednorz, *Moorish Architecture*, pp.162-163; Rafael Manzano Martos, 'Casas y palacios en la Sevilla almohade. Sus precedentes hispánicos', in Julio Navarro Palazón (ed.), *Casas y Palacios de al-Andalus. Siglos XII y XIII*, Barcelona-Madrid: Lunwerg, 1995, pp. 315-352.

ascribable to the Almohad period.[672] The first one covers a passageway between the palace vestibule and the courtyard known as 'Patio de Doncellas'. The second one is placed contiguously, at the beginning of an adjacent stairway which leads to the upper floor of the palace. Both vaults rest on square cornices and their geometry relies on the usual 45° rotation of squares. However, the vault over the passageway is composed of larger sized cells and is rather simpler in its organization.

[672] Rafael Manzano Martos, 'Casas y palacios en la Sevilla almohade', see p. 347: 'No obstante, e integrado en el palacio mudéjar del Rey Don Pedro, sirviendo de enlace entre su vestíbulo y el patio de las Doncellas, existe un cuerpo de edificio antiguo, estilísticamente fechable en época almohade, que tiene dos plantas de altura y sobre el que nadie ha llamado nunca la atención. En la inferior encontramos tres espacios consecutivos, formando un ángulo en L, de los que el primero, de planta rectangular, se cubre con una bóveda de espejo, y los dos siguientes, absolutamente cuadrados, se cierran con elevadas bóvedas de mocárabes, muy simples y de las más viejas que conservamos de éste tipo en la Península Ibérica'. See also Rafael Manzano Martos, 'El Alcázar de Sevilla: los palacios almohades', in Valor Piechotta, M. (ed.): *El último siglo de la Sevilla islámica, 1147-1248*, Sevilla: Universidad – Gerencia Municipal de Urbanismo, 1995, pp. 101-124, in particular p. 119; Basilio Pavón Maldonado, 'Bóvedas y cúpulas en la arquitectura árabe de occidente. Inventario y reivindicación' (sept. 2010), p.12. Available at: http://www.basiliopavonmaldonado.es/Documentos/Cupulas.pdf (Accessed: 26th march 2014); Rafael Cómez Ramos, 'Huellas artísticas de la última Sevilla almohade', in María Isabel Álvaro Zamora, Concepción Lomba Serrano et al, *Estudios de historia del arte: libro homenaje a Gonzalo M. Borrás Gualis*, Zaragoza: Institución Fernando el Católico, 2013, pp. 261-274, see p. 268.

7. STONE *MUQARNAS* PORTALS

7.1. General Observations

A separate chapter is dedicated to stone *muqarnas* portals because they represent possibly the best comparative material available in the Islamic world from which to study the stone *muqarnas* vaults of Sicily. They are also highly relevant to the topic of *muqarnas* development. This section's catalogue includes 17 entries, mostly for Syrian monuments displaying stone *muqarnas* portals. The entries are subdivided chronologically into two groups, namely: 'The Ayyubid Examples'; and 'The First Mamluk Examples in Syria and *muqarnas* portals in Egypt and Palestine'.[673]

7.1.1. The Ayyubid Examples

The first entry is dedicated to the portal of Madrasa ʿĀdiliyya (1172-73 AD), Damascus, which is included because it contains two *muqarnas* mini-domes, each formed by three tiers of *muqarnas* elements topped by an eight-lobed cupola, seemingly imitating a wooden ceiling.

The second entry includes the portals of both the Madrasa Shādhbakhtiyya (1193 AD) and the portal of Ibn Turayra (1197-98 AD) in the Mashhad al-Muḥassin, Aleppo. In both portals, the *muqarnas* decoration is limited to the zones of transition, which include the pendentives and the two-tier compositions of the proper vaults. This type of portal combined the use of the Syrian *muqarnas* pendentive

[673] For a detailed discussion of each monument and the relating bibliography, see the specific entries in the catalogue.

–whose development was described in Chapter 5– with the *muqarnas* drum observed, for instance, in the Mausoleum of Ibn al-Muqaddam.

The building features of these first examples seems to corroborate the potential importance of wooden models in Syrian muqarnas tradition, which was discussed in previous chapters. This is confirmed by the study in detail of the Mashhad al-Ḥusayn's portal, the next in the series, which can be assigned to 592 AH/1195-96 AD thanks to a cursive inscription placed above its entrance. In the latter case, in fact, the builder seems to make a special effort in transposing into stone the details of a wooden vault in a realistic and recognisable way. The details, the implications and the importance of this hypothesis are discussed below (see '7.1.3. Discussion'; and '7.2.3. The Portal of the Mashhad al-Ḥusayn, Aleppo').

The next entry is on the Damascus Citadel's East Gate, built in 610 AH (1213-14 AD), which has been studied recently in the context of the Franco-Syrian research project. The scholars who led the recent investigations focused on building aspects related to the portal and its surrounding structures. It seems that the construction of the portal was part of a greater building campaign, which included the erection of tower T07, and the sectors of the curtain wall adjoining it. Different teams of artisans were employed simultaneously, with some elements requiring skilled labour, such as the portal vault, being built by other craftsmen than those responsible for standard masonry. A stone-by-stone survey of the ashlars and analyses of the tool marks reveal an increasing precision in the portal of both stone dressing and masonry setting, which is particularly clear in those parts of the wall leading to

the vault. There, several small corrections were required to fit the vault over the portal bay, indicating that the *muqarnas* semi-dome had been prepared separately, as a prefabricated independent element, by 'exceptionally competent' craftsmen, most probably led by a master builder from Aleppo. Sauvaget was the first to observe an Aleppine influence on this portal in 1930.[674]

The next seven entries are dedicated, respectively, to the portal of Madrasa Ẓāhiriyya (1213-1214 AD), the palace portal of al-Malik al-Ẓāhir on the Aleppo Citadel (most probably built around 1230-31 AD), the undated portals of the Māristān Arghūn and the Madrasa al-Kāmiliyya, the portal of the Madrasa Sharafiyya (most probably built between the 1230s and 1260 AD), the portal of the Madrasat al-Firdaws (1235-1236 AD) and that of the Khānaqā of Dayfa Khātūn (1237-38 AD) - all of them built in Aleppo during the Ayyubid period. The following four entries are dedicated to Damascus examples, built at approximately the same time: the portal of the Madrasa Ṣāḥibiyya (1245-46 AD), the portal of the Madrasa Atābakiyya (built before 1229 AD), the portal of the the Jāmiʿ al-Tawba (1234-35 AD) and that of the Māristān al-Qaymarī (built after 1248 AD).

7.1.2. First Mamluk Examples in Syria and muqarnas *Portals in Egypt*

This second section is dedicated to the first Mamluk examples in Syria and the introduction of the *muqarnas* portal to Egypt. It consists of three entries, one dedicated to the portal of the Madrasa of al-Ẓāhir

[674] Sauvaget, 'La citadelle de Damas', p. 222.

Baybars, Damascus; the second dedicated to the portals of the Madrasa Ẓāhiriyya and Mausoleum of Zayn al-Dīn, both in Cairo (i.e., respectively the earliest documented and the earliest existing *muqarnas* portals in Egypt); and the third dedicated to six later portals from Cairo and Jerusalem. I chose to discuss these late examples, to illustrate the filiation of the first Syrian and Egyptian Mamluk portals with the Ayyubid building tradition identified above.

7.1.3. Discussion

One important branch of the Syrian *muqarnas* is the stone portals discussed in the present chapter. The first examples are dated to the second half of the twelfth century, and by the thirteenth century a solid tradition of stone *muqarnas* vaults was developed, which is extensively documented. Some 17 examples were catalogued in this study mainly located in Aleppo, which appears as both the first and the main productive centre of this technique (the first vaults constructed in Damascus or elsewhere are often clearly related to the Aleppine tradition).

The building features of some of these portals, especially the earliest examples, seems to corroborate the potential importance of wooden models in the Syrian *muqarnas* tradition, which was discussed in previous chapters. This is suggested by the *muqarnas* mini-domes in the portal of Madrasa ʿĀdiliyya (1172-73 AD), and the pendentives of the Ibn Turayra/Shādhbakhtiyya (1190s AD), all of which are plausibly related to wooden prototypes. This is confirmed by the detailed study of Mashhad al-Ḥusayn's portal (1195-96 AD), which is the next in the

series. The portal vault, composed of four tiers of *muqarnas*, springs from a cornice, which rest on a carved moulding that seems to deliberately imitate some kind of corbels or brackets that project from the wall to carry the dome. This moulding generates an order of recticurvilinear niches, in which small lamps are carved in deep relief (see fig. 16). Behind the entrance is a bay opening onto the inner court, almost as large as the portal chamber, covered by a stone vault, which Herzfeld photographed and classified as 'imitation in stone of wooden ceiling'.[675] In the picture a rectangular stone ceiling can be seen, supported by eight beams resting on a compound cornice. All these details imitate a wooden structure which is carved out of stone blocks, including the beams themselves, the cornice's carved decoration and the square and octagonal ceiling coffers. Allen considers that this 'odd element' could reflect the copying of a previous wooden ceiling, which was seemingly transposed into stone from its wooden prototype. This observation is taken one step further and is proposed that not only the bay behind the portal's ceiling, but the *muqarnas* vault itself, could be the transposition into stone of a former wooden structure. Strikingly in the Cappella Palatina the wood *muqarnas* ceiling covering the nave is also associated with wooden ceilings –covering the lateral aisles– very similar to the wooden model of ceiling supported by beams imitated by the builder of Mashhad al-Ḥusayn's portal (see fig. 17, compare with figure 18).

In the portal of Mashhad al-Ḥusayn the builder made a special effort to transpose into stone the details of a wooden vault in a realistic and

[675] Herzfeld, MCIA/Alep, Pl. CII b, reproduced here in fig. 17.

recognisable way. This made sense if the viewers were immediately able to identify the stone counterpart as a reproduction, implying that wooden *muqarnas* vaults were common by that date in Aleppo, although no example has survived. The vault above the Mashhad al-Ḥusayn's portal enables us to gain a glimpse of how the wooden *muqarnas* evolved, integrating radial geometry and relieving the standard brackets, which facilitated the builders to play with the cells' dimensions and disposition in a different way from Western traditions (which observed the original canons of 45° rotations of squares).

After these first examples of stone vaults were produced, a substantial stone *muqarnas* tradition was established, which developed more or less independently from the wooden tradition. With regard to the formal features, the vaults of the Syrian portals are usually composed of big cells or units, organized in three-four tiers, crowned by lobed or gored cupolas. As seen from beneath, the main geometrical order of the Syrian *muqarnas* depends essentially on radial organization, i.e. the cells are organized through the rotation of concentric polygons. These rotations are studied in such a way that the cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another, which becomes the customary Syrian layout.[676] More advanced vaults display a similar layout, except that, at given points of the composition, recesses or mini-domes were

[676] The only exception possibly being the portal of the Madrasa Ẓāhiriyya, Aleppo, where the cells belonging to different tiers are aligned following the radii, which prolong the ribs of the fluted semi-dome crowning the *muqarnas* composition (see '7.2.5. The portal of the Madrasa Ẓāhiriyya, Aleppo').

introduced, usually developed from the first into the second tier of *muqarnas*, which result in a more complex geometry. With regard to the stone cutting, the Syrian vaults are made up of larger stone blocks that have been cut volumetrically into a few complex shapes in order to be fitted together and assembled like a jigsaw puzzle (see figs. 19-21). Usually a single course of stone blocks corresponds to each tier of *muqarnas*, the whole composition resulting from five to six courses of ashlars.

The evolution of this stone tradition can be followed in Syria up to the Mamluk period, when stone *muqarnas* vault was exported to Palestine and Egypt. The Madrasa of al-Ẓāhir Baybars Damascus represents a perfect link between Ayyubid and Mamluk *muqarnas* portals. Though its geometry is more complex than any antecedent, its filiation from the Ayyubid tradition is clear: the materialization of the main radial geometry in a lobed semi-cupola crowning the *muqarnas* is a widespread pattern identified from the origins of the *muqarnas* portal (see, for instance: the Madrasa Shādhbakhtiyya; and the portal to the palace of al-Malik al-Ẓāhir, Aleppo) through to the later Ayyubid examples (see the portal to the Māristān al-Qaymarī, built after 1248 AD). The use of recessed circles or else true mini-domes in the back corners of the portal vault was introduced in the portal of Mashhad of al-Ḥusayn, then used in the East Gate and in the portal of the Madrasat al-Firdaws. The introduction of circles or else stellated motifs, radially disposed at given points of the *muqarnas* vault, is documented in the portal to the palace of al-Malik al-Ẓāhir, Aleppo. These details, along with the use of *ablaq* masonry, the vault proportions, and the more

general aesthetics of the portal, denote that the portal of the Madrasa Ẓāhiriyya, being certainly different from and more complex than any Ayyubid antecedent, was inspired from –or else conceived within– the Ayyubid tradition of both Aleppo and Damascus.

Regarding the *muqarnas* vault of the homonymous *madrasa* in Cairo, while there is no evidence to consider it the product of a local development, it fits perfectly within the series of Syrian portals. Indeed, as is discussed in chapter 4, about 'Muqarnas in Egypt', an early stone *muqarnas* decoration is found in al-Aqmar mosque, where *muqarnas* is used on the façade to create cornices above the niches that flank the doorway. The composition consists of four tiers of cells covering two flat niches, approximately 1.27 metres wide and 0.25 metres deep. The *muqarnas* tiers are not carved out from ashlar courses, but from either one or two super-imposed blocks which, along with the shallow niches, denotes a degree of archaism. In spite of its early date, it is problematic to connect this Fatimid example with the complex compositions of the Mamluk period (1250-1517 AD). In fact, although *muqarnas* is a three-dimensional decorative method, in al-Aqmar's façade it is used in a 'linear' way, i.e., it neither covers a real surface nor is it integrated into a proper vault. In addition, the artisans who carved the Fatimid *muqarnas* either reduced, or else avoided the stereotomic problems related to the assembly of several blocks into a complex composition, and there is no evidence in Egypt for an evolution towards the creation of more complex stone *muqarnas* vaults happening during the 140 years between the foundation of al-Aqmar and our *madrasa*. In addition to this argument, both the general plan of the *madrasa* and some

important architectural and decorative details –such as the flat relieving arches with lanceolate decoration above the windows– are unprecedented in Egypt and have been traced back to Syria. These formal correspondences were so close that they must have shared the same artists and not just simulating someone else's decorative motifs. This may indicate that the masons operating a little earlier in Aleppo were commissioned by al-Ẓāhir Baybars (r. 1260-1277 AD) to carry out similar work in Cairo. This first appearance of a *muqarnas* portal in this building strongly indicates that its introduction to Cairene architecture must be related to the presence of Syrian builders and the coincidence of both buildings having the same patron.

The Zāwiya-Mausoleum of Zayn al-Dīn was built in 1298. It shows a small portal with a *muqarnas* composition which seems to derive from a Syrian tradition, as well. The vault rests on three-tier *muqarnas* pendentives, comparable with the Madrasa Shādhbakhtiyya/Ibn Turayra model. The proper vault is composed of three tiers of *muqarnas*, crowned by a semi-hexadecagonal lobed mini-dome, a general composition closely matching Ayyubid portals, such as those of the Aleppine Ẓāhiriyya, the Māristān Arghūn, the Madrasa Kāmiliyya, the Madrasat al-Firdaws, the Madrasa Ṣāḥiba, amongst others. Due to a similar disposition of *muqarnas*, the frontal arch's profile also closely resembles Syrian examples. Apart from these overall arrangements, which clearly place the portal within the tradition that we have analysed so far, the filiation of this *muqarnas* to Syrian models is also noticeable in several other details. The insertion of tri-lobed cell compositions to create a geometric variation of the *muqarnas*, for

instance, is analogous to Syrian examples (Damascus Citadel's East Gate, Māristān Arghūn, Madrasa al-Kāmiliyya, etc.). The hanging elements or brackets have their antecedent in those of the Māristān Arghūn, Aleppo. Finally, the pointed-arched shape of the cells, the form and disposition of the brackets have no Egyptian equivalent. The introduction of Syrian elements in the Mausoleum of Zayn al-Dīn is seemingly related to the introduction of a Syrian component into mainstream Cairene Mamluk architecture, which began under al-Ẓāhir Baybars. One of the main façade's windows preserves a lintel and a relieving arch with carved decoration in lanceolate fields, which is comparable to that of the Madrasa Ẓāhiriyya. Zayn al-Dīn also had personal links with Syria, where he had first established his order before moving to Cairo.

The final entry is dedicated to a group of six portals, showing remarkable resemblance to each other and ostensibly linked to the Syrian tradition, which were built around the fourth decade of the fourteenth century in both Cairo and Jerusalem. Two of these portals (namely those to the Sūq al-Qaṭṭānīn, Jerusalem and the Palace of Qawsūn Yushbak, Cairo) bear the 'signature' of Muḥammad b. Aḥmad b. Ghulaysh. In the Cairene portal, the additional *nisba* 'al-shāmī' is given, indicating that he was most probably a Syrian from Damascus.[677]

[677] M.H. Burgoyne, *Mamluk Jerusalem: an Architectural study*, [London]: published on behalf of the British School of Archaeology in Jerusalem by the World of Islam Festival Trust, 1987, pp. 98-99.

7.2. The Ayyubid Examples

7.2.1. Madrasa ʿĀdiliyya, Damascus

This *madrasa* was founded by Nūr al-Dīn in 568 AH (1172-73 AD) but the building was still incomplete when he died, the following year, and passed through different construction phases until it was finished 50 years after its foundation. The detailed analysis of both the building's structure and history, although unquestionably interesting, is unnecessary here, apart from its stone portal, which has been ascribed to Nūr al-Dīn's original structure.[678]

The monumental portal projects slightly from the east façade of the *madrasa*. Allen included the fine cutting and finishing of the stonework, along with the treatment of both the moulding and the relieving arches above the lintel in his category 'Ornamented style of Aleppo'.[679] The most striking feature of the portal's vault is the pendant keystone, which has drawn the Allen's attention. Behind it, the vault is composed of two *muqarnas* mini-domes, each formed by three tiers of *muqarnas* elements topped by an eight-lobed cupola. According to Allen, both the pendant keystone and the *muqarnas* mini-domes could represent a transposition into stone from models derived from contemporary wooden ceilings.[680]

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[678] Herzfeld, 'Damascus I', pp. 46-49; Herzfeld, 'Damascus III', pp. 1-4; Allen, *A Classical revival*, pp. 93-97; Allen, *Ayyubid Architecture*, chapter 2.

[679] Allen, *Ayyubid Architecture*, chapter 2.

[680] 'The origin of the portal's pendant arch lies in wooden ceilings, something an insightful piece of synthesis by James Allan makes it possible to see. Such a structure was easy to construct in wood, and ceilings with wooden frameworks and wooden muqarnas domelets as coffers existed all over the central and western Islamic world. The design of the portal of the Madrasah al-Nûrîyah al-Kubrâ was

7.2.2. The Portal of the Madrasa Shādhbakhtiyya and the Portal of Ibn Turayra in the Mashhad al-Muḥassin, Aleppo

As *muqarnas* pendentives were used in the portals of both monuments, I have discussed them above, in chapter 5, '*Muqarnas* in Syria' where bibliographic references are given.[681] The vaults, which were built within a lustrum, have similar features that differentiate them from other contemporary portals. I have therefore decided to treat them together here.[682]

In the first case, the building portal is covered with a stone vault, which displays two tiers of *muqarnas* crowned by a lobed semi-dome. The base of the vault is a semi-octagon, the transition zone from the underlying rectangle being mediated by triangular pendentives. Each pendentive is composed of a pair of brackets supporting a horizontal course decorated with a straight composition of two niches and three brackets, which span the angle. As far as these pendentives are

probably derived from the same source. In both that portal and this one, the design was translated to stone to serve as an astonishing device'. (Allen, *Ayyubid Architecture*, chapter 2. Allen refers to James W. Allan, 'The Transmission of Decorated Wooden Ceilings in the Early Islamic World', in Willem Dirk Hackmann and Antony John Turner (eds.), *Learning, Language and Invention: Essays presented to Francis Maddison,* Aldershot and Paris: Variorum, 1994, pp. 1–31. Allen briefly reported that on the southwest corner of the building a corbel composed of a single *muqarnas* cell is used to cover a chamfer.

681 See respectively '5.3.1. Pendentives in the Portal of the Madrasa Shādhbakhtiyya' and '5.3.2. The Mashhad al-Muḥassin, Aleppo'.

682 T. Allen suggests to assign the two portals to different architects. On the other hand, his argument to attribute the portal of Ibn Turayra to Qāhir b. ʿAlī - 'the progressive outlining of the three tiers of the muqarnas pendentive, which occurs above in the prayer hall dome of the Madrasat Abī l-Fawāris, in Maʿarrat al-Nuʿmān, a signed work of Qāhir b. ʿAlī' - seems unconvincing to me. Allen himself recognized that 'possibly the details I see as idiosyncratic to Qāhir b. ʿAlī's work were more widely used, or were added by masons working for more than one architect', (Allen, *Ayyubid Architecture*, chapter 4).

concerned, as I mentioned in the corresponding section (5.3. The stone *muqarnas* pendentive in Syria), the *muqarnas* is used as a decoration of linear elements, which are set at 45° across the back angles, progressively jutting out one over the other. The two upper tiers of *muqarnas*, which properly belong to the vault, are used to mediate the passage from the octagon to the sixteen-sided polygon, underlying the lobed semi-dome. The first tier of cells includes shallow niches and brackets, disposed along the semi-octagonal base. The second tier is also composed of very shallow elements, carved to compose the stellate polygon underlying the lobed cupola.

The Ibn Turayra portal in the Mashhad al-Muḥassin is rather similar in composition. As in the Shādhbakhtiyya, *muqarnas* pendentives are used to create a semi-octagonal base for the dome, but here at the base of each pendentive is a split bracket that supports two tiers of *muqarnas*, composed of alternating niches and brackets. The *muqarnas* elements are more deeply carved than those in the Madrasa Shādhbakhtiyya, but have the same linear disposition in superimposed courses set diagonally across the back corners of the portal bay. The proper vault displays two tiers of cells rising from the semi-octagonal base and mediating the transition to a large semi-hexadecagonal semi-dome. The two-tier *muqarnas* is almost identical to that in the Shādhbakhtiyya, except for the niches of the upper tier, which are split vertically into two halves and are more deeply carved.

The major difference between both vaults does not relate to their *muqarnas* layout or composition, but their dimensions: the portal vault of Ibn Turayra is considerably larger, to the extent that the entire vault

of the Shādhbakhtiyya could fit into the semi-dome crowning its *muqarnas* composition. In terms of *muqarnas* filiation, in both portals, the builders combined the use of the *muqarnas* pendentive with the same type of *muqarnas*-decorated drum, which can be seen, for instance, in the Mausoleum of Ibn al-Muqaddam.[683] The *muqarnas* effect is achieved through hypertrophied zones of transition, which include the pendentives and the two-tier composition of the proper vaults. The superimposed niche order follows a pattern with central symmetry generated by small rotations of polygons inscribed in circles with a common centre. These rotations are studied in such a way that the cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another, which becomes the customary Syrian layout.[684]

[683] It was built in the cemetery of Daḥdaḥ, north of Damascus, outside the ancient Bāb al-Farādīs, most probably during the second half of the 12th century. The mausoleum is a square room, surmounted by a dome whose diameter is approximately 4.90 metres. It has a pointed-arched opening on each side, originally closed by woodwork, according to K. Moaz. The monument is built in ashlar masonry, except for the small dome, or cupola, which is in brick. It is relevant here because of its transition zone, which shows a double order or drum of *muqarnas* cells built in stone, as well, and covered by a stucco decoration. The passage from the square room to the base of the drum, which is dodecagonal, is mediated by segmented pendentives. The angles of the dodecagon are spanned by big *muqarnas* cells, alternating with brackets that form the base of the upper tier, which is also dodecagonal. The cells of the second tier have the same disposition and geometry as the first, but are sensibly smaller. The bases of both orders are rotated by 15° relative to one another: see Moaz, 'Le mausolée d'ibn al-Muqaddam'; Herzfeld, 'Damascus I', pp. 14-18; Allen, *Ayyubid Architecture*, Chapter 6.

[684] The only exception possibly being the portal of the Madrasa Ẓāhiriyya in Aleppo, where the cells belonging to different tiers are aligned following the radii, which prolong the ribs of the fluted semi-dome crowning the *muqarnas* composition (see Allen, *Ayyubid Architecture*, chapter 8).

7.2.3. The Portal of the Mashhad al-Ḥusayn, Aleppo

Allen pointed out that this portal is 'by far the most elaborate in Ayyubid architecture', and seems 'more monumental than any other extant twelfth century portal'.[685] This building is of the greatest interest to the history of architecture. The sanctuary was constructed on the same hill as Mashhad al-Muḥassin, a few hundred metres away from it. As already stated, an explosion destroyed this monument shortly after the end of World War I, while it was being used as an ammunition magazine, so today's building is largely a reconstruction.[686] Although parts of the ancient structure remain, Herzfeld's graphic documentation of the original building is an important primary source.[687] Regarding the dating, Mashhad al-Ḥusayn passed through several different building phases during the Ayyubid period. However, as far as the portal is concerned, it can be assigned to 592/1195-96 thanks to a cursive inscription placed above the entrance, which also gives the name of Saladin's son, al-Malik al-Ẓāhīr.[688]

When comparing this vault with the above-described Aleppo structures, neither the general composition of Mashhad al-Ḥusayn's vault nor the details of its *muqarnas* work point to a direct derivation from the Shādhbakhtiyya/Ibn Turayra models. The vault that covered the portal's bay was square in plan, with a *muqarnas* composition

685 Allen, *Ayyubid Architecture*, chapter 5.

686 For a detailed discussion of the monument and the related bibliography see '5.3.2. The Mashhad al-Ḥusayn, Aleppo'.

687 Sauvaget, 'Deux sanctuaires chiites'; Herzfeld, MCIA/Alep, pp. 236-248; Allen, *Ayyubid Architecture*, chapter 5.

688 Allen, *Ayyubid Architecture*, chapter 5.

developed over two-thirds of the square only. A barrel vault with the same profile as the frontal arch covered the remaining third. The cells were disposed in four tiers and the whole composition was crowned by a lobed mini-dome. The lower *muqarnas* tier was very high, composed of large cells bearing inscriptions with Shiite blessings. The upper tiers were composed of smaller elements: both the second and fourth tiers were less than half the height of the first tier, and the third was slightly higher than them. There are recessed mini-domes in the corners developed from the first into the second *muqarnas* tier. The vault sprang from a cornice decorated with vegetal motifs, which rested on a carved moulding, that appears to have deliberately imitated some kind of corbelling or bracketing, projected from the wall to carry the vault. This compound moulding generated an order of recticurvilinear niches, in which small lamps were carved in deep relief. According to Allen, these elements may have imitated similar hanging lamps from a former portal.[689]

The Mashhad al-Ḥusayn's portal seems to have been achieved by a separate development, whose antecedents are lost, but the vault has some features which are worth noting, in order to establish the possible origins of its prototype. For instance, there are details of the structure that suggest the builder intended to imitate or transpose to stone a model which may have been conceived in a different material originally. While this is obvious for the carved lamps, it could be true for the moulding from which the lamps hang, as well as for the whole vault. Regarding the moulding, it seems to imitate some kind of indented bed-

[689] Allen, *Ayyubid Architecture,* ch. 5.

mould projecting from the wall in order to mask the joins between the ceiling and the wall. Supports of this kind are not necessary for a stone vault, which could spring square from the wall, while they were used in vaults or suspended ceilings built in a different material, such as wood. Allen has already proposed that the Madrasa ʻĀdiliyya's portal's pendant arch, together with the small *muqarnas* mini-domes crowning the twin vaults behind the pendant stone, have their origins in wooden ceilings.[690] I would like to propose that Mashhad al-Ḥusayn's *muqarnas* vault is also an imitation of some kind of contemporary wooden *muqarnas* ceiling, of which no example remains today, but could have been common in twelfth-century Aleppo. This hypothesis that the stone vaulting of Mashhad al-Ḥusayn had wooden antecedents could also explain the sudden appearance of a highly developed *muqarnas* vault. This idea seems to be corroborated by the stone vault, which covered the bay that opens onto the inner court, corresponding to the *muqarnas* vault just behind the entrance door. Herzfeld photographed and classified it as an 'imitation in stone of a wooden ceiling'.[691] In his picture, a rectangular stone ceiling can be seen, supported by eight beams resting on a compound cornice. All the details of a wooden structure are carved out of stone, including the beams themselves, the carved decoration of the cornice or the square and octagonal coffers. It

[690] This *madrasa* was founded in Damascus by Nūr al-Dīn in 568/1172-73 but the building was still incomplete when he died, the following year, and passed through different construction phases until it was finished, 50 years after its foundation. Its stone portal has been effectively ascribed to Nūr al-Dīn's original works. On the monument see Herzfeld, 'Damascus I' pp. 46-9; Herzfeld, 'Damascus III', pp. 1-4; Allen, *A Classical revival*, pp. 93-7; Allen, *Ayyubid Architecture,* chapter 2.

[691] Herzfeld, MCIA/Alep, plate CII b.

should be noted that secondary ceilings of this type, also associated with a wooden *muqarnas* structure, are found in the lateral aisles of the Cappella Palatina, Palermo, Sicily. To sum up, as was the case for the carved lamps, the mason transposed a familiar structure into carved stone, most probably wooden, for which no example survives to this day. In fact, the effort of rendering the details of a wooden vault realistically make sense if the viewer was familiar with such a structure and he was immediately able to identify the stone counterpart as a reproduction. As I will discuss below, this possibly implies that despite the late date of Syrian stone portals, wooden *muqarnas* vaults were in use in Syria long before Mashhad al-Ḥusayn's portal was built.

7.2.4. The East Gate of the Citadel, Damascus

The portal at issue is part of a big tower belonging to the east curtain wall (T07, in Hanisch's classification). It is a lateral entrance, located not on the tower's front façade but on its south side.[692] The portal bay is more than 4 metres wide and is approximately half as deep as it is wide. It is covered by a *muqarnas* vault composed of three tiers of cells, crowned by a lobed segmental semi-dome. The vault springs from a thin cyma or cornice that extends on either side of the portal's façade, ending with volutes, which include carved decorative medallions. The cells are radially organized, with the exception of two recessed

[692] For general bibliography on the Citadel of Damascus see '5.2.12. The Damascus Citadel' of the present work. Regarding the East Gate see, among others: Hartmann-Virnich, 'Les portes ayyoubides'; Hartmann-Virnich, 'Regards sur un grand chantier'; Bessac and Boqvist, 'Les chantiers de construction'; Hartmann-Virnich 'Les portes de la citadelle'. See also: Sauvaget, 'La citadelle de Damas'; Allen, *Ayyubid Architecture*, in particular chapter 6.

octagonal mini-domes in the corners, developed from the first into the second *muqarnas* tier. Nevertheless, from the second tier upwards the main design of a radial composition is clear, the vault being half of an imaginary 24-sided *muqarnas* dome. A discharging arch is built over the segmental semi-dome. In the lower three tiers of *muqarnas*, the passage between different tiers is mediated by horizontal bands, which follow the disposition in plan of the lesser elements. Two back cells of the lower tier display a carved vegetal decoration, which Allen considered as 'the last remnant of the exuberant foliate relief carving that graced the buildings of the Classical Revival in the previous century'.[693]

In the context of the recent Franco-Syrian research project on the citadel, a detailed study of the portal was done, including the excavations and the detailed archaeological analyses of the building structures. As regards the portal, the main results of these investigations have been published by Andreas Hartmann-Virnich, shedding light on building aspects related to the portal and its surrounding structures. According to the scholar's analysis, the construction of the portal was part of a greater building campaign, which included the erection of tower T07, and the sectors of the curtain wall adjoining it. The detailed study of the structures indicates that different teams of artisans were at work simultaneously and that elements requiring skilled labour, such as the portal vault for instance, were built by different craftsmen than those responsible for ordinary masonry. Specifically, the stone-by-stone survey of the ashlars and the analyses of tool marks show an increasing precision towards the portal

[693] Allen, *Ayyubid Architecture*, chapter 6.

of both stone dressing and masonry setting, which is particularly clear in those parts of the wall leading to the vault. There, several small corrections were required to fit the vault over the portal bay, which according to Hartmann-Virnich indicates that the *muqarnas* semi-dome had been prepared separately, as a prefabricated independent element, by 'exceptionally competent' craftsmen. The ashlars of the spandrel wall, as well, were cut to fit precisely the shape of the discharging arch built over the vault, which indicates that the vault and the tower were contextually assembled, shaping the masonry of the tower after the profile of the vault. To sum up, according to this scholar, the portal is a coherent work, constructed by specialized teams, who were responsible for not only the *muqarnas* vault and the portal bay, but also for its surrounding masonry.[694]

The vault is dated, thanks to an inscription of al-Malik al-ʿĀdil placed in the east façade of the tower T07, to which the portal belongs, and records the precise date of 610 AH (1213-14 AD). According to Hartmann-Virnich, the Aleppine influence on this portal, which was first observed by Sauvaget,[695] is explained by the presence of master

[694] Hartmann-Virnich, 'Regards sur un grand chantier', in particular pp. 229-235.

[695] For instance, see Sauvaget, 'La citadelle de Damas', p. 222: 'D'autre part, le bon état de conservation du monument permet d'y remarquer nombre de particularités, dont l'analyse amène à une conclusion importante pour l'histoire artistique de la Syrie ayyoubide: elles relèvent toutes, en effet, des méthodes de construction en usage à cette époque dans la Syrie septentrionale, et on peut poser comme certain que *des techniciens et des ouvriers venus d'Alep ont collaboré d'une façon très active à l'édification de la Citadelle*.[…] La porte orientale nous paraît également témoigner d'une influence certaine de l'école architecturale de la Syrie Nord. Si l'on admet -et rien ne peut faire penser le contraire- que sa magnifique coupole à stalactites est contemporaine de la tour B, dans laquelle elle se trouve englobée, elle remonte à l'année 610: à cette date, les seuls monuments de Damas où des alvéoles aient été employées sont: le Mâristân Nûri, la madrasa Nûriya et le jâmi'

builders from Aleppo sent by al-Malik al-Zahīr to his uncle, al-ʿĀdil. The scholar emphasizes, in his analysis of the toll marks on the portal, some further indications of a likely connection with Aleppine monuments.[696]

7.2.5. The Portal of the Madrasa Ẓāhiriyya, Aleppo

This monumental entrance, covered by a *muqarnas* vault, is placed in the centre of the northern façade.[697] The portal bay is more than 3 metres wide and almost square in proportion, being slightly less deep than it is wide. However, an arch, decorated with carved geometric motifs on both its front and intrados, covers the frontal part of the bay reducing the proper *muqarnas* vault to canonical proportions (twice as wide as it is deep). Both the vault and the frontal arch spring from a thinly carved moulding, which is prolonged over the front of the portal and ends abruptly short after turning upwards, as if it were unfinished.

Muẓaffiri. A Alep, au contraire, à la même date les exemples en sont déjà très nombreux et certains portails ne sont pas inférieurs à celui de Damas'.

[696] Hartmann-Virnich, 'Regards sur un grand chantier', p. 235: 'J. Sauvaget confirmait la date du *muqarnas* -celle de la construction de la tour B (T 7) en 610 H- par des rapprochements, en concluant à une influence alépine sans laquelle la maîtrise dont fait preuve cet exemple précoce dans le contexte damascène ne serait envisageable. A partir de détails concordants, il concluait à l'intervention des mêmes architectes pour les *muqarnas* de la porte de la citadelle et de la Madrasa construite avant 619 H par Al-'Adil à Damas, et pour leurs parallèles alépins les plus proches: des maîtres d'œuvre que l'émir d'Alep aurait peut-être mis à la disposition de son oncle Al-'Adil en témoignage de soumission. On constate que l'outillage denté employé pour dresser les blocs dans la seule embrasure du portail damascène existe aussi à la porte de la citadelle alépine, dont l'appareil, en calcaire plus tendre toutefois, est entièrement façonné au grain d'orge, bien qu'il s'agisse ici apparemment d'un tranchant emmanché perpendiculairement. Ces rapprochements, trop particuliers pour être entièrement fortuits, pourraient confirmer la présence d'un savoir-faire importé, appelé pour réaliser un ouvrage d'exception'.

[697] For a detailed discussion of the monument and the related bibliography, see '5.3.5. Madrasa Ẓāhiriyya, Aleppo', of the present work.

Allen observed that 'as the role of the moulding is to contain visually the entire vault, including the frontal arch, it is hard to imagine how it was to be handled on the portal's outer face when completed'. An inaccuracy by the carver could possibly explain this irregularity. The *muqarnas* cells are disposed in three tiers. The lower tier is composed of large elements, markedly jutting out, generating a semi-dodecagon, which governs the superior parts of the composition. Indeed, while in the customary disposition of Syrian *muqarnas* the cells of each tier spring from the underlying elements' apexes creating a vertical alternation from one tier to another, here the cells of the upper tiers are aligned, as well as the ribs of the fluted semi-dome which crowns the composition, following the radii of the semi-dodecagon.[698]

The proper *muqarnas* vault springs from a moulding or shallow cornice, which forms a prolonged frame in front of the *muqarnas* composition, behind the portal's frontal arch. This frame produces a visual disjunction between the *muqarnas* vault and the bay, which is further emphasized by its plain aspect, vividly contrasted by the carved geometrical decoration on the frontal arch's intrados. In my opinion, the effect of defining the *muqarnas* composition in this way, as if it were a separate element from the portal, is achieved deliberately. I wonder whether in this case –as it could be for the portal of the Mashhad al-Ḥusayn– the builder sought a striking effect by carving in stone, on a huge scale, an architectural form that was commonly built in wood. As I

[698] Herzfeld, MCIA/Alep, pp. 273–76, pl. 118–121; Allen, *Ayyubid Architecture*, chapter 8.

reported above, according to Ibn Shaddād, the monument was completed in 610 AH (1213-14 AD).

7.2.6. The Palace Portal of al-Malik al-Ẓāhir on the Citadel of Aleppo

The portal probably opened on to a square located to the east of the upper Lion Gate, i.e. not far from the main monumental access to the citadel. Its frontal façade has a rectangular frame of *ablaq* decoration -composed of limestone and applied basalt facings that imitated the alternation of light and dark masonry courses - which was crowned by a star-and-polygon composition. The portal jambs were decorated with the same *ablaq* work as the frontal façade, whilst the doorframe itself was constructed out of more complex interlocking blocks, decorated with an incised star-and-polygon grid.[699]

The *muqarnas* vault covers a rectangular bay that is the half of a square with approximately 3.80 metres per side. The cells are disposed in four tiers, of decreasing dimensions from the lower to the upper levels, the whole work being crowned by a ten-lobed semi-dome. The *muqarnas* geometry is rather complex, relying on a radial icosagonal organization varied by the insertion, at given points, of circles receiving either an octagon or else a stellated hexagon. The profile of the front arch is generated by the *muqarnas* composition.

The palatial complex to which the portal gave access to underwent different restoration or building campaigns throughout the late medieval period. Herzfeld attributed the portal to the remains of the

[699] Allen, *Ayyubid Architecture*, chapter 5.

palace built by al-Malik al-ʿAzīz around 1230-31 AD. More recently, relying on written sources, archaeological observations and stylistic comparison with other Ayyubid monuments –such as the portal of the Mashhd al-Ḥusayn– Allen attributed it to the Dār al-ʿIzz, the palace built on the citadel by al-Malik al-Ẓāhir. Since a poem about this palace was composed in 589 AH (1193 AD), he infers that the monument is slightly earlier.[700]

7.2.7. The Portal of the Māristān Arghūn, Aleppo

The Māristān Arghūn was founded in the middle of the fourteenth century, on the site of a notable mansion whose portal was reused.[701] The portal bay is more than 3 metres wide and approximately half as deep. The resulting vault is half of a *muqarnas* dome on a square base, which is the customary configuration of Ayyubid portals. It is composed of three *muqarnas* tiers, crowned by a lobed semi-dome (built as the perfect half of a sixteen-lobed cupola). The lowest tier is composed of smooth cells, with no real projection, except for the central cell above the entrance and those at the outer corners of the bay, which forms the springing of the frontal arch. The corners are spanned by single-block hemispherical elements, each one split into a couple of *muqarnas* cells. As a result, the lower tier creates a base whose form could be assimilated into two juxtaposed semi-octagons. The second and third

[700] Herzfeld, 'Damascus III', pp. 15-17. Allen's argument for assigning the portal to al-Malik al-Ẓāhir is not convincing to me, and it is not supported by definite evidence (*Cf*. Allen, *Ayyubid Architecture*, chapter 5).

[701] J. Sauvaget, 'Inventaire des monuments musulmans de la ville d'Alep', *Revue d'Études Islamiques* 5 (1931), pp. 59-114, in particular, p. 88; Allen, *Ayyubid Architecture*, chapter 5.

tiers mediate the transition from this octagonal geometry to the sixteen-pointed stellated polygon, which ideally generate the lobed semi-dome. Both blazons and inscriptions carved in the portal are late and must have been added when the hospital was built.[702]

7.2.8. The Portal of Madrasa Kāmiliyya, Firdaws (Aleppo)

This portal is rather smaller and more simply decorated than the example analysed above. The vault covers a bay that is more than twice as wide as its depth, but the development of the frontal arch reduces the *muqarnas* composition to canonical proportions.[703] The *muqarnas* springs directly from the bay's wall, without the mediation of a moulded cornice. The cells of the lower tier are both larger and deeper than the others are, and monolithic squinches span the corners, each carved with two pointed cells. The entire composition of the lower tier is carved out from seven stone blocks only, clearly noticeable in Herzfeld's photograph.[704] Through this first tier, a polygonal base is obtained, whose geometry is dominated by two juxtaposed octagons. The cells of the two upper tiers mediate from this base to the pointed gored semi-dome, which is one half of an imaginary twelve-lobed cupola. Allen compared this *muqarnas* composition with the portal of its neighbour, the Madrasa Ẓāhiriyya, concluding that the former is a

[702] Allen, *Ayyubid Architecture*, chapter 5.

[703] For a detailed discussion of the monument and the related bibliography, see '5.3.6. Madrasa Kāmiliyya, Firdaws (Aleppo)', of the present work.

[704] Herzfeld, MCIA/Alep, pl. CXXXVIa., print corresponds to negative number 3363 of the Ernst Herzfeld Papers, available online from the repository of the Freer Gallery of Art and Arthur M. Sackler Gallery Archives.

conventional work constructed by a different builder, who could well be the same one who built the Madrasat al-Firdaws.[705]

As reported above, no secure date can be proposed for the building's foundation, but the architectural and decorative features, including the portal, leave no doubt about its attribution to the Ayyubid period.

7.2.9. The Portal of Madrasa Sharafiyya, Aleppo

This portal vault, which was fragmentarily conserved when Herzfeld and Creswell documented the monument, is almost completely lost.[706] Herzfeld published a good photograph of its *muqarnas* remains and proposed a hypothetical reconstruction drawing of its original composition. In his photograph, two tiers of *muqarnas* are visible, above the back wall of the entrance bay. The lower tier was composed of brackets, generating slightly pointed horseshoe arches, creating spaces on the back wall, whose profiles were highlighted by means of a thin moulding. The second tier of cells was composed of pointed units alternating with brackets, which generated three juxtaposed hexagons. The upper part of the composition was already lost when Herzfeld took the picture, as well as the connection of the vault with the side walls of the portal bay. The portal bay is 2.08 metres deep by 3.37 metres wide, from which, according to Creswell, it is not possible to reconstruct the

[705] Allen, *Ayyubid Architecture*, chapter 8.

[706] For a detailed discussion of the monument and the related bibliography, see '5.2.11. Madrasa Sharafiyya, Aleppo', of the present work.

proportions of the *muqarnas* composition, since no traces were documented of the frontal part of the vault.[707]

On the interior side of the portal, behind the entrance, a bay opens on to the inner court. According to Creswell's survey, it is as wide as the portal bay was, but some 30 cm deeper. A slightly pointed stone semi-dome, which is prolonged through a frontal arch of the same profile, covers the bay. The vault is set on two tiers of *muqarnas* whose cells are formed to create the U-shaped base of the vault, with almost shallow cells along the sides and jutting units in the back corners. The *muqarnas* composition does not follow any obvious radial geometry, on the contrary cells seem freely shaped or deformed to fit the accurate geometry of the vault, which is emphasized by a thin cornice and multiple carved mouldings. The accurate stone cutting and finishing, as well as the precise concentric disposition of the stone courses seem to confirm that the semi-dome, rather than the *muqarnas*, was the real focus of the composition.[708]

Regarding the monument's dating, the portal's remains are plausibly remnants of the Ayyubid period. As mentioned above, according to the sources the building was founded as a mosque, and later enlarged and endowed as *madrasa*. The prayer hall could be part of the original mosque, but the portal must belong to the second campaign, when the *madrasa* was founded. According to Allen, this happened between the

[707] Creswell, 'The origin of the cruciform plan', in particular pp. 7-8 and 16-23; Herzfeld, MCIA/Alep, pp. 312-315, and pl. 136b for a photograph of the remains of the *muqarnas* vault which covered the portal, before the façade's rebuilding. See also: Allen, *Ayyubid Architecture*, in particular Chapter 8.

[708] Allen, *Ayyubid Architecture*, chapter 8.

1230s and 1260, when its founder, Shaykh Sharaf al-Dīn, is known to have died.[709]

7.2.10. The Portal of Madrasat al-Firdaws, Aleppo

A *muqarnas* vault covers the main portal of this *madrasa*, which is situated on the east façade. The three-tier composition has a rather simple design generated by rotations of polygons. Following this rule, the tiers are composed of pointed-arched cells alternating with brackets. The only variation is produced by the inclusion of two small mini-domes in the back corners developed from the first into the second tier. At the top of the composition there is a small fluted, pointed semi-dome, based on half of a sixteen-pointed stellated polygon. A frontal arch covers the difference in depth between the portal bay and the *muqarnas* composition. As mentioned above, the inscription on the façade gives the date of 633 AH (1235-36 AD), but the building could be slightly later.[710]

7.2.11. The Portal of the Khānaqā of Dayfa Khātūn, Aleppo

The portal of the Khānaqā of Dayfa Khātūn is the smallest of all its Ayyubid counterparts analysed so far, its bay being barely one metre deep and less than two metres wide. The vault is composed of two tiers of *muqarnas*, springing directly from the bay's walls, without the mediation of a moulding or cornice. The lower tier is composed of six

[709] Allen, *Ayyubid Architecture*, chapter 8.

[710] For the specific bibliography on the monument, see '5.3.7. Madrasat al-Firdaws, Aleppo' of the present work.

stone blocks from which monolithic cells and squinches are carved. The second tier is composed of five blocks, of the same height as the lower ones, carved with cells and brackets intended to mediate the passage from the octagonal geometry to the semi-circular base of the small semi-dome, which crowns the composition. As I have already mentioned, the cursive inscription over the entrance gives both the date of 635 AH (1237-38 AD) and the name of the then-ruling sovereign, al-Malik al-Nāsir.[711]

7.2.12. The Portal of Madrasa Ṣāḥibiyya, Damascus

Rabīʿa Khātūn, sister of Saladin and wife of Gökbüri –the lord of Irbil and one of the most important contemporary personages– built the Madrasat al-Ṣāḥiba after her husband died, when she retired to Damascus (Ramadan 630 AH, 1233 AD). Since the frame prepared for an inscription was left blank, it is plausible that the building was not entirely completed when she died, in 643 AH (1245-46 AD).[712]

The *madrasa* is a rectangular building, accessed on its north side through a monumental entrance covered by a *muqarnas* vault, which is composed of three tiers of cells crowned by a lobed semi-dome. The back corners of the vault are spanned by squinches, composed of three cells at the lower tier and developed into the second tier through niche-like elements. The central cell of each squinch springs from a split

[711] Allen, *Ayyubid Architecture*, Chapter 8. Allen considers the Khānaqā of Dayfa Khātūn, the Madrasa al-Kāmilīya and the Madrasa al-Firdaus as works of the same architect, whose identity is unknown. For the specific bibliography on the monument, see '5.3.8. The Khānaqā of Dayfa Khātūn, Aleppo' of the present work.

[712] Herzfeld, 'Damascus III', pp. 9-12.

bracket or a small pendentive carved in low relief. All the cells belonging to the second tier of *muqarnas*, including the niche-like elements of the upper part of the squinches, are gored. Apart from the back corners, the geometry of the vault is determined by rotated dodecagons.[713]

7.2.13. The Portal of Madrasa Atābakiyya, Damascus

This *madrasa* took its name from Tarkān Khātūn, known as 'the atābekian princess', who was a daughter of Sultan ʿIzz al-Dīn Masʿūd, the nephew of Nūr al-Dīn. According to the sources she died in Rabīʿ I 640 AH, (September 1242 AD), and was buried in the *madrasa* that she had founded in Damascus, most likely after 626 AH (1229 AD).[714]

The portal, which is also known as Bāb al-Sūq for its contiguity to the old market, has a peculiar *muqarnas* vault that attracted scholars' attention. Herzfeld compared this *muqarnas* work with that on the portal of the Madrasat al-Ṣāḥiba, observing some similar details (predominance of the radial geometry and presence of a tier of gored cells, for instance), but noted, on the other hand, their deep structural differences. In particular, the German scholar focused on the transition from the rectangular base to the vault's polygonal geometry, which in the portal of the Madrasa Atābakiyya is mediated by *muqarnas* pendentives. The resulting *muqarnas* work is a kind of semi-dome on pendentives where all tiers obey a geometry of concentric polygons, which Herzfeld defined as 'the Mediterranean type', as opposed to an

[713] Herzfeld, 'Damascus III', p. 12; Allen, *Ayyubid Architecture*, chapter 9.

[714] *Cf*. Herzfeld, 'Damascus III', pp. 12-13; Allen, *Ayyubid Architecture*, chapter 9.

'Iranian type', where the presence of the squinches at the back corners imposes geometric variations.[715]

Allen, for his part, considered that the portal was 'entirely unusual', because of such features as the building materials (*ablaq* masonry with alternating basalt and a reddish local limestone called *rawānd*), the shape and the details of the doorway frame (a pointed horseshoe arch composed of alternating basalt and *rawānd* voussoirs mounted by a simple round moulding, decorated with volutes at the springing points and a circlet at the summit) and the original presence of a *muqarnas* cornice, corbelling in front of the entrance bay, reminiscent of the *muqarnas* portal in the castle of Ṣahyūn.[716]

7.2.14. The portal of the Jāmiʿ al-Tawba, Damascus

According to the sources, the building of this mosque was ordered by al-Malik al-Ashraf, son of the Ayyubid Sultan al-Malik al-ʿĀdil, in the place were a caravanserai existed –just outside Damascus– which was famous for the evils that were performed in it. The portal of the mosque, which is relevant here, is in *ablaq* masonry with alternating rows of basalt and whitish limestone and is covered by a *muqarnas* vault. The actual aspect of the portal is due to a recent painting in false *ablaq*, which according to Allen follows approximately the pattern of the real alternation of dark and clear stone. The *muqarnas* composition is in three tiers, crowned by a lobed semi-dome. The geometry is based on concentric rotated halved icosagons, except for the presence of

[715] Herzfeld, 'Damascus III', pp. 14-15.

[716] Allen, *Ayyubid Architecture*, chapter 9.

squinches developed into mini-domes at the back corners. Regarding the monument's date, both the Arab authors and epigraphic evidence record the name of the founder and the year 632 AH (1234-35 AD). The monument was renovated several times, but apart from some minor restoration, scholars all agree with an Ayyubid attribution for the portal.[717]

7.2.15. The Portal of the Māristān al-Qaymarī, Damascus

The name of 'al-Qaymarī' came from the *nisba* of the founder, who was an emir of a Kurdish troop, known as the *Qaymariyya*, which supported the last Ayyubid rulers of Damascus. According to one of the portal's inscriptions, the construction of the building was begun in 646 AH (1248 AD), which is a somewhat late date, if compared with our main subject matter.[718] However, I chose to discuss this example, along with some later portals described below, to illustrate the filiation of the first Syrian and Egyptian Mamluk portals with the Ayyubid building tradition identified above.[719]

[717] Herzfeld, 'Damascus IV', pp. 123-125; Allen, *Ayyubid Architecture*, chapter 9.

[718] Allen, *Ayyubid Architecture*, Chapter 10.

[719] *Cf.* Herzfeld, 'Damascus III', p. 30: 'In detail it goes beyond the norm of the older buildings and leans visibly toward the early Mameluke style, as represented in Damascus by the turba library of Baibars and Kalā'ūn. A two-colored frontal arch frames the vault, a feature that stands on the line dividing Ayyubid and Mameluke architecture'; Allen, *Ayyubid Architecture*, chapter 10: 'In this portal the traditional full ablaq portal design is realized for the first time: black and yellow coursing is employed exclusively, and structurally pointless pseudovoussoirs are used, mimicking the elaborate joggling earlier generations had used for flat arches, such as lintels. From such models the obligatory ablaq of Mamlûk architecture was drawn'

As far as the *muqarnas* vault is concerned, it has a four-tier composition of big cells, decreasing in height from the lower tier upwards. The geometry of the composition follows the semi-icosagonal design of the lobed semi-dome, which is varied in the lower tiers by the introduction in the corners of gored cells and brackets creating half-stellated shapes. In the lowest tier, the corners are spanned by squinch-like elements flanked by rolled-square brackets. The whole *muqarnas* work is underlined by a pronounced moulding. According to Allen, the features of the vault indicate clearly its derivation from the Aleppine tradition.[720]

[720] Allen, *Ayyubid Architecture*, chapter 10: 'There are other aspects of this muqarnas that are unusual in Damascus, and some that are unusual anywhere: the wide and low profile of the enframing arch (compare the East Gate to the Damascus Citadel); the adjustment of the profile of the vault to the pointed enframing arch (an Aleppan characteristic); the heavy molding around the entire vault (unusual anywhere); the inscribed rectangular corbels and muqarnas cells (very unusual in stone muqarnases); the inset cell forms, as in the corner of the lowest tier (an Aleppan feature when they occur in stone); and the pattern of the gored semidome. Also, the vault is set behind a deep frontal arch, which is characteristic of Aleppan muqarnases, and there are small gored inset cell forms in the corners. It is easy to conclude that the designer of the Bîmâristân al-Qaymarî's vault learned his art in Aleppo or from an Aleppan master'.

7.3. First Mamluk Examples in Syria and the *muqarnas* Portal in Egypt and Palestine

7.3.1. The Portal of Madrasa Ẓāhiriyya, Damascus

I have chosen this example of late Syrian portals to discuss because of its relationship with the first documented Egyptian example, in the no-longer existing *madrasa* of al-Ẓāhir Baybars in Cairo. In addition, the Baybars portals to his *madrasa*s in both Cairo and Damascus have some similar, relevant features, which are discussed too.

The Damascus *madrasa* was built on the site of a famous Ayyubid residence within the city, the Dār al-ʿAqīqī. It is lavishly decorated with different techniques and materials such as marble panelling, glass mosaics, giltwood and carved stucco. One of the portal's inscriptions gives the date of 676 AH (1277-78 AD), most probably the date at which construction began. Another inscription, located within a *muqarnas* cell, records the name of the architect, Ibrāhīm b. Ghanāʾim al-Muhandis, who is known for having built the *Qasr al-Ablaq*, Damascus, for al-Ẓāhir Baybars some years earlier.[721]

The monumental door frame (approximately 4 metres wide and more than 2 metres deep) is constructed in *ablaq* masonry, composed of alternating courses of basalt and whitish limestone. It is covered by a *muqarnas* vault, composed of four tiers of cells crowned by a twelve-lobed semi-cupola. The main geometric structure is given by the halved

[721] Sauvaget, *Les monuments historiques*, n. 40; Leo Ary Mayer, *Islamic Architects and their Works*, Genève: A. Kundig, 1956, pp. 71-72; Creswell, MAE, vol. 2, pp. 131-132; F. B. Flood, 'Umayyad Survivals and Mamluk Revivals: Qalawunid Architecture and the Great Mosque of Damascus', *Muqarnas* 14 (1997), pp. 57-79, in particular p. 66.

24-sided stellated polygon that underlies the geometry of the crowning element. Yet, the presence of two corner mini-domes along with four small circles, radially disposed, introduce important variations to the radial scheme. The result is a *muqarnas* geometry that is more complex than any of its Ayyubid antecedents, though its filiation from the Ayyubid tradition is clear. The materialization of the main radial geometry in a lobed semi-cupola crowning the *muqarnas* is a widespread pattern found in the early *muqarnas* portals (see, for instance: the Madrasa Shādhbakhtiyya and the portal to the palace of al-Malik al-Ẓāhir, Aleppo) through to the later Ayyubid examples (see the portal to the Māristān al-Qaymarī). For example, the recessed circles or else true mini-domes in the back corners of the portal vault were introduced with the portal of the Mashhad of al-Ḥusayn, then used in the East Gate and in the portal of the Madrasat al-Firdaws. The introduction of circles or stellated motifs radially disposed at given points of the *muqarnas* vault is documented in the portal to the palace of al-Malik al-Ẓāhir, Aleppo. These details, along with the use of *ablaq* masonry, the vault proportions, and the more general aesthetics of the portal, denote that the portal of the Madrasa Ẓāhiriyya, is certainly different from and more complex than any Ayyubid antecedent, but it was nevertheless inspired from –or else conceived within– the Ayyubid tradition of Aleppo and Damascus.[722]

[722] *Cf.* Michel Écochard, *Filiation de monuments grecs, byzantins et islamiques: une question de géometrie*, Paris: Librerie Orientaliste Paul Geuthner, 1977, pp. 93-106.

7.3.2. The Portals of Madrasa Ẓāhiriyya and Mausoleum of Zayn al-Dīn in Cairo

The *madrasa* was already in ruins when al-Maqrīzī described it, but it was still visible until 1874, when it was almost entirely demolished to make way for a new road. According to al-Maqrīzī it was built between 1262 and 1263 AD. Only a small part of the building's western corner remains, along with the sides of the southwestern *īwān*. However, during the nineteenth century, romantic voyagers painted some views of the building, including its now vanished *muqarnas* portal, which is actually the earliest documented one in Egypt (the earliest existing being the Madrasa-Mausoleum of Zayn al-Dīn Yūsuf, built in 1298 AD).[723]

The reign of al-Ẓāhir Baybars marked the beginning of a unified architectural style in Egypt and Syria, particularly in the capital cities of Cairo and Damascus, which was made possible by the expansion of Mamluk power in Syria. Despite their small number, the official buildings of this period remain exemplary in the development of Mamluk architecture. In his analysis, Michael Meinecke took the Madrasa Ẓāhiriyya as an example of this architectural renaissance in Cairo, which is characterized by a fusion of Egyptian models with new architectural elements introduced by Syrian builders and masons. Both the general plan type of the building and some important architectural

[723] The remains of this *madrasa* together with the graphic documentation on the building were analysed and published in Creswell, MAE, vol. 2, pp. 142-146, figs. 72-73 and plates 44-45. A more recent revision of the remaining materials is in Michael Meinecke, *Die mamlukische Architektur in Ägypten und Syrien: (648/1250 bis 923/1517)*, Glückstadt: J.J. Augustin, 1992, vol. 2, pp. 26-29 and plate 2 a-c.

and decorative details –such as the flat relieving arches with lanceolate decoration above the windows– are unprecedented in Egypt and have been traced back to Syria. According to Meinecke, the formal correspondences in the ornamental motifs with examples from Aleppo are so close that they cannot be explained as a general reception of Syrian models: they indicate that the masons operating a little earlier in Aleppo were commissioned to carry out this work by al-Ẓāhir Baybars. Regarding the *muqarnas* vault, this type of portal is unprecedented in the local tradition and its first appearance in this edifice strongly indicates that its introduction into Cairene architecture must be related to the presence of Syrian builders.[724]

The earliest extant stone *muqarnas* vault in Cairo is in the Zāwiya-Mausoleum of Zayn al-Dīn, built in 1298 AD, according to the inscription over its monumental entrance.[725] The portal bay is 2.07 metres wide and 1.22 metres deep, and includes stone benches on both sides, as is typical for the portals analysed so far. The vault rests on three-tier *muqarnas* pendentives, comparable with those seen in the portal of the Madrasa Shādhbakhtiyya, in the portal of Ibn Turayra, giving access to the Mashhad al-Muḥassin and in the portal of the Madrasa Atābakiyya. The proper vault is composed of three tiers of *muqarnas*, crowned by a semi-hexadecagonal lobed mini-dome, a general composition closely matching Ayyubid portals, such as those in Aleppo: the Ẓāhiriyya; the Māristān Arghūn; the Madrasa Kāmiliyya; the Madrasat al-Firdaws; the Madrasat al-Ṣāḥiba; amongst others. Because

[724] Meinecke, *Die mamlukische Architektur*, vol. 2, pp. 26-40.

[725] Creswell, MAE, vol. 2, pp. 229-233, fig. 136, plates 82-84, 110b, 114d and 118e; Behrens-Abouseif, *Islamic Architecture in Cairo*, pp. 111-112.

of the *muqarnas*'s similar disposition the profile of the frontal arch also closely responds to these Syrian examples. These overall arrangements, which clearly place the portal within the Syrian tradition and this filiation with the *muqarnas* in the Syrian models is also noticeable in several details. The insertion of a three lobed cell composition to create geometric variation of the *muqarnas*, for instance, is analogous to most Syrian examples (the Damascus Citadel's East Gate; Māristān Arghūn; Madrasa Kāmiliyya; etc.). The hanging elements or brackets have their antecedents in those of the Māristān Arghūn, Aleppo. Finally, the pointed-arched shape of the cells, the form and disposition of the brackets have no Egyptian equivalent. A comparison between the *muqarnas* of the portal and the *muqarnas* of the transition zone of the mausoleum's dome –the latter descending with clarity from the Cairene tradition– illustrates the sharp contrast between the Syrian and the Egyptian models.

The introduction of Syrian elements in the Mausoleum of Zayn al-Dīn is seemingly related to the introduction of a Syrian component into mainstream Mamluk architecture in Cairo, which began under al-Ẓāhir Baybars. One of the main façade's windows preserves a lintel and a relieving arch with carved decoration in lanceolate fields, which is comparable to that of the Madrasa Ẓāhiriyya.[726] On the other hand, Zayn al-Dīn had personal links with Syria, where he lived before moving to Cairo and where he first established his order.[727]

[726] Creswell, MAE, vol. 2, p. 230, plate 44b and plate 82.

[727] Behrens-Abouseif, *Islamic Architecture in Cairo*, p. 111.

7.3.3. Six portals from Cairo and Jerusalem

As a final note to this chapter, it may be worth mentioning that a group of six portals, showing a remarkable resemblance to each other and ostensibly linked to the Syrian tradition, were built around the fourth decade of the fourteenth century in both Cairo and Jerusalem. Two of these portals (namely those to the Sūq al-Qaṭṭānīn, Jerusalem and the Palace of Qawsūn Yushbak, Cairo) bear the 'signature' of Muḥammad b. Aḥmad b. Ghulaysh. In the Cairene portal, the additional *nisba* 'al-shāmī' is given, indicating that he was most probably a Syrian from Damascus.[728]

[728] M.H. Burgoyne, *Mamluk Jerusalem: an Architectural Study*, [London]: Published on behalf of the British School of Archaeology in Jerusalem by the World of Islam Festival Trust, 1987, pp. 98-99.

8. *MUQARNAS* IN SICILY

8.1. General Observations

This part of the catalogue is subdivided into five parts, dedicated to: 'A Preliminary Note on the Classification of Sicilian *Muqarnas*'; 'The Royal Palace'; 'Other Buildings Attributed to Roger II (r. 1130-1154 AD)'; 'William I (r. 1154-1166 AD) and the Zisa'; and 'William II (reg. 1166-1189 AD)'.[729]

8.1.1. A Preliminary Note on the Classification of Sicilian Muqarnas

The classification of prisms that are variously combined to form Sicilian *muqarnas*[730] and some of the constituent elements of the Cappella Palatina's wooden ceiling are outlined in this preliminary note in order to simplify various technical aspects in the following discussion and thus ease its development, relying on the recent works of Vincenza Garofalo and Fabrizio Agnello dedicated to the Zisa's *muqarnas* and the Cappella Palatina's wooden ceiling, respectively.

8.1.2. The Royal Palace

This section includes a paragraph of introductory notes to the royal palace, and two entries dedicated to the *muqarnas* preserved in it. The

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[729] For a detailed discussion of each monument, with a full bibliography, see the specific catalogue entries.

[730] In the case of Sicilian *muqarnas* these prisms are 'ideal' forms, which are used by scholars as classifying tools; they do not correspond to 'real' pieces carved out from wood, stucco or ashlar blocks. See below, paragraphs '8.2. A Preliminary Note on the Classification of Sicilian *Muqarnas*'; '8.3.3. The Cappella Palatina'; and '8.5. William I (r. 1154-1166 AD) and the Zisa'.

first catalogue entry is dedicated to the *muqarnas* vault in the commonly named *Torre Pisana*, which is the only *muqarnas* decoration preserved in the palace, apart from the ceiling of the Cappella Palatina. Both the construction technique and the cells' layout is determined by networks obtained through simple 45°-rotations of squares, as in later Palermitan examples. In this vault, above the 'element B' cells of the lowest *muqarnas* tier are brackets developed from the second up to the fourth tier. Nowhere else in Palermo is this type of prolonged bracket documented. There is no consensus on whether the vault was built in the first period of the Norman Kingdom (1130s-1140s AD), to which the *Torre Pisana* seemingly belongs, or later, at a date around the 1170s-1180s AD.

The following entry is dedicated to the ceiling of the Cappella Palatina, focusing on the geometric and constructive aspects of the ceiling. The ceiling has a supporting structure, which is like a skeleton or net of vertically superimposed elements or panels. These panels run either parallel to the main compositional grid or are orientated at 45° angles. The empty spaces left by this structure were covered by thin wooden elements defining the surface of the cells. Once assembled the surfaces were covered with a layer of gesso, before they were painted and gilded. There is a clear distinction between the supporting elements, composed of thicker wooden beams, and the thinner fillets, or veneers, defining the portions of the vault left empty by the supporting structure. The fillets defining the surface could be glued either directly to the bearing elements, or to additional panels, which act as a centring for their

placement. Thus, the logic of the underlying structure of the chapel's ceiling also defines the disposition of the *muqarnas* cells (see figs. 23-27).

One of the most common elements of the wooden ceiling are the above-described panels classified by Agnello as 'EL-1' (and 'EL-2'), which are the basic structural elements of almost the whole of the *muqarnas* zone of the ceiling; or to be precise the first four of five *muqarnas* tiers. The 'EL-1' of the first tier project from the profiled panels, which run all along the perimeter of the nave. The 'EL-1' of the second tier are placed upon the upper corners of their homologous units belonging to the underlying level, oriented, as usual, according to either the main grid or rotated 45°. The 'EL-1' panels of the second tier are vertically extended to the third tier, creating part of its supporting framework. On the other hand, most of the remaining supporting structure of this tier is created in the usual way, with 'EL-1' brackets, springing from their underlying homologous units, either orientated parallel to the grid or rotated 45°. The supporting structure of the fourth tier is mainly composed of other kinds of vertical panels, but it also includes pairs of 'EL-1' panels, placed orthogonally to the walls of the nave serving as a support for the last tier of *muqarnas* and to the upper part of the ceiling.

As was mentioned in the preceding chapters (in particular in chapters 5 and 6), both the Western Islamic *muqarnas* vaults and the vaults above the side niches of Nūr al-Dīn's *māristān* vestibule share some important features with the wooden model of the Cappella Palatina –such as the cells shape and *muqarnas* layout, for instance– which in the original wooden model are intimately related to the logic of the underlying structure. Similar features observed in the *māristān* vestibule's vaults, as

well as in Almoravid vaults, suggest that the wooden prototype which inspired –or was reproduced by– their builder, had several features remarkably similar to the ceiling of the Cappella Palatina. The cited passage of Ibn Jubayr, describing a wood and stucco ceiling belonging to the Great Mosque of Damascus provides a potential antecedent for the wooden technique employed in the Cappella Palatina's ceiling, as well as a plausible link or 'common ancestor' between the Damascene, the Western, as well as the Sicilian *muqarnas*.

8.1.3. Other buildings attributed to Roger II (r. 1130-1154 AD)

The first entry deals with some remains of *muqarnas* in the Favara Palace, built by Roger II on the outskirts of Palermo. The remains of a simple moulding, from which the *muqarnas* composition sprang in the rear wall of an alcove, are still visible along with remains of three tripartite motifs, or small mixtilinear arches, that formed the base for a *muqarnas* composed of three tiers of superimposed brackets parallel to the rear wall, just a few centimetres thick. It is clear that this was the back of an original *muqarnas* vault covering the alcove, which had a similar composition as is found in the Cappella Palatina, in the Torre Pisana and in some later vaults in the Zisa, which are described below.

The second entry is the palace of *Scibene*, where some remains of a *muqarnas* vault are still visible, which covered a niche measuring approximately 3.30 × 1.80 metres. Currently, only some cells of the lowest parts of the composition are visible, in the side walls of the niche, while almost the whole of the vault, has completely disappeared. The composition sprang from a moulding built with a course of small carved

stone blocks. At both sides of the niche some cells belonging to the lowest two tiers of *muqarnas* are still visible, together with the springing of the third. Most of what remains is built in stone, each *muqarnas* tier being carved out from two courses of ashlar. Remains of a stucco covering are still visible, and the upper parts of the vault may have been built in stucco originally (Goldschmidt, who surveyed the building some 120 years ago, when it was in a better condition than it is today, noted that the half dome was made of stone and stucco).[731]

The following entry is the *muqarnas* vault covering the main niche of the north hall, on the upper floor of the Caronia palace. The vault is approximately 2.77 metres wide and 1.35 metres deep. The transition from the rectangular niche to the semi-dome is mediated by squinches, built in small ashlar blocks, which span the back corners of the niche diagonally. Between the squinches on the back wall there is a small niche with a similar profile to that of the squinches. The proper semi-dome is built in small ashlars, decorated with carved work composed of three superimposed tiers of shallow cells, of decreasing height towards the summit, crowned by a gored conch. The cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another, which is a customary Syrian layout. In Caronia, though the purpose of carving a *muqarnas* composition in a vault built in small ashlar blocks is clear, the result is rather crude. Indeed, there are macroscopic inaccuracies in both the carving details and the geometric

[731] A. Goldschmidt, 'Die normannischen Königspaläste in Palermo', *Zeitschrift für Bauwesen*, 48 (1898), cols. 541-590, in particular col. 550 and col. 553.

layout, which suggest that the craftsmen were not familiar with this technique, but experimenting with something new.

8.1.4. William I (r. 1154-1166 AD) and the Zisa

During the final years of William I's reign the Zisa palace was built in haste, at great expense, according to the sources. Inside the palace are more than twenty examples of *muqarnas* vaulting surviving in situ (out of approximately 35 originally displayed); this is the largest repertoire preserved on the island. No comparable number of *muqarnas* vaults in any single building is documented in either an earlier or contemporary structure in the Islamic world. These examples are catalogued in three groups: '8.5.2. The Vaults of the Main Hall', '8.5.3. Other *Muqarnas* Vaults in the Zisa', '8.5.4. The Chapel of SS. Trinità'.

A special attention is given to the vaults of the Main Hall, and particularly to the one facing the entrance, because the original configuration of the vaults covering both side niches was apparently modified at a later date. The *muqarnas* vaults cover the rectangular spaces in the niches, which are approximately twice as wide as their depth: exactly 4.16 × 2.08 metres in the case of the *shārdiwān* niche. The vault's geometry has been surveyed and studied recently by Vincenza Garofalo, who published an important article identifying the prisms, or basic elements, that combine variously to form the vault.[732] According to Garofalo, the seeming inextricability of the vault's geometry can be reduced to different combinations of just eight prisms, whose layout is

[732] Garofalo, 'A Methodology', pp. 357-406.

determined by networks obtained through simple 45°-rotations of squares. These prisms are 'ideal' forms, which are used by scholars as classifying tools; they are not 'real' pieces carved out from single ashlar blocks. In addition, Garofalo considers that the cells 'have no structural function; in fact, they have a thin profile, like shells', which led some scholars to suggest that they were carved out after the construction of the vault.[733]

Scholars proposed that this sudden appearance in Sicily of such a sophisticated and refined system must have been developed and imported from elsewhere. The current attribution to Islamic workshops is acceptable, even if there is no conclusive evidence available to date. Yet, it is difficult to identify the origins of the construction technique used to build these vaults. For instance, comparing the geometry of the Zisa *muqarnas* vaults with their eastern and western counterparts, Garofalo inferred that the techniques resemble the western one more closely, which led her to reaffirm that 'the artisans who crafted the work originated in the Islamic West (i.e., North Africa)'.[734] In this entry, attention is paid to this construction technique, in order to account for some problems in relation to traditional theories on the origins of the craftsmen who built the Zisa's *muqarnas* vaults, and some alternative ideas are proposed. In particular, details of the *muqarnas* are analysed, which suggest that the construction technique for the Sicilian stone *muqarnas* vaults may have been conceived in Sicily, a transposition into stone from an available model (i.e. the wooden ceiling of the Cappella

[733] Garofalo, 'A Methodology', pp. 359.
[734] Garofalo, 'A Methodology', p. 362.

Palatina). The idea of a local development for this technique seems to be confirmed by the possible antecedent in the stone *muqarnas* vaults found in the castle of Caronia, most probably built under Roger II (r. 1130-54 AD), which is described above. In Caronia, though the purpose of carving a *muqarnas* composition in a vault built in small ashlar blocks is clear, the result is rather crude. Indeed, there are macroscopic inaccuracies in both the carving details and the geometric layout, which suggest that the craftsmen were not familiar with this technique, but experimenting with something new. This possible antecedent for stone *muqarnas* vaults, showing all the characteristics of an experimental prototype, confirm that the technique was the result of a local initiative, which corroborates the hypothesis that it was not developed elsewhere and imported from outside the island.

The side vaults of the Zisa's main hall are also discussed, along with remains of stucco *muqarnas* documented for the imposts on the arch that gives access to the main hall from the vestibule. It seems from the remains that the composition had two symmetrical faces in order to be visible from both the vestibule and the hall.

A total of 17 vaults are grouped –although individually described– in the following entry, dedicated to '8.5.3. Other *Muqarnas* Vaults in the Zisa', while the two symmetrical *muqarnas* corniches spanning the short sides of the presbytery in the Zisa's royal chapel are included in a different entry, '8.5.4. The Chapel of SS. Trinità'.

A final paragraph '8.5.5. Some Further Observations', close the chapter. In it, attention is given to describe some important features of the Zisa *muqarnas*, which will be useful for their comparison with other

muqarnas discussed in the previous chapters and their final discussion (see paragraph '8.1.5. Discussion').

8.1.5. William II (reg. 1166-1189 AD)

Three buildings are catalogued in this section: '8.6.1. The Cuba Palace'; '8.6.2. The Cathedral of Palermo'; and '8.6.3. The Church of SS. Pietro e Paolo in the valley of Agrò'.

Within the Cuba palace are the remains of *muqarnas* decoration, most probably belonging to an original *muqarnas* vault. Currently, only some cells from the lowest parts of the composition are visible, in the back and side walls of the niche, while almost the whole of the vault, has completely disappeared. The composition springs from a moulding apparently similar to other Sicilian examples, but built with a different technique. In fact, while this kind of moulding is usually built with a course of small carved stone blocks, placed contextually to the wall's construction and resting on the vault impost, here the moulding –as well as the remaining stucco work– was pasted with mortar onto the niche's walls, after they were built. In the Sicilian *muqarnas* analysed so far, at least the lower tiers of stone blocks in which the *muqarnas* was carved, were placed progressively projecting one over the other, with the lower tier working as a real bracket for the following one. On the other hand, in the Cuba, the composition seems to be pasted to the ashlar walls with mortar. At given points on the niche's walls, sections of brick and wooden planks are visible, seemingly pasted on to the wall to serve as a foothold to secure the stucco. The vault was reinforced with wooden ties spanning the back corners of the niche at 45° diagonally, just above the fourth tier

of cells (remains of these wooden ties are visible on both sides of the vault). At the back of the niche corner, cells belonging to the lowest tiers of *muqarnas* are still visible, organised as *muqarnas* squinches. Although the whole vault seems to have been originally covered with stucco, carved stone seems to have been used, as well, to build the *muqarnas* cells (some small carved blocks are visible where the stucco covering has fallen down). In the squinch's spandrel the outline of small stone blocks (most probably small sandstone ashlar blocks), are visible in the area where the stucco covering is not preserved. This technique of building *muqarnas* seems different from anything that existed in Sicily before.

The following entry is dedicated to the Cathedral of Palermo, where *muqarnas* was used in the form of both small *muqarnas* vaults and to create a gallery or a balcony near to the southwest tower. In the first case, the vaults were square in plan, composed of four tiers of *muqarnas*, crowned by a small eight-lobed cupola. In plan the disposition of the cells is obtained with 45° rotations of squares generating two overlapping grids. Only one of these vaults is preserved completely. It is currently covered with plaster, but in the frontal arch the degraded condition of this coating reveals that at least the lower tiers are built in small stone blocks, in a comparable technique to the Zisa's and other Sicilian *muqarnas*. It is not clear whether the whole vault was built in stone, in a similar manner to that in the Zisa's vault D, or whether consistent parts of the upper tiers of cells were constructed in stucco, as is the case for other Sicilian *muqarnas* compositions. Also, as for other Sicilian vaults, the disposition of the cells in the frontal arch demonstrate that the builder took care of the frontal view of the composition (the four tiers of

muqarnas which form the vault are visible in the frontal arch). However, this example lacks the big conical cell crowning the frontal arch, which is systematically displayed in the Zisa.

On the cathedral's exterior, *muqarnas* composition was used to create a gallery or a balcony near to the southwest tower. The structure, which is stone-built, is supported by six brackets and the space between the brackets is filled with five *muqarnas* half vaults, all similar to one another. Both the cells' disposition and their crowning lobed cupola, which is contained in a pointed star, are comparable to the vault of the apsidal tower, except that here only half of the square vault is developed. Relying on historical sources –both written descriptions and graphic representations– Giuseppe Bellafiore proposed that the cathedral's choir was originally covered by a large wooden dome, perhaps displaying *muqarnas* decoration in its transition zone.[735]

The last entry is the Church of SS. Pietro e Paolo in the valley of Agrò, located on the eastern part of the island, some 50 kilometres south of Messina. *Muqarnas* is used to mediate the transition from the octagon to the rectangle in the small octagonal dome of the church. The structure springs from conical squinches placed at the four corners. The cells of the second and third tiers form three-lobed arches which span the corners at 45°, superimposed upon the squinches. The fourth to sixth tiers are a combination of irregularly shaped cells, triangular and trapezoidal in plan, which reduce the composition's geometry to a regular octagon. The eighth tier is composed of eight shallow cells supporting the octagonal base of the dome (as a result, the base is rotated by 22.5° relative to the

[735] Bellafiore, *La cattedrale*, p. 95. See also Scerrato, 'Arte Islamica', p. 333.

seventh tier's octagon, so that the cells of the upper tier spring from the apex of the lower). Compared with other Sicilian *muqarnas* analysed so far, this composition is rather anomalous. In fact, in Palermitan canonical *muqarnas* the composition's geometry is the result of the juxtaposition of several prisms or basic elements (intended as ideal forms), that variously combined form the *muqarnas*. It could be said that the geometry of the cells is prioritized over the layout of the composition. In SS. Pietro e Paolo's dome, conversely, there are no basic elements or previously defined geometric forms to be combined. The geometric need of reducing the rectangle to an octagon seems prioritized and the shape of the cells is adjusted to fit in the geometric lines drawn to achieve the transition to the octagon.

A Greek inscription located above the church's main portal records that the church was renovated under the patronage of the superior Theosterictus of Taormina in 6680 AM (1171-72 AD), by the master builder Girardus the Frank (ο προτομαιστορ Γιραρδος ο φραγκος), the only recorded name of a 'master builder' in Sicily during the Norman period.[736] It is impossible, with our present state of knowledge, to

[736] The Greek inscription was published by Antonio Salinas, 'Forza d'Agrò: Nota del prof. A. Salinas, sulla iscrizione greca del Monastero dei Santi Pietro e Paolo', *Atti della R. Accademia dei Lincei. Memorie della Classe di scienze morali, storiche e filologiche*, 282: 1 (1884-1885), pp. 86-90. The text is as follows in Salinas' reading: 'Ανεκαινίσθη ό ναὸς οὗτος τῶν ἁγίων ἀποστόλων Πέτρου και Παύλου πρός Θεοστη ρίκτου καθηγουμένου τοῦ ταυρομενίτου ἀπὸ οἰκεῖ ων ἀναλωμάτων. Μνησθείη αὐτοῦ κύριος. ἔτει ςχπ. Ὁ Πρωτομαΐστωρ Γιράρδος ό Φράγκος'. In Nicklies' translation –which essentially agrees with Salinas' note on it– the passage reads: 'This church of the Holy Apostles Peter and Paul was renewed by the superior Theosterict(us) of Taormina at his own expense. May the Lord remember him. In the year 6680 [1171/2 A.D.]. The master builder was Girard(us) the Frank' (Nicklies, *The Architecture*, p. 16).

confirm that Girardus was responsible for the *muqarnas* construction, due to a lack of agreement as to the extension works that were carried out by this master builder. Some authors, such as Salinas and Bottari, for instance, believed that the building was entirely or almost entirely rebuilt in 1171-72 AD, during Girardus' renovation works.[737] Others consider that the extant church must have been built at an earlier date, since the tympanum containing the inscription appears to have been added to the west façade at a second stage.[738] This fact implies an earlier building date than those recorded in the inscriptions, and since the monastery's foundation diploma is dated to 1116 AD, some scholars have proposed that the *muqarnas* decoration at SS. Pietro e Paolo could be ascribed to the same date as the diploma, or shortly after.[739] In support of this suggestion, Nicklies emphasized the historical circumstances surrounding the Orthodox monasteries of Sicily during Norman rule, which enjoyed great prosperity in the early years of Roger II's reign. However, he was also aware that the architectural evidence indicates a later dating,[740] and his strongest stylistic argument to suggest an early

[737] Salinas, 'Nota sulla iscrizione', p. 88, Bottari, 'Chise basiliane', pp. 20-24.

[738] See Nicklies, *The Architecture*, pp. 5, 19, 47 and 88.

[739] Nicklies, *The Architecture*, pp. 198-200. More recently, Trunfio, 'L'utilizzo della cupola', pp. 27-29, assumed the date of 1117 AD, as well.

[740] Nicklies, *The Architecture*, p. 198: 'I suggested that the church was likely constructed between the dates of the foundation charter (1116) and the inscription of the west portal (1171/72). However, several factors regarding the style and articulation of the architecture seem to call for a dating on the later end of this scale. This assessment is suggested not only by the coherent integration of the complex spatial sequence and elements of the church's interior –which is rare in the architecture from any period of Norman rule– but also a range of other factors. First, the attenuated proportions, along with the structural system used to support the nave and domes, seem to demonstrate an advance from the proportioning and

dating was the theory of an indigenous *muqarnas* tradition, which is unreliable.[741] While 1171-72 AD can be assumed as a reasonable *terminus ante quem* for the *muqarnas* construction, there is no evidence to indicate that the church was built before the central decades of the twelfth century and all citations of this decoration presented as a possible precursor of Palermo's *muqarnas* should be considered with care.

8.1.6. Discussion

Important formal features of the main branch of Sicilian *muqarnas* derived from the technique used to build the ceiling of the Cappella Palatina. The original technique is complex enough and was so perfectly executed in Palermo, as to affirm that a master –at least– who was perfectly aware of it and trained in its execution was responsible for introducing it into the island.

At approximately the same time, maybe even a little earlier, the builders of the Caronia palace show familiarity with a different *muqarnas* principle to organise the vaults' geometry, and made the first attempt of translating a *muqarnas* vault into stone. Although the result is rather rough, the geometric principle of the cells' radial organisation was

structuring found in the monuments built during the reign of Roger II (d. 1154). In addition, the use of certain individual features, such as the muqarnas vault, the four-centered openings of the diaphragm arches, and reticulate cornice frieze, at least when first considered, seem more indicative of the architecture erected during the reigns of William I (1154-66) and William II (1166-89).'

741 Nicklies, *The Architecture*, pp. 199-200.

perfectly understood and the purpose of carving a *muqarnas* composition in a vault built in small ashlar blocks is clear.

A little later, a Sicilian technique of building stone *muqarnas* was achieved by transposing a *muqarnas* model, derived from the wood technique, into stone. The case of Caronia could be considered as an experiment: the craftsmen who carved this *muqarnas* or proto-*muqarnas* understood the geometric principle underlying a certain type of *muqarnas* vaults and tried to organise their composition based on it, relying on their own skill. On the other hand, the features and constructive details of the Zisa vault, built some twenty years later indicate that the craftsmen were well aware of the wooden technique utilised in the Cappella Palatina's ceiling, and shaped their *muqarnas* work on this wooden system (the Zisa's vaults are also comparable to the vault in the *Torre Pisana* of the Palazzo Reale, of uncertain date).

A third type of *muqarnas*, built in brick and rather anomalous compared with the other Sicilian examples, is documented in the Church of SS. Pietro e Paolo in the valley of Agrò. In Palermitan canonical *muqarnas* the composition's geometry is intimately related with the cells, that variously combined form the *muqarnas*. In SS. Pietro e Paolo's dome, conversely, there are no clear basic elements or previously defined cells to be combined. The geometric need of reducing the rectangle to an octagon is prioritized and the shape of the cells is adjusted to fit in the geometric lines drawn to achieve the transition to the octagon. This principle resembles more closely that of Iranian vaults built in the Saljūq period –such as those of Sīn and Nāʿīn– than anything built in Sicily during the Norman period, although the similarity is

restricted to this specific geometrical aspect.[742] The technique shown at SS. Pietro e Paolo's dome may reflect a lost prototype from royal buildings in Eastern Sicily (Messina was a royal capital during Roger's reign, where he built a sumptuous palace, finished in 1141 AD, and according to Ibn Jubayr, in the 1180s William II had a Royal palace 'white as a dove' in the city.[743]

Apart from wood, stone and brick, stucco was also used in Sicily to build *muqarnas*. Some of the stone vaults of the Zisa, and perhaps the vault in the *Torre Pisana*, showed a mixed technique of stone and stucco, while the *muqarnas* vaults of the Cuba Palace during the 1180s depends basically on stucco technology, with details of the associated decoration suggesting a possible influence of the Western Islamic technique.

As regards the origins of *muqarnas* in Sicily, I have proposed that the wood and stucco ceiling described by Ibn Jubayr, belonging to the Great Mosque of Damascus, as a potential antecedent for the wooden technique employed in the Cappella Palatina. Certainly the painting and gilding technique of Roger II's ceiling seems more refined than the stucco decoration, simply styled as *samā' jass muzayyina* by Ibn Jubayr.

[742] For the mosques of Sīn and Nā'īn see, respectively, paragraphs '3.4.1. The mosque of Sīn'; and '3.4.3. Mosque of Nā'īn', in this thesis.

[743] Almost nothing remains of this palace, which was destroyed by the destructive earthquakes of 1783 and 1908. Unfortunately, all that survives from the building are some fragmentary, inlaid marble Arabic inscriptions, several metres long, currently in the Museo Regionale's, Messina, collection. The inscriptions, which record the date date of 1141, were published and translated by Michele Amari (Amari, *Epigrafi*, pp. 123-136. For the inscriptions see also Annliese Nef, 'Venti blocchi frammentari con iscrizioni arabe in lode di Ruggero II dal palazzo di Messina', in Andaloro (ed.), *Nobiles Officinae*, pp. 503-509. On the Messina palace, see also Di Stefano, *I monumenti*, pp. 100-101 and Krönig, *Il Castello di Caronia*, pp. 20-21). Messina's inscriptions are analogous –in technique, style and contents– to those in the Royal Palace in Palermo, currently in the Palazzo Abatellis' collection.

However, this could be explained by the improvement of the technique during the decades that elapsed before Roger II's ceiling was built, as well as their different setting (the paintings of Roger II's ceiling are obviously not related to a tradition of mosque decoration, but rather to a secular milieu).

To confirm the hypothesis that *muqarnas* wooden ceilings were in use in Syria during the twelfth century the side vaults of Nūr al-Dīn's grand vestibule in his Damascus *māristān* could be cited, together with the *muqarnas* vault above the Mashhad al-Ḥusayn's entrance. The first was built in stucco and the second in stone, but they both emulated some kind of wooden *muqarnas*, as is explained in chapters 5 and 7, respectively. Strikingly, in the latter case the main *muqarnas* vault was associated with a secondary ceiling –which was also the stone replica of a wooden ceiling, in this case supported by beams– comparable with the secondary ceilings covering the lateral aisles of the Cappella Palatina.

Other features of Sicilian *muqarnas* point to an eastern link, possibly through the Levant, with the central Islamic lands. In the *muqarnas* or proto-*muqarnas* of Caronia, the superimposed niche order follows a pattern with central symmetry generated by small rotations of polygons inscribed in circles with a common centre. These rotations are studied in such a way that the cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another. This is the same system of the Ibn Turayra/Shādhbakhtiyya portals, which ultimately derived from Iraqi 'sugarloaf domes', which became the customary Syrian layout for *muqarnas* portals.[744]

[744] See chapter 7 of the present study.

As is mentioned above, the builders of Sicilian *muqarnas* were systematically interested in creating compositions intended to be viewed not only from below, but also frontally, in this way solving a patent problem of the visibility of the *muqarnas* ceilings. In this sense, the main hall's vaults in the Zisa are real masterpieces, yet in none of the building's vaults is this aspect overlooked and the frontal arch's profile of all vaults were constructed to display the *muqarnas* works behind them (this is also true for the *muqarnas* vault in the *Torre Pisana*). The systematic use of the large conical cells crowning the frontal arches left wide openings in the upper part of the composition. In most of the vaults the profile of the frontal arch was composed of cells rotated at 45° with respect to the cross axis, to guarantee a full display of the *muqarnas*, and only exceptionally were these cells in the frontal arch closed to the observer's view. Some comparable solutions are found in the Nūr al-Dīn *māristān*'s portal and side vaults, as well as in later Syrian stone portals, while they are unknown in contemporary Western Islamic *muqarnas* vaults. The same concern for visibility is evident in the double-faced *muqarnas* arch at the entrance to the *Sala della Fontana* (compare this elegant solution to the Almohad vaults, the arches of the Kutubiyya or the first Mudéjar *muqarnas* of Santa María la Real de Las Huelgas, where the *muqarnas* work is visible almost exclusively from beneath).

An additional indication of eastern influence, seen in both the Zisa and the *māristān*, is the frontal *muqarnas* arranged in a composition, which could broadly be defined as 'pyramidal', which seems to have been inspired by sugarloaf dome profiles. This kind of *muqarnas* layout, which

eventually became a characteristic feature of later Saljūq portals in Anatolia, has no Fatimid or contemporary Western-Islamic counterparts.

It is commonly accepted that the art and architecture of Norman Sicily was influenced by Islamic models through either North-African or Egyptian mediation, which may be true in many cases. Without prejudice to this, the foregoing discussion indicates that by contrast this was not the case for *muqarnas*. Indeed, the sum of the *muqarnas* vaults and decoration in Norman palaces is extraordinary. In the Zisa, where the largest repertoire of *muqarnas* vaulting is preserved, more than twenty different examples are to be seen (it has been calculated that some 35 *muqarnas* vaults were originally displayed, in this palace alone),[745] and *muqarnas* vaults or fragments are documented in six Norman palaces: Palazzo Reale; Favara; Zisa; Cuba; Scibene; and Caronia. Apart from this numerical aspect, in Sicilian examples of *muqarnas* is displayed in a variety of formal patterns and materials which represents one of the richest repertories of either the earlier or contemporary Islamic world. This is evidence of a '*muqarnas* culture' developed in the royal court, which was able to continually receive and rework in a creative way innovative techniques and models from the East. Certain solutions displayed in Sicilian vaults were also distinctly advanced at the time, suggesting that under Norman patronage an artistic avant-garde was fashioned, within the Islamic tradition.

On the other hand, the remaining evidence seems to suggest that both Egypt and the Fatimid domains were rather conservative in *muqarnas*

[745] Staacke, *Zisa*, pp. 96 and 104-105.

development and were relatively late in adopting the most recent eastern developments of this decorative form, if they ever introduced them at all. The Almoravids were able to build *muqarnas* vaults at approximately the same time as the Cappella Palatina, in a technique which evidently emulated a similar oriental model. However, there is no evidence indicating that ceilings comparable to that of Roger II were ever built in the Islamic West, and the development of *muqarnas* in Sicily corroborates that until the late Norman period (1170s-1180s AD) the reference for Sicilian *muqarnas* was eastwards, possibly through a Syrian connection.

8.2. A Preliminary Note on the Classification of Sicilian *Muqarnas*

Vincenza Garofalo's and Fabrizio Agnello's recent works on Sicilian *muqarnas* - the Zisa's *muqarnas* and the Cappella Palatina's wooden ceiling, respectively - are outstanding studies.[746] The former identified and classified the prisms, or basic elements, that, variously combined, form the Zisa's vault. In fact, the seeming inextricability of the vault's geometry can be reduced to different combinations of just eight prisms, whose layout is determined by networks obtained through simple 45°-rotations of squares. These prisms are 'ideal' forms, which can be used as classifying tools; they are not 'real' pieces carved out from single ashlar blocks. In this chapter reference is often made on Garofalo's classification for the Zisa's *muqarnas* and other Sicilian examples of the same type. Therefore, it seemed appropriate to quote verbatim from Garofalo's description of the basic prisms that form the Zisa's vaults:

> '*Element A*, corresponding to the *t'stiya masdūda* of the Eastern Islamic tradition, or to the first type of *conça*, here referred to as *conça (1)*, of the Western Islamic tradition, is obtained by subtracting a barrel vault from a prism with a square plan, thus creating a half-barrel vault. The element has a rectangular supporting base.
>
> *Element B*, corresponding to the *t'stiya masdūda* of the Eastern Islamic tradition, or to the *conça (1)* of the Western Islamic tradition, is obtained by cutting element A with a vertical plane parallel to its side faces. It has a rectangular supporting base and its height can be equal to that of two registers.

[746] V. Garofalo, 'A Methodology for Studying Muqarnas: the Extant Examples in Palermo', *Muqarnas* 27 (2010), pp. 357-406; F. Agnello, 'Rilievo e rappresentazione del soffitto della navata centrale della Cappella Palatina', in Brenk (ed.), *La Cappella Palatina*, vol. 1 *Testi: Saggi*, pp. 297-351; F. Agnello, 'The Painted Ceiling of the Nave of the Cappella Palatina in Palermo: an Essay on its Geometric and Constructive Features', *Muqarnas* 27 (2010), pp. 407-448.

Element C, corresponding to the *t'stiya masdūda* of the Eastern Islamic tradition, or to the *conça (1)* of the Western Islamic tradition, is obtained by putting together the main faces of either two element As or two element Bs, respectively. The element has two rectangular supporting bases.

Element D, corresponding to the *sirwāliyya* of the Eastern Islamic tradition, or to the *atacia* of the Western Islamic tradition, is obtained by subtracting an inclined barrel vault from a right-angled triangular prism. The generatrix of the barrel vault is perpendicular to the hypotenuse of the triangular base. The element has two triangular supporting bases.

Element E, corresponding to the *sirwāliyya shaīra* of the Eastern Islamic tradition, or to the *medio cuadrado* of the Western Islamic tradition, is similar to a squinch. It is generated by subtracting from a prism with a right angled triangular plan a Roman cross vault with a raised keystone and a square base. The element has two triangular supporting bases on the same level and a rectangular one placed at a lower level than the first two.

Element F, corresponding to the *medio cuadrado abierto por lo más ancho (2)* of the Western Islamic tradition, is similar to the triangular portion of a cross vault with a square supporting base. It is generated by subtracting from a prism with a right-angled triangular plan a Roman cross vault with a raised keystone and a square base.

Element G, corresponding to the *lūza (2)* of the Eastern Islamic tradition, or to the *dumbaque grullillo* of the Western Islamic tradition, is obtained by subtracting an inclined barrel vault from a prism with an isosceles triangular plan with a summit angle of 45°. The element has a triangular supporting base.

Element H, is similar to a squinch or a niche with a curved section. It is generated by subtracting from a prism with a right-angled triangular plan, a hemispherical dome on a cylindrical tambour. Element H has a right-angled triangle supporting base from which a half circle has been subtracted. The element has no equivalent among those described in the Appendix belonging to the Eastern and Western Islamic traditions'.[747]

Garofalo's graphics illustrating this classification are included in Volume II – Plates CD, as well. In addition, as a part of her study, Garofalo also

[747] Garofalo, 'A methodology', pp. 359-361.

compared the geometry of the Zisa *muqarnas* with their eastern and western counterparts. The corresponding drawings are included in the plates.

As far as Agnello's studies are concerned, they are dedicated to the analysis of the building's construction process and the ceiling's geometry studied through a model produced using accurate 3D laser-scan technology. As a part of this work, Agnello also analysed the morphology of the ceiling with reference to the classification of the *muqarnas* elements developed by Garofalo in her study of the Zisa vaults. As in the Zisa's case, these prisms are considered as 'ideal' forms and used as classifying tools; they are not 'real' pieces carved out from single wooden blocks. It should be noted, however, that according to Agnello, this classification does not correspond to the ceiling's morphology, i.e., there are a number of geometric forms in the ceiling which are not codified in the literature, most probably due to the peculiarity of both the technique and the material employed.

Besides the geometric analysis of the ceiling, Agnello also gives a description of the basic constructive elements of the ceiling's form. In this preliminary note he includes the vertical panels classified as 'panel EL-1' and 'panel EL-2', which are the key structural elements of the Cappella Palatina's *muqarnas* (or, to be precise, the first four of five *muqarnas* tiers). Some of Agnello's drawings can be found in the Volume II – Plates CD, which show:

1) How the shape and size of the wooden vertical panels, EL-1 and EL-2, are defined in relation to the horizontal geometry underlying the *muqarnas* composition.

2) How the dimensions of the basic EL-1 panel vary in the first three tiers and how the geometric scheme of the EL-2 panel is drawn, 'by rescaling the EL-1 panel so that the height and width are equal to EL-1 minus *m*'.

The classification of prisms that are variously combined to form Sicilian *muqarnas* and some of the constituent elements of the Cappella Palatina's wooden ceiling was outlined in this preliminary note in order to simplify various technical aspects in the following discussion and thus ease its development.

8.3. The Royal Palace

8.3.1. Some introductory notes

It is the *Palatium Novum*, which the author of the *Epistola ad Petrum Panormitanae Ecclesiae Thesaurarium* contraposed to the *vetus Palatium quod dicitur Maris Castellum* in his well-known description of the royal palace.[748] It rises on the western side of the ancient city walls, in the same

[748] G.B. SIRAGUSA, (ed.), *La Historia o Liber de regno Siciliae e la Epistola ad Petrum Panormitanae ecclesiae thesaurarium di Ugo Falcando*, Roma: Fonti per la Storia d'Italia, 22, 1897, p. 177-178: 'Hec ergo civitas in plano sita, maris ex uno latere crebris insultibus fatigatur, euius tamen fluetibus retundendis Vetus palatium, quod dicitur Maris castellum, murosque multa turrium densitate munitos opponit. alterius vero lateris partem oppositam palatium Novum insedit, mira ex quadris lapidibus diligentia, miro labore constructum, exterius quidem spatiosis murorum anfractibus circonclusum, interius vero multo gemmarum aurique splendore conspicuum; hinc habens turrim Pisanam thesaurorum custodie deputatam, illinc turrim Grecam ei civitatis parti que Kemonia dicitur imminentem. medium vero locum pars illa palatii que Ioharia nuncupatur, plurimum habens decoris, illustrat, quam multiformis ornatus gloria prefulgentem, rex ubi otio quietique indulgere voluerit, familiarius frequentare, consuevit. inde per reliquum spatium varie sunt circumquaque disposite mansiones matronis puellisque et eunuchis, qui regi regineque serviunt deputate. sunt et alia ibidem palatiola multo quidem decore nitentia, ubi rex aut de statu regni cum familiaribus suis secretius disserit, aut de publicis et maioribus regni negotiis locuturus proceres introducit. nec vero nobiles illas palatio adherentes silentio preteriri convenit officinas, ubi in fila variis distincta coloribus serum vellera tenuantur et sibi invicem multiplici texendi genere coaptantur. hinc enim videas amita, dimitaque et triamita minori peritia sumptuque perfici; hinc et examita uberioris materie copia condensari; hinc diarodon igneo fulgore visum reverberat; hic diapisti color subviridis intuentium oculis grato blanditur aspectu; hic exarentasmata circulorum varietatibus insignita, maiorem quidem artificum industriam et materie ubertatem desiderant, maiori nichilominus pretio distrahenda. multa quidem et alia videllas ibi varii coloris ac diversi generis ornamenta in qui bus et sericis aurum intexitur, et multiformis picture variebs gemmis interlucentibus illustratur. margarite quoque, aut integre cistulis aureis includuntur, aut perforate filo tenui, connectuntur et eleganti quadam dispositionis industria picturati, iubentur formam operis exhibere. porro ex ea parte que urbem respicit palatium ingressuris, capella regia primum occurrit sumptuosi operis pavimento constrata, parietes habens inferius quidem pretiosi marmoris tabulis decoratos, superius autem de lapillulis quadris, partim auratis, partim diversi coloris, veteris ac novi Testamenti depictam ystoriam continentes. Supremi vero

place where an ancient fortress used to be, transformed into a palace in Norman times and chosen by Roger II as his seat of government. The first –rather generic– contemporary description of the palace is found in the work of al-Idrīsī,[749] followed chronologically by those of Romualdo Guarna,[750] the aforementioned of Pseudo-Falcandus and that of Ibn Jubayr;[751] besides these treatises the building has been the subject of several modern studies.[752]

fastigii tabulatum insignis elegantia celature et miranda picture varietas passimque radiantis auri splendor exornant. Sic ergo dispositum, sic ornatum, sic omnimode voluptatis gratia delibutum palatium, tanquan caput reliquo corpori, sic toti supereminet civitati, que trina partitione distincta, tres in se particulares, ut ita dixerim, continer civitates'.

749 Amari (ed.), *Biblioteca*, p. 29; Amari (trans.), *Biblioteca*, pp. 61-62.

750 C.A. Garufi (ed.), *Romualdi Salernitani Chronicon*, Città di Castello: coi tipi della casa editrice S. Lapi, *sine data* [1935], p. 232.

751 Ibn Jubayr (ed. Wright), *The travels*, pp. 330-331.

752 Among others see Salvatore Morso, *Descrizione di Palermo Antico ricavata sugli autori sincroni e i monumenti dei tempi*, Palermo: Lorenzo Dato, 1827 (edizione seconda), pp. 11-31; Michele Amari, *Storia dei musulmani di Sicilia*, 3 vols, Firenze, Le Monnier, 1854-1872, v.3, parte I, pp. 136-139; Vincenzo Di Giovanni, *La topografia Antica di Palermo dal Secolo X al XV. Volume II*, Palermo: Tipografia e legatoria del Boccone del Povero, 1890, pp. 403-413; Goldschmidt, 'Die normannischen Königspaläste', in particular cols. 544-553; F. Valenti, 'Il Palazzo Reale di Palermo', in *Cronaca delle Belle Arti (Supplemento al Bollettino d'Arte)* 1925, pp. 512-528; Guido Di Stefano, *Monumenti della Sicilia Normanna*, Palermo: Società siciliana per la storia patria - S.F. Flaccovio, 1979, pp. 92-95; Giuseppe Bellafiore, *Architettura in Sicilia nelle età islamica e normanna (827-1194)*, Palermo: Arnaldo Lombardi Editore, 1990, pp. 142-146; Roberto Calandra, Alessandro La Manna et al. *Palazzo dei Normanni*, Palermo: Novecento, 1991; Ursula Staacke, *La Zisa. Un palazzo normanno a Palermo. La cultura musulmana negli edifici dei re*, Palermo: Comune di Palermo, 1991, pp. 169-171, Hans Rudolf Meier, *Die normannischen Konigspalaste in Palermo*, Worms: Wernersche Verlagsgesellschaft, 1994, pp. 37-54; Brunella Lorenzi, 'Parchi e verzieri nella Sicilia islamica e normanna', in Luigi Zangheri, Brunella Lorenzi et al. *Il giardino islamico*, Firenze: Leo S. Olschki, 2006, pp. 208-289, in particular pp. 169-171; William Tronzo, 'Il Palazzo dei Normanni di Palermo come Esibizione', in Maria Andaloro (ed.), *Nobiles Officinae. Perle, filigrane e trame di seta dal Palazzo reale di Palermo*, Catania: G. Maimone, 2006, pp. 25-31, Maria Andaloro (ed.), *The Royal Palace of Palermo*, Modena: Panini, 2011.

The palace underwent several massive transformations during its long history, though some original parts of the Norman buildings and their decoration survive, including a *muqarnas* composition covering a niche on the commonly named *Torre Pisana*, and the famous *muqarnas* ceiling of the Cappella Palatina.

8.3.2. The muqarnas *vault in the commonly named 'Torre Pisana'*

The *Torre Pisana* is an almost square tower with sides of approximately 19 metres, whose shape can be assimilated into a parallelepiped divided into three storeys. The only volumetric articulation is a projecting small turret placed on the western side of the northern façade. The exterior façades are built with regular, smooth and well-dressed ashlars, are articulated with blind pointed arches framing shallow recesses. The ground floor has a simple organisation composed of a basic square room, the *Stanza del Tesoro*, which is surrounded by a corridor. The representative part of the building was on the first floor, it was organised around the main hall, the *Sala del Trono*, which is a 7-metre square covered by a cross vault approximately 15 metres high. The hall is entered through a vestibule on the western side and its square interior is extended by a rectangular niche opposite the entrance. There is a big window on the rear wall of this niche, overlooking the city, and on both its sides there are doors giving access to two symmetrical small rooms. On both sides of the main hall there are oblong rooms, also accessed from the vestibule.

On the upper floor, where there are private rooms, there is a *muqarnas* vault, which is the only *muqarnas* decoration conserved in the palace,

apart from the ceiling of the Cappella Palatina. It was first remarked on by Di Marzo, who published the following observation:

> 'Nelle stanze appartenenti all'osservatorio astronomico, che del pari si comprendono in quella torre, rimane poi un avanzo di antica volta di pietra sullo stesso stile intagliata che il tetto della chiesa palatina, dove si vede evidentissima la mano degli arabi'.[753]

Another short comment was published by Goldschmidt in 1898:

> 'Das Zimmer zunächst dem Treppenthurm zeichnet sich jetzt noch durch eine Stalaktiten-Halbkuppel über einer rechteckigen Nische aus. (…) Zum Schmuck der Innenraume gehörten endlich die complicirten Honigzellen oder Stalaktiten aus Stein und Stuck, die reich bemalt und vergoldet waren. Eine Probe davon giebt uns die Decke der Capelle, aber auch viele der Zimmer- und Fensternischen waren wohl, wie bei der Zisa, mit kleinen ähnlich construirten Kuppeln und Halbkuppeln bedeckt, von denen nur noch das eine im oberen Thurmgeschofs erhalten blieb'.[754]

The first photograph of the vault was published by Francesco Valenti, who described it as 'una magnifica volta con raccordi pensili o stalattiti del tutto simili a quelli della Zisa'.[755] A short comment together with a photograph was given in *Gli arabi in Italia*,[756] and in 1991 a catalogue entry included in the book of Calandra and La Manna was dedicated to

[753] Gioacchino Di Marzo, *Delle belle arti in Sicilia dai normanni sino alla fine del secolo XIV*, Palermo: Salvatore Di Marzo editore, 1858, pp. 265.

[754] Goldschmidt, 'Die Normannischen Königspaläste', col. 550 and col. 553.

[755] Valenti, 'Il Palazzo Reale', p. 521, fig. 9, and p. 525.

[756] Umberto Scerrato, 'Arte islamica in Italia', in Francesco Gabrieli and Umberto Scerrato, *Gli Arabi in Italia: cultura, contatti e tradizioni*, Milano: Garzanti – Scheiwiller 1993 (edition IV, c1979), pp. 271-571, in particular p. 344.

the vault.[757] Vincenza Garofalo mentioned the vault briefly in her recent article about the Zisa's *muqarnas*:

> 'Another example of a muqarnas in the Palazzo Reale is located in the Torre Pisana (fig. 19), where there is a niche in a secondary room with muqarnases quite similar to those of the Zisa, although they appear to have been modified during restoration'.[758]

According to some authors, this vault is built in stucco, while others affirm that it is stone-made.[759] Perhaps, both stone and stucco were used, as Goldschmidt already suggested, as is the case for other Sicilian *muqarnas* which are analysed below. Some authors believe that during restoration an original layer of (carved?) stucco decoration was removed, because it was incorrectly believed to be later than the *muqarnas*.[760]

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[757] It is the entry n. 3, 'Decorazione a stalattite', Calandra and La Manna, *Palazzo dei Normanni*, p. 193.

[758] Garofalo, 'A Methodology', in particular p. 365.

[759] Apart from the above-mentioned studies see for instance: Agnello, 'Rilievo e rappresentazione', p. 228 and p. 330.

[760] For instance, see Scerrato, 'Arte islamica', p. 344: 'Le decorazioni in stucco di arte arabo-normanna sono eseguite con varie tecniche tutte ampiamente documentate nell'IsIàm, manca purtroppo ancora uno studio tecnologico preciso di tutto il poco materiale a noi noto. Vi troviamo sicuramente la modellatura su una ossatura strutturale, come nel caso delle *muqarnas* di Palazzo Reale e della Zisa a Palermo, malauguratamente in gran parte private del manto di stucco, rimosso in occasione di improvvidi e ignoranti «restauri». Probabilmente su una falsa struttura sono modellate le stalattiti che fiancheggiano la cupoletta della cappella della Zisa'. See also Calandra, La Manna, *Palazzo dei Normanni*, p. 193: 'L'intervento conservativo del Valenti con probabilità ha leggermente modificato il disegno della decorazione che, inoltre, è stata privata dell'originale strato di stucco che la ricopriva. (…) La tecnica di esecuzione consisteva in un impasto di stucco sorretto da incannucciato applicato sul laterizio, i differenti disegni ornamentali erano eseguiti a mezzo di stampi precedentemente preparati'. To my knowledge, excluding these brief notes, no further technological study on the building technique of stucco *muqarnas* in Sicily has been done to date.

As regards the *muqarnas* composition, the cells are organised in seven tiers, and their layout is determined by networks obtained through simple 45°-rotations of squares. Both the prisms and the geometric system adopted to dispose them are similar to those of the Zisa, which are analysed below, in the corresponding paragraphs. However, in this vault, above the 'element B' cells of the lowest *muqarnas* tier are brackets developed from the second up to the fourth tier. Nowhere else in Palermo is this type of prolonged bracket documented.

The dating question is controversial: Monneret de Villard tentatively assigned the decoration to the first period of the Norman Kingdom, to which the *Torre Pisana* seemingly belongs, and believed that this *muqarnas* antedated the ceiling of the Cappella Palatina.[761] However, his argument relied on the assumption that *muqarnas* was introduced to the island as a 'constructive motive', and was subsequently imitated in carpentry, which is a 'minor art'. More recently David Knipp also suggested an early date for the vault.[762] Other scholars have given a date

[761] Ugo Monneret de Villard, *Le pitture musulmane al Soffitto della Cappella Palatina in Palermo*, Roma: La libreria dello Stato, 1950, p. 26: 'L'alveolo è un motivo essenzialmente costruttivo, architettonico, che solo in un secondo tempo può passare in un'arte minore, quale la carpenteria. E certo dunque che gli alveoli lignei della Cappella Palatina non sono se non riproduzioni di alveoli architettonici, dal che si deve pensare che questi fanno la loro apparizione in Sicilia almeno fra il 1120 ed il 1130.'

[762] D. Knipp, 'The Torre Pisana in Palermo. A Magribi Concept and its Byzantinization', in Andreas Speer and Lydia Wegener (eds.), *Wissen über Grenzen : Arabisches Wissen und lateinisches Mittelalter*, Berlin-New York: Walter de Gruyter, 2006, pp. 745- 774, in particular pp. 767-774.

about 1170-1180 AD, due to the similarity of the vault to the Zisa *muqarnas*, which is discussed below.[763]

8.3.3. The Cappella Palatina

From the very moment of its foundation, this extraordinary building drew the attention of medieval authors, and several descriptions are dedicated to the chapel. The building was first described in a homily delivered, inside the chapel itself, by Philagatos Keramenos in the presence of King Roger II and his sons.[764] During the twelfth century, Romualdo gave a short notice on it, which is reported below, and the chapel was described by Pseudo-Falcandus as follows:

> 'porro ex ea parte que urbem respicit palatium ingressuris, capella regia primum occurrit sumptuosi operis pavimento constrata, parietes habens inferius quidem pretiosi marmoris tabulis decoratos, superius autem de lapillulis quadris, partim auratis, partim diversi coloris, veteris ac novi Testamenti depictam ystoriam continentes. Supremi vero fastigii tabulatum insignis eleganti celature et miranda picture varietas passimque radianti auri splendor exornant'.[765]

[763] For example Anastasi, *L'arte nel parco reale*, p. 146; Calandra, La Manna, *Palazzo dei Normanni*, p. 193.

[764] The text of the homily was published in Migne's *Patrologiae Cursus Completus, Series graeca posterior*, Tomus CXXXII, Paris: apud J.P. Migne Editorem, 1864, cols. 951-970, where the author was identified as Theophanou Kerameos, Archiepiskopou Tauromeniou tes Sikelias. The currently accepted identification of the author with Philagatos is due to Rossi Taibbi, *Filagato*, where a most recent edition of the homily's text is given, as well (pp. 174-182).

[765] Siragusa (ed), *Epistola ad Petrum*, p. 180.

During the following centuries, several texts document that travellers and visitors were in awe of this wonderful creation.[766]

As regards the building's study, Pirro recollected the diplomatic sources on the chapel in his *Sicilia Sacra disquisitionibus et notitiis illustrata*.[767] From the nineteenth century the chapel was the focus of several works, from the point of view of both art history and architecture. However, this is not the place to give an exhaustive account of the Cappella Palatina's extensive bibliography; [768] Attention is paid

[766] For a summary of these sources, especially those focused on the *muqarnas* ceiling of the chapel, see V. Zorić, 'Sulle tecniche costruttive islamiche in Sicilia: il soffitto della Cappella Palatina di Palermo', in *Scritti in Onore di Giovanni D'Erme*, ed. M. Bernardini and N.L. Tornesello, Napoli: Università degli studi di Napoli 'l'Orientale', 2005, pp. 1281–1349, in particular pp. 1281-1289, and Agnello, 'Rilievo e rappresentazione', pp. 295-313.

[767] Pirro Rocco (Pirrus Rochus), *Sicilia sacra disquisitionibus et notitiis illustrata*, 3 vols., Palermo, 1644-47, (I refer to the third edition edited by Antonio Mongitore and with additions of Vito Maria Amico, *Sicilia sacra disquisitionibus et notitiis illustrata*, Panormi: Apud haeredes Petri Coppulae, 1733), pp. 1356-1379.

[768] Among the most relevant 19th-century works see J.J. Hittorff, L. Zanth, *Architecture moderne de la Sicile ou recueil des plus beaux monuments religieux, et des édifices publics et particuliers les plus remarquables de la Sicile*, Paris: Paul Renouard, 1835, pp. 43-45, tavv. 44-47; Domenico Lo Faso Pietrasanta, *Del Duomo di Monreale e di altre chiese siculo normanne: ragionamenti tre*, Palermo: Tipografia Roberti, 1838, pp. 24-28, tavs. XV-XVII; Nicola Buscemi, *Notizie della basilica di San Pietro detta la cappella regia*, Palermo, 1840; Cesare Pasca, *Descrizione della imperiale e regal cappella palatina di Palermo*, Palermo: Stamperia di M.A. Console, 1841; Di Marzo, *Delle belle arti*, pp. 147-153; Andrea Terzi, Michele Amari et al., *La Cappella di S. Pietro nella Reggia di Palermo*, Palermo: A. Brangi, 1872; Alexis Pavlovskij, *Schivopispalatinskoi kapelli v Palermo*, St Petersburg, 1890; A. Pavlowsky, 'Iconographie de la Chapelle Palatine, *Revue archéologique*, XXV (1894), pp. 305-344; A. Pavlovskij, 'Decoration des plafonds de la Chapelle Palatine' *Byzantinische Zeitschrift* 2 (1893), pp. 361-412; towards the middle of the 20th three key works were pubblished: Otto Demus, *The Mosaics of Norman Sicily*, London: Routledge and Kegan Paul LTD, 1949; E. Kitzinger 'The mosaics af the Cappella Patatina. An essay on the choice and arrangement of subjects', *The Art Bulletin* 31 (1949), pp. 269-292; Monneret the Villard, *Le pitture musulmane*. Among the most important works of the second half of the century are: Eve Borsook, *Messages in Mosaic. The Royal Programmes of Norman Sicily 1130-1187*, Oxford: Clarendon Press 1990; William

exclusively on the wooden ceiling covering the central nave, and in particular on the construction technique used to build it.[769] This famous ceiling has been the subject of several valuable studies, which have focused on the *muqarnas* work and have contributed to a more profound knowledge of this structure from both a constructive and a geometric point of view.[770]

Tronzo, *The cultures of his kingdom: Roger II and the Cappella Palatina in Palermo*, Princeton: Princeton University Press, 1997. A recent review of this historiography in B. Brenk, 'L'importanza e la funzione della Cappella Palatina di Palermo nella storia dell'arte', in Brenk, *La Cappella Palatina*, vol. 1, pp. 27-78, in particular pp. 27-30.

[769] Apart from the general bibliography on the building cited in the preceding note –in particular Monneret de Villard's pioneer work, which made available to scholars the first extensive photographic documentation of the Cappella Palatina ceiling's paintings (about 250 black-and-white photographs), becoming the reference work on the ceiling during more than fifty years– among the most important recent studies specifically dedicated to the ceiling are: G.M. d'Erme, 'Contesto architettonico e aspetti culturali dei dipinti del soffitto della Cappella Palatina di Palermo', *Bollettino d'arte* 92 (1995), pp. 1–32; G.M. d'Erme, 'The Cappella Palatina in Palermo: An Iconographical Source to be read in lieu of Lacking texts', *Oriente Moderno* 23 (2004), pp. 401-416; Grube and Johns, *The Painted Ceilings*, 2005; Jeremy Johns, 'Le pitture del soffitto della Cappella Palatina', in Brenk (ed.), *Cappella Palatina*, vol. 1, pp. 387–407; Jeremy Johns, 'schede' [Catalogue's entries about the ceiling paintings of the Cappella Palatina], in Brenk (ed.), *Cappella Palatina*, vol. 2, pp. 429-456; 487-510 and 540-665; Jeremy Johns, 'Iscrizioni arabe nella Cappella Palatina,' Brenk (ed.), *Cappella Palatina*, vol. 3, pp. 353–86; Jeremy Johns, 'Muslim Artists and Christian Models in the Painted Ceilings of the Cappella Palatina', in Rosa Bacile and John McNeill, (eds.), *Romanesque and the Mediterranean: Patterns of Exchange across the Latin, Greek and Islamic Worlds c. 1000 - c. 1250,* Leeds: Maney Publishing, 2015, pp. 59–89. The discussion of the style and painting details of the ceiling goes obviously beyond the scope of this study. The topic has been recently developed in a still unpublished doctoral thesis, which I consulted in the Bodleian Library, Oxford: Lev A. Kapitaikin, *The Twelfth-Century Paintings of the Ceilings of the Cappella Palatina, Palermo*, PhD thesis, Oxford: University of Oxford, 2011.

[770] Vladimir Zorić, 'Sulle tecniche costruttive islamiche in Sicilia: il soffitto della Cappella Palatina di Palermo', in Michele Bernardini and Natalia L. Tornesello (eds.) *Scritti in Onore di Giovanni D'Erme*, Napoli: Università degli studi di Napoli 'l'Orientale', 2005, pp. 1281–1349; M. Li Castri, T. Campisi and G. Fatta, 'Timbered roofs and ceilings of the Palatina Chapel in Palermo', in *Atti del XV International*

The geometric and constructive aspects of the ceiling most relevant to the development of this discussion are listed here:

1) The ceiling covers a rectangular area of approximately 18.85 x 5.60 metres above the central nave of the chapel.[771] The *muqarnas* composition is within a frame, approximately two metres high, springing from a wooden cavetto molding which projects some 0.30 metres. The *muqarnas* cells are organised in five tiers along the perimeter of the nave and support a central horizontal field.

2) The composition of the central field is generated by two longitudinal rows of ten eight-pointed stars inscribed in octagons and covered by small eight-lobed cupolas. A central row of nine squares, or else rhomboids, results between the eight-pointed stars. Twenty-four eight-pointed small stars border the central field, allowing for the transition to the *muqarnas* zone.

3) The ceiling's supporting structure is like a skeleton or net of vertically superimposed elements, which run either parallel to the main compositional grid or are orientated at 45° angles. The empty

Symposium ICOMOS IWC (International Wood Committee), Istanbul 2006; M. Li Castri and T. Campisi, 'The muqarnas wooden ceiling and the Nave Roofing in the Palatina Chapel of Palermo: Geometries, Failures and Restorations', in *Atti del XVI International Symposium ICOMOS IWC, Firenze*, Venice/Vicenza: 2007; M. Romagnoli, M. Sarlatto, et al. 'Wood Identification in the Cappella Palatina Ceiling (12th century) in Palermo (Sicily, Italy)', *International Association of Wood Anatomists (IAWA) Journal* 28: 2 (2007), pp. 109-123. Amongst recent works are the above-mentioned studies made by Fabrizio Agnello, which are especially relevant here: Agnello, 'Rilievo e rappresentazione', and Agnello, 'The Painted Ceiling'. A part of a study which I recently authored is also dedicated to the ceiling's constructive features: Massaiu, 'The Stone Muqarnas Vaults'.

[771] Agnello, 'Rilievo e rappresentazione', p. 320.

spaces left by this structure were covered by thin wooden elements defining the surface of the cells. Once assembled the surfaces were covered with a layer of gesso, before they were painted and gilded.[772] There is a clear distinction between the supporting elements, composed of thicker wooden beams, and the thinner fillets, or veneers, defining the portions of the vault left empty by the supporting structure. The fillets defining the surface could be glued either directly to the bearing elements, or to additional panels, which act as a centering for their placement. Thus, the logic of the underlying structure of the chapel's ceiling also defines the disposition of the *muqarnas* cells.

4) One of the most common elements of the wooden ceiling are the above-described panels classified by Agnello as 'EL-1' (and 'EL-2'), which are the basic structural elements of almost the whole of the *muqarnas* zone of the ceiling; or to be precise the first four of five *muqarnas* tiers.[773] The 'EL-1' of the first tier project from the profiled panels, which run all along the perimeter of the nave. The 'EL-1' of the second tier are placed upon the upper corners of their homologous units belonging to the underlying level, oriented, as

[772] Li Castri, Campisi and Fatta, 'Timbered roofs', p. 13; Paolo Pastorello and Carla Tomasi, 'Conservazione e presentazione estetica della Cappella Palatina', in T. Dittelbach (ed.) *Die Cappella Palatina in Palermo - Geschichte, Kunst, Funktionen. Forschungsergebnisse der Restaurierung Hg. im Auftrag der Stiftung Würth*, Künzelsau: Swiridoff, 2011, pp. 329-42, in particular p. 332; Johns, 'Le pitture del soffitto', pp. 390-394.

[773] The classification of Garofalo in 'A Methodology' for the Zisa, and that of Agnello in Agnello, 'The Painted Ceiling' for the Cappella Palatina are used. According to Agnello, the 'EL-2' panel is obtained 'by simply rescaling the shape of EL-1' (see fig. 24 of the present work).

usual, according to either the main grid or rotated 45°. The 'EL-1' panels of the second tier are vertically extended to the third tier, creating part of its supporting framework. On the other hand, most of the remaining supporting structure of this tier is created in the usual way, with 'EL-1' brackets, springing from their underlying homologous units, either orientated parallel to the grid or rotated 45°. The supporting structure of the fourth tier is mainly composed of other kinds of vertical panels, but it also includes pairs of 'EL-1' panels, placed orthogonally to the walls of the nave serving as a support for the last tier of *muqarnas* and to the upper part of the ceiling.

As regards the dating of the ceiling, Jeremy Johns has recently reviewed the previous studies on this problem, concluding that the work was already finished in 1143-1147 AD, when the sermon of Philagatos –in which the ceiling is described– was in all probability pronounced.[774] Apart from this *terminus ante quem*, scholars have proposed different dates, between the 1130s-1140s, for the ceiling's construction.[775]

[774] J. Johns, 'The date of the ceiling of the Cappella Palatina in Palermo', in Johns and Grube, *The Painted Ceilings*, pp. 1-11.

[775] For example, see: Garofalo, 'A methodology', p. 365; Brenk, 'L'importanza e la funzione', pp. 31-35; Tronzo, *The Cultures of his Kingdom*, p. 29.

8.4. Other Buildings Attributed to Roger II (r. 1130-1154 AD)

8.4.1. Favara

This palace was built by Roger II on the outskirts of Palermo, according to some contemporary historical sources, such as Falcandus and ʿAbd al-Raḥman of Trapani.[776] The *Chronicon of Romualdo* gives the following notice:

> 'Et ne tanto uiro aquarum et terre delicie tempore ullo deessent, in loco, qui Fabara dicitur, terra multa fossa pariter et effossa, pulcrum fecit biuarium, in quo pisces diuersorum generum de uariis regionibus adductos iussit inmitti. Fecit etiam iuxta ipsum biuarium, pulcrum satis et speciosum edificari palatium […] Sic uir sapiens et discretus predictis deliciis, prout temporis expetebat qualitas, utebatur; nam in hyeme et quadragesimali tempore pro copia piscium in Fabare palatio morabatur'.[777]

Various scholars have studied or described the palace, for example Morso, Goldschmidt, Di Giovanni, Anastasi, Guiotto and Di Stefano, and more recently Braida, Krönig and Bellafiore.[778]

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[776] For the text of Falcandus: Siragusa (ed.), *Liber de regno Sicilie*, p. 87. ʿAbd al-Raḥman of Trapani: text in Amari (ed.), *Biblioteca*, p. 584-586; and translation in Amari (trans.), *Biblioteca,* vol. 2, pp. 439-441.

[777] Garufi (ed.), *Romualdi Salernitani Chronicon*, p. 232-233.

[778] Morso, *Descrizione di Palermo*, pp. 149-162; A. Goldschmidt, 'Die Favara des Königs Rogers von Sizilien', *Jahrbuch der preussischen Kunstsammlungen* 16 (1895), pp. 199-215; Goldschmidt, 'Die normannischen Königspaläste', cols. 553-563; Di Giovanni, 'Il castello e la chiesa della Favara di San Filippo a Maredolce in Palermo', *Archivio Storico Siciliano* 22 (1895), pp. 301-374; Anastasi, *L'arte nel parco reale*, pp. 13-52; M. Guiotto, 'La chiesa di S. Filippo nel castello di Favara', *Palladio*, 4 (1940), pp. 209-222; Di Stefano, *Monumenti*, pp. 95-96. S. Braida, 'Il castello di Favara. Studi di restauro', *Architetti di Sicilia* 1: 5/6 (1965), pp. 27-34; Wolfgang Krönig, *Il Castello di Caronia in Sicilia: un complesso normanno del XII secolo*, Roma: Elefante, 1977, pp. 105 and 112-113; Bellafiore, *Architettura in Sicilia*, pp. 147-149; Meier, *Die normannischen Konigspalaste*, pp. 54-62; A. Tullio, 'Palermo, complesso di Maredolce. L'indagine archeologica', *Kokalos* 47/48 (2001-2002), pp. 661-667 and

In an oblong hall situated in the western corner of the building, are some remains of *muqarnas*, which have been emphasized during recent restoration. They are found at the south-eastern end of the hall, where there is an apse-like niche or alcove, lengthening the interior of the main hall. Seemingly, there were corner columns, or else colonnettes, set into angular niches, which are cut where the alcove walls meet those of the hall (the columns are not preserved, but the niches in which they were inserted are still visible). The remains of a simple moulding, from which the *muqarnas* composition sprang, are still visible (similar mouldings used in several other *muqarnas* vaults of Sicily are described below). On the alcove's rear wall there are the remains of three tripartite motifs, or small mixtilinear arches, that frequently form the base of a *muqarnas* composition (for example, in the Cappella Palatina and in the Torre Pisana, but also in some later vaults from the Zisa). Although only this base motif remains, composed of three tiers of superimposed brackets parallel to the rear wall, just a few centimetres thick, it is clear that this was the back of an original *muqarnas* vault covering the alcove.

pls. XXXV-XXXVII; Lorenzi, 'Parchi e verzieri', pp. 213-224; R. Prescia, 'Il complesso monumentale di Maredolce. Il "sollazzo" normanno alla ricerca di un nuovo paradiso', *Kalós. Arte in Sicilia* 24: 3 (2012), pp. 18-22; R Prescia, '"Il posto di Maredolce. Un paradiso a Brancaccio". Strategie per la riqualificazione dell'area industriale di Palermo', *Esempi di Architettura* (2012), pp. 1-21; S. Vassallo, 'Il complesso monumentale di Maredolce. E le pietre restituiscono le vestigia del castello arabo', *Kalós. Arte in Sicilia* 24: 3 (2012), pp. 23-25.

8.4.2. Scibene

The palace is so degraded that this knowledge is reliant on architectural surveys carried out by nineteenth and twentieth century scholars.[779] The complex included several sparse buildings, integrated and adapted to the contours of the gentle sloping terrain. Today only the remains of the chapel clearly rise above ground level, but the main body of the palace had more than one floor, although no trace remains of the upper parts of the building.

A monumental entrance to the main building punctuates the eastern façade, looking towards Palermo. It consists of a large arch more than 3.5 metres wide and 6 metres high, leading directly into the monumental hall, whose interior is a rectangle measuring approximately 4.40 metres wide by 3.75 metres deep, and is enlarged by three rectangular niches within the side and back walls. Recesses for corner colonnettes are still visible, marking the corners where the niche walls meet those of the hall.

At the back of the western niche, which faces the entrance, there was a fountain, no longer existing, and most probably a *salsabīl*/*shārdiwān* system, similar to that of the Zisa, which is described below, in the corresponding entry. The water most probably flowed through the hall, via a system of channels, and then continued into an outdoor pool, just in front of the façade (part of the eastern wall of the pool is still visible). A

[779] In particular Goldschmidt, 'Die normannischen Königspaläste', cols. 563-569. See also Amari, *Storia*, vol. 3, pp. 870-871; Anastasi, *L'arte nel parco*, pp. 83-103; S. Braida, 'Il sollazzo dell'Uscibene, *Architetti di Sicilia*, I, n. 1 (1965), pp. 31-43; Krönig, *Il castello di Caronia*, pp. 103-111; Di Stefano, *Monumenti*, pp. 101-103; Meier, *Die normannischen Konigspalaste*, pp. 65-68; Lorenzi, 'Parchi e verzieri', pp. 253-257, Lamia Hadda, *L'architettura palaziale tra Africa del Nord e Sicilia normanna (secoli X-XII)*, Napoli: Liguori Editore, 2015, pp. 105-116.

muqarnas vault, remains of which are still visible in situ, covered the upper level of the central niche (the rectangular space of the niche measures approximately 3.30 × 1.80 metres). Currently, only some cells of the lowest parts of the composition are visible, in the side walls of the niche, while almost the whole of the vault has completely disappeared. The composition sprang from a moulding built with a course of small carved stone blocks. At both sides of the niche some cells belonging to the lowest two tiers of *muqarnas* are still visible, together with the springing of the third. Most of what remains is built in stone, each *muqarnas* tier being carved out from two courses of ashlar. Remains of a stucco covering are still visible, and the upper parts of the vault may have been built in stucco originally (Goldschmidt, who surveyed the building some 120 years ago, when it was in a better condition than it is today, noted that the half dome was made of stone and stucco).[780]

8.4.3. Caronia

The Norman palace inside the castle of Caronia was 'discovered' by Dr Lelio Castro, who first guessed the presence of a Norman structure under later additions. Once he had confirmed his intuition through some surveys he began the restoration of the building, at his own expense, in order to return it to its original form. This work lasted from 1965 to 1970, when he died, before accomplishing his project. To honour his memory, the family commissioned Wolfgang Krönig to compile a monograph on the monument. [781] Krönig had access to the

[780] Goldschmidt, 'Die normannischen Königspaläste', col. 564.

[781] Krönig, *Il Castello di Caronia*.

documentation concerning the status of the monument before and during the restoration, and worked side by side with Salvatore Bordonali, an amateur expert on Norman architecture who was Castro's consultant during his work. This book includes planimetries and elevations of the Norman structures, surveyed by architects Silvana Braida and Antonio Santamaura. The monument is included here because a *muqarnas* vault covers the main niche of the north hall, on the upper floor of the palace.

The hall is a rectangular room of 3.85 × 5.27 metres, enlarged by three rectangular niches, as in the Scibene's main hall. The main niche, opposite the entrance, is approximately 2.77 metres wide and 1.35 metres deep and is covered by a stone semi-dome, which is relevant here. The transition from the rectangular niche to the semi-dome is mediated by squinches, built in small ashlar blocks, which span the back corners of the niche diagonally. Between the squinches on the back wall there is a small niche with a similar profile to that of the squinches. The proper semi-dome is built in small ashlars, decorated with carved work composed of three superimposed tiers of shallow cells, of decreasing height toward the summit, crowned by a gored conch. The cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another, which is a customary Syrian layout. In Caronia, though the purpose of carving a *muqarnas* composition in a vault built in small ashlar blocks is clear, the result is rather rough. Indeed, there are macroscopic inaccuracies in both the carving details and the geometric layout, which suggest that the craftsmen were not familiar with this technique, but experimenting with something new.

8.5. William I (r. 1154-1166 AD) and the Zisa

8.5.1. The Zisa Palace

According to the *Liber de Regno Siciliae*, the royal palace known as the Zisa was commissioned by William I, the Norman king of Sicily (r. 1154-1166 AD), and was built in haste, at great expense, during the final years of his reign.[782] Apart from medieval authors, the building drew the attention of modern travellers and scholars, among whom the Dominican friar, Leandro Alberti (1478-1552 AD), left a large and detailed

[782] Siragusa, (ed.), *Historia*, pp. 87-88: 'Cum ergo regnum ab extrinsecis tumultibus aliquando quievisset, rex autem interim otio quietique vacaret, timens ne quevis occasio voluptuosum otium impediret, familiares suos premonuerat ut nichil ei quod mestitiam aut sollicitudinem posset ingerere nunciarent, ac se totum deinceps voluptati devovens, cepit animo latius evagari, cogitans ut quia pater eius Favariam, Minenium aliaque delectabilia loca fecerat, ipse quoque palatium construeret, quod commodius ac diligentius compositum, videretur universis patris operibus preminere. cuius parte maxima, mira celeritate, non sine magnis sumptibus expedita, antequam supremam operi manum imponeret, dissenteriam incurrens cepit diuturno morbo dissolvi. ac duorum mensium spatio protratta valetudine, denuo convalescens, cum iam eum medici crederent evasurum, repente, recidivo morbo consumptus, interiit'. *Cf.* Garufi (ed.), *Romualdi Salernitani Chronicon*, pp. 252-253: 'Eo tempore rex W[ilhelmus] palatium quoddam altum satis et miro artificio laboratum prope Panormum beneficari fecit, quod Sisam appellauit, et ipsum pulchris pomiferis et amenia uiridariis circumdedit, et diuersis aquarum conductibus et piscariis satis delectabile reddidit'. A summary of medieval sources for the palace in Amari, *Epigrafi*, pp. 67-72 and more recently G. Bellafiore, *La Zisa di Palermo*, Palermo: S.F. Flaccovio, 1978, pp. 18-20. On the palace see Morso, *Descrizione di Palermo Antico*, pp. 163-188; Joseph-Philibert Girault de Prangey, *Essai sur l'architecture des Arabes et des Mores, en Espagne, en Sicile, et en Barbarie*, Paris: A. Hauser, 1841, pp. 78-87; Goldschmidt, 'Die normannischen Königspaläste', in particular cols. 569-579; W. Krönig, 'Il palazzo reale normanno della Zisa a Palermo. Nuove Osservazioni', *Commentari* 26 (1975), 229-247; Di Stefano, *Monumenti*, pp. 103-108; Giuseppe Caronia, *La Zisa di Palermo. Storia e restauro*, Bari: Laterza, 1987; Staacke, *La Zisa*. William II (William I's son and successor) most probably completed the palace construction after his father's death (in a stucco cursive inscription in the main hall of the palace the Arabic title 'al-Mustaʿizz' is reported, which was used by William II on coins, insignia and charts. For the epigraphs, see Amari, *Epigrafi*, pp. 66-82.

description of the building, before it was heavily modified by the Sandoval family during the seventeenth century.[783]

Viewed from the outside, the building's shape can be assimilated into a parallelepiped, approximately 36.40 metres wide, 19.60 metres deep and 25 metres high, divided into three storeys. The only volumetric articulation is a projecting small turret placed in the centre of each of the two short sides. The exterior façade, built with regular, smooth and perfectly carved ashlars, is articulated with blind pointed arches framing shallow recesses. The monumental entrance on the main façade, looks east, towards Palermo. It consists of three arches leading into an oblong vestibule, which together with the main hall, or *Sala della Fontana*, form a reverse T-shaped plan (what Marçais and successive French commentators call *salle-antisalle*), a model related to medieval Islamic architecture.[784] The plan of the palace was symmetrical, with staircases reaching three-storeys on either side of the main Hall, which is two storeys high (the cross vault covering this hall reach, approximately, the height of 12.60 metres).[785] The rooms belonging to the first level are thus organised in two wings interconnected by a corridor located behind the western niche of the main hall. This system of distribution and access to the different rooms of the building with their link to its lateral wings thus provide access to virtually every room in the palace without any need to disturb the activities of the main hall. The second level is organised

[783] Leandro Alberti, 'Isole appartenenti alla Italia', in *Descrittione di tutta l'Italia e Isole pertinenti ad essa*, Venezia: Appresso Gio. Battista Porta, 1581, pp. 47v-49v.

[784] G. Marçais, 'Salle, antisalle. Recherches sur l'évolution d'une thème de l'architecture domestique en pays d'Islām', *Annales de l'Institut d'Etudes Orientales* 10 (1952), pp. 274-301.

[785] Caronia, *La Zisa*, p. 54.

around an open courtyard, overlying the *Sala della Fontana*, opening into an oblong hall on the east side and, on the opposite side, to a corridor connecting the lateral residential wings, corresponding to those of the underlying level.

The actual appearance of the building is largely due to a systematic campaign of restoration and reconstruction carried out during the 1970s and 1980s after part of the building's north wing collapsed, on 13th October 1971, following years of neglect.[786]

In the Zisa palace there are some twenty examples of *muqarnas* vaulting surviving *in situ*; this is the largest repertoire preserved on the island. No comparable number of *muqarnas* vaults in any single building is documented in either an earlier or contemporary structure in the Islamic world.

8.5.2. The Vaults of the Main Hall

The core of the main hall, or *Sala della Fontana*, is a 7.50 metre-square, which is extended by three rectangular niches within the side and back walls. Marble columns mark the corners where the niches' walls meet those of the hall. The walls are decorated with marble slabs and mosaics, up to a height of 3.70 metres.

At the back of the western niche, which faces the entrance, there is a fountain, or *salsabīl* –an architectural term taken from the name of a fountain in paradise, mentioned in the Quran (76, 18)– from which water

[786] Caronia, *La Zisa*, pp. 95-170.

used to cascade down a carved stone slab, or *shārdiwān*.[787] The water flowed through the hall, via a system of channels, which included two small pools, and then continued into a larger outdoor pool (22.40 × 14.97 metres), just in front of the façade. The upper levels of the three hall niches are covered with *muqarnas* vaults, which will be described below.[788]

The *muqarnas* vaults cover the rectangular spaces in the niches, which are approximately twice as wide as their depth: exactly 4.16 × 2.08 metres in the case of the *shārdiwān* niche, or vault A (special attention is paid to this vault because the original configuration of the vaults covering both side niches was apparently modified at a later date).

The cells are organised into twelve superimposed tiers of a homogeneous height (approximately 30-40 cm), with each *muqarnas* tier being carved out from two courses of ashlar masonry. The composition is crowned with a larger element in the form of a conical

[787] G. Marçais, 'Salsabīl et Šārdiwān', in *Etudes d'orientalisme dédiée à la mémoire de Lévi-Provençal*, Paris: Maisonneuve et Larose, 1962, vol. 2, pp. 639-648.

[788] Ursula Staacke, *La Zisa. Un palazzo normanno a Palermo. La cultura musulmana negli edifici dei re*, Palermo: Comune di Palermo, 1991, pp. 30-34. See also G. Di Stefano, *Monumenti della Sicilia Normanna*, Palermo: Società siciliana per la storia patria - S.F. Flaccovio,-1979, pp. 103-108; S. Morso, *Descrizione di Palermo Antico ricavata sugli autori sincroni e i monumenti dei tempi*, Palermo: Lorenzo Dato, 1827 (2nd ed.), pp. 163-188; P.J. Girault de Prangey, *Essai sur l'architecture des Arabes et des Mores, en Espagne, en Sicile, et en Barbarie*, Paris: A. Hauser, 1841; A. Goldschmidt, 'Die normannischen Königspaläste in Palermo', *Zeitschrift für Bauwesen*, 48 (1898), cols. 541-590, in particular cols. 569-579; W. Krönig, 'Il palazzo reale normanno della Zisa a Palermo. Nuove Osservazioni', *Commentari* 26 (1975), 229-247; G. Bellafiore, *La Zisa di Palermo*, Palermo: S.F. Flaccovio, 1978; G. Caronia, *La Zisa di Palermo. Storia e restauro*, Bari: Laterza, 1987. For the epigraphs, see Michele Amari, *Le epigrafi arabiche di Sicilia*, Palermo: S.F. Flaccovio Editore, 1971, pp. 66-82.

vault, which is the customary crown for the foremost arch of all the Zisa's vaults (hereinafter this element is called the 'big conical cell').[789]

The vault's geometry has been surveyed and studied recently by Vincenza Garofalo, who published an important article identifying the prisms, or basic elements, that combine variously to form the vault.[790] According to Garofalo, the seeming inextricability of the vault's geometry can be reduced to different combinations of just eight prisms, whose layout is determined by networks obtained through simple 45°-rotations of squares. These prisms are 'ideal' forms, which are used by scholars as classifying tools; they are not 'real' pieces carved out from single ashlar blocks. In addition, Garofalo considers that the cells 'have no structural function; in fact, they have a thin profile, like shells', which led some scholars to suggest that they were carved out after the construction of the vault.[791]

Scholars proposed that this sudden appearance in Sicily of such a sophisticated and refined system must have been developed and imported from elsewhere. [792] The current attribution to Islamic workshops is acceptable, even if there is no conclusive evidence available

[789] Garofalo did not classify this element among the *muqarnas* cells. Agnello classified an element of similar geometry in the ceiling of the Cappella Palatina as 'cuffia' (Agnello, 'Rilievo e rappresentazione', pp. 330 and 339; figs. 241, 246, 261), or 'conical vault' (Agnello, 'The painted ceiling', pp. 417-418; figs 43, 45, 47, 48, 50). In the Zisa this element is built as a small vault or splayed arch composed of 8-12 stone voussoirs.

[790] Garofalo, 'A Methodology', pp. 357-406.

[791] Garofalo, 'A Methodology', pp. 359.

[792] In reality, there is a stone *muqarnas* or proto-*muqarnas* vault, which is discussed below, in the castle of Caronia, Sicily, built under Roger II (r. 1130-1154), but it is virtually unknown in *muqarnas* historiography.

to date. Yet, it is difficult to identify the origins of the construction technique used to build these vaults, without admitting to traditional interpretations from either local or North African origins.[793] For instance, comparing the geometry of the Zisa *muqarnas* vaults with their eastern and western counterparts, Garofalo inferred that the technique resembles the western one more closely, which led her to reaffirm that 'the artisans who crafted the work originated in the Islamic West (i.e., North Africa)'.[794] However, the classification of the *muqarnas* elements developed by Garofalo relies on technical literature available on both eastern and western *muqarnas*, referring to techniques used in regions geographically distinct and far from Sicily. In addition, both eastern and western texts used for this comparison were written several centuries after the Norman monuments were built (almost 300 years in the case of al-Kāshī, and some 500 years, in the case of Andrés de San Miguel and López de Arenas).[795] Finally, in Garofalo's words, 'the composition of the

[793] For instance, see G. Michell, *Architecture of the Islamic World. Its History and Social Meaning*, London: Thames and Hudson Ltd., 1978, p. 222.

[794] Garofalo, 'A Methodology', p. 362.

[795] J.M. Rogers, 'Notes on a Recent Study of the Topkapı Scroll: a Review Article', *Bulletin of the School of Oriental and African Studies* 60: 3 (1997), pp. 433-439 (p. 434); the extract from the *Miftā ḥal-Ḥisāb*, which relates to the calculation of the *muqarnas*' surface area, has been edited and translated by Y. Dold-Samplonius, 'Practical Arabic Mathematics: Measuring the Muqarnas by al-Kāshī', *Centaurus*, 35 (1992), pp. 193-242. See also M. al-Asad, 'The Muqarnas: a Geometric Analysis', in G. Neçipoglu, *The Topkapı scroll: geometry and ornament in Islamic architecture. Topkapı Palace Museum Library MS H. 1956*, Santa Monica, CA: Getty Center for the History of Art and the Humanities, 1995, pp. 349-359 [hereinafter 'The Muqarnas: a Geometric'], it also offers a translation of a small extract of al-Kāshī. On Andrés de San Miguel, López de Arenas and western *muqarnas* see: D. López de Arenas, *Breve compendio de la carpinteria de lo blanco y Tratado de alarifes*, Sevilla: Impresso en Sevilla por Luis Estupiñan, 1633; E. Nuere, *La carpintería de lo blanco: lectura dibujada del primer manuscrito de Diego López de Arenas*, Madrid: Ministerio de Cultura, 1985; E.

elements is different on the whole, as the construction technique used to build them'.[796]

In a study which I recently authored, attention is paid to this construction technique, in order to account for some problems in relation to traditional theories on the origins of the craftsmen who built the Zisa's *muqarnas* vaults, and I have proposed some alternative ideas.[797]

In particular, comparing the Zisa's vaulting system with the building process of the Cappella Palatina's wooden ceiling, the conclusion was reached that the former could have served as a model for the latter. To sum up, it was observed that:

1) As described above, in the Cappella Palatina, the ceiling's supporting structure is like a skeleton or net of vertically superimposed elements, either parallel to the main compositional grid or orientated at 45° angles. The empty spaces left by this structure were covered by thin wooden elements defining the surface of the cells.

Nuere, *La carpintería de lazo. Lectura dibujada del manuscrito de Fray Andrés de San Miguel*, Málaga: Gráficas Urania, 1990; E. Nuere, *La carpintería de armar española*, Madrid: Munilla-Lería, 2003.

[796] Garofalo, 'A Methodology', p. 365.

[797] Massaiu, 'The Stone Muqarnas Vaults'; Garofalo 'A Methodology', pp. 362-365. Comparing the geometry of the Zisa's *muqarnas* with its eastern and western counterparts, Garofalo inferred that it is closer to the western system. In her opinion, this is confirmed by the fact that 'some examples of muqarnas in the Zisa have hanging elements that, according to al-Asad, are typical of the Islamic West. Some muqarnas elements in the Zisa also feature an octagonal motif that has an eight-pointed star and an eight-petalled flower inside. This kind of pattern is recurrent in Moroccan *muqarnas*, as well as in Spanish ones'. On the other hand, similar elements are also found in the stucco vaults of the Damascus Māristān, for instance, whose completion was ordered by Nūr al-Dīn some ten years before the Zisa was built. On the *māristān* see Chapter 5, '*Muqarnas* in Syria', where a full bibliography is given.

Once assembled the surfaces were covered with a layer of gesso, before they were painted and gilded. There is a clear distinction between the supporting elements, composed of thicker wooden beams, and the thinner fillets, or veneers, defining the portions of the vault left empty by the supporting structure. The fillets defining the surface could be glued either directly to the bearing elements, or to additional panels, which act as a centering for their placement. Thus, the logic of the underlying structure [Fig. 6] of the chapel's ceiling also defines the disposition of the *muqarnas* cells, while in the Zisa a similar supporting structure does not exist and a similar layout of the cells can be considered derivative.[798]

2) One of the most common elements of the wooden ceiling are the panels classified as 'EL-1' (and 'EL-2'), which are the basic structural elements of almost the whole of the *muqarnas* ceiling; or to be precise the first four of five *muqarnas* tiers.[799] In particular, as is described above, the 'EL-1' of the first tier project from the profiled panels, which run all along the perimeter of the nave. The 'EL-1' of the second tier are placed upon the upper corners of their homologous units belonging to the underlying level, oriented, as usual, according to either the main grid or rotated 45°. The 'EL-1' panels of the second tier are vertically extended to the third tier, creating part of its supporting framework. On the other hand, most of the remaining supporting structure of this tier is created in the

[798] See Agnello, 'Rilievo e rappresentazione', pp. 324-5.

[799] The classification of Garofalo in 'A Methodology' for the Zisa, and that of Agnello in Agnello, 'The Painted Ceiling' for the Cappella Palatina are used. According to Agnello, the 'EL-2' panel is obtained 'by simply rescaling the shape of EL-1'.

usual way, with 'EL-1' brackets, springing from their underlying homologous units, either orientated parallel to the grid or rotated 45°. The supporting structure of the fourth tier is mainly composed of other kinds of vertical panels, but it also includes pairs of 'EL-1' panels, placed orthogonally to the walls of the nave serving as support for the last tier of *muqarnas* and to the upper part of the ceiling. Accordingly, this construction frames one of the common surfaces of the ceiling and is given by a kind of prism, which was called the 'EL-1' bracket, whose profile can be assimilated to that of the 'EL-1' panel. This represents the counterpart of the stone brackets classified as 'element B' in the Zisa's *shārdiwān* vault.[800] It is also used in a similar way, in the sense that in the *shārdiwān* vault there are columns, or else vertical arrangements of 'element B' brackets, springing from the upper corners of their homologous underlying units, with the usual rotations of 45° or 90° [Fig. , compare with Fig.]. Again, these common features, shared by both the Cappella Palatina's ceiling and the Zisa's vault, can be linked to the wooden construction process, but their functional link to the stone technique is not as close.

3) Some additional construction details confirm this: in the third *muqarnas* tier of the Cappella Palatina's ceiling the rectangular spaces included between two 'EL-1' brackets are covered by a cell, which is comparable to 'element A' of the Zisa, corresponding to the *t'stiya masdūda* in the Eastern Islamic tradition and referred to as a

[800] The 'EL-1' bracket is often composed by a pair of flanked 'EL-1' panels jointed by thin wooden elements defining the surface in the usual way, see Fig. 7.

certain type of *conça* in the West. The chapel's wooden ceiling structure is described above: the surface is defined by thin wooden fillets placed on supports with a similar profile to the 'EL-1', acting as centering to define the portion of the vault covering the empty space between the brackets. As a result, in the intrados of the ceiling there is an offset between the pair of 'EL-1' panels and the cell in between. A similar disposition can be observed in the Zisa's vault in the fourth *muqarnas* tier, where there is a pair of 'element B' brackets flanking a cell classified as 'element A'. While in the wooden model the offset between the panels and the separating cell reflects the construction process of the supporting structure and the consequent filling of empty spaces; in the Zisa's case it was carved deliberately, most probably reproducing or imitating a wooden model.

This discussion suggests that the construction technique for the stone *muqarnas* vaults may have been conceived in Sicily, a transposition into stone from an available model. The idea of a local development for this technique seems to be confirmed by the possible antecedent in the stone *muqarnas* vaults found in the castle of Caronia, most probably built under Roger II (r. 1130-54 AD), which was described above. In Caronia, though the purpose of carving a *muqarnas* composition in a vault built in small ashlar blocks is clear, the result is rather rough. Indeed, there are macroscopic inaccuracies in both the carving details and the geometric layout, which suggest that the craftsmen were not familiar with this technique, but experimenting with something new. This possible antecedent for stone *muqarnas* vaults, showing all the characteristics of

an experimental prototype, confirm that the technique was the result of a local initiative, which corroborates the hypothesis that it was not developed elsewhere and imported from outside the island.[801]

The original configuration of the vaults covering the side niches of the hall was seemingly modified at a later date, perhaps when larger windows were pierced through the original *muqarnas* vault. Some scholars, following an interpretation of Girault de Prangey's, believe that some small windows were pierced through the original *muqarnas*, as well, which were masked by wooden lattice screens to give women discrete views into the hall from two alcoves on the first level.[802] Whatever the case, the opening of the present windows involved the removal of several *muqarnas* cells and the reconfiguration of the upper parts of the vaults.[803] In their actual form the vaults were composed of eight tiers of cells, with small *muqarnas* cupolas in the back corners developed from the first four tiers of *muqarnas*. The above mentioned windows are aligned to the vertical axis of the composition. Sets of five *muqarnas* tiers placed at 45° on both sides of each window, progressively project outwards one above the other, without rotations. The front of the composition is crowned by a large conical cell similar to those crowning the *muqarnas* in the main hall. Behind this element and above the window a small three-tiered *muqarnas* cupola topped the vault. The current vaults above the side niches are sensibly lower than the vault in

[801] Krönig already suggested that the castle of Caronia could be interpreted as an architectural experiment, with a series of forms initiated which were to be seen in later Norman architecture.

[802] Girault de Prangey, *Essai*, p. 84. See Bellafiore, *Zisa*, p. 86.

[803] Staacke, *Zisa*, p. 103.

the *shārdiwān* niche. However, the upper parts of the original *muqarnas* are still visible, showing that in the original configuration the vaults of the three niches in the main hall were of the same height.

Remains of stucco *muqarnas* are documented for the imposts on the arch that gives access to the main hall from the vestibule. It seems from the remains that the composition had two symmetrical faces in order to be visible from both the vestibule and the hall. The total thickness of the arch was 1.50 metres, so that each face of the composition was developed over approximately 0.75 metres.[804]

8.5.3. Other Muqarnas *Vaults in the Zisa*

Apart from the three big vaults in the *Sala della Fontana*, seventeen other *muqarnas* vaults are distributed amongst the palace's three storeys, in different halls or rooms, which are described below following Garofalo's notation system.[805]

Vault D. This covers a square niche (approximately 1.40 metres per side) in a room at the north-western corner of level one or the ground floor. It is composed of three tiers of cells built in stone and crowned by an eight-lobed small cupola. The frontal arch is topped by a large conical cell, similar to those crowning the *muqarnas* in the main hall. The disposition of the *muqarnas* in plan is obtained with 45° rotations of squares generating two overlapping grids (a similar scheme, classified by

[804] Bellafiore, *Zisa*, p. 61; Staacke, *Zisa*, pp. 101-102.

[805] Namely, vault A, vault B, vault C, Vault D etc. (up to vault S). See Garofalo, 'A Methodology', p. 360. Vaults A-C are the above-described vaults covering the main hall's niches.

Garofalo as 'plan 4', was used in a vault in the cathedral of Palermo, which are described below).[806] The whole vault is built in small stone blocks, in a similar way to the *shārdiwān* vault and there is nothing to suggest that the relevant parts of the *muqarnas* were built in stucco.

Vault E. On the first floor (level two), in the north wing, covering the alcove at the back of the main hall's north niche vault. It was damaged by the 1971 collapse and only four tiers of cells belonging to the back part of the *muqarnas* survived. From what remains it can be inferred that the vault was similar to vault L, i.e. its counterpart vault covering the corresponding alcove in the south wing (six tiers of *muqarnas* crowned with the usual large conical cell, with corner recesses developed from the second into the third tiers).

Vault F. On the first floor (level two), in the north wing, covering a niche or alcove with a window opening on the east façade. It is formed by twin *muqarnas* cupolas composed of four tiers of cells crowned by small lobed or gored cupolas. The whole composition is topped by a large conical cell. This is presumably one of the *muqarnas* structures whose composition reflected the subdivision of the underlying mullioned window.[807] In plan, the disposition of the cells is symmetrical with respect to the cross axis. Each half's composition is generated by 45° rotations of squares with star polygons and small cupolas inscribed in the centre. Garofalo classified this scheme as 'plan 5'.[808]

[806] Garofalo, 'A Methodology', p. 372.

[807] Bellafiore, *Zisa*, p. 62.

[808] Garofalo, 'A Methodology', p. 372.

Vault G. On the first floor (level two), in the north wing, covering the east niche or alcove in the large room placed at the north-east end of the wing. It is composed of five tiers of *muqarnas*, crowned with the usual large conical cell. It is similar to vault F in plan, except that here a central recess is placed between the twin *muqarnas* cupolas, which make the composition more complex.

Vault H. On the first floor (level two), in the north wing, covering the north niche or alcove in the large room placed at the north-east end of the wing. It is composed of five tiers of *muqarnas*, crowned with the usual large conical element, and it is similar in plan to vault F, formed by twin *muqarnas* cupolas composed of four tiers of cells crowned by small lobed or gored cupolas.

Vault I. On the first floor (level two), in the north wing, covering the niche or alcove included in the projecting small turret placed in the centre of the north side of the building, being one of the largest (approximately 3 metres wide and 2.40 metres deep) and more complex *muqarnas* vaults in the Zisa. This vault suffered minor damage in the 1971 collapse. The vault is composed of eight tiers of cells, organised in plan by 45° rotations of squares. There are three larger recesses: two symmetric small *muqarnas* cupolas at the back corners topped by small lobed or gored elements, and a central recess, crowned by a small cupola resting on an eight-pointed-star base placed behind the large conical cell, which tops the frontal arch. At the vertices of the large rectangle that contains the

central recess there were a pair of hanging elements, only one of which survives. Garofalo classified this type as 'plan 7'.[809]

Vault J. This is a small dome (approximately one metre deep and 1.80 metres wide) which covers the north niche belonging to the room placed in the north-west corner of the palace on the first floor (level two). The vault is composed of four tiers of *muqarnas*, with two small symmetrical recesses developed from the third into the fourth tier. The element that crowned the composition (seemingly the usual large conical cell) is lost.

Vault K. This is a small dome of similar dimensions as vault J, placed in the same room, but on its west side. It is composed of four tiers of cells, crowned by a large conical cell.

Vault L. On the first floor (level two), in the south wing. This covers the alcove placed behind the back of the main hall's south vault or vault B. In plan it is approximately 1.20 metres deep and 2.40 metres wide. It is composed of six tiers of *muqarnas* crowned with the usual large conical cell, with corner recesses developed from the second into the third tier. On the right side of the niche's back wall is the window, described above, which opens onto the main hall through the *muqarnas* of vault B.

Vault M. On the first floor (level two), in the south wing. This covers a niche or alcove with a window opening on the east façade. It is the counterpart of vault F, and it is similarly composed (twin *muqarnas* cupolas of four tiers of cells crowned by small cupolas resting on star-

[809] Garofalo, 'A Methodology', p. 372.

shaped bases). The whole composition is topped by a large conical element.

Vault N. On the first floor (level two), in the south wing, it covers the eastern niche or alcove to the large room placed at the south-east end of the wing. It is composed of five tiers of *muqarnas*, crowned by a large conical cell.

Vault O. On the first floor (level two), in the south wing, covering the south niche or alcove of the large room placed at the south-east end of the wing. It is composed of four tiers of *muqarnas*, crowned with the usual conical element. Its plan is of the simplest type, without recesses or small cupolas developing in the *muqarnas* composition.

Vault P. On the first floor (level two), in the south wing, covering the niche or alcove included in the projecting small turret placed at the centre of the south side of the building being the counterpart to vault I. It is better preserved than vault I, but they have the same general composition and differ only in some minor details. The vault is comprised of eight tiers of cells, with three large recesses: two symmetric small *muqarnas* cupolas at the rear corners topped by small lobed or gored elements, and a central recess, crowned by a small cupola resting on an eight-pointed-star base placed behind the large conical cell, which tops the frontal arch. Both hanging elements at the vertices of the large rectangle containing the central recess are preserved here. The frontal arch of the vault displays a rich display of *muqarnas* cells, intended to be viewed frontally.

Vault Q. This is a small dome, which covers the south niche of a room placed at the south-west corner of the palace on the first floor (level two). The vault is composed of four tiers of *muqarnas* topped by a large conical cell, with a simple plan, similar to vault K.

Vault R. This is a small dome of similar dimensions and plan as vault Q, placed in the same room, but on the west side. It is composed of four tiers of cells, crowned by a large conical one.

Vault S. This is a small dome, which covers the west niche of the room placed in the south-west corner of the palace on the second floor (level three). It is formed by twin *muqarnas* recesses composed of four tiers of cells, with the usual conical cell crowning the composition (i.e. similar in plan to vaults F and H).

Vault T. This is a small dome of similar dimensions and plan as vault S, placed in the same room, but on the south side.

Relying on historical (Alberti's description) and archaeological evidence, and taking into account the rigorous symmetry between both of the building's wings, it has been calculated that within the Zisa there were originally at least 34 *muqarnas* vaults.[810] According to Alberti's description, it can be inferred that *muqarnas* was also used in the vault of the small pavilion, no longer extant, whose substructure can be seen in the pool in front of the main façade.[811]

[810] Staacke, *Zisa*, pp. 96 and 104-105.

[811] Alberti, 'Isole', p. 49v: 'Cuopre questa stanza una superba, et eccellente volta alla Moresca lavorata'.

8.5.4. The Chapel of SS. Trinità

Some 40 metres to north of the palace is the church of the *Santissima Trinità alla Zisa*, the ancient royal chapel associated with the palace. It is a small, single-nave basilica, whose apse is oriented towards the east.[812] A small stone dome resting on a square drum covers the chapel's rectangular chancel. The transition from the rectangle to the square is mediated by two symmetrical *muqarnas* cornices spanning the short sides of the presbytery. Three tiers of *muqarnas* generate the cornices, which are organised vertically in a triple reiteration of similar modules or else compositions of cells. Each module is topped by a large conical cell, similar to those crowning the *muqarnas* vaults of the palace, which are described above. The mediation between the square base of the drum and the circumference of the dome is achieved by means of squinches receding in two steps, with four windows, similar in profile to the squinches, opening out on to the orthogonal axes, between the squinches.[813]

8.5.5. Some Further Observations

It has been observed that in the Zisa the *muqarnas* vault is used to cover niches and alcoves, but never as a ceiling to the central core of a hall or room.[814] It is probably with relation to this particularity that the builders of Zisa's *muqarnas* were systematically interested in creating

[812] On the chapel see Bellafiore, *Zisa*, p. 52; Staacke, *Zisa*, pp. 82-84; Meier, *Normannischen konigspalasten*, pp. 76-78; Hadda, *Architettura Palaziale*, pp. 133-136.

[813] Garofalo, 'A Methodology', pp. 365 and 372.

[814] Staacke, *Zisa*, p. 74.

compositions intended to be viewed not only from below, but also frontally, in this way solving a patent problem of the visibility of the *muqarnas* ceilings. In this sense, the main hall's vaults are real masterpieces, yet in none of the building's vaults is this aspect overlooked and the frontal arch's profile of all vaults were constructed to display the *muqarnas* works behind them. The systematic use of the large conical cells crowning the frontal arches left wide openings in the upper part of the composition. In most of the vaults the profile of the frontal arch was composed of cells rotated at 45° with respect to the cross axis, to guarantee a full display of the *muqarnas*, and only exceptionally were these cells in the frontal arch closed to the observer's view. In addition, in several cases, either the *muqarnas* work extended to the vault's front plane or flat niches with a similar profile to the *muqarnas* cells were carved in the spandrels or the frontal arches' surrounds. The same concern for visibility is evident in the double-faced *muqarnas* arch at the entrance to the *Sala della Fontana* (compare this elegant solution to the Almohad vaults, the arches of the Kutubiyya or the first Mudéjar *muqarnas* of Santa María la Real de Las Huelgas, where the *muqarnas* work is visible almost exclusively from beneath).

With regard to construction aspects, the *muqarnas* vaults of the Zisa are self-bearing corbelled vaults. The cells of the lower tier are embedded in the walls and the following tiers jut out progressively from the underlying one to form the vault. However, the *muqarnas* does not bear the superincumbent weight of the overlying structures, which is relieved either by the proper vaults of the rooms or by purpose-built

discharging arches (in which case the front of the discharging arch is visible in the wall above the *muqarnas*).[815]

The remaining *muqarnas* decoration in the Zisa is almost all built in perfectly cut stone, although a mixed technique of stone and stucco is also documented.[816] According to some scholars' interpretations all of the *muqarnas* in the palace was originally covered with plaster.[817]

[815] Staacke, *La Zisa*, pp. 74-75.

[816] Staacke, *La Zisa*, p. 74.

[817] See Bellafiore, *La Zisa*, p. 61; Garofalo, 'A Methodology', p. 359.

8.6. William II (reg. 1166-1189 AD)

8.6.1. The Cuba Palace

The Cuba Palace was built by William II on the outskirts of Palermo, on a visual line linking the royal palace with the complex of Monreale. The king's name, together with the notation of the year 1180 AD, appear in the Arabic inscription that crowns the building.[818] Like the Zisa, the palace was placed at the centre of an extensive park, which seems to have attracted more attention than the building itself during its medieval and early modern existence. The name 'Cuba' refers primarily to its park or gardens in the earliest sources and charts[819] (for example, by Boccaccio in the fourteenth century).[820] The building's non-residential, ceremonial and representational functions have been outlined from the very first studies made.[821]

[818] This inscription is the only extant medieval documentation on the building. See Amari, *Epigrafi*, pp. 82-99; Bellafiore, *La Cuba*, pp. 30-38; Caronia and Noto, *La Cuba*, pp. 32-35 and, more recently, M.A. De Luca, 'Una proposta di rilettura dell'iscrizione araba della Cuba', *Rassegna Siciliana di storia e cultura*, IV-9 (2000), pp. 59-64.

[819] For a summary of the medieval and early modern documentation for the Cuba see Amari, *Epigrafi*, pp. 84-87 and more recently S. Bellafiore, *La Cuba*, pp. 21-26, Caronia and Noto, *La Cuba*, pp. 232-245.

[820] Boccaccio, who set a tale of the Decameron (*Decameron*, V, 6) in the Cuba, wrote: 'Il re […] comandò che ella fosse messa in certe case bellissime d'un suo giardino il quale chiamavan la Cuba'.

[821] The most important written works on the building are: Girault de Prangey, *Essai*, pp. 87-92; Morso, *Palermo Antico*, pp. 163-188; Goldschmidt, 'Die normannischen Königspaläste', cols. 579-585; P. Lojacono, 'L'organismo costruttivo della Cuba alla luce degli ultimi scavi', *Palladio*, N.S. III (1953), pp. 1-6; Krönig, *Il castello di Caronia*, pp. 100-103 and 114-15; Susanna Bellafiore, *La Cuba di Palermo*, Palermo: G. Greco, 1984; L. Golvin, 'Les influences orientales dans l'architecture palatine en Sicile à la période normande; le problème de la Cuba de Palerme', *Rivista degli Studi Orientali*, Vol. LIX Fasc. I-IV (1985), pp. 117-133; Giuseppe Caronia and Vittorio Noto, *La Cuba di Palermo (Arabi e Normanni nel XII secolo)*, Palermo: Edizioni Giada, 1988; Bellafiore, *Architettura in Sicilia*, pp. 154-155; Staacke, *Zisa*, pp. 162-167; Franco

Amongst its multiple purposes, throughout its more than 800-year existence, the palace was used as a *lazaretto*[822] (isolation hospital) during the plague of 1575-76 AD and continued to be used as a hospital until 1626 AD. From the eighteenth century the building was used as a military barracks for the cavalry.[823] In both cases the palace was subjected to heavy modifications. Finally, during the insurrection of 1848 the Cuba was attacked and badly damaged by the revolutionaries, and endured even worse damage with the subsequent repairs carried out by the military, according to Amari's witness statements.[824]

In 1921 the building was formally handed over by the Ministry of War to the Ministry of Education,[825] followed by a major restoration campaign, directed by Francesco Valenti. However, the palace was still part of the military barracks, which interfered with Valenti's works and finally prevented its completion. Unfortunately, this restoration, or rather an arbitrary reconstruction, was not preceded by a satisfactory

Tommaselli, 'La muqarnas della Cuba di Palermo: opere di conservazione e disinfestazione dello stucco del XII secolo', in Guido Biscontin and Guido Driussi (eds.), *Lo stucco: cultura, tecnologia, conoscenza: atti del convegno di studi: Bressanone, 10-13 luglio 2001*, Marghera-Venezia: Edizioni Arcadia Ricerche, s.d., pp. 259-268; Lorenzi, 'Parchi e verzieri', pp. 239-246; E. Galdieri, 'A proposito della Cuba di Palermo' *Oriente Moderno*, Nuova serie, Anno 90, Nr. 2 (2010), pp. 305-341, Hadda, *L'architettura palaziale*, pp. 138-152.

822 A detailed description of the Cuba during the plague -including a schematic drawing of how the palace and its dependencies were organized during the epidemic- is given by Giovanni Filippo Ingrassia, *Informatione del pestifero, et contagioso morbo il quale affligge et haue afflitto questa citta di Palermo, & molte altre città, e terre di questo Regno di Sicilia, nell'anno 1575 et 1576*, Palermo: appresso Giouan Mattheo Mayda, 1576, pp. 137-148.

823 Bellafiore, *La Cuba*, p. 23.

824 Amari, *Epigrafi*, pp. 88-91.

825 Bellafiore, *La Cuba*, p. 26.

documentary survey and 'philological' analysis of the original structures, which led to the loss of any surviving vital information on the palace.[826] As will be discussed below, this lack of vital information has restricted answers to basic questions on the Cuba's architecture. For example, that of access to the palace (it is still debated as to whether it was entered on the eastern or western façade); or the possible existence of a dome, which would have covered the palace's central area.

The palace was built in the middle of an artificial pond, which was still perfectly preserved in the sixteenth century, when Tommaso Fazello described it:

> 'Piscina erat ingens in medio, in qua viui pisces coercebantur antique, quadrato, ingentique lapide mira crassitudine instructa. Quae hodie incorrupta est, aquasque solum et pisces requirit'.[827]

The north-west side of the pond was removed towards the end of that century in order to install an avenue leading from Palermo to Monreale (present-day Corso Calatafimi). Giuseppe Caronia and Vittorio Noto identified parts of the pond's walls, incorporated into later buildings, estimating that the pond was 63 metres wide and at least 101.50 metres

[826] It seems that Valenti did not leave any documentation on these restoration works at the Cuba. However, some information about his interventions was given by Pietro Lojacono, who was Valenti's disciple and his successor as superintendent of heritage in Palermo (see Lojacono, 'L'organismo costruttivo'). A first tentative summary of Valenti's interventions, was presented in Bellafiore, *La Cuba*, pp. 38-43, then in Caronia and Noto, *La Cuba*, pp. 256-265 and more recently in Galdieri, 'A proposito della Cuba'. A recent study of Valenti's works, including the relevant information for the study of the Cuba is found in: Carmen Genovese, *Francesco Valenti e la cultura del restauro nel primo Novecento in Sicilia*, PhD thesis, Napoli: Università degli Studi di Napoli Federico II, 2006.

[827] Tommaso Fazello, *De rebus siculis decades duae*, Panormi (Palermo): apud Ioannem Matthaeum Maidam et Franciscum Carraram, 1558, p. 174.

in length (it is currently impossible to guess by how much the pond extended westwards, since the western portion is completely lost).[828]

Viewed from the outside, the building's shape can be assimilated into a parallelepiped, approximately 31.15 metres deep, 16.80 metres wide and 16 metres high, including the solid foundation courses (approximately 3.50 metres high) which were originally below the water level. The only volumetric articulation is a series of projecting small turrets placed at the centre of each side. The exterior façade, constructed with regular, smooth and perfectly carved ashlars (in regular courses of 0.18 metres in height), is articulated with blind pointed arches framing shallow recesses.[829]

The building is currently accessed from the eastern side, but the configuration of its original access is still debated. According to Goldschmidt, whose opinion was followed by Valenti, Lojacono, Caronia and Noto, among others, the original access to the Cuba was located in the west façade's turret, which was connected to the land side with a bridge (a door was actually opened here during Valenti's works).[830] Other scholars such as Girault de Prangey or Susanna Bellafiore, believe that the access was on the opposite side, where there was a landing stage for boats.[831]

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828 Caronia and Noto, p. 173.

829 Bellafiore, *La Cuba*, pp. 12-13; Caronia and Noto, *La Cuba*, p. 178.

830 Goldschmidt, 'Die normannischen Königspaläste', col. 581; Caronia and Noto, pp. 185 and 195. Staacke, *La Zisa,* pp. 165 and fig. 130, proposed that the original access was from the west side, as well, but in her opinion the access was not through the hall, but through corridors accessed from two doors opened on both sides of the turret).

831 Bellafiore, *La Cuba*, pp. 19-20.

The interior consists of three parts aligned along the longitudinal axis. It is organised around a square courtyard measuring 14 metres per side, with four columns, which supported ogival arches. It has been proposed that what is currently a courtyard originally could have been covered with a large dome. A specific study on the structural mechanics was carried out in order to calculate the static admissibility of such a structure, concluding that the building could have supported one.[832] However, there is no conclusive evidence that this dome actually existed and several scholars dispute this hypothesis, proposing that the central space was an open one, similar to the 'courtyard at the Zisa's upper floor'.[833]

On the eastern side there is an oblong room with two niches or alcoves at the end, included in the mass of the walls. The room can be accessed from the courtyard through three doors, the central one being both wider and taller than the others. Opposite the central door is another niche, which corresponds with the projecting turret at the centre of the western side. The monument is currently entered from a door pierced through the back of this niche.

On the western side there is a hall, whose core is 6.45 metres square but extended by three rectangular niches within the side and back walls. The side niches are 4.24 metres wide × 1.80 metres deep, and the central one is 4.38 × 1.76 metres. Marble columns, no longer *in situ*, must have

[832] It was included in the monograph of Caronia and Noto: A.E. Rizzo, 'Ammissibilità statica della cupola', in *La Cuba*, pp. 277-286.

[833] Among those who support the idea of the dome were: Girault de Prangey; Goldschmidt and Lojacono (*Essai sur l'architecture*, p. 90; 'Die normannischen Königspaläste', col. 582, 'L'organismo costruttivo', p. 5).

marked the corners where the niche walls meet those of the hall, in a similar way as in the Zisa and other Norman royal halls. On the fourth side the courtyard is accessed through a large arch originally springing from a pair of columns on each side.[834] On both sides of this hall there are smaller elongated rooms. According to Goldschmidt and other scholars who consider that the building's access was through the west turret, these were guardhouses, while Staacke interprets them as corridors providing access to the palace.[835]

Due to the spatial distribution of the rooms, the Cuba has been compared to some Egyptian residences of the Ayyubid and Mamluk period, such as the palace on Roda Island, the Qāʿa of Dardīr or the Qāʿa of ʿUthmān Kathudā, in which *īwān* or open-ended halls open onto a courtyard facing each other.[836]

In the centre of both the north and south sides of the courtyard, corresponding to the projecting turrets on the exterior façade of the building, are two niches, 4.26 metres wide and 2.20 metres deep. On the south side some fragments of *muqarnas* decoration remain *in situ*, most probably belonging to an original *muqarnas* vault. Currently, only some cells from the lowest parts of the composition are visible, in the back and side walls of the niche, while almost the whole of the vault, has completely disappeared. The remaining *muqarnas* does not allow to fully reconstruct the geometrical development of the vault. However, it does

834 Bellafiore, *Cuba*, p. 20.

835 Staacke, *La Zisa*, p. 165.

836 Golvin, 'Les influences orientales'; Staacke, *La Zisa*, pp. 166-167.

present us with a glimpse of a *muqarnas* building technique seemingly different from anything that existed in Sicily before.

The composition springs from a moulding apparently similar to other Sicilian examples, but built with a different technique. In fact, while this kind of moulding is usually built with a course of small carved stone blocks, placed contextually to the wall's construction and resting on the vault impost, here the moulding –as well as the remaining stucco work– was pasted with mortar onto the niche's walls, after they were built. In the Sicilian *muqarnas* analysed so far, at least the lower tiers of stone blocks in which the *muqarnas* was carved were placed progressively projecting one over the other, with the lower tier working as a real bracket for the following one. On the other hand, in the Cuba, the composition seems to be pasted to the ashlar walls with mortar. At given points on the niche's walls, sections of brick and wooden planks are visible, seemingly pasted on to the wall to serve as a foothold to secure the stucco. The vault was reinforced with wooden ties spanning the back corners of the niche at 45° diagonally, just above the fourth tier of cells (remains of these wooden ties are visible on both sides of the vault). At the back of the niche corner cells belonging to the lowest tiers of *muqarnas* are still visible, organised as *muqarnas* squinches. The right corner, which is formed by a four-tier *muqarnas* composition, is better preserved and the *muqarnas* is still perfectly understandable. Fragments of the fifth tier's springing are also visible, but these reduced traces do not allow to reconstruct the development of the upper part of the vault. Less of the composition on the left side is preserved, but enough remains to confirm that the vault was symmetric (the vault follows the scheme

classified by Garofalo as 'plan 2', similar to the *shārdiwān* vault in the Zisa, among others). Although the whole vault seems to have been originally covered with stucco, carved stone seems to have been used, as well, to build the *muqarnas* cells (some small carved blocks are visible where the stucco covering has fallen down). In the squinch's spandrel the outline of small stone blocks (most probably small sandstone ashlar blocks), are visible in the area where the stucco covering is not preserved.

On the rear wall of the niche, in the area between the squinches which has the profile of a mixtilinear arch determined by the *muqarnas* work, there is a carved stucco composition consisting of a flat net of interlocking T-shaped cells enclosing vegetal motifs. The right wall has a similar composition consisting of flat geometric patterns enclosing lavish vegetal decoration, except that here a different geometric pattern of eight-pointed stars and crosses is used. A small fragment of stucco remains on the left side of this niche, displaying similar stucco work with geometric interlacing of the latter kind. A frame shaped as a narrow fillet of stylised acanthus enclosed the whole composition, including the squinches.

Since the pioneering work of Girault the Prangey, this decoration has been compared with Western-Islamic artistic production. [837] In particular, the exuberant vegetal decoration is reminiscent of pre-Almohad stucco work in both the general handling of the motif and in specific carving details, such as the treatment of the leaves, the presence

[837] Girault de Prangey, *Essai sur l'architecture*, p. 89.

of small circular holes imitating –in the beginning– a leaf closed in on itself and the acanthus frame.[838] However, rather surprisingly, the Cuba's stucco work shows no signs of the new aesthetic which accompanied the Almohad reform from the 1130s.[839] In fact, in contemporary Almohad ornamentation there was a shift towards austerity, which is exemplified in stucco work by the appearance of plain surfaces, as a replacement for the Almoravid leaves or palmettes (whose surface was playfully and systematically carved and perforated). Although this kind of carved element was still present in Almohad stucco work, plain leaves and surfaces always accompanied it, becoming a distinctive characteristic of Almohad stucco. The Cuba's stucco work shows no influence of this change and its carved palmettes and rosettes seem to stem directly from a pre-Almohad tradition rather than stemming from the contemporary Western-Islamic world.[840]

To conclude, according to Amari's account, ruined vestiges of other *muqarnas*, which once decorated the palace rooms, were still visible after the palace was attacked in 1848 AD. To my knowledge, no other documentation exists for this decoration.[841]

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838 Compare, for example, with Almoravid stuccowork such as those of the Qubbat al-Bārūdiyyīn, see Marcos, 'Los Almorávides', pp. 315-317.

839 Barrucand, *Moorish Architecture*, pp. 153-156.

840 Marçais, *AMO*, pp. 121-123 first compared the Cuba's stuccowork specifically with Almoravid models. L. Kapitaikin, '"The Daughter of al-Andalus": Interrelations between Norman Sicily and the Muslim West', *Al-Masaq*, 25:1 (2013), pp. 113-134, on the contrary, considers this stuccowork as 'a synthesis of Almoravid and Almohad styles of architectural decoration' (see in particular pp. 126-128).

841 Amari, *Epigrafi*, p. 88-89: 'Del resto, il suolo coperto di calcinacci, di mattoni e tegoli rotti; i muriccioli interni dimezzati; le nicchie ad alveare che un dì ornavano le stanze, come alla Zisa, al palagio reale e in tutti gli edifizi normanni di Sicilia, annerite dal fumo, foracchiate e deturpate, parean avanzi d'un carcere piuttosto che

8.6.2. The Cathedral of Palermo

This important building is well documented, with extensive records available from both medieval sources and through modern studies.[842] The cathedral apparently stands on the same site as the ancient *jāmiʿ*. The mosque, which according to Ibn Ḥawqal (tenth century AD) replaced the original church,[843] was devolved to a Christian cult in 1072 AD, but it seems –from the description of al-Idrīsī– that substantial parts of the Muslim building were still visible during the reign of Roger II.[844] Indeed, a major building campaign of the Norman period was carried out during the reign of William II, under Walter Ophamil, the powerful archbishop of Palermo between 1168-1190 AD. Relevant parts of this building are still preserved, although the cathedral suffered several and important modifications over the following centuries and up until recently,

delle stanze del più sontuoso principe del secolo duodecimo, rimaste celebri in Italia fino al decimoquarto, come il prova la novella del Boccaccio'.

[842] A first summary of documents and reports on the cathedral was published by Pirro, *Sicilia sacra*, vol. 1, cols. 111-115. See also Johanne Maria Amato, *De principe templo panormitano libri XIII*, Panormi: Ex Typographia Joannis Baptistae Aiccardo, 1728. On the building see, among others: Oskar Mothes, *Die Baukunst des Mittelalters in Italien*, Jena: Hermann Costenoble, 1884, pp. 557-560; Nino Basile*, La cattedrale di Palermo. L'opera di Ferdinando Fuga e la verità sulla distruzione della tribuna di Antonello Gagini*, Firenze: Bemporad, 1926; Antonio Zanca, *La cattedrale di Palermo (1170-1946)*, Palermo: Accademia di Scienze, Lettere ed Arti di Palermo, 1952; Leandro Urbani (ed.), *La Cattedrale di Palermo: studi per l'ottavo centenario della fondazione*, Palermo: Sellerio, 1993; Angiola Maria Romanini and Antonio Cadei (eds.) *L'architettura medievale in Sicilia: la Cattedrale di Palermo*, Roma: Istituto della Enciclopedia italiana, 1994; Giuseppe Bellafiore, *La cattedrale di Palermo*, Palermo: Flaccovio Editore, 1999; Gianfilippo Villari and Guido Meli, *Il tempio dei re,* Palermo: A. Lombardi, 2001; Lina Bellanca and Guido Meli, 'I luoghi del Tesoro', in Maria Concetta di Natale and Maurizio Vitella (eds.) *Il tesoro della Cattedrale di Palermo*, Palermo: Flaccovio Editore 2010, pp. 9-37.

[843] Amari (ed.) *Biblioteca*, p. 4; Amari (trans.) *Biblioteca*, vol. 1, p. 11.

[844] Amari (ed.) *Biblioteca*, pp. 28-29; Amari (trans.) *Biblioteca*, vol. 1, p. 60.

including a complete restoration carried out between 1781 and 1801 AD.[845] In particular, substantial parts of the external walls are preserved and traces of the original building can still be seen *in situ*, inside the church. This archaeological evidence, together with views and descriptions of the building before 1781 AD allow for a reasonable reconstruction of the original Norman configuration as being the usual combination of a three-nave basilica with a cross-in-square sanctuary. The basilica was approximately 67 metres long. The nave, which was supported by 10-arched arcades, was approximately 13 metres wide and the side aisles measure approximately 4 metres. The body of the nave was separated from the sanctuary by the iconostasis. The sanctuary included a square choir (approximately 13 metres per side) defined by four large pillars supporting pointed arches of great height. The central square was probably covered with a wooden cupola (this detail will be discussed below).[846] The Royal and the Archbishop's burial crypts lie on both sides of the choir; these include the tombs of Roger II, Walter Ophamil, Frederik II and his fathers, Costanza of Altavilla and Henry VI

[845] See Di Stefano, *I monumenti*, pp. 77-78: 'Ma il compimento del 1185 dovette essere relativo, se nel sec. XIII possiamo riscontrare due riprese dei lavori (1220, 1260), e se numerosissime furono le opere posteriori al tempo normanno-svevo: il compimento e racconciamento delle quattro torri angolari (sec. XIV), la facciata (sec. XIV-XV), il portale della facciata (1352-53), il portale meridionale (1426, di Antonino Gambara, con porte di legno scolpite da Francesco Miranda, datate 1432), il grande portico meridionale (1453), per ricordar solo le opere più importanti. Innumerevoli furono le alterazioni: [dal 1510 circa in poi l'abside principale insieme con la campata antistante fu rimessa completamente a nuovo mediante un rivestimento marmoreo con una ricca decorazione plastico-figurativa dell'officina dei Gagini]; nel 1580 furono chiuse sei finestre della navata centrale; nel 1652 altre sedici, e all'interno furono rivestiti i piloni del coro e modificate con alti pulvini le imposte degli archi. Inoltre a partire dal sec. XV furono aggiunte lateralmente molte cappelle'.

[846] Bellafiore, *La cattedrale*, p. 72.

Hohenstaufen. A transversal aisle, called an *antititolo* in the literature dedicated to the monument, separated the three apses from this zone including the choir and the burial crypts (altogether considered as the *titolo*).

In each of the building's four corners there was a small turret, which included a staircase giving access to a system of passages developed in the upper parts of the building. Near the access to the southeast turret, to the right of the portal leading to the sacristy, a small *muqarnas* vault is preserved, which is relevant here. It appears to belong to the main Norman construction phase. [847]

The vault, square in plan, is composed of four tiers of *muqarnas*, crowned by an eight-lobed small cupola. In plan the disposition of the cells is obtained with 45° rotations of squares generating two overlapping grids (a similar scheme, classified by Garofalo as 'plan 4', used in vault D on the Zisa's first floor, was described above).[848] The vault is currently covered with plaster, but in the frontal arch the degraded condition of this coating reveals that at least the lower tiers are built in small stone blocks, in a comparable technique to the Zisa's and other Sicilian *muqarnas*. It is not clear whether the whole vault was built in stone, in a similar manner to that in the Zisa's vault D, or whether consistent parts of the upper tiers of cells were constructed in stucco, as is the case for other Sicilian *muqarnas* compositions. Also, as for other Sicilian vaults, the disposition of the cells in the frontal arch demonstrates that the builder took care of the frontal view of the

[847] Bellafiore, *La cattedrale*, pp. 54-56.

[848] Garofalo, 'A Methodology', p. 372.

composition (the four tiers of *muqarnas* which form the vault are visible in the frontal arch). However, this example lacks the big conical cell crowning the frontal arch, which is systematically displayed in the Zisa.

Near the original access to the northeast turret, in a symmetric position to this vault, there are traces of *muqarnas* decoration belonging to a similar vault to the southeast one (an ideal graphic reconstruction of the original aspect of this vault was published by A. Zanca in his monograph on the cathedral).[849]

Muqarnas was also used on the cathedral's exterior, to create a gallery or a balcony near to the southwest tower. The structure, which is stone-built, is supported by six brackets and the space between the brackets is filled with five *muqarnas* compositions all similar to one another, shaped as half vaults. Both the cells' disposition and their crowning lobed cupola which is contained in a pointed star, are comparable to the vault of the apsidal tower, except that here only half of the square vault is developed.[850] Garofalo classified this scheme as 'plan 3'.[851]

Relying on historical sources –both written descriptions and graphic representations– Giuseppe Bellafiore proposed that the cathedral's choir was originally covered by a large wooden dome, perhaps displaying *muqarnas* decoration in its transition zone.[852]

According to two late medieval chronicles, the cathedral's construction chronology began in 1184 AD. A now vanished inscription,

[849] Zanca, *La cattedrale*, pp. 114; Bellafiore, *La cattedrale*, p. 104.
[850] Garofalo, 'A Methodology', p. 370.
[851] Garofalo, 'A Methodology', p. 380.
[852] Bellafiore, *La cattedrale*, p. 95. See also Scerrato, 'Arte Islamica', p. 333.

which ran along the cornice supporting the wooden vault covering the area in front of the main apse, stated that the building was consecrated in 1185 AD.[853] However, several scholars consider that this time span is too short, proposing that the works must have begun early in the 1170s AD. [854]

8.6.3. The Church of SS. Pietro e Paolo in the valley of Agrò

This church is located on the eastern part of the island, some 50 kilometres south of Messina. It was built as part of a Greek monastery, founded in 1116 by Roger II, according to its foundation diploma, originally written in Greek, but now preserved in a Latin translation only, which was first published by Pirro.[855] A Greek inscription located above the church's main portal records that the church was renovated under the patronage of the superior Theosterictus of Taormina in 6680 AM (1171-72 AD), by the master builder Girardus the Frank (o

[853] 'Si ter quinque minus numerent de mille ducentis/Invenient annos, Rex Pie Christe, tuos/Dum tibi constructam Praesul Gualterius aulam/Obtulit officii post tria lustra sui./Aurea florebant Willelmi regna segundi/Quo tantum tanto sub duce fulsit opus./Sit tibi lau perpes, sit gloria Christi perennis,/Sit decus et templi sit tibi cura tui./Tu quoque florigerae mater pulcherrima turbae,/Perpetuus sacrae virginitatis apex,/Respice prostrati lacrymas et vota clientis/Aeternis penses haec sua dona bonis'. The inscription was reported by 16th-18th century authors such as Fazello, *De rebus siculis*, p. 175, Pirro, *Sicilia sacra*, vol. 1, col. 111; Agostino Inveges, *Annali della felice città di Palermo, prima sedia, corona del re e capo del regno di Sicilia*, (3 vols.) Palermo: nella Stamperia di Pietro dell'Isola, Impressor Camerale, 1649-1651; vol. 3, pp. 450-451; among others.

[854] For a review on the discussion of the cathedral's construction date see Di Stefano, *I Monumenti*, pp. 76-78 and Bellafiore, *La cattedrale di Palermo*, pp. 6-16 (they express opposing interpretations, the latter making a strong argument that the cathedral's construction was actually accomplished between 1184 and 1185 AD).

[855] Pirro, *Sicilia Sacra*, pp. 1039-1042.

προτομαιστορ Γιραρδος ο φραγκος), the only recorded name of a 'master builder' in Sicily during the Norman period.[856]

From the exterior, it has the aspect of a tall and solid building. The church's volume is defined by simple geometric parallelepipeds reflecting the main components of the building: the aisles; the nave; and the apses. The main entrance is located at the west end. It is composed of a porch, originally flanked by twin towers, whose lower parts are still preserved. Crenellations crown the roof of the nave, giving the church a fortified appearance, to some extent mitigated by the façades' surface decoration (these façades are decorated with a variety of materials and patterns, the main motif being superimposed interlaced blind arcades built with alternating bricks, lava blocks and stones of different colours to achieve a coloristic effect. Decorative brickwork in different patterns is also used). The church is a three-aisled building measuring approximately 11 metres in width and 20 metres in length. Two tall domes (the main one is approximately 17 metres high, from the church's floor) are placed along the building's main axis, one above the central

[856] The Greek inscription was published by Antonio Salinas, 'Forza d'Agrò: Nota del prof. A. Salinas, sulla iscrizione greca del Monastero dei Santi Pietro e Paolo', *Atti della R. Accademia dei Lincei. Memorie della Classe di scienze morali, storiche e filologiche*, 282: 1 (1884-1885), pp. 86-90. The text is as follows in Salinas' reading: 'Ανεκαινίσθη ό ναὸς οὗτος τῶν ἁγίων ἀποστόλων Πέτρου και Παύλου πρός Θεοστη ρίκτου καθηγουμένου το ῦταυρομενίτουά π ὸοίκε ῖωνά ναλωμάτων. Μνησθείη αὐτοῦ κύριος. ἔτει ςχπ. Ό Πρωτομαΐστωρ Γιράρδος ό Φράγκος'. In Nicklies' translation –which essentially agrees with Salinas' note on it– the passage reads: 'This church of the Holy Apostles Peter and Paul was renewed by the superior Theosterict(us) of Taormina at his own expense. May the Lord remember him. In the year 6680 [1171/2 A.D.]. The master builder was Girard(us) the Frank' (Nicklies, *The Architecture*, p. 16).

part of the nave and the other over the sanctuary. The latter has *muqarnas* decoration which is relevant here.[857]

The small octagonal dome, which has a diameter of approximately 2.28 metres, is built over a slightly irregular rectangle (approximately 3.80 × 2.28 metres).[858] Seven tiers of cells, developed on the dome's south and north sides, mediate the transition from the octagon to the rectangle. The structure springs from conical squinches placed at the four corners. The cells of the second and third tiers form three-lobed arches which span the corners at 45°, superimposed upon the squinches.

[857] The documentation on this church was first collected by Pirro, *Sicilia Sacra*, pp. 1,039-1,042. On the building see Edwin Hanson Freshfield, *Cellae trichorae and other Christian antiquities in the Byzantine provinces of Sicily with Calabria and North Africa, including Sardinia* (2 vols.), London: Printed privately Rixon & Arnold, 1913-18, vol. 2 pp. 55-58; S. Bottari, 'Chiese basiliane della Sicilia e della Calabria', *Bollettino Storico Messinese* 1 (1936-38), pp. 1-51, in particular pp. 19-31; Pietro Lojacono 'La chiesa abbaziale dei Santi Pietro e Paolo a Casalvecchio Siculo sul Torrente Agro (Messina)', in Jacqueline Bibauw (ed.), *Hommages à Marcel Renard, vol. III*, Bruxelles: Latomus 1969, pp. 379-396; Francesco Basile, *Chiese siciliane del periodo normanno, testo e rilievi di Francesco Basile*, Roma: La Libreria dello stato, 1938, pp. 19-31; Di Stefano, *I monumenti*, pp. 22-24 and pls. XXVIII-XXXI; Bellafiore, *Architettura in Sicilia*, p. 101 and pls. 30-36; Charles Edward Nicklies, *The Architecture of the Church of SS. Pietro e Paolo d'Agro, Sicily*, PhD thesis, Urbana: University of Illinois at Urbana-Champaign, 1992. Of the latter author see also C.E. Nicklies, 'The Church of the Cuba near Castiglione di Sicilia and Its Cultural Context', *Muqarnas*, 11 (1994), pp. 12-30; C.E. Nicklies, 'Builders, Patrons, and Identity: The Domed Basilicas of Sicily and Calabria', *Gesta*, 43: 2 (2004), pp. 99-114. I have recently become aware of a short study, which I was unable to consult: Von Falkenhausen 'La fondazione del monastero dei SS. Pietro e Paolo d'Agrò nel contesto della politica monastica dei Normanni in Sicilia', in Clara Biondi (ed.) *La valle d'Agrò: un territorio, una storia, un destino. Convegno Internazionale di Studi, I. L'età antica e medievale*, Catania: Officina di Studi Medievali, 2005, pp. 171-179. The church's dome is briefly treated by Elena Trunfio, 'L'utilizzo della cupola nell'architettura religiosa normanna. Il caso delle architetture monastiche greche nell'area dello Stretto di Messina', *Infolio*, 33 (2016), pp. 51-56, who assumes that it was built in 1117; and by Giuseppe Antista, *Le cupole in pietra d'età medievale nel Mediterraneo (Sicilia e Maghreb)*, Palermo: Caracol, 2016, see pp. 27-29.

[858] Dimensions are taken from Basile, *Chiese Siciliane*, tav. VIII (who gives the following measurements: 3.88 × 2.285 × 3.80 × 2.28 metres)

The fourth to sixth tiers are a combination of irregularly shaped cells, triangular and trapezoidal in plan, which reduce the composition's geometry to a regular octagon. The eighth tier is composed of eight shallow cells supporting the octagonal base of the dome (as a result, the base is rotated by 22.5° relative to the seventh tier's octagon, so that the cells of the upper tier spring from the apex of the lower). Compared with other Sicilian *muqarnas* analysed so far, this composition is rather anomalous. In fact, in Palermitan canonical *muqarnas* the composition's geometry is the result of the assembly of several prisms or basic elements, that variously combined form the *muqarnas*. It could be said that the geometry of the prisms or cells is prioritized over the layout of the composition. In SS. Pietro e Paolo's dome, conversely, there are no basic elements or previously defined cells to be combined. The geometric need of reducing the rectangle to an octagon is prioritized and the shape of the cells is adjusted to fit in the geometric lines drawn to achieve the transition to the octagon. This system resembles more closely that of Iranian vaults built in the Saljūq period –such as those of Sīn and Nāʿīn– than anything built in Sicily during the Norman period.[859]

In his outstanding monograph on the church, Charles Nicklies proposed an interpretation for the *muqarnas* on SS. Pietro e Paolo's dome. According to Nicklies, compared with North African and Palermitan *muqarnas*, the vaulting indicates a more experimental nature, and in spite of a certain competence of construction, 'the technique is

[859] For the mosques of Sīn and Nāʿīn see, respectively, paragraphs '3.4.1. The mosque of Sīn'; and '3.4.3. Mosque of Nāʿīn', in this thesis.

neither overly refined nor ornate, and the geometry of the design is not particularly lucid'.[860] In addition, he argues that at Agrò the *muqarnas* has a structural application, which is in sharp contrast to both North African and Palermitan vaulting, where 'the *muqarnas* had evolved into a decorative motif, which, when applied to vaults and domes, tended to visually dematerialize the structure'.[861] The *muqarnas* at SS. Pietro e Paolo may reflect the initial stage of *muqarnas* development, documenting a structural application which did not enter into the mainstream architecture of Palermo, where it was introduced as an advanced and purely decorative motif. As for the model's origins, Nicklies proposes that *muqarnas* entered Sicilian architecture through vernacular sources, echoing Jonathan Bloom's theory concerning the introduction of *muqarnas* into Egypt. In particular:

> 'In reference to Bloom's assertion that the *muqarnas* entered Egyptian architecture first through vernacular sources, one wonders if the technique could have spread into the koine of North Africa and Sicily by the mid eleventh or early twelfth century. Notably, the early Egyptian examples, varied as they are, maintain a structural integrity. I propose that the *muqarnas* at SS. Pietro e Paolo, as well as the vaults covering the naos of the Cuba near Castiglione, may reflect the initial stages of the transformation of the device from strictly vernacular usage to applications in more prestigious building types. [...] In addition to accounting for the unique form of the *muqarnas* at Agrò, the above theory would also explain several issues surrounding the developments of the device in North Africa. If the technique originally surfaced in the popular architecture of this region, then it is not surprising that no traces have survived, as vernacular construction is often of relatively low quality. Moreover, the existence of *muqarnas* in popular

[860] Nicklies, *The Architecture*, p. 153.

[861] Nicklies, *The Architecture*, p. 153.

> architecture could also account for the degree of refinement present in the twelfth-century applications that emerged in Algeria'.[862]

Nicklies' interpretation, however, contrasts with the evidence discussed so far. Firstly, it has already been pointed out that important aspects of Bloom's theory concerning the vernacular origins of Egyptian *muqarnas* rely on historiographical and archaeological assumptions, which seem rather speculative and need to be revised (see above, in paragraphs '4.1. General Observations' and '4.3.8. The Aswān Mausoleums'). In addition to this, there is nothing to indicate that any form of *muqarnas* was in use in vernacular architecture of the Islamic West and Sicily before or during the twelfth century. Every single *muqarnas* structure from these regions that are analysed in this study, is related to either palatial or religious buildings of the highest category. The church of SS. Pietro e Paolo seems to be no exception: despite the dramatic lack of documents referring to the Norman period, its foundation diploma of 1116 AD is unequivocal in this regard. In addition, the architecture itself shows, despite the church's small dimensions, that the builder was inspired by some important church most probably related to royal patronage (three aisled, domed, with a porch flanked by twin towers, perhaps brick or brick-and-stone-built). Although some of the architectural features are comparable to existing Norman cathedrals or royal chapels, one can only guess whether in this case the reference point was an important lost church, a *katholikon*, or else a chapel, more or less directly patronized by the king,

[862] Nicklies, *The Architecture*, p. 154-155.

somewhere in Messina or the nearby region. One should not forget that Messina was a royal capital during Roger's reign, where he built a sumptuous palace, finished in 1141 AD, [863] and that the Normans preferred the eastern part of the island, as demonstrated by the foundation of important churches and monasteries.[864]

Finally, there is the problem of the monument's dating. It is impossible, with our present state of knowledge, to confirm that Girardus was responsible for the *muqarnas* construction, due to a lack of agreement as to whether the extension works were carried out by the master builder. Some authors, such as Salinas and Bottari, for instance, believed that the building was entirely or almost entirely rebuilt in 1171-72 AD, during Girardus' renovation works.[865] Others consider that the extant church must have been built at an earlier date, since the tympanum containing the inscription appears to have been added to the west façade at a second stage.[866] This fact implies an earlier building date than those recorded in the inscriptions, and since the monastery's

[863] Almost nothing remains of this palace, which was destroyed by the destructive earthquakes of 1783 and 1908. Unfortunately, all that survives from the building are some fragmentary, inlaid marble Arabic inscriptions, several metres long, currently in the Museo Regionale's, Messina, collection. The inscriptions, which record the date date of 1141, were published and translated by Michele Amari (Amari, *Epigrafi*, pp. 123-136. For the inscriptions see also Annliese Nef, 'Venti blocchi frammentari con iscrizioni arabe in lode di Ruggero II dal palazzo di Messina', in Andaloro (ed.), *Nobiles Officinae*, pp. 503-509. On the Messina palace, see also Di Stefano, *I monumenti*, pp. 100-101 and Krönig, *Il Castello di Caronia*, pp. 20-21). Messina's inscriptions are analogous –in technique, style and contents– to those in the Royal Palace in Palermo, currently in the Palazzo Abatellis' collection.

[864] Nicklies, *The Architecture*, p. 200. *Cf*. Krönig, *Il castello di Caronia*, pp. 19-21.

[865] Salinas, 'Nota sulla iscrizione', p. 88, Bottari, 'Chise basiliane', pp. 20-24.

[866] See Nicklies, *The Architecture*, pp. 5, 19, 47 and 88.

foundation diploma is dated to 1116 AD, some scholars have proposed that the *muqarnas* decoration at SS. Pietro e Paolo could be ascribed to the same date as the diploma, or shortly after.[867] In support of this suggestion, Nicklies emphasized the historical circumstances surrounding the Orthodox monasteries of Sicily during Norman rule, which enjoyed great prosperity in the early years of Roger II's reign. However, he was also aware that the architectural evidence indicates a later dating,[868] and his strongest stylistic argument to suggest an early dating was the theory of an indigenous *muqarnas* tradition.[869] Yet, in view of what has been cited to date, while 1171-72 AD can be assumed as a reasonable *terminus ante quem* for the *muqarnas* construction, there is no evidence to indicate that the church was built before the central decades of the twelfth century and all citations of this decoration presented as a possible precursor of Palermo's *muqarnas* should be considered with care.

[867] Nicklies, *The Architecture*, pp. 198-200. More recently, Trunfio, 'L'utilizzo della cupola', pp. 27-29, assumed the date of 1117 AD, as well.

[868] Nicklies, *The Architecture*, p. 198: 'I suggested that the church was likely constructed between the dates of the foundation charter (1116) and the inscription of the west portal (1171/72). However, several factors regarding the style and articulation of the architecture seem to call for a dating on the later end of this scale. This assessment is suggested not only by the coherent integration of the complex spatial sequence and elements of the church's interior –which is rare in the architecture from any period of Norman rule– but also a range of other factors. First, the attenuated proportions, along with the structural system used to support the nave and domes, seem to demonstrate an advance from the proportioning and structuring found in the monuments built during the reign of Roger II (d. 1154). In addition, the use of certain individual features, such as the muqarnas vault, the four-centered openings of the diaphragm arches, and reticulate cornice frieze, at least when first considered, seem more indicative of the architecture erected during the reigns of William I (1154-66) and William II (1166-89).'

[869] Nicklies, *The Architecture*, pp. 199-200.

As a final observation for this entry, it is pertinent to say something about Girardus the Frank (*ο προτομαιστορ Γιραρδος ο φραγκος*), who is the only master builder from Norman Sicily known by his name. Scholarship has focused upon the French origin of the name Girardus and his surname, 'the Frank', assuming that he had been trained in the north.[870] However, in a complex ethnic reality such as Sicily was in Norman times, to assume the provenience of the master builder upon the name only might be misleading.[871] Although some northern features have been observed in the church, the affinities with regional characteristics are evident,[872] and several stylistic features could be better explained as the culmination of a regional architectural development.[873] If the *muqarnas* in SS. Pietro and Paolo dates to Girardus' renovation, which has yet to be proven, local training or experience in royal workshops at Messina could explain the familiarity with the *muqarnas* technique in an artistic milieu, in which perhaps the name 'Frank' remarked that this personage's origin was atypical, in relation to his masters and companions.

870 For instance, see Salinas, 'Nota sulla iscrizione', pp. 89-90, Bottari, 'Chiese basiliane' pp. 23-4; Lojacono, 'La chiesa abbaziale' pp. 384-388.

871 Nicklies, *The Architecture*, p. 18.

872 Bottari, 'Chiese basiliane', pp. 20-24, Nicklies, *The Architecture*, p. 4.

873 Di Stefano, *I monumenti*, pp. 23.

CONCLUSIONS

The present work was planned as a study and evaluation of Sicilian *muqarnas* within a wide and up to date corpus of comparative material from the Mediterranean area and the Near East. In this formulation Sicily was neither the departing point, nor the real conclusion of the work, but it was considered, from the point of view of methodology, as one element amongst the others, with a view of better understanding not only the Sicilian *muqarnas*, but also all of the examples being compared. The most important conclusions which were drawn are resumed below, along with many questions to which an answer was not found at this stage, and remain open.

1. The Catalogue

A first result of this work is the catalogue itself, representing a wide and up to date set of data on *muqarnas*. This catalogue, which is an integral part of the thesis, is composed of some 90 entries, including 10 dedicated to Sicilian monuments and some 80 dedicated to examples of *muqarnas* documented in the Mediterranean area and the Near East. It includes bibliographical, historical, archaeological and graphical information (the latter included in Volume II - Plates CD, more than 500 pages of illustrations, including photos and drawings). The catalogue was used as a reference for the discussion of the present thesis, and could serve as a departing point and reference for future research on the topic.

2. Chronological Aspects

The processing of the catalogue allowed for establishing a more secure chronology for the studied examples. In particular, the traditional early dating of *muqarnas* fragments from Nīshāpūr, from the *ḥammām* of al-Fusṭāṭ and from Qalʿat Banī Ḥammād were discussed and their chronological reassessment to later dates was proposed for all of them. These are generally regarded as the earliest extant remains of *muqarnas* decoration of Iran, Egypt and the Islamic West, respectively, and have been ascribed in the *muqarnas* historiography to such early dates as ninth-tenth century (fragments from Nīshāpūr and al-Fusṭāṭ) and eleventh century (fragments from Qalʿa). However this dating relied heavily on historiographical evidence and inaccurate archaeological sequences that need to be revised in the light of more recent studies. In addition, these inaccurate ascriptions were used in support of the early dating of several other monuments, leading to the creation of suspect chronologies and sequences, which have been revised, as well.[874]

3. Categorization

One of the problems of studying *muqarnas* is that from the extant examples it is difficult –even impossible– to see how the motive developed from one instance to the next one, and to establish the means of transmission for the *muqarnas*. In the first *muqarnas* studies it was

[874] About these chronological issues see the following paragraphs of the present work: '2.1. General Observations'; '2.2.1. Nīshāpūr'; '4.1. General Observations'; '4.2.1. The al-Fusṭāṭ bath'; '6.1. General Observations'; '6.2. Muqarnas in Ḥammādid Art (1014-1152 AD)'; '6.3.1. The Qubbat al-Bārūdiyyīn'; and '6.5. Muqarnas in the Iberian Peninsula'.

assumed, more or less explicitly, that *muqarnas* had a unitary development and a single line of transmission: a kind of 'secret of *muqarnas*' which passed from one place to another. This basic principle was obviously geometric and in most of the *muqarnas* literature, the focus is geometry (specifically, basic *muqarnas* geometric layout or plan drawing). Although this is certainly a vital feature of *muqarnas*, in the present study other formal and technical aspects were also taken into account. The in-depth and individualized study of the large number of examples included in the catalogue, allowed examining comparatively several technical and formal aspects of *muqarnas* hitherto disregarded, related to the three dimensional composition of the cells, the building techniques and the materials employed. In a first moment, this approach lead to decomposing some of the assumed 'categories' of *muqarnas*, which seemed to give almost every *muqarnas* cited a history of its own. This permitted observing other kinds of affinities, traditionally overlooked, suggesting relations and new possible lines of development or groups. As a rule, rather clear relations can be established on a regional base and a variety of regional traditions, or manners of interpreting the motif, can be identified. On the other hand, it is more difficult to explain the influence or similarity when the instances are remote in both time and space, and any known or else plausible link between them is seemingly lacking.

Muqarnas consists of three-dimensional compositions, which rely on more or less complex design principles. In its simpler versions, the different tiers progressively project outwards one above the other and the cells of each tier spring from the apexes of the underlying elements

creating a simple vertical alternation. A similar result can be reached by craftsmen understanding this geometrical principle, without much influence from elsewhere. Other techniques are sufficiently complex as to suggest that the craftsmen who imported them were aware and trained in their execution. Once the basic design principle was known, it was interpreted and adapted to local technology, often transposing it in different media, giving a variety of regional characteristics.

3.1. The origins of muqarnas

With regard to the origins of *muqarnas*, spherical-triangular elements, which eventually became one of the key elements of *muqarnas*, are first documented in Iran as halves of split semidomical elements, such as vaults or squinches, and then used in a progressively independent way as both architecturally integrated elements –into the squinch– and as more purely decorative devices. Both these uses are documented at Arab-Ata, which is considered the earliest known monument showing *muqarnas*. After this early example, there is the series of Iranian *muqarnas* squinches: the Davāzdah Imām Sanctuary (1038 AD); the two Iṣfahān domes in the Friday Mosque (late 1080s AD); and a series of Saljūq domes modelled on those.[875]

Beside this evolution, documented in Iran, there is an Iraqi tradition of *muqarnas* domes composed as a progression of drums –or tiers of niches– organized through successive rotations of concentric polygons.

[875] See, in particular: '2.1. General Observations'; '2.2.2. Arab-Ata Mausoleum'; '2.2.4. Davāzdah Imām Sanctuary at Yazd'; '3.1.2. The *muqarnas* squinch'; and '3.3. The Squinch'.

This geometrical system of superimposed drums rotated with respect to the underlying one will become one of the key principles of many later *muqarnas* compositions. This model is represented by the recently-destroyed Mausoleum of the Imām al-Dawr (1080s-1090s AD), which is presumably a late and provincial reflection of a previous Baghdadi model, now lost.[876]

Comparing the dome of Imām al-Dawr with the Iranian examples analysed so far, one can see that such geometrical elements as the spherical-triangular units, which are progressively better defined in Iran and become the standard cells of later *muqarnas* vaults, played a minor role in the Mausoleum of the Imām al-Dawr, if any at all. Perhaps the lack or dematerialization of the cells in the vault of Imām al-Dawr is to be interpreted as a 'baroque' or 'decadent' effect, indicating that this vault was the last stage of a quite large tradition, now completely lost, from which Iranian traditions also stem. The almost complete destruction of buildings earlier than the late twelfth century in Baghdad impede establishing whether and to what extent the Iranian evolution of *muqarnas* may reflect lost prototypes from the ʿAbbāsid capital.[877]

Somewhere in the middle (from the chronological point of view) of the 'evolutionary' process that eventually led to the formation of Saljūq squinches, is the cornice on Gunbād-i ʿAlī, representing a more advanced use of this kind of spherical triangles or cells, clearly organised in a regular sequence or three-dimensional combination. This represents a

[876] See, in particular: '2.1. General Observations'; and '2.2.6. Mausoleum of the Imām al-Dawr'.

[877] See, in particular: '2.1. General Observations'.

crucial geometrical and aesthetical achievement, resulting in something which is different from and more complex than anything that was discussed so far. Although the squinches of the Arab-Ata Mausoleum and the Davāzdah Imām Sanctuary are some decades earlier than the Gunbād-i ʿAlī, in this cornice cells were combined following a more aware and complex patterning or geometric layout, It is also perfectly executed, which suggests that it reflects pre-existing models, which have been lost.[878]

A structural origin of this kind of *muqarnas*, as a progressive fragmentation of the squinch, is proposed frequently and is generally accepted from early *muqarnas* studies up until many recent studies. However, the evidence seems still too fragmentary to establish whether the development progressed from architecturally integrated prototypes and worked towards highly ornamental models, as that of Gunbad-i ʿAlī, or went in the opposite direction, or whether they were independent developments.[879]

In the present work an alternative explanation is also proposed, which takes into account the potential influence on these gigantic compositions of wooden prototypes of *muqarnas* composed of several small cells disposed in clear geometric compositions.[880]

878 See '2.1. General Observations'; and '2.2.5. Gunbad-i 'Alī'.

879 See '2.1. General Observations'.

880 See '3.1.4. Discussion'.

3.2. Wood muqarnas

Wood was one of the richest segments of material culture during the Middle Ages, although little of it has survived. Medieval technology was largely based on wood and carpentry had a vital role in architecture. Instruments, scaffolding, centring and other mechanical devices employed in construction were basically wooden-made and wood was extensively used as a building material. On the other hand, the scarce archaeological visibility of wooden structures preclude the full understanding of their importance in premodern times.

In the course of the present work the potential importance of wood *muqarnas* prototypes gradually emerged, perhaps from the same origins of the motif, in spite of the exceptional surviving structures dated to before the thirteenth century.[881]

The wooden ceiling of the Cappella Palatina is the sole remaining example of an Islamic wooden *muqarnas* tradition, which has to be an important point to register. The ceiling of Roger II has a supporting structure, which is like a skeleton or net of vertically superimposed elements, which run either parallel to the main compositional grid or are orientated at 45° angles. Most of this structure is built with panels classified as 'EL-1' (and 'EL-2'), which are basically wooden boards or rectangular panels cut in quarter-circle curves. The empty spaces left by this structure were covered by thin wooden elements defining the surface of the cells. Once assembled the surfaces were covered with a

[881] See '2.1. General Observations'; '3.1. General Observations'; '4.1. General Observations'; '4.2.2. The Mosque of the Qarāfa'; '5.1. General Observations'; '5.2.1. A wooden ceiling of the Damascus Great Mosque'; '8.1. General Observations'; and '8.3.3. The Cappella Palatina'.

layer of gesso, before they were painted and gilded. There is a clear distinction between the supporting elements, composed of thicker wooden beams (essentially 'EL-1' and 'EL-2' panels), and the thinner fillets, or veneers, defining the portions of the vault left empty by the supporting structure. The fillets defining the surface could be glued either directly to the bearing elements, or to additional panels, which act as a centering for their placement. Hence these cells, or portions of vault are 'ideal' forms, which are used by scholars as classifying tools, they are not 'real' pieces of wood carved out from single blocks. Their shape is determined, both in plan and profile, by the 'EL-1' and 'EL-2' panels disposed either parallel to the main grid or orientated at 45° angles. The result is a *muqarnas* work in which both the cells' shape and disposition are defined by the logic of the underlying structures.[882]

Similar cell shapes and geometric layout, as well as a comparable combination of cells observed in either stucco or stone vaults indicate that these were ultimately inspired or reproduced from some kind of wooden prototype, similar to that of the Cappella Palatina. This may be the case, for instance, of the side vaults in the grand vestibule of Nūr al-Dīn's *māristān*, in Damascus, Almoravid vaults in Algeria and Morocco, as well as later Sicilian *muqarnas* vaults.[883]

It was previously mentioned that the Iraqi 'sugarloaf domes' seem to underlie one of the key principles of many later *muqarnas*, in which the

[882] '8.1. General Observations'; and '8.3.3. The Cappella Palatina'.

[883] See '5.1. General Observations'; '6.1. General Observations'; '6.3. Muqarnas in Almoravid Art (1040-1147 AD)'; and '8.1. General Observations'.

cells are disposed through successive rotations of concentric polygons. A different geometric principle underlying a big group of later *muqarnas* is the disposition of cells according to networks or main compositional grids orientated at given angles (45° angles, as a rule). It seems reasonable to suggest that wood *muqarnas* was at the origin of this second key principle. In both cases, in the original form, the geometric principle is intimately related to the logic of construction.

A tradition of wooden *muqarnas* ceilings can be identified in Syria possibly from Saljūq times. The side vaults in Nūr al-Dīn's *māristān* have already been mentioned, which show several features remarkably similar to the ceiling of the Cappella Palatina. In addition to this, the building features of the earliest Syrian stone portals seem to corroborate the potential importance of wooden models in the Syrian *muqarnas* tradition. This is suggested by the *muqarnas* mini-domes in the portal of Madrasa ʿĀdiliyya (1172-73 AD), and the pendentives of the Ibn Turayra/Shādhbakhtiyya, (1190s AD) –all plausibly relatable to wooden prototypes– and is confirmed by the detailed study of the Mashhad al-Ḥusayn's portal (1195-96 AD), which is the next in the series. In the latter case, in fact, the builder made a special effort in transposing into stone the details of a wooden vault in a realistic and recognisable way. This makes sense if the viewers were immediately able to identify the stone counterpart as being a reproduction, implying that wooden *muqarnas* vaults were common by that date in Aleppo, although no example has survived. Strikingly, in the case of the *muqarnas* vault above the Mashhad al-Ḥusayn's entrance, the main *muqarnas* vault was associated with a

secondary ceiling –also the stone replica of a wooden ceiling, in this case supported by beams– which is comparable with the secondary ceilings covering the lateral aisles of the Cappella Palatina.[884]

The wood ceiling decorated with stucco (*samāʾ jass muzayyina*) belonging to the Great Mosque of Damascus described by Ibn Jubayr – composed of countless pieces of interconnected wood, arching and surmounting each other– is proposed as a potential specimen of the 'common ancestor' of the side vaults of the *māristān* in Damascus, the Almoravid stucco *muqarnas* as well as the wooden technique later imported to Sicily.[885] The ceiling of Damascus Great Mosque was probably related to known works executed there under the government of Tutush (1079-1095 AD). It can be reasonably considered as a specimen of an oriental Islamic tradition of wood *muqarnas* composed of several small cells, now completely lost.

This kind of wooden structure should be taken into account when dealing with the evolution and diffusion of *muqarnas*, most probably from the very origins of the motif. In this regard, the passage of Quḍāʿī (d. 464/1062) reported by Maqrīzī should be mentioned, describing a painted trompe l'oeil in which the viewer, from a given point, perceived a stepped relief, apparently projecting from the surface, which looked as if it was wooden-made and resembled *muqarnas* (*kal-muqarnaṣ*). It could also be interesting to investigate whether fragments from Nīshāpūr may

[884] See '7.1. General Observations'; and '7.2.1. The Portal of the Madrasa Shādhbakhtiyya and the Portal of Ibn Turayra in the Mashhad al-Muḥassin, Aleppo'; '7.2.2. Madrasa 'Ādiliyya, Damascus'; and '7.2.3. The Portal of the Mashhad al-Ḥusayn, Aleppo'.

[885] See '5.1. General Observations'; '6.1. General Observations'; and '8.1. General Observations'.

correspond to the unique remains of one or more wooden or wood-and-stucco structures of this type.

3.3. Stucco muqarnas

The earliest identifiable remains of stucco *muqarnas* are probably the fragments from Nīshāpūr, which are plaster shells approximately 1.2 centimetres thick, most probably used as a revetment to a lost structure. Wilkinson inferred that they were incorporated into a building made of sun-dried brick. It would be interesting to investigate whether these fragments could correspond to a wooden *muqarnas* cornice or ceiling. It should be noted that wood was not preserved at Nīshāpūr. For example, wooden timbers reinforcing the mud brick walls were used in the most important structures of the commonly named Tepeh Madraseh, but they are known only indirectly, thanks to the furrows left by the rotted beams, which were documented during the excavations. There are no indications as to how ceilings were constructed in Nīshāpūr, but timber was certainly used extensively and applying plaster revetments to dadoes, corniches, windows frames and all kinds of architectural elements was the standard practice at Nīshāpūr and elsewhere in the Near East throughout the centuries. This leads us to wonder if Nīshāpūr fragments could be the sole remnants of a wooden or wood-and-stucco *muqarnas*, whose wooden structure is now completely lost.[886]

Another early instance of stucco *muqarnas* is perhaps the vaults of the Nāʿīn mosque. However, since nothing has been published on their

[886] See '2.1. General Observations'; and '2.2.1. Nīshāpūr'.

structure it is not clear whether stucco elements were actually used to form the *muqarnas*, or the cells were built in a different technique and merely plastered over.[887]

In the present work, apart from the Nīshāpūr fragments and the Nāʿīn vaults, I have catalogued different examples from Egypt (fragments from a *ḥammām* in al-Fusṭāṭ and a cornice on the minaret of the Mosque of al-Juyūshī), Syria (the *māristān* and *madrasa* of Nūr al-Dīn, in Damascus), and the Western Islamic world (in this area, all the remaining *muqarnas* ascribed to the considered period were built in stucco).[888]

In many cases, the original conformation of the *muqarnas* composition cannot be reconstructed, because of the fragmentary state of the remains, together with their poor state of preservation.[889] However, in other cases and specifically in stucco *muqarnas* vaults the technique shows remarkably similar details to the wooden technique of the Cappella Palatina (for example, the side vaults of the *māristān*'s vestibule and western *muqarnas* vaults). In particular, these vaults show a similar geometric layout, comparable cells and brackets (in both shape and dimensions), an analogous combinations of units. In the present work, arguments are given to support that this stucco technique ultimately derived from a wood or wood-and-stucco prototype and it is proposed

[887] See '2.1. General Observations'; '3.1. General Observations'; and '3.4.3. Mosque of Nāʿīn'.

[888] See '4.1. General Observations'; '4.2.1. The al-Fusṭāṭ bath'; '4.2.3. The Mosque of al-Juyūshī'; '5.1. General Observations'; '5.2.7. The Māristān of Nūr al-Dīn, Damascus'; '5.2.8. Madrasa of Nūr al-Dīn, Damascus'; and Chapter 6: '6. The Use of *Muqarnas* in the Islamic West'.

[889] See, for example, '4.2.1. The al-Fusṭāṭ bath'; '6.1.1. Muqarnas in Ḥammādid Art'; and '6.5.3. Architecture of the Almohad Period in Spain'.

that the wood and stucco ceiling belonging to the Great Mosque of Damascus provides the potential antecedent for the wooden technique employed in the Cappella Palatina's ceiling, as well as a plausible link between the Damascene, the Western and the Sicilian *muqarnas*. The profound familiarity of stucco workers with wooden *muqarnas* is not surprising, since the original wooden prototype was covered in stucco (*samā' jass muzayyina*, according to Ibn Jubayr). Under these condition the transition from the original technique –which seem highly complex– to the simpler stucco substitute was just a question of time. This stucco technique, introduced into the Islamic west under the Almoravids, was later developed into superb Naṣrid and *mudéjar* examples.[890]

Some further observations are given with regard to the stucco *muqarnas* in Damascus. As regards the vaults of the *māristān*, apart from the side vaults of the vestibule, *muqarnas* was used in the 'sugarloaf' dome covering the main entrance's bay and in the dome above the monumental vestibule. All of the *māristān*'s vaults are built in stucco, although they show some relevant differences from one another. I suggest that in the case of the side vaults, the similarity with the wood technique is more pronounced, because they were false and purely decorative ceilings, which left a great freedom in respecting and reproducing the features of the wooden model. In the portal bay and the sugarloaf dome, on the other hand, the aim was to create a *muqarnas* composition resembling the Iraqi 'sugarloaf' domes, not mimic the wooden prototype. This Iraqi prototype

[890] See '5.1. General Observations'; '6.1. General Observations'; 7.1. 'General Observations'; and '8.1. General Observations'.

was built of superimposed drums with real arched niches whose backs emerged from the dome's exterior, which means that they were integral to the structure. In Damascus, on the contrary, the vaults are conical brick structures covered, both internally and externally, with purely decorative *muqarnas* work. In this case, the point for stucco workers was to adapt to the necessities of the building and transform brick-built vaults into *muqarnas*. In this, stucco workers took advantage of the plasticity of the material, they scaled the size of the cells to the bigger dimensions of the architectural structures and played with more freedom with the geometry to adapt their work to a new creation that was not intended to resemble a wooden prototype, but to mimic Iraqi prototypes. While the visual similarity and the allusion to the original type seem obvious, the profound differences in both the dome structure and the *muqarnas* geometry suggest that there was not a direct transmission and development of the same Iraqi technique, but rather a transposition of an idea into a different building practice.[891]

3.4. Stone muqarnas

Ashlar stonework contributed to the prestige and luxury of stately buildings from ancient times, differentiating them from standard buildings. One expedient of achieving impressive effects, also exploited by master builders from antiquity, is the transposition into stone of architectural elements or models originally conceived in a different material (frequently, wood). From the late eleventh century, *muqarnas*

[891] See '5.1.4. Discussion'; '5.2.7. The Māristān of Nūr al-Dīn, Damascus'; and '5.2.8. Madrasa of Nūr al-Dīn, Damascus'.

was included in this repertoire by masters eager to show the excellence of their craftsmanship.

The first stone *muqarnas* were linear compositions in the cornices crowning the minarets of Aleppo and Ani, and the earliest examples in Egypt are most probably the cornices covering flat niches decorating the façade of al-Aqmar mosque. The study of formal and technical features of these three examples suggest that there is not a direct transmission of the stone technique from one example to the next one, rather it seems that every master achieved it independently relying on his own skill, reasonably transposing into stone a motive taken from a different material.[892]

The next examples from the Muslim world are the stone *muqarnas* portals, whose first identifiable examples are dated to the second half of the twelfth century. By the thirteenth century a solid tradition of stone *muqarnas* vaults was developed, which is extensively documented. The building features of some of these portals, especially the earliest examples, seems to corroborate the potential importance of wooden models in the Syrian *muqarnas* tradition. This is suggested by the *muqarnas* mini-domes in the portal of Madrasa ʿĀdiliyya 1172-73 AD, and the pendentives of the Ibn Turayra/Shādhbakhtiyya (1190s AD), all plausibly relatable to wooden prototypes, and is confirmed by the detailed study of the Mashhad al-Ḥusayn's portal (1195-96 AD) which is the next in the series. In the latter case, in fact, the builder made a special effort in transposing into stone the details of a wooden vault in a realistic

[892] See '4.1. General Observations'; '4.2.4. The Bāb al-Futūḥ'; '4.2.5. Al-Aqmar mosque'; '5.1. General Observations'; and '5.2.2. The minaret of the Friday Mosque, Aleppo'.

and recognisable way. This makes sense if the viewer is able to identify the stone counterpart as a reproduction immediately, implying that wooden *muqarnas* vaults were common by that date in Aleppo, although no example has survived. The vault above the Mashhad al-Ḥusayn's portal enables us to gain a glimpse of how the wooden *muqarnas* evolved, integrating radial geometry and relieving the standard brackets, which facilitate the builders to play with the cells' dimensions and disposition in a different way from the western tradition (which observed the original canons of 45° rotations of squares).[893]

The vaults of the *muqarnas* portals in Syria are usually composed of big cells or units, organised in three-to-four tiers, crowned by lobed or gored cupolas. As seen from beneath, the main geometrical order of the Syrian *muqarnas* depends essentially on radial organisation (the cells are organised through the rotation of concentric polygons). More advanced vaults display a similar layout, except that, at given points of the composition, recesses or mini-domes were introduced, usually developed from the first into the second tier of *muqarnas*, which results in a more complex geometry. With regard to the stone cutting, the Syrian vaults are made up of large stone blocks that have been cut volumetrically into a few complex shapes in order to be fitted together and assembled without mortar, like the pieces of a three-dimensional puzzle. Usually a single course of stone blocks corresponds to each tier

[893] See '7.1. General Observations'; '7.2.1. The Portal of the Madrasa Shādhbakhtiyya and the Portal of Ibn Turayra in the Mashhad al-Muḥassin, Aleppo'; '7.2.2. Madrasa 'Ādiliyya, Damascus'; and '7.2.3. The Portal of the Mashhad al-Ḥusayn, Aleppo'.

of *muqarnas*, the whole composition resulting from five to six courses of ashlars.[894]

Compared with the linear *muqarnas* described above, the stone *muqarnas* vault is a far more complex composition. In the former case, I mentioned that the first identifiable stone cornices of Aleppo, Ani, and Cairo were seemingly achieved independently by each master, without direct knowledge of each other's technique. This was not the case for the stone *muqarnas* vaults. In fact, Aleppo, appears as both the first and the main production centre for the technique and the first vaults built in Damascus or elsewhere are clearly related to Aleppo's tradition, as a rule. Later stone vaults built in Egypt and Palestine in the Mamluk period, are conceived within this Syrian tradition (in some cases, the same masons and masters operating a little earlier in Syria were commissioned to carry out similar work in Cairo and Jerusalem).[895]

4. Muqarnas in Sicily

Important formal features of the main branch of Sicilian *muqarnas* derived from the technique used to build the ceiling of the Cappella Palatina. The original technique is complex enough and was so perfectly executed in Palermo, as to affirm that a master –at least– who was well aware of it and trained in its execution was responsible for introducing

[894] See Chapter 7: '7. Stone *Muqarnas* Portals'.

[895] See Chapter 7: '7. Stone Muqarnas Portals', and specifically '7.3. First Mamluk Examples in Syria and the *muqarnas* Portal in Egypt and Palestine'.

it into the island. The ceiling of the Cappella Palatina is the only preserved specimen of this kind.[896]

At approximately the same time, maybe even shortly earlier, the builders of the Caronia palace show familiarity with a different *muqarnas* principle to organise the vaults' geometry (rotation of concentric polygons), and made the first attempt at translating a *muqarnas* vault into stone. A little later, a Sicilian technique of building stone *muqarnas* was achieved by transposing a *muqarnas* model, derived from the wood technique, into stone. The case of Caronia could be considered as an experiment: the craftsmen who carved this *muqarnas* or proto-*muqarnas* understood the geometric principles underlying a certain type of *muqarnas* vaults and tried to organise their composition based on it, relying on their own skill. On the other hand, the features and constructive details of the Zisa vault, built some twenty years later indicate that the craftsmen were well aware of the wooden technique utilised in the Cappella Palatina's ceiling, and shaped their *muqarnas* work on this wooden system (the Zisa's vaults are also comparable to the vault in the *Torre Pisana* of the Palazzo Reale, of uncertain date).[897]

A third type of *muqarnas*, built in brick and rather anomalous compared with other Sicilian examples, is documented in the Church of SS. Pietro e Paolo in the valley of Agrò, perhaps reflecting a lost prototype from royal buildings in Eastern Sicily (Messina was a royal capital during Roger's reign, where he built a sumptuous palace, finished in 1141 AD,

[896] See Chapter 8: '8. *Muqarnas* in Sicily'.

[897] See '8.4.3. Caronia'; and '8.5. William I (r. 1154-1166 AD) and the Zisa'.

and according to Ibn Jubayr, in the 1180s William II had built a Royal palace known as the 'white as a dove' in the city).[898]

Apart from wood, stone and brick, stucco was also used in Sicily to build *muqarnas*. Some of the stone vaults of the Zisa, and perhaps the vault in the *Torre Pisana*, showed a mixed technique of stone and stucco, while the *muqarnas* vaults of the Cuba Palace during the 1180s basically depends on the stucco technology, with details of the associated decoration suggesting a possible influence of the Western Islamic technique.[899]

Sicilian examples of *muqarnas* display a variety of formal patterns and materials which represent one of the richest repertoires of either the earlier or contemporary Islamic world. The *muqarnas* vault is the most striking feature of Norman-Islamic interaction. To the viewer the major tour de force in the Cappella Palatina is first and foremost the high, elaborate *muqarnas* composition, the painting being hardly visible. Under Norman patronage the *muqarnas* vault seems to be a kind of hallmark of royal art: in the Zisa alone, where the largest collection of *muqarnas* vaults is preserved, displaying more than twenty different patterns. *Muqarnas* vaults or fragments are documented in six Norman palaces: the Palazzo Reale; Favara; Zisa; Cuba; Scibene; and Caronia.

As regards the origins of the model, it is commonly accepted that the art and architecture of Norman Sicily was influenced by Islamic models

[898] See '8.6.3. The Church of SS. Pietro e Paolo in the valley of Agrò'.

[899] See '8.5. William I (r. 1154-1166 AD) and the Zisa'; '8.6.1. The Cuba Palace'; and '8.6.2. The Cathedral of Palermo'.

through either North-African or Egyptian mediation, which may be true in many cases. Without prejudice to this, the foregoing discussion indicates that by contrast this was not the case for *muqarnas*. Actually, the remaining evidence seems to suggest that both Egypt and the Fatimid domains were rather conservative in *muqarnas* development and were relatively late in adopting the most recent eastern developments of this decorative form, if they ever introduced them at all.

As regards the technique's possible North African origin, it is an idea that relies essentially on narrow geographical and historical links with Sicily. In fact, at least nominally, Muslim Sicily was governed from Ifrīqiyya for a long period, and relations between both regions remained strong in the Norman period. Once the Norman kings had consolidated their occupation, they set out to conquer the major North African ports, reversing the traditional balance of force. As a consequence of these geographical and historical factors, archaeologists and historians of Islamic art assigned North Africa a key role in the transmission of architectural and artistic styles to the island, as well. Tenth- and eleventh-century art from Ifrīqiyya was rather poorly known, but scholars had no doubt that sooner or later its role in the formation of Sicilian models would be proven. Regarding *muqarnas*, Qalʿa's fragments –dated to the eleventh century, or even earlier, on unreliable evidence– were considered as the missing link between the Near East and Sicily and scholars assumed that proof of *muqarnas* usage would eventually be discovered at such sites as Ashīr, Mahdiyya and Ṣabra Manṣūriyya; but this is not the case to date. The technique would appear to be unknown in Tunisia before the Ḥafṣid period (1229-1574 AD) in the thirteenth

century and its appearances is believed to have been under Almohad influence. Further west, the Almoravids were able to build stucco *muqarnas* vaults at approximately the same time as the Cappella Palatina, in a technique which ultimately emulated a similar oriental model. However, stucco was the only material employed in western *muqarnas* until late dates, while until the late Norman period (1170s-1180s AD) stucco *muqarnas* had a secondary role in Sicily. Nothing indicates that ceilings comparable to that of Roger II were ever built in the Islamic west and later western techniques of wood *muqarnas*, developed from the end of the thirteenth to the beginning of fourteenth centuries does not suggest continuity. Similarly, the stone *muqarnas* technique is unusual and virtually unknown in the Islamic west until the fourteenth century, when few and rare instances are documented.[900]

As far as Fāṭimid Egypt is concerned, no comparable *muqarnas* vaults are built in any medium at that time in Cairo, where *muqarnas* was used only in the form of either a frieze or small areas of linear *muqarnas* framing niches and crowning recesses. The last Fatimid mosque built by the vizir al-Ṣāliḥ Ṭalāʾiʿ in 1160 AD lacks any *muqarnas*. There is no evidence in Egypt for an evolution towards the creation of more complex stone *muqarnas* vaults during the 140 years that elapsed between the foundation of the Aqmar mosque and the earliest documented stone *muqarnas* vaults of the Bahri Mamluk period (the portals of the Madrasa of al-Ẓāhir Baybars and the mausoleum of Zayn al-Dīn Yūsuf in Cairo, dated respectively to 1262-63 and 1298 AD). Fatimid craftsmen in Cairo

[900] See Chapter 6: '6.The Use of *Muqarnas* in the Islamic West'; and '8.1. General Observations'.

were content with simple compositions. In stone masonry they avoided complex *muqarnas* structures carved out of multiple blocks and in the transitional zone of domes, they never expanded the two-tiered *muqarnas* pendentives into multiple or more complex compositions. Neither does any *muqarnas* vault survive in Cairo from the Ayyubid period, to suggest a continuity. When the earliest *muqarnas* stone vault appeared on Cairene portals, its configuration and advanced technique was unprecedented in Egypt but already common on Syrian portals.[901]

Only in contemporary, or shortly later Syria, a comparable variety of patterns and techniques is documented, and both the origins and the evolution of *muqarnas* in Sicily suggest that the Eastern Islamic world was the reference for Sicilian builders, most probably through a Syrian connection. I proposed the wood and stucco ceiling described by Ibn Jubayr, belonging to the Great Mosque of Damascus as a potential antecedent for the wooden technique employed in the Cappella Palatina. Certainly, the painting and gilding technique of Roger II's ceiling seems more refined than the stucco decoration, simply styled as *samā' jass muzayyina* by Ibn Jubayr. However, this could be explained by the improvement of the technique during the decades that elapsed before Roger II's ceiling was built, as well as their different setting (the paintings of Roger II's ceiling are obviously not related to a tradition of Mosque decoration, but rather to a secular milieu). To confirm the hypothesis that *muqarnas* wooden ceilings were in use in Syria during the twelfth

[901] See '7.1. General Observations'; and '7.3. First Mamluk Examples in Syria and the *muqarnas* Portal in Egypt and Palestine'.

century the side vaults of the Nūr al-Dīn grand vestibule in the Damascus *māristān* could be cited, together with the earliest stone *muqarnas* portals of Syria. The first were built in stucco and the second in stone, but they all emulated some kind of wooden *muqarnas*.[902]

Other features of Sicilian *muqarnas* corroborate this eastern link, possibly through the Levant, with the central Islamic lands. In the *muqarnas* or proto-*muqarnas* of Caronia, the superimposed niche order follows a pattern with central symmetry generated by small rotations of polygons inscribed in circles with a common centre. These rotations are studied in such a way that the cells of each tier spring from the apex of the underlying element, creating a vertical alternation from one tier to another. This is the same system of the Ibn Turayra/Shādhbakhtiyya portals, which ultimately derived from Iraqi 'sugarloaf domes', which became the customary Syrian layout for *muqarnas* portals.[903]

As is mentioned above, the builders of Sicilian *muqarnas* vaults were systematically interested in creating compositions intended to be viewed not only from below, but also frontally, in this way solving a patent problem of the visibility of the *muqarnas* ceilings and only exceptionally were these cells in the frontal arch closed to the observer's view. In most of the vaults the profile of the frontal arch was composed of cells rotated at 45° with respect to the cross axis, to guarantee a full display of the *muqarnas.*

Some comparable solutions are found in the Nūr al-Dīn *māristān*'s portal and side vaults, as well as in later Syrian stone portals, while are

[902] See '5.1. General Observations'; and '5.1. General Observations'.

[903] See '8.1. General Observations'.

unknown in contemporary Fatimid and Western Islamic *muqarnas*. The same concern for visibility is evident in the double-faced *muqarnas* arch at the entrance to the *Sala della Fontana* (compare this elegant solution to the Almohad vaults, the arches of the Kutubiyya or the first Mudéjar *muqarnas* of Santa María la Real de Las Huelgas, where the *muqarnas* work is visible almost exclusively from beneath).[904]

An additional indication of eastern influence, seen in both the Zisa and the *māristān*, is the frontal *muqarnas* arranged in a composition, which could broadly be defined as 'pyramidal', which seems to have been inspired by sugarloaf dome profiles. This kind of *muqarnas* layout, which eventually became a characteristic feature of later Saljūq portals in Anatolia, has no Fatimid or contemporary Western-Islamic counterparts.[905]

5. Epilogue

Universality was a principle in the ambitious Norman political project aimed at raising Sicily and south Italy from a peripheral and turbulent borderland between the Islamic, Byzantine and Latin world to the central hub of an expanding kingdom controlling the Mediterranean Sea from east to west. This is illustrated by the use of the three languages, Latin, Greek and Arabic, in official administration. In parallel to the three chancery languages, the Altavilla patrons expressed their power in multiple artistic idioms. *Muqarnas* belongs to the Islamic idiom, itself

[904] See '8.1. General Observations'; '6.4.2. The Kutubiyya Mosque'; and '6.5.3. Architecture of the Almohad Period in Spain'.

[905] See '5.2.7. The Māristān of Nūr al-Dīn, Damascus'; and '8.1.5. Discussion'.

heterogeneous, which was the one that served best the worldly and regal aspects of power.

The evidence evaluated in the present work suggests that Norman Sicily was a crucial country for the development of the motive. The sum of the *muqarnas* vaults and decoration in Norman palaces is extraordinary. In the Zisa, where the largest repertoire of *muqarnas* vaults is preserved, more than twenty different examples are to be see, out of some 35 *muqarnas* vaults, which were originally displayed. *Muqarnas* vaults or fragments are documented in six other Norman palaces: the Palazzo Reale; Favara; Zisa; Cuba; Scibene; Caronia; in the cathedral of Palermo; and in the Church of SS. Pietro and Paolo. Apart from this numerical aspect, in Sicilian *muqarnas* a variety of formal patterns and materials is found, representing one of the richest repertoires of both the earlier and the contemporary Islamic world. This is evidence of a '*muqarnas* culture' developed within the royal court, where innovative techniques and models from the Near East were constantly received and reworked in a creative way relying on a Norman-Arab network which had a wide span across the Mediterranean and beyond. Certain solutions displayed in Sicilian vaults were also distinctly advanced at the time. This, along with other Islamic elements with no clear Islamic antecedents, such as the polychrome inlay marble with Arabic epigraphy and Islamic geometrical patterns, indicate that elements of Islamic art in Norman Sicily should probably not be seen simply as a mirror of the arts that once existed but were lost in the contemporary Islamic world, but they may reflect the artistic potential found there. This potential, represented by creative skilled craftsmen

working in a glorious Islamic tradition, was pulled in by the Norman patrons to fashion an avant-garde meant to reflect their own image of power.[906]

It is extremely difficult according to our present knowledge to establish the exact provenience of the artisans and artists who worked in Norman Sicily, and reconstruct exactly what the means of transmission of the motifs and ideas were. Future work may well disprove some, or many of the interpretations offered in this work. It seems clear, however, that the Norman Kings were in the privileged position of receiving and reworking ideas and skills directly from the Near East. The evidence discussed in this work indicates more intense artistic exchanges between Syria and Norman Sicily than with any other Mediterranean area, which corresponds with the context of strong historical, political and cultural connections between Sicily and the Syro-Palestinian zone, at that time.

[906] This idea is taken from Doris Behrens-Abouseif and Maurizio Massaiu, 'Cairo or Palermo? The avant-garde of Islamic art of the Mediterranean in the 12th century', in *The World of Fatimids*, catalogue of the forthcoming exhibition at the Agha Khan Museum of Toronto (Mar 10 2018 to Jul 2 2018).

ILLUSTRATIONS

Fig. 1: Iṣfahān, Jurjir Portal, (Copyright Chala Hadimi, source: MIT Libraries, Aga Khan Visual Archive).

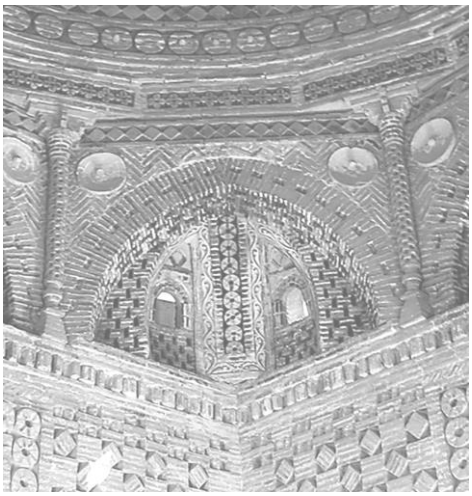

Fig. 2: Bukhārā, Samanid tomb, squinch (SPA, vol. 8, p. 264).

Fig. 3: Mashhad, Ribat Mahi, squinch (Hutt, 'Islamic Monuments', Pl. Xb).

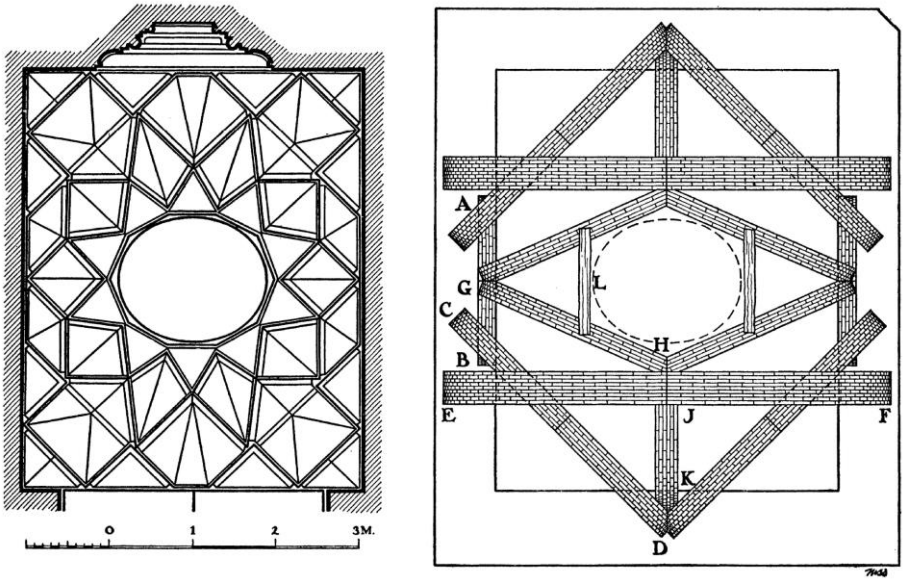

Fig. 4: Sīn, Saljūq mosque, vault above the *miḥrāb* and scheme of its armature (Smith, 'Material for a Corpus III', p. 9, figs. 21-22).

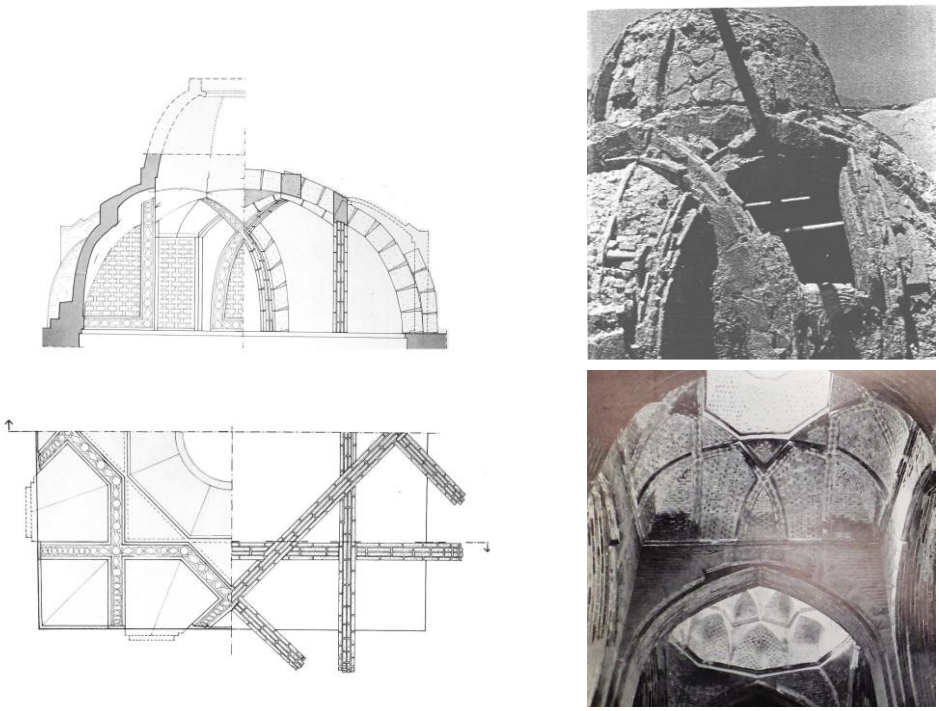

Fig. 5: Iṣfahān, Iṣfahān Mosque, vault n. 60 (Galdieri, *Iṣfahān: Masǧid-I Ǧumʿa*, vol. 3, p. 155, fig. 90 and p. 200, fig. 145-146).

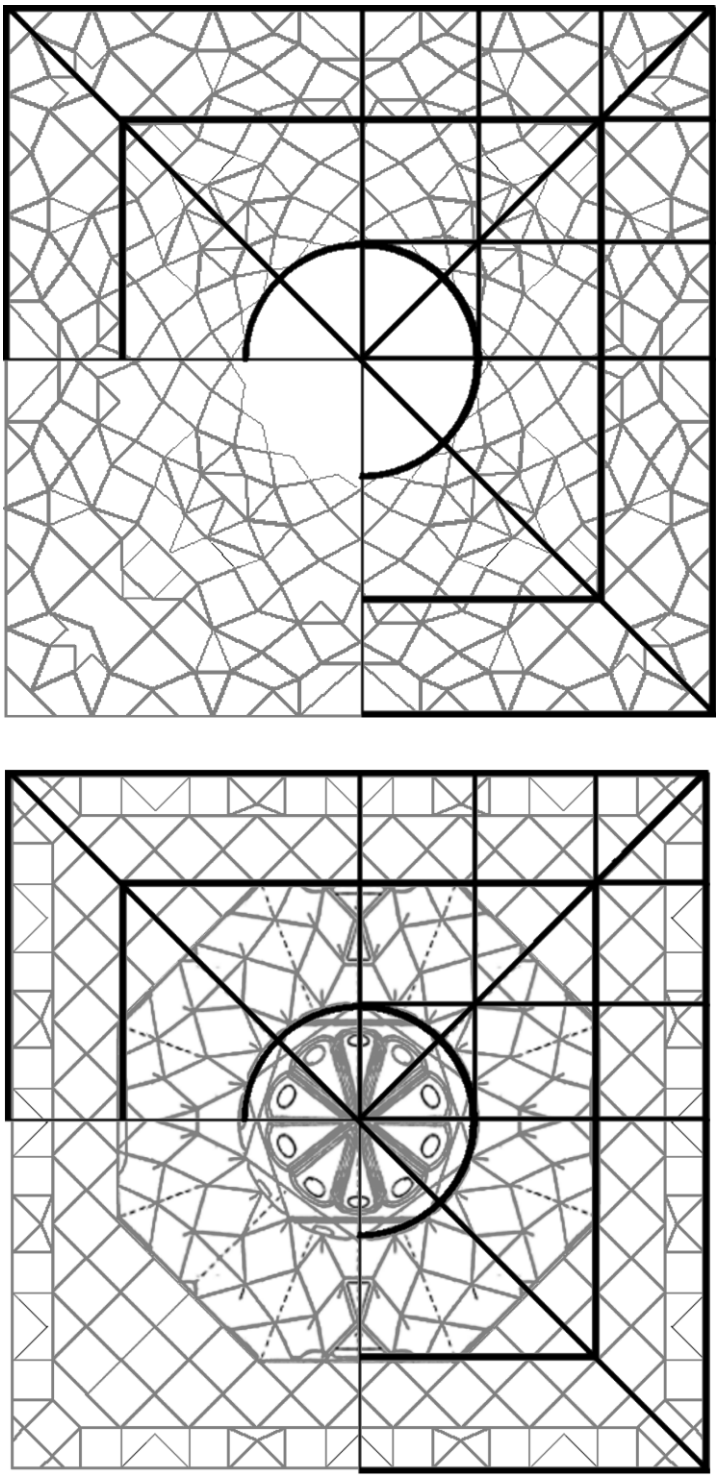

Fig. 6: Damascus, *Māristān* and *Madrasa* of Nūr al-Dīn, scheme of the domes submitted to the same geometric grid.

Fig. 7: Granada, Alhambra, Comares courtyard, south-west alcove, remains of a *muqarnas* vault. The *medina* is decorated with interlaced strapwork. (photo M. Massaiu).

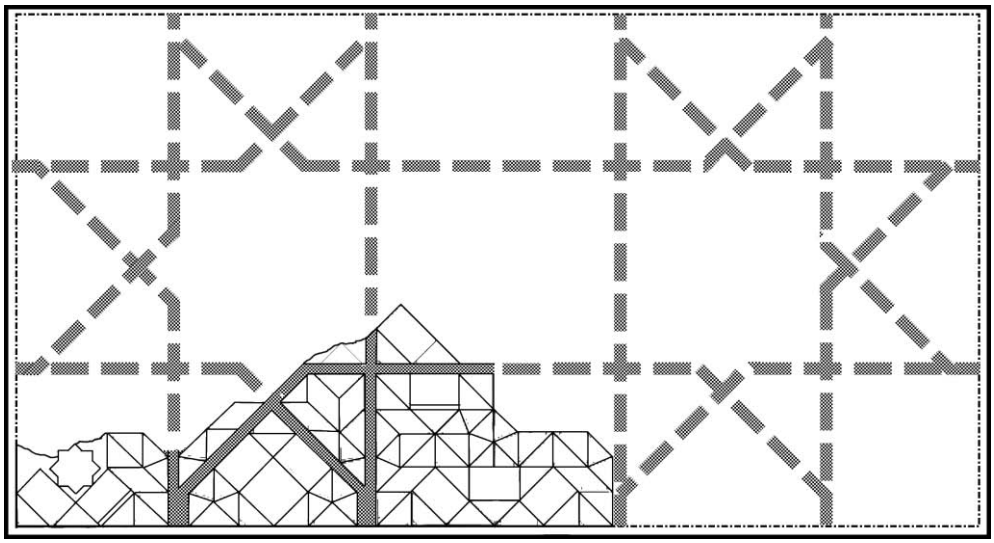

Fig. 8: Granada, Alhambra, Comares courtyard, south-east alcove, scheme of the *muqarnas* vault's remains and basic structure of the *medina*s (drawing M. Massaiu, relying on the hypothesis of Aranda Pastor, 'La alcoba oeste').

Fig. 9: Granada, Partal Palace (Alhambra), wooden ceiling (photo M. Massaiu).

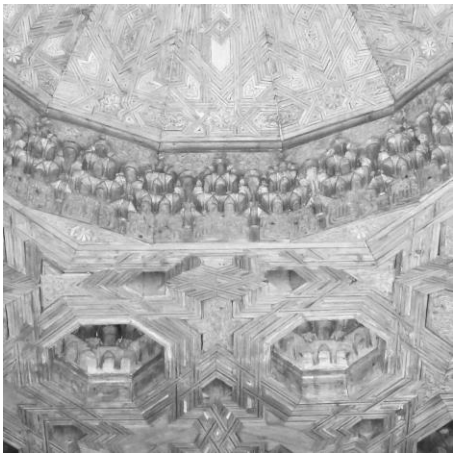

Fig. 10: Granada, Partal Palace, detail of the *muqarnas* decoration of the wooden ceiling (photo M. Massaiu).

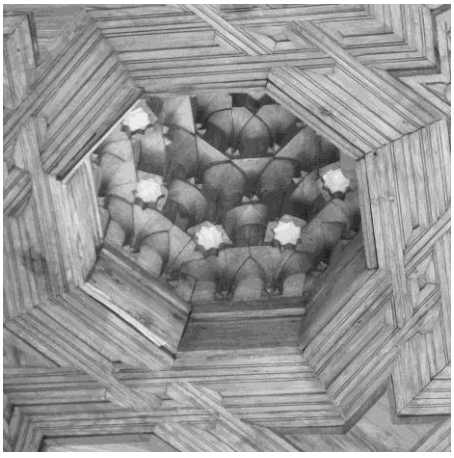

Fig. 11: Granada, Partal Palace, one of the 34 small *muqarnas* cupolas decorating the wooden ceiling (photo M. Massaiu).

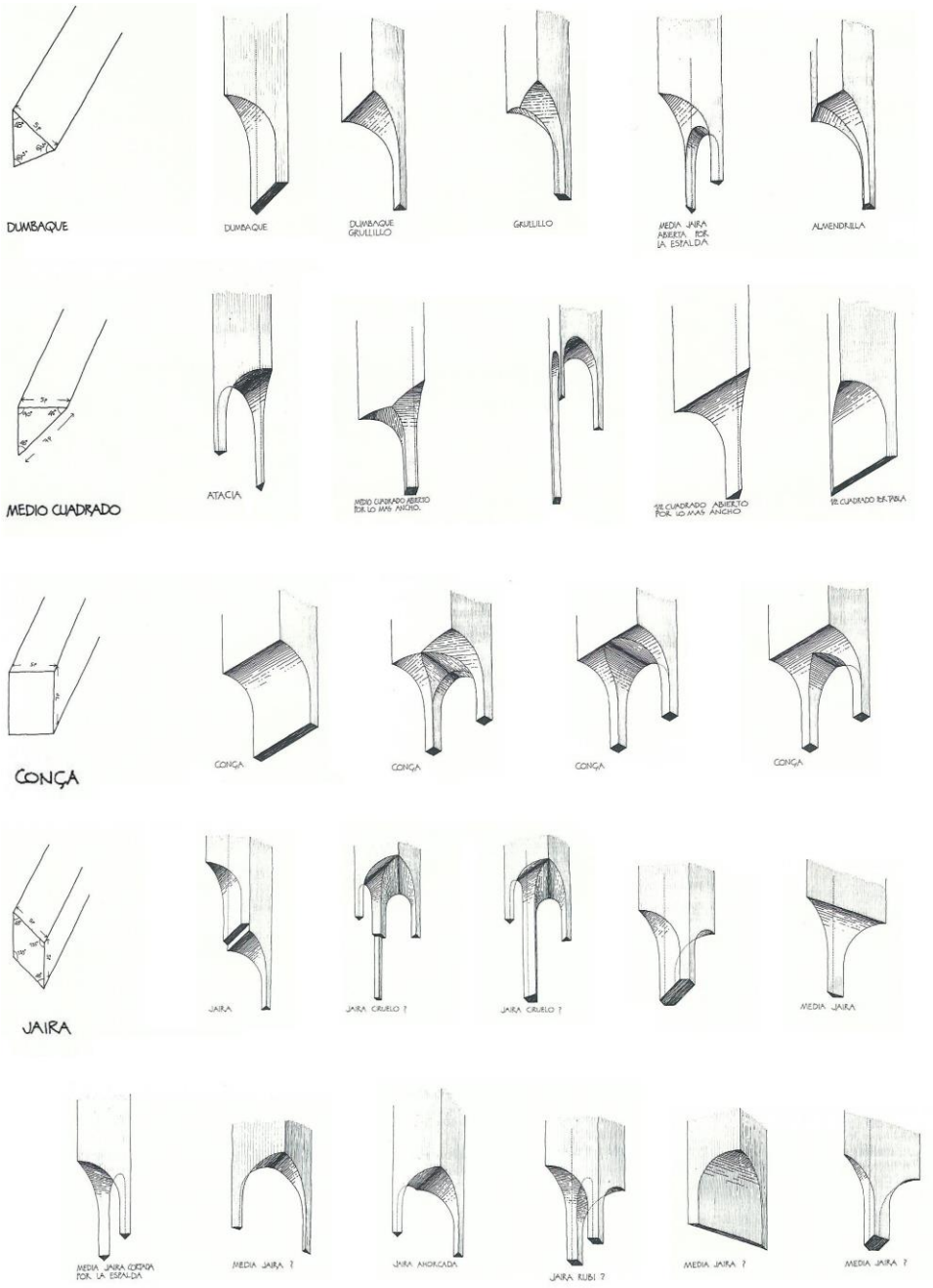

Fig. 12: Different types of wooden cells or *adarajas* used to obtain compositions of *mocárabes* in the Western tradition (adapted from Nuere, *La carpintería de armar*, pp. 164-165).

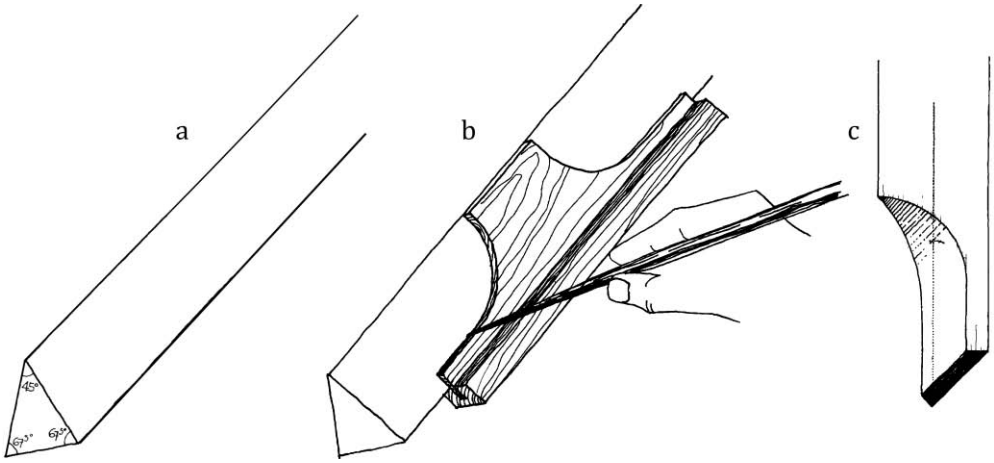

Fig. 13: Reconstruction of how a *muqarnas* cell, generically called *adaraja*, was obtained from a basic wooden prism or *jaira*: (a) basic prism; (b) drawing of a cell, using a template; (c) final prism or cell (adapted from Nuere, *La Carpintería de Lazo*, pp. 272-273).

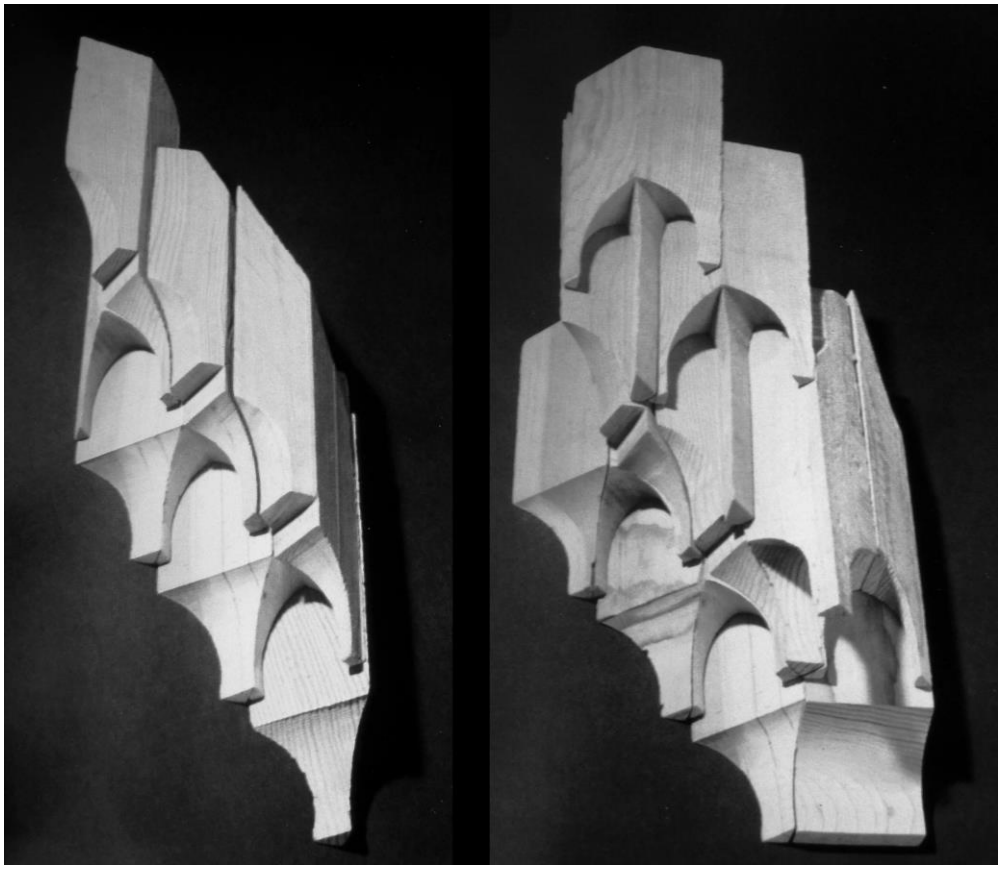

Fig. 14: Clusters of joined wooden cells, work of a contemporary Moroccan craftsman (Paccard, *Le Maroc et l'artesanat*, vol. 1, p. 293).

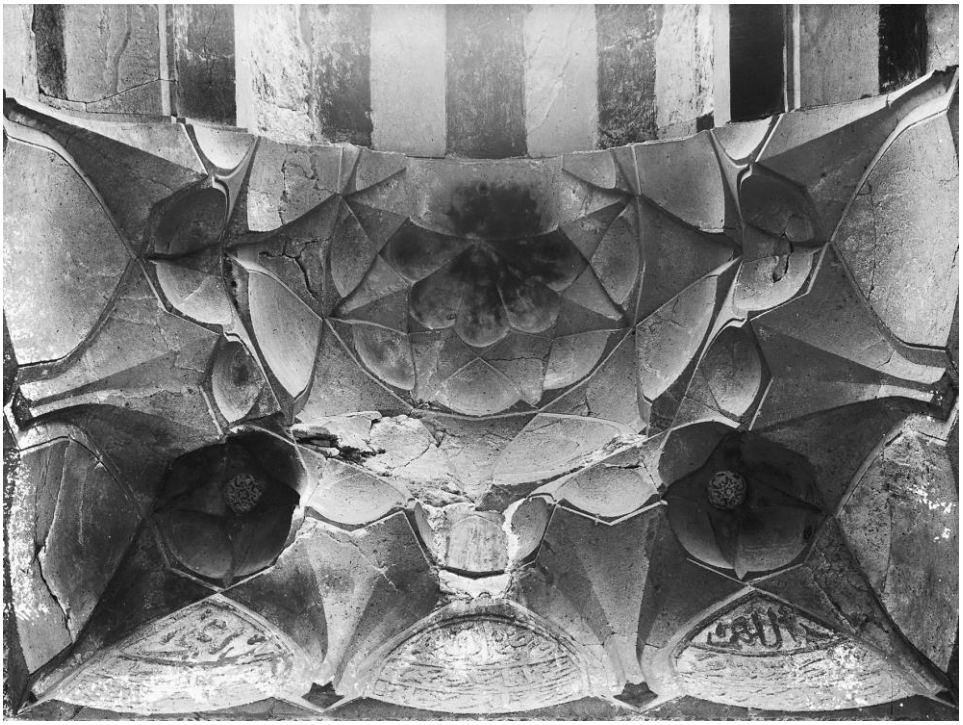

Fig. 15: Aleppo, Mashhad al-Ḥusayn, vault above the entrance (MCIA, II, Pl. C a).

Fig. 16: Aleppo, Mashhad al-Ḥusayn, detail of the carved moulding below the vault and portal's inscription (MCIA, II, Pl. C b).

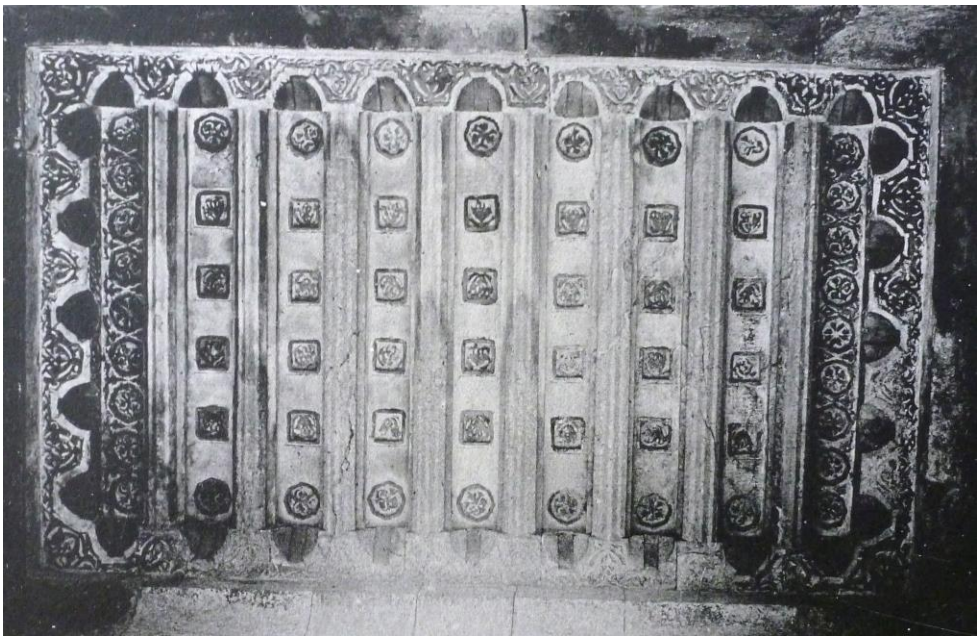

Fig. 17: Aleppo, Mashhad al-Ḥusayn, stone vault imitating a wooden ceiling, located above the bay that opened onto the inner court, corresponding to the *muqarnas* vault just behind the entrance door (MCIA, Pl. CII b).

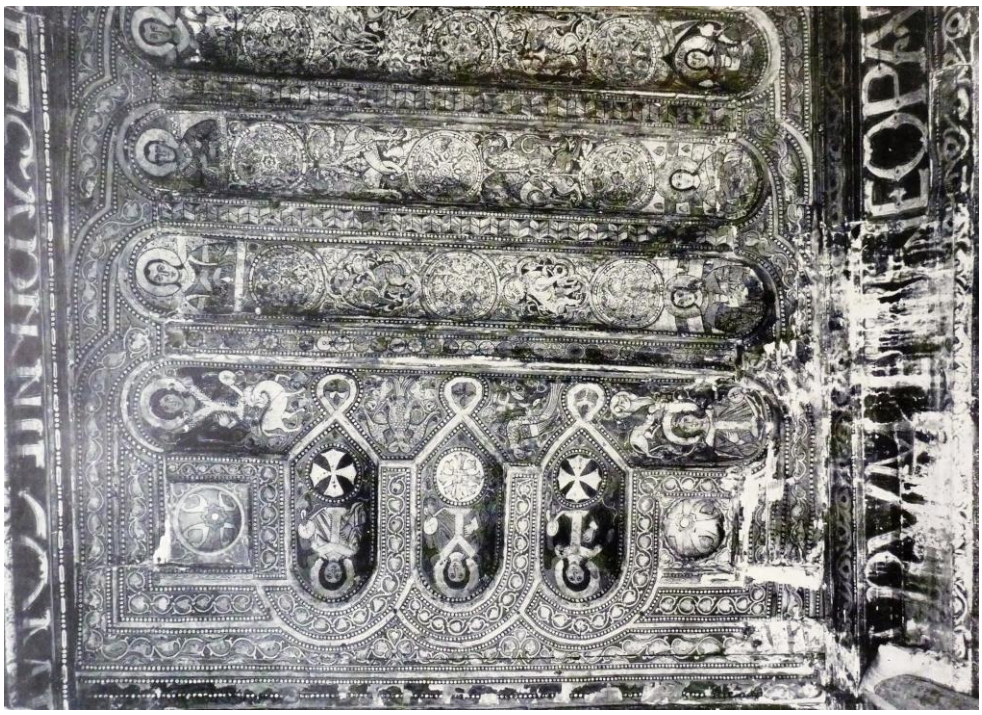

Fig. 18: Palermo, Cappella Palatina, detail of the wooden ceiling over the lateral aisle (Monneret de Villard, *Le pitture musulmane*, fig. 5).

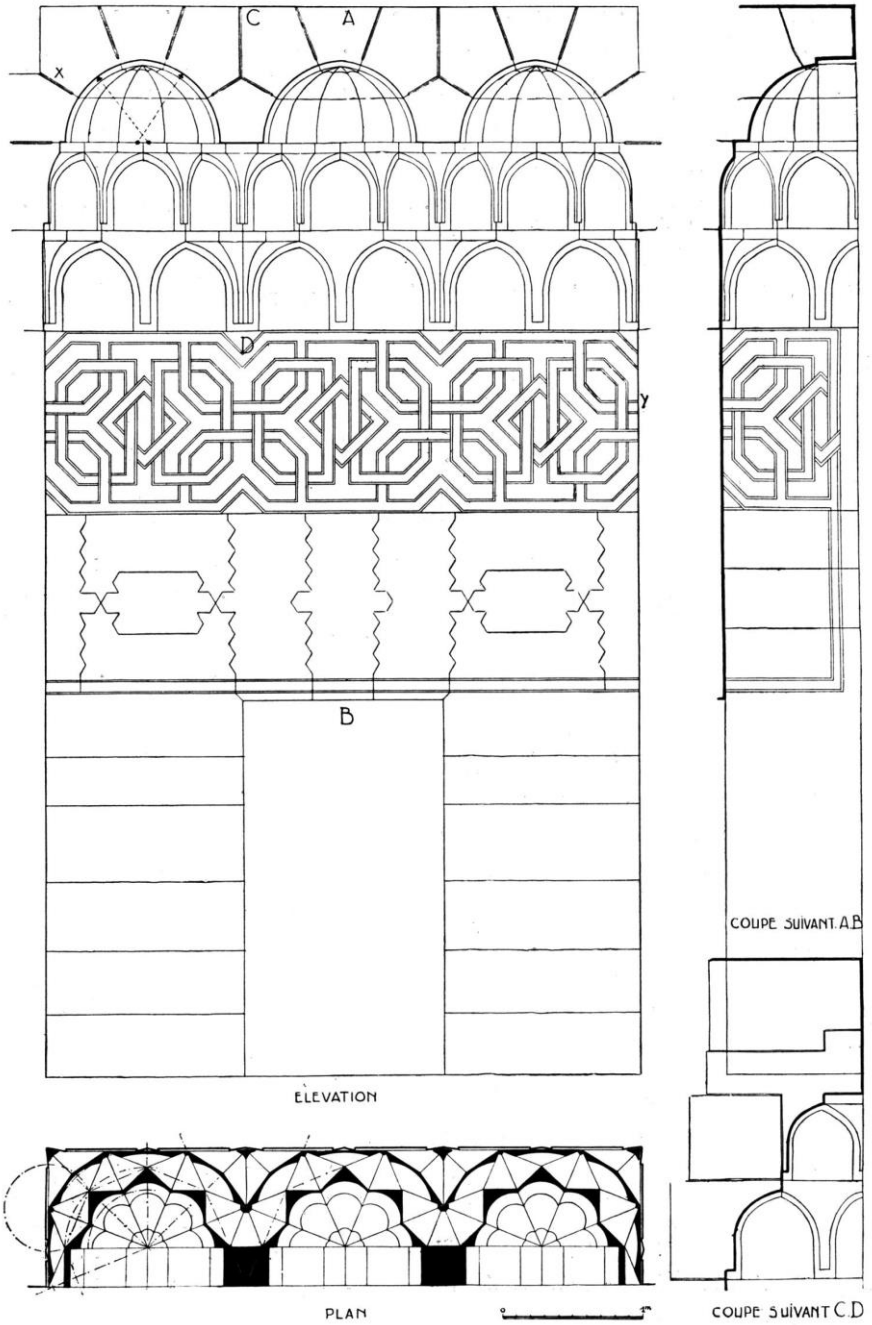

Fig. 19: Syria, Castle of Ṣahyūn, elevation, plan and section of the portal (Écochard, 'Notes d'archéologie', p. 102).

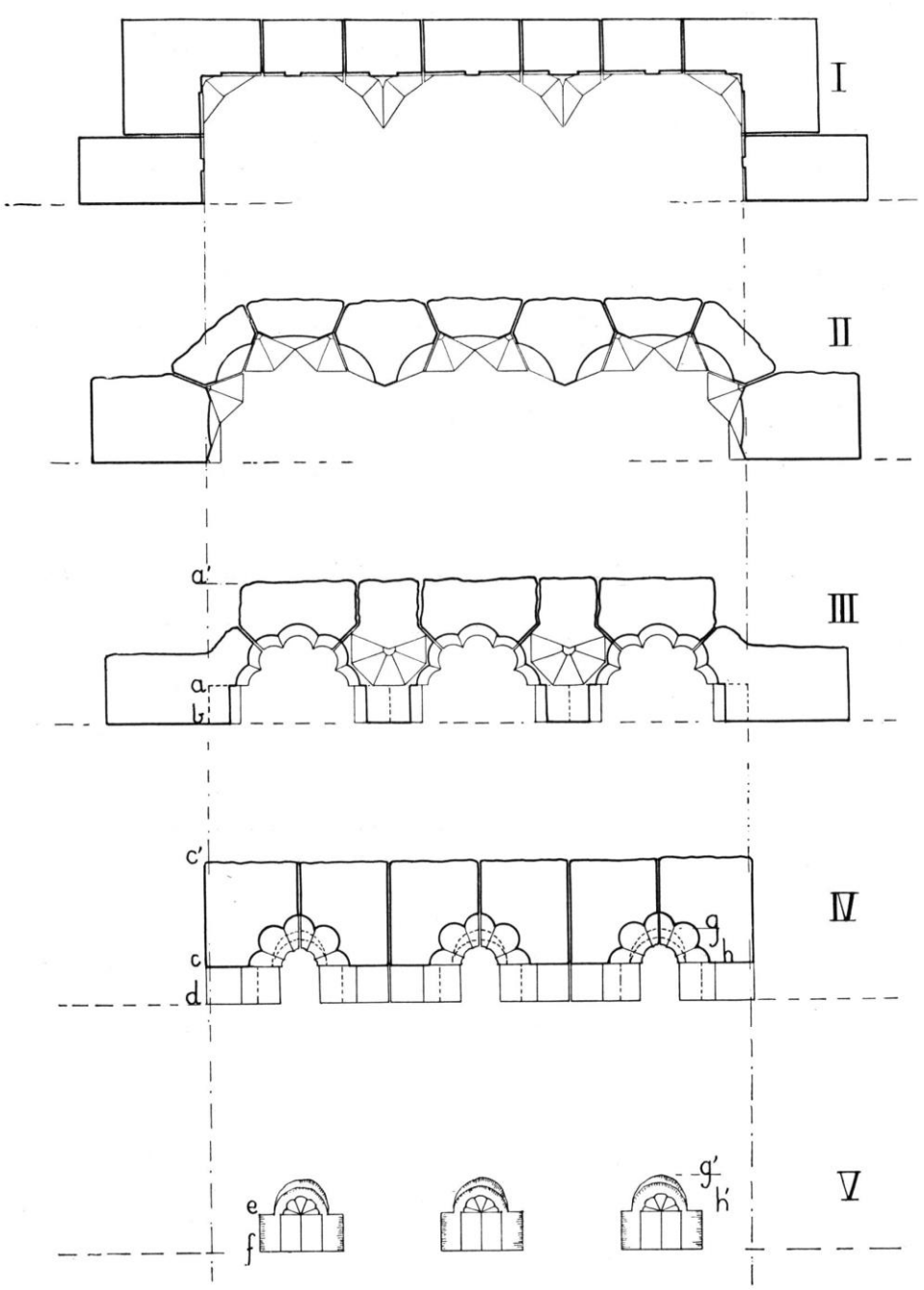

Fig. 20: Syria, Castle of Ṣahyūn, scheme of the courses of stone blocks (Écochard, 'Notes d'archéologie', p. 106).

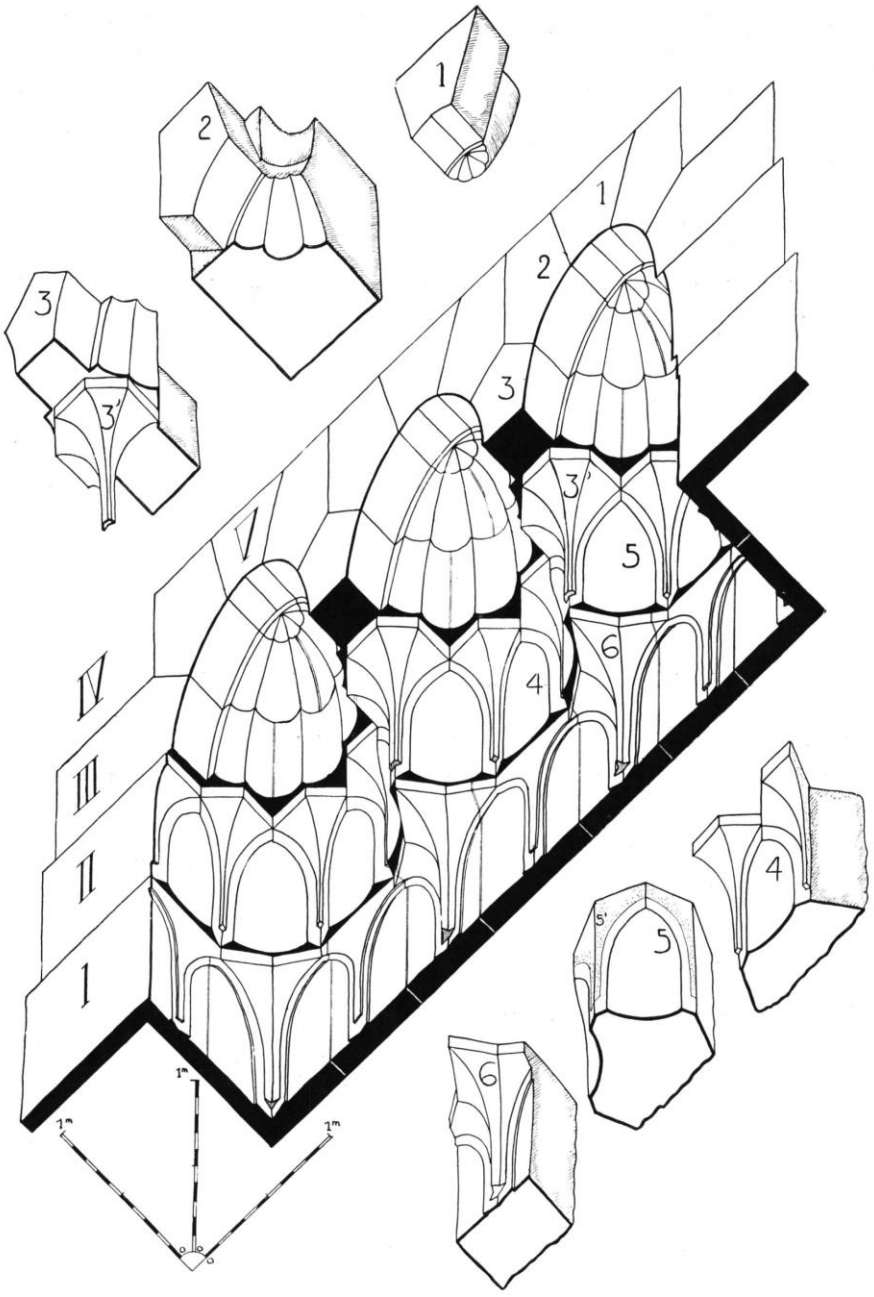

Fig. 21: Syria, Castle of Ṣahyūn, isometric projection of the portal and some of the stone blocks (Écochard, 'Notes d'archéologie', p. 107).

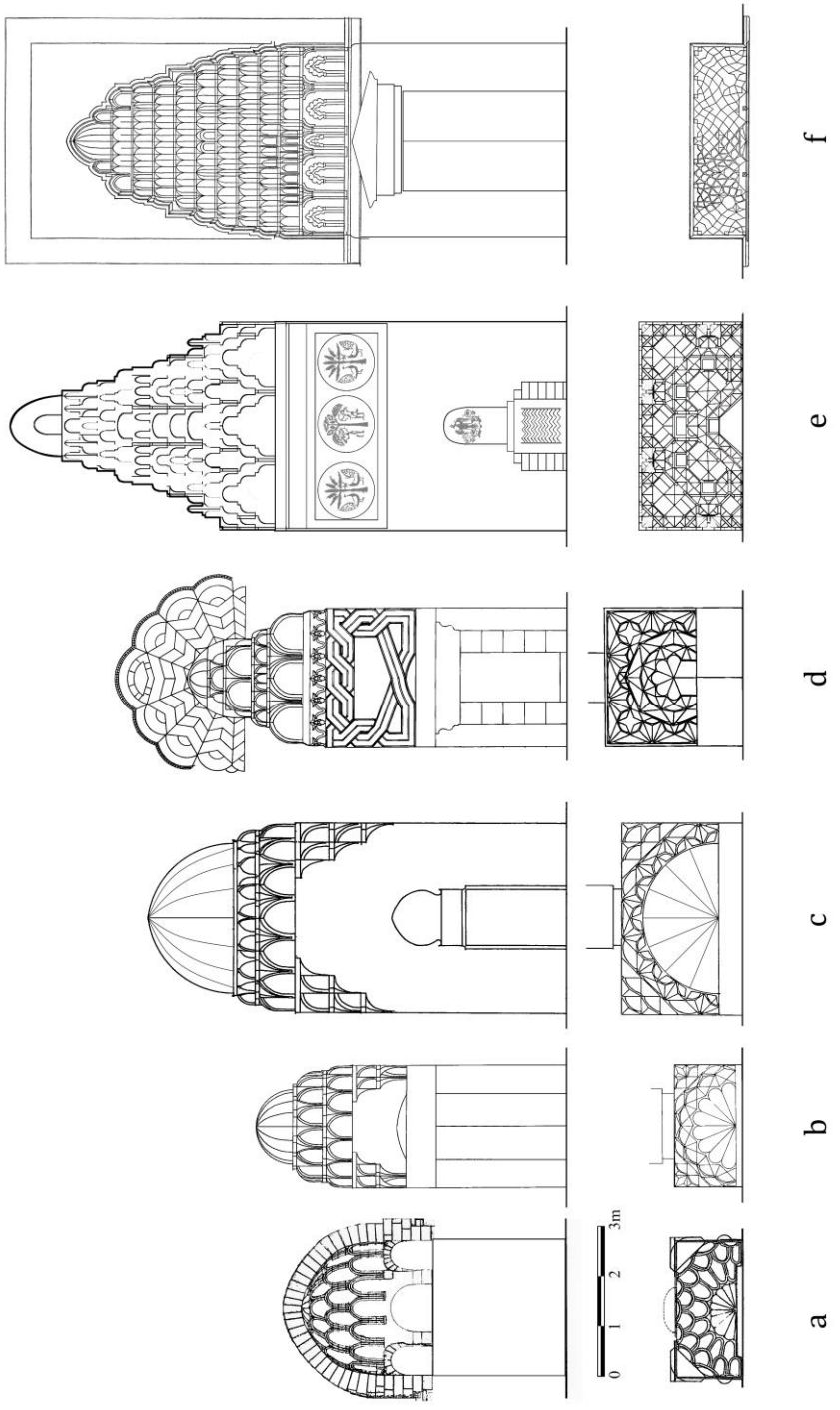

Fig. 22: Plans and elevations of some of the main described *muqarnas* vaults: (a) Caronia; (b). Shādbakhtiyya; (c). Portal of Ibn Turayrah; (d) Mashhad al-Ḥusayn; (e). Zisa; (f). Māristān of Nūr al-Dīn.

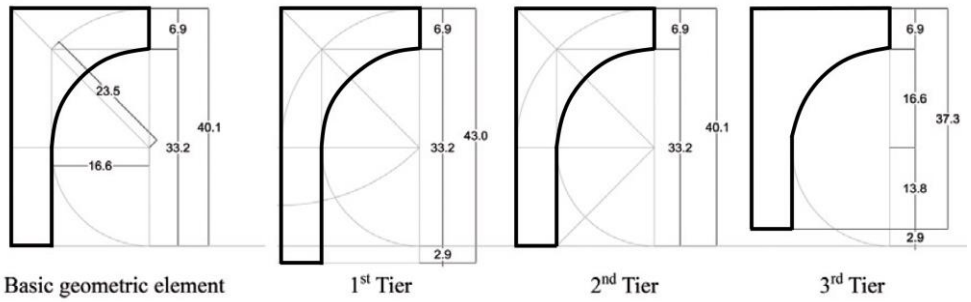

Fig. 23: Palermo, Cappella Palatina, profile of the EL-1 panel and variations of its dimension in the different tiers (Agnello, 'The Painted Ceiling', p. 424).

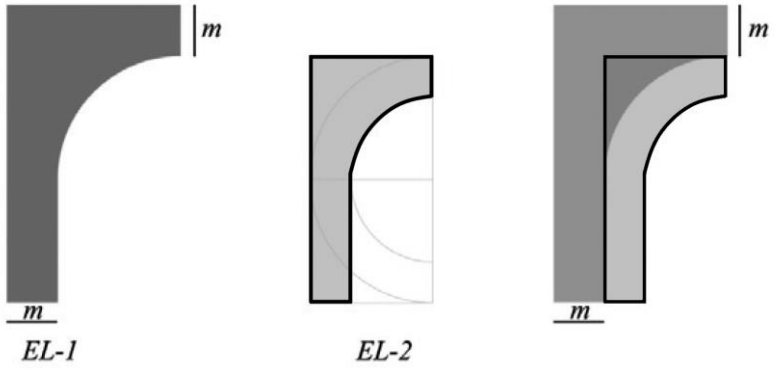

Fig. 24: Palermo, Cappella Palatina, drawing of the EL-2 panel which is obtained by rescaling the EL-1 panel. The height and width of EL-2 are equal to EL-1 minus *m* (Agnello, 'The Painted Ceiling', p. 425).

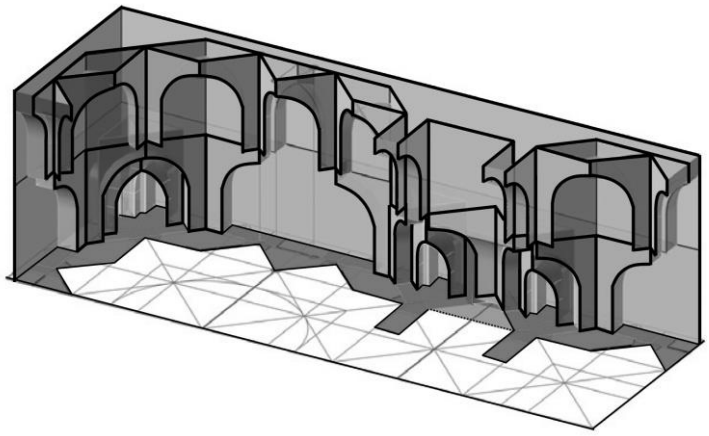

Fig. 25: Palermo, Cappella Palatina, arrangement of the EL-1 and EL-2 panels in the first two tiers of *muqarnas* (adapted from Agnello, 'The painted Ceiling', p. 428)

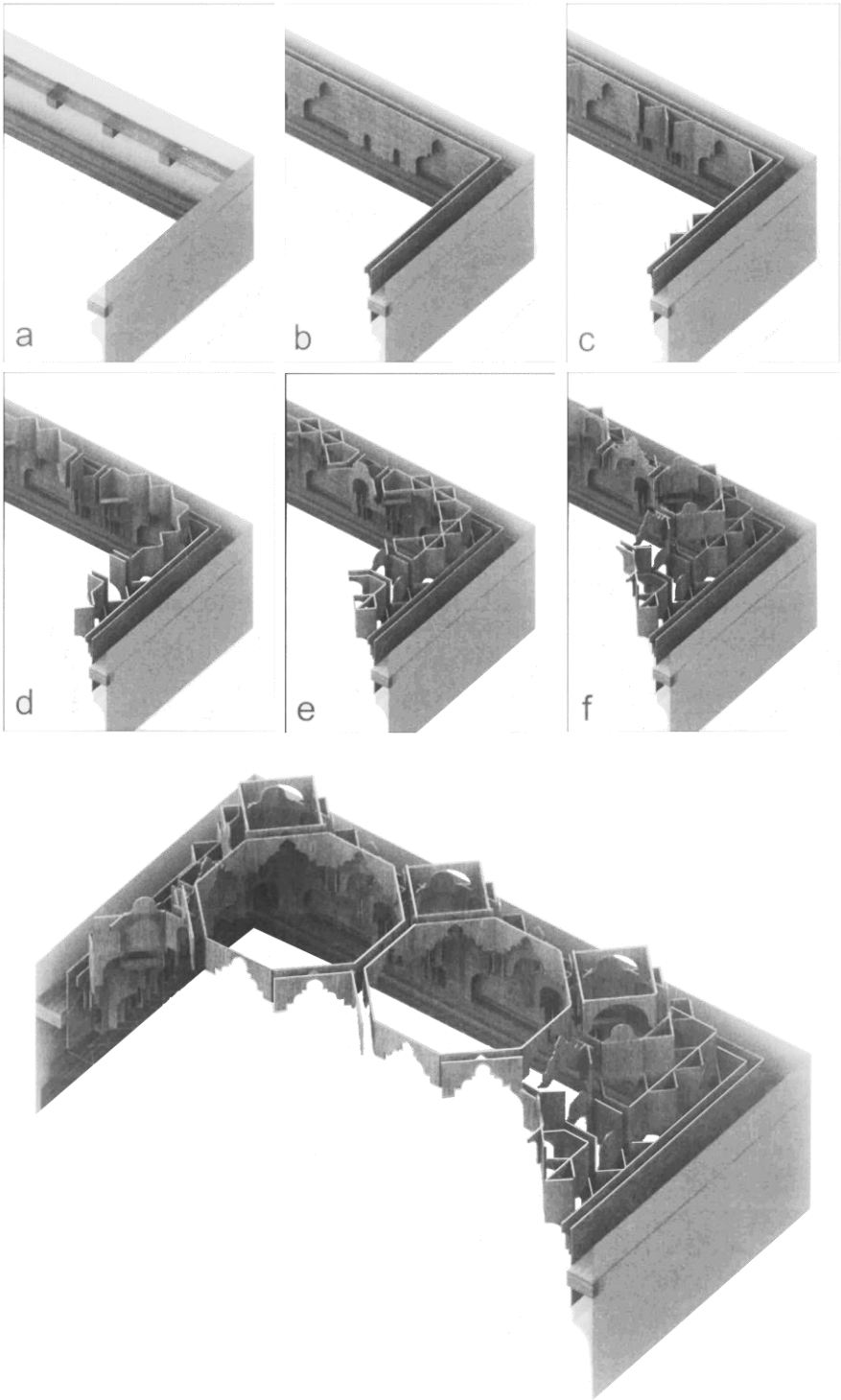

Fig. 26: Palermo, Cappella Palatina, constructive sequence of the ceiling's structure according to Agnello, 'Rilievo e rappresentazione', p. 335.

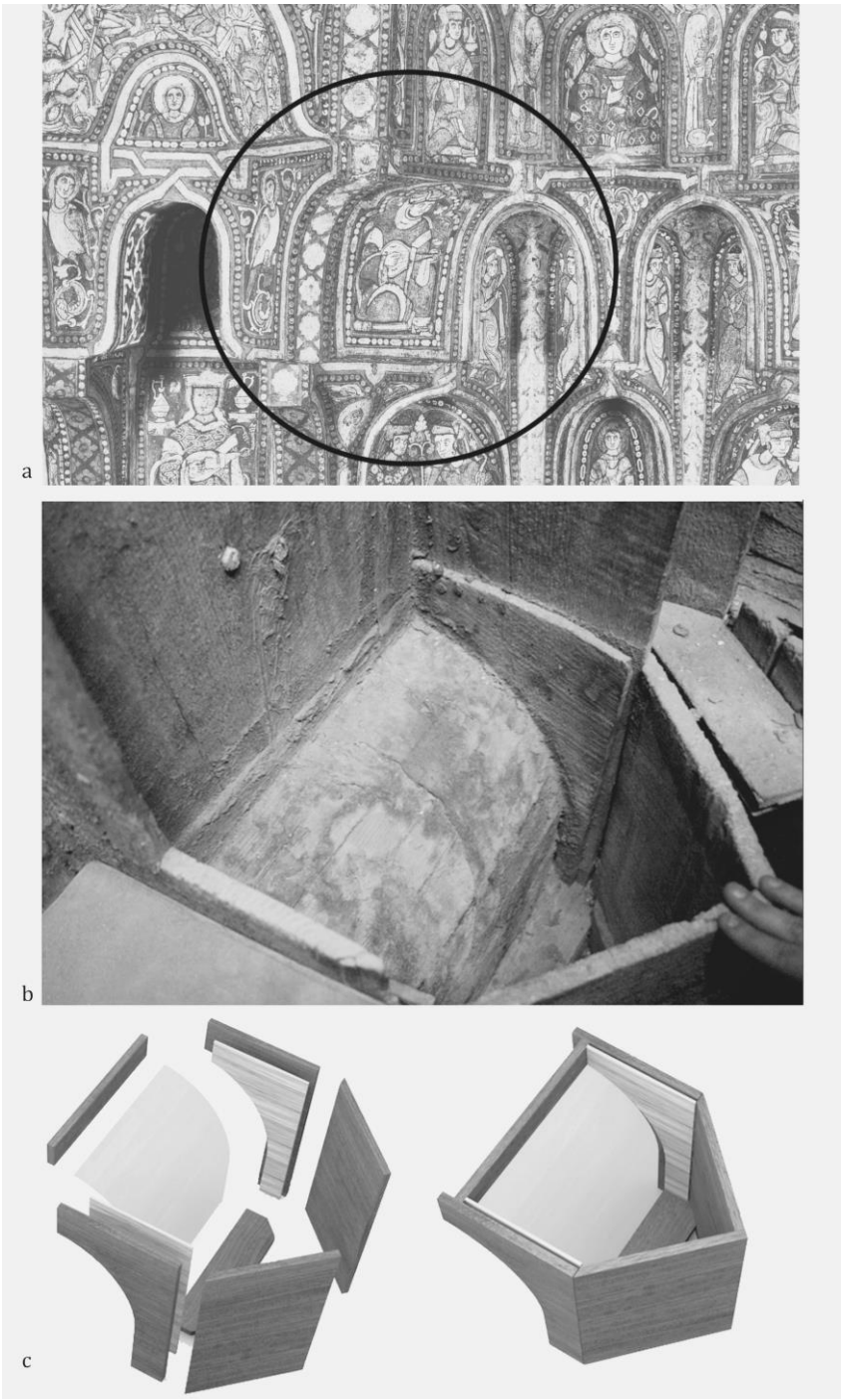

Fig. 27: Palermo, Cappella Palatina; (a) portion of vault covering a rectangular space included between two EL-1 panels; (b) view of its extrados; and (c) composition of the same element (adapted from Agnello, 'The Painted Ceiling', p. 432).

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RESUMEN EN ESPAÑOL

El arte y la arquitectura desarrollada bajo los reyes normandos de Sicilia muestran un amplio repertorio de características arquitectónicas y decorativas de linaje oriental. En la arquitectura residencial, varios planos y formas encontrados en el mundo islámico contemporáneo o anterior se utilizaron en Sicilia, como las salas de recepción en forma de T, las torres que se proyectan desde el cuerpo principal de los edificios y los estanques artificiales destinados a reflejar las fachadas principales. Además, elementos como la cúpula de piedra sobre trompas, el uso del arco apuntado u ojival, los arcos ciegos o los paneles arqueados que adornan la mayoría de las fachadas de los edificios normandos podrían mencionarse, como prueba de la asimilación de una antigua tradición oriental de origen mesopotámico y persa, adoptada por los arquitectos islámicos ya en los tiempos de los Omeyas en Siria, así como en los siguientes períodos.

En el campo de la decoración, esta influencia fue aún más notable y explícita, incluyendo lujosas *muqarnas* en palacios, pinturas con iconografía islámica, bandas de inscripción en árabe, geometría y patrones de estrellas entrelazadas en pavimentos, rejas de estuco o paneles de madera que definen campos con decoración vegetal.

Si bien la influencia islámica sobre el arte de Norman Sicilia está bien establecida, el rastreo de sus orígenes sigue siendo un tema de debate y diferentes estudiosos han atribuido dicha influencia al Occidente Islámico, al norte de África, al Egipto fatimí o al Cercano Oriente.

La presente Tesis Doctoral propone un análisis comparativo del motivo decorativo de la *muqarnas* en el arte y arquitectura normanda

del reino de Sicilia (1130-1189) con el objeto de enmarcar los ejemplos normandos en la perspectiva de las producciones análogas, antecedentes, coetáneas y posteriores. De esta manera se intenta circunscribir desde el punto de vista espacial y cronológico los posibles focos de procedencia de los modelos acogidos, aclarando las posibles vías de llegada y la mecánica de transmisión al arte y a la arquitectura normanda. La investigación aporta nuevos datos sobre los procesos de intercambio y transferencia artístico-cultural en la Edad Media europea.

La fase preliminar de este trabajo fue la reconstrucción del marco histórico del Reino de Sicilia y sus relaciones internacionales, prestando especial atención a la vida sociopolítica, cultural y artística del reino en el período en que florecieron el arte y la arquitectura normandos (aproximadamente 1130-1189).

El siguiente paso fue la selección de una muestra significativa de monumentos en los que se usa la *muqarnas*. Además de los diez monumentos sicilianos que muestran esta clase de decoración, se seleccionaron más de 70 monumentos, ilustrativos de los orígenes y la evolución de la *muqarnas*, que cubren un área geográfica incluida desde Asia Central hasta la Península Ibérica, y se atribuyen a un período cronológico de aproximadamente tres siglos, desde del siglo X al XII, con una digresión en el siglo XIII para describir la evolución de las bóvedas de *muqarnas* en piedra (unos 15 monumentos, descritos en el capítulo 7).

Se eligió la *muqarnas* porque se usaba extensamente en palacios normandos, y ofrecía un campo potencialmente rico para el estudio

comparativo (la comparación podía enfocarse desde diferentes puntos de vista, como geometría, técnicas de construcción y materiales de construcción, y los ejemplos sicilianos mostraban aparentemente una gran variedad).

Aparte de los más de 70 ejemplos mencionados anteriormente, también se discutieron ocasionalmente otros monumentos islámicos posteriores, cada vez que nos pareció útil para aclarar algunos aspectos específicos de la discusión. Asimismo, aparte de la *muqarnas*, otras clases de evidencias han sido estudiadas, tanto epigráficas como decorativas, siempre que fuera necesario para el desarrollo de la discusión.

Posteriormente, la información recopilada se analizó críticamente en una serie de entradas, prestando especial atención a los aspectos cronológicos, materiales, constructivos, geométricos y decorativos de los ejemplos seleccionados de *muqarnas*. Este catálogo, que es una parte integral de la tesis, está compuesto por unas 90 entradas, incluidas 10 dedicadas a monumentos sicilianos y unas 80 dedicadas a ejemplos de *muqarnas* documentadas en el área mediterránea y el Cercano Oriente. Una selección de la documentación gráfica más relevante, que se usó y se elaboró durante la preparación del catálogo, se incluye en el CD de las imágenes, o volumen II de la tesis, que es parte integrante del presente trabajo (contiene más de 500 páginas de ilustraciones, incluidas fotos y dibujos).

Una vez que se analizaron todos los monumentos seleccionados, se proporcionó una cronología más segura y una clasificación más precisa

de las *muqarnas* de todo el Mediterráneo y el Cercano Oriente, lo que sirvió de base para el estudio comparativo. Gracias a este amplio y actualizado conjunto de datos, las *muqarnas* normandas se enmarcaron más correctamente en la perspectiva de producciones islámicas análogas.

El estudio comparativo nos permitió especificar la complejidad y variedad de las técnicas de *muqarnas* y abordar la mecánica de transmisión del motivo. Finalmente, esto nos permite circunscribir las posibles fuentes del modelo y evaluar el poder creativo de los hábiles artesanos que, trabajando en la tradición islámica al servicio de los reyes normandos, fueron atraídos por los patrones para crear una vanguardia que refleje su propia imagen del poder.

TESIS DOCTORAL CON MENCIÓN INTERNACIONAL PARA OPTAR AL GRADO DE DOCTOR

The Representation of Power in the Art and Architecture of the Kingdom of Sicily during the Norman Period (1130-1189 AD)

VOLUME II. PLATES CD

Presentada por
MAURIZIO MASSAIU

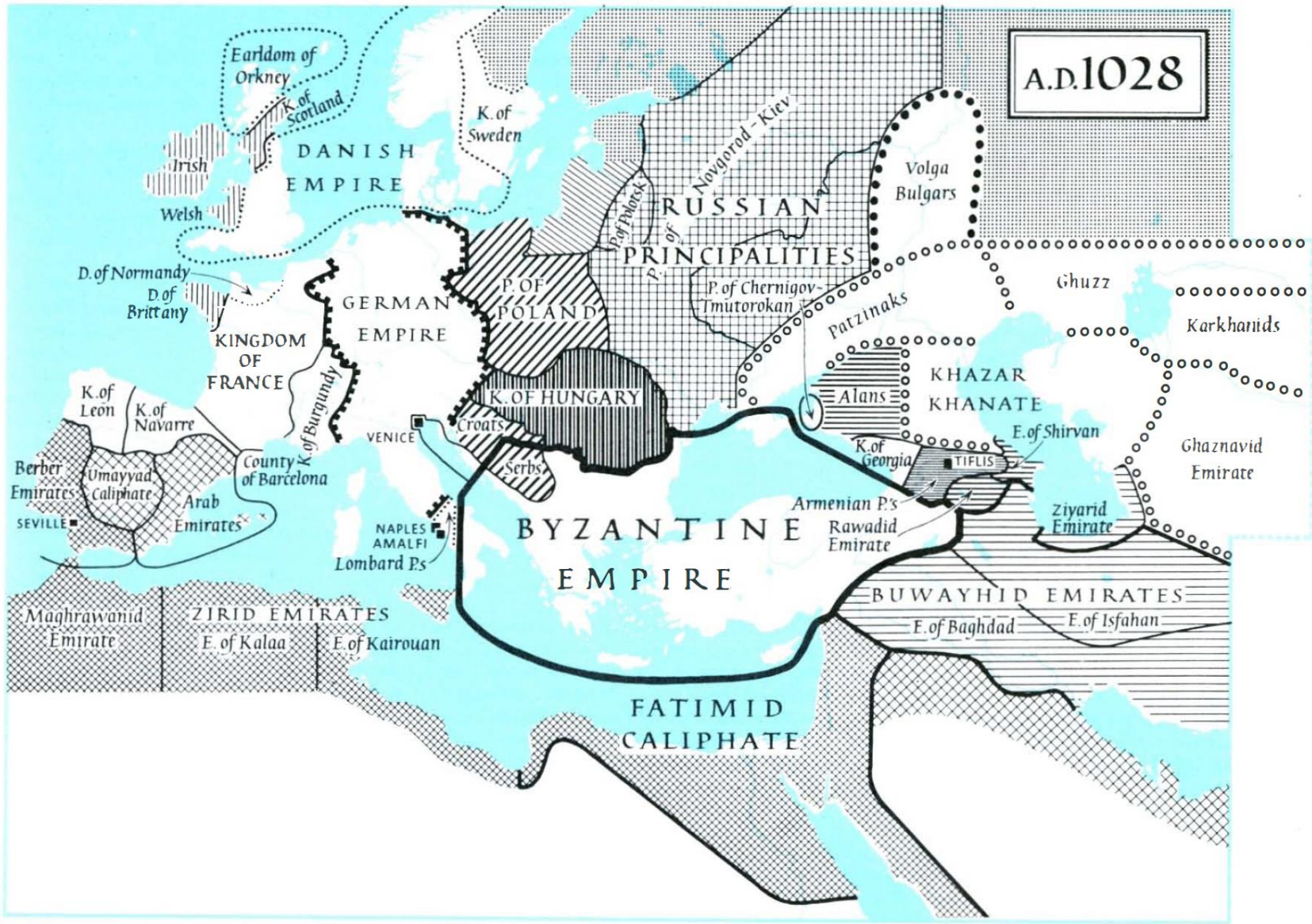
Director: JUAN PEDRO MONFERRER SALA
Codirector: DORIS BEHRENS-ABOUSEIF

UNIVERSIDAD Ð CÓRDOBA
INSTITUTO DE ESTUDIOS DE POSGRADO
PROGRAMA DE DOCTORADO EN LENGUAS Y CULTURAS

2018

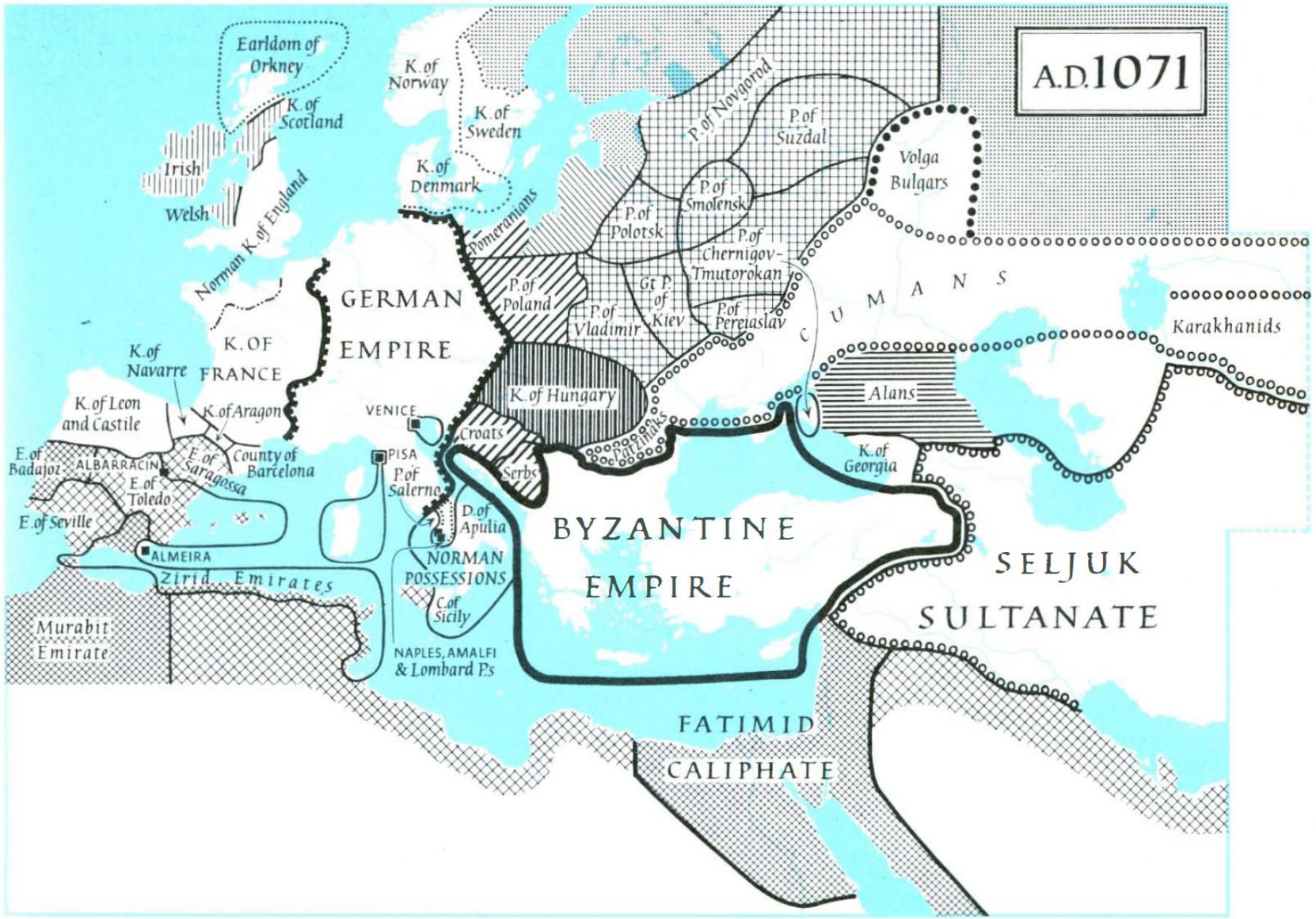
1. THE CONTEXT

The Mediterranean and Near East area in 1028 AD



McEvedy, 1992

The Mediterranean and Near East area in 1071 AD



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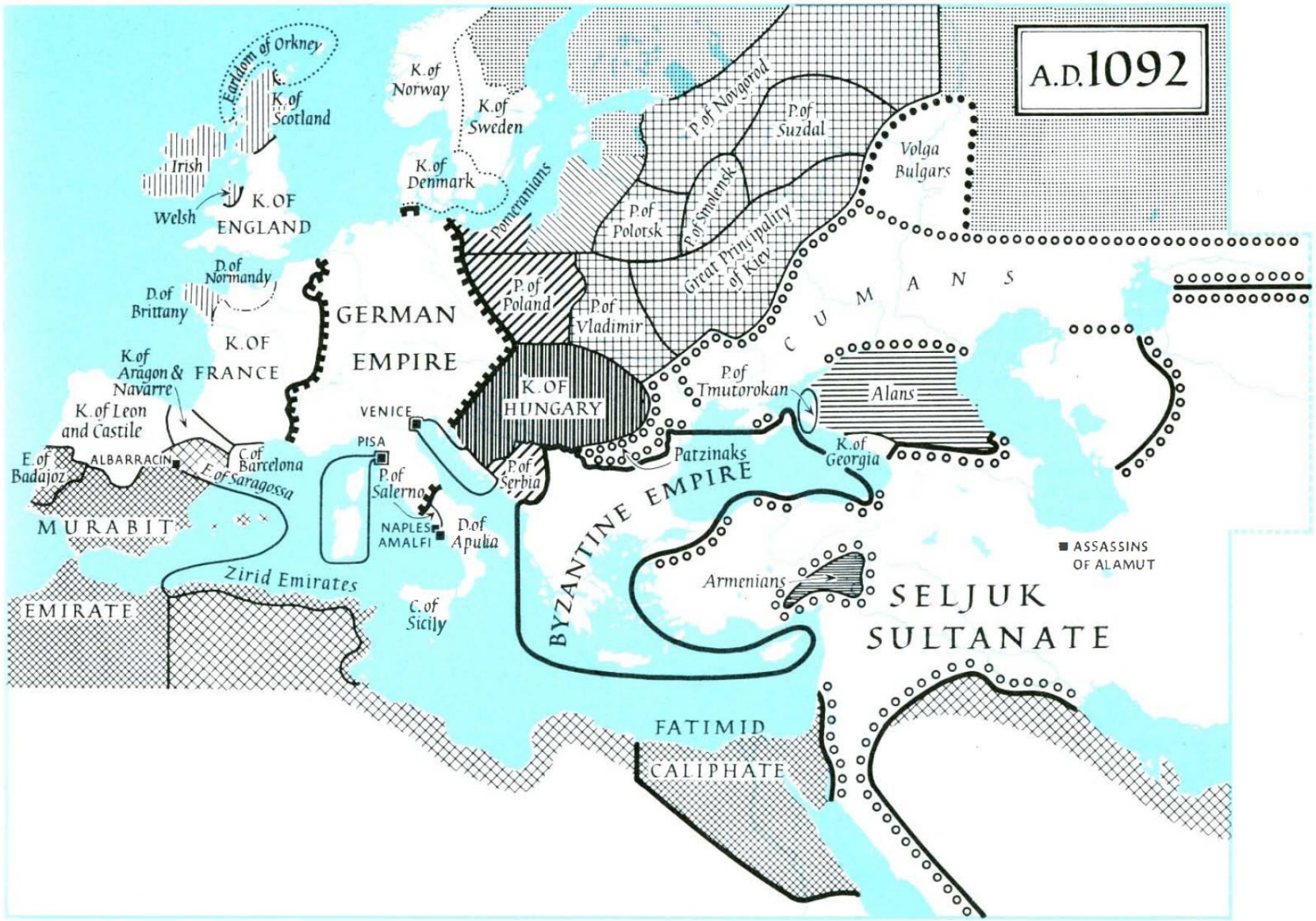

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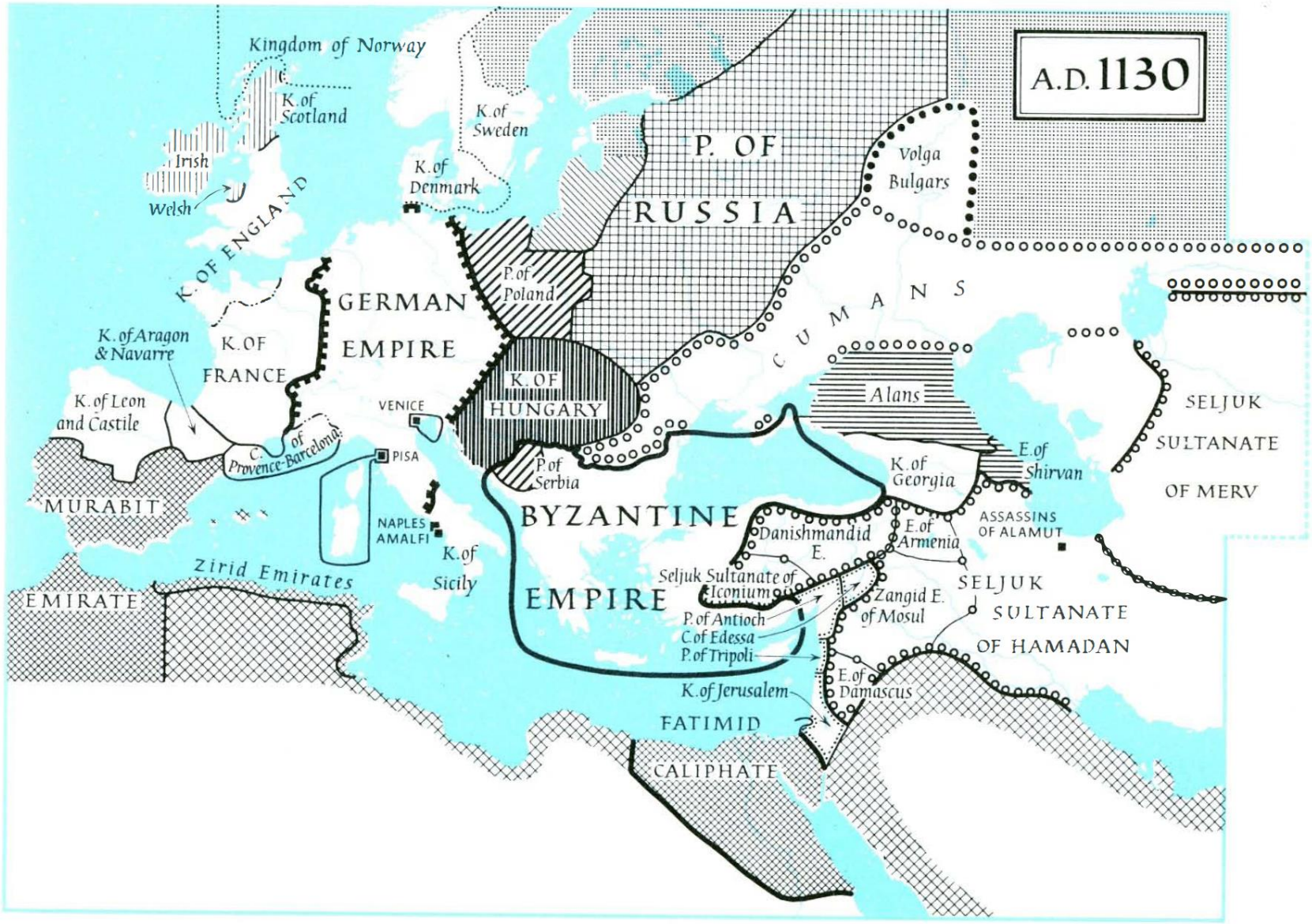
The Mediterranean and Near East area in 1130 AD



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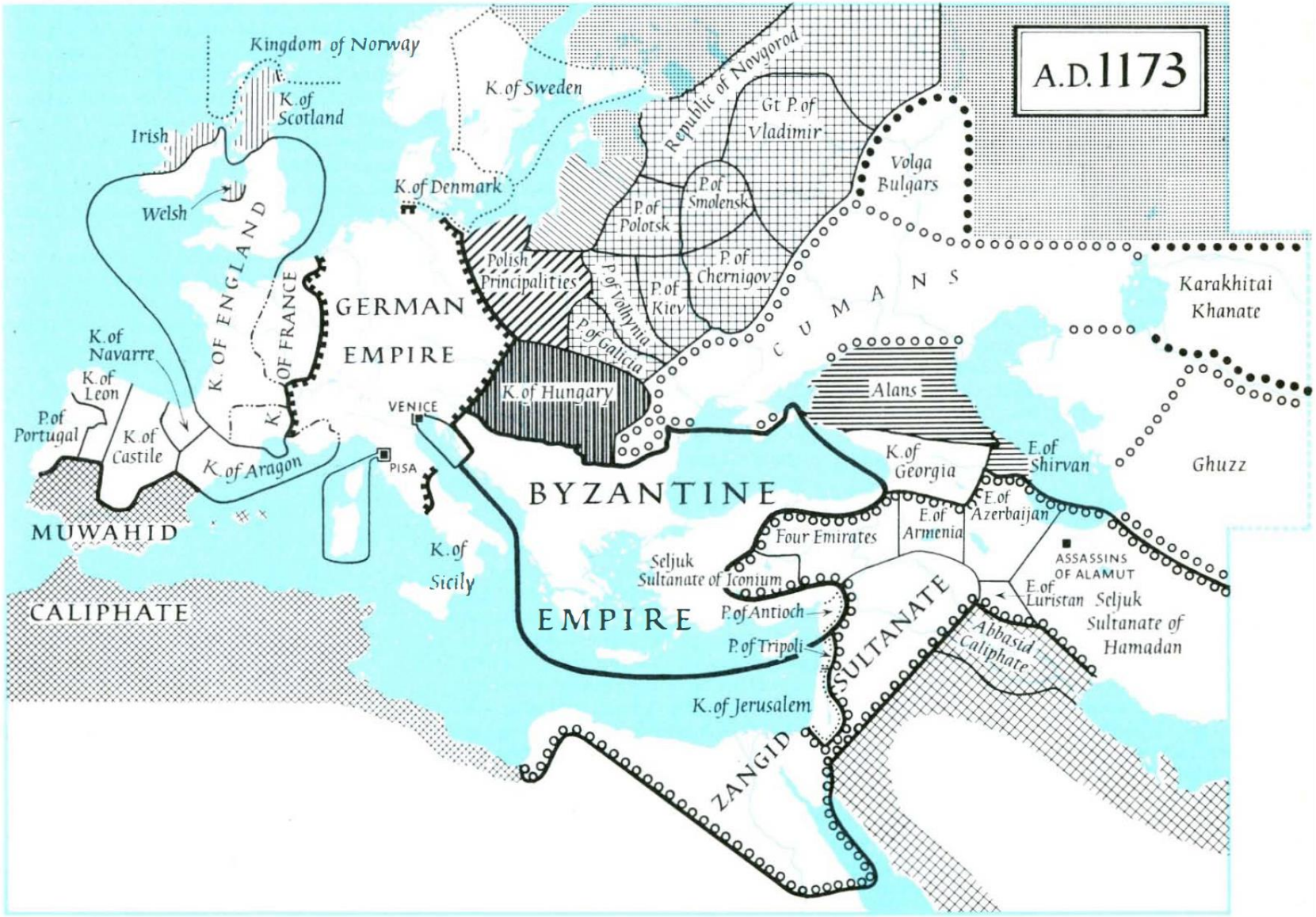
The Mediterranean and Near East area in 1173 AD



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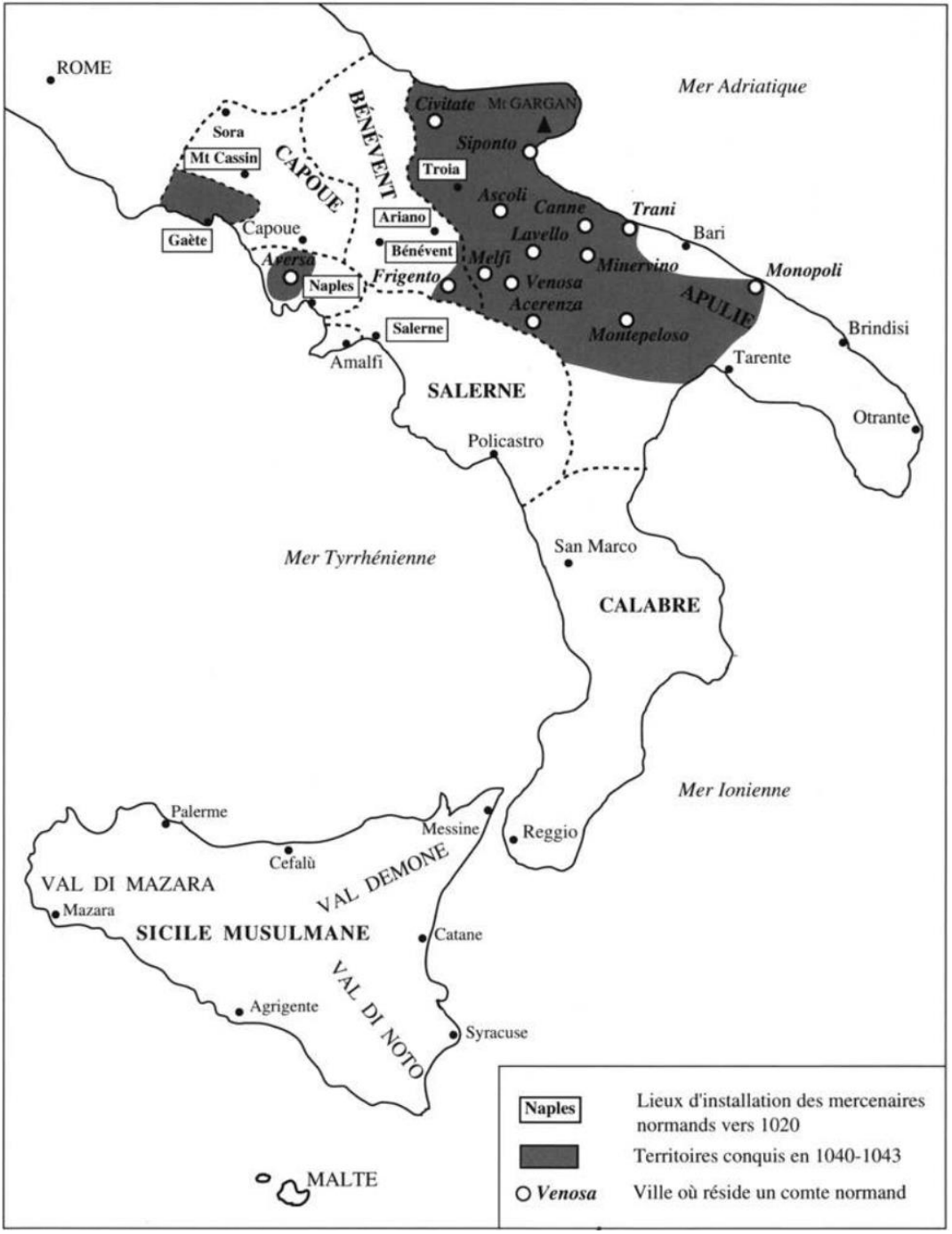
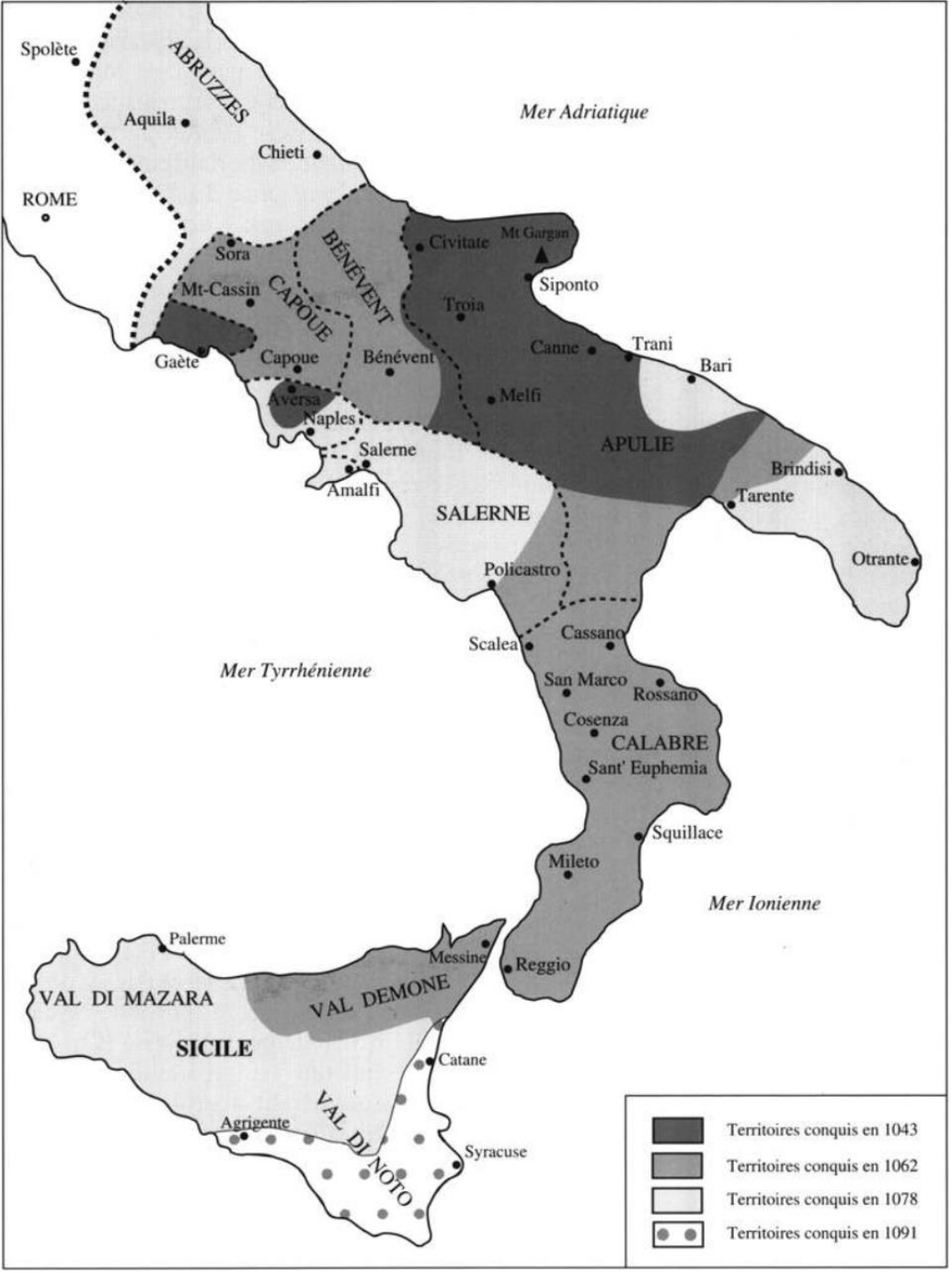
The Crusaders States in 1135 AD

Author: MapMaster, Wikimedia Commons



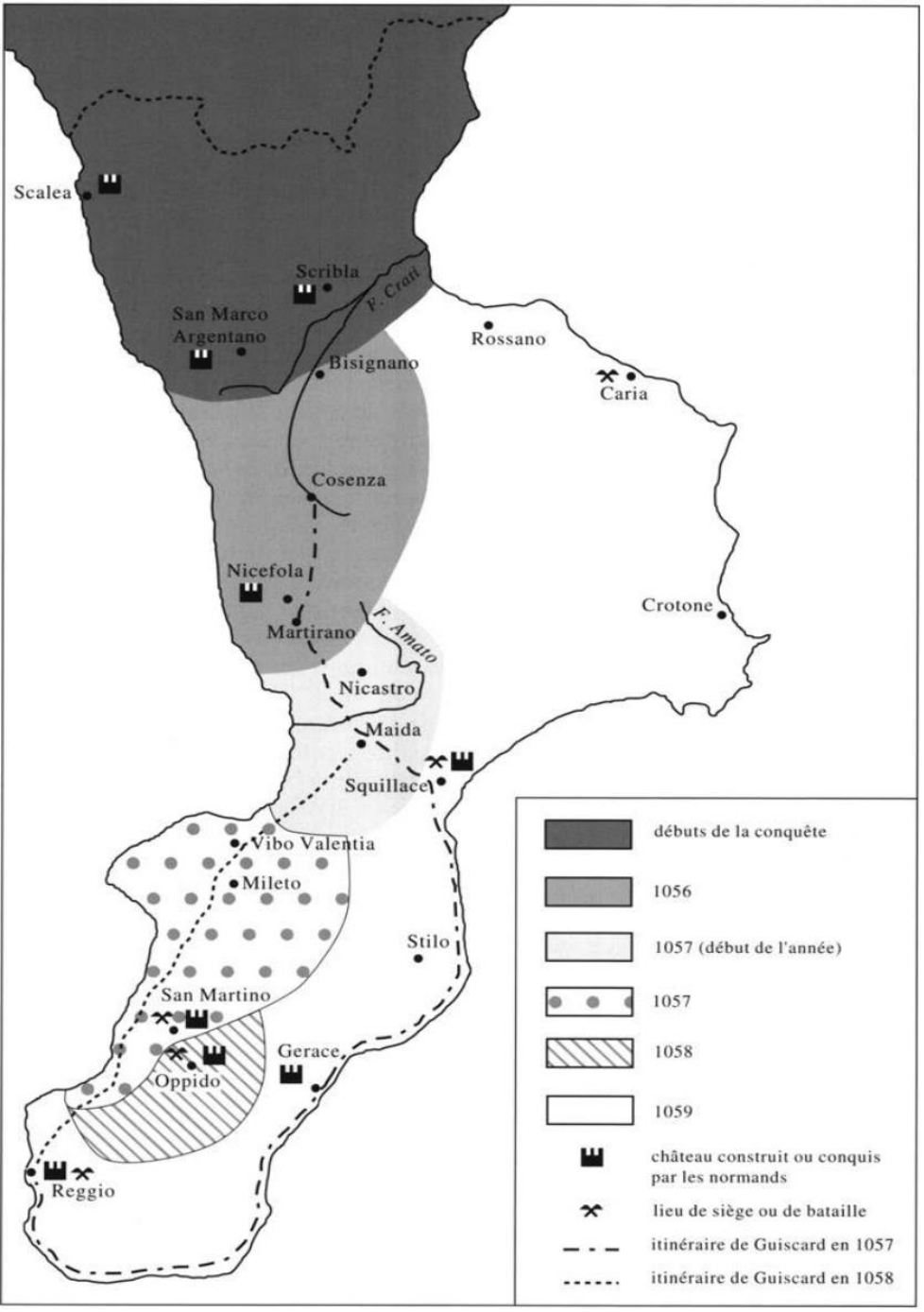
The Normans in South Italy, 1045 AD

Bouet and Neveux (eds.), 2001



The Norman conquest of South Italy

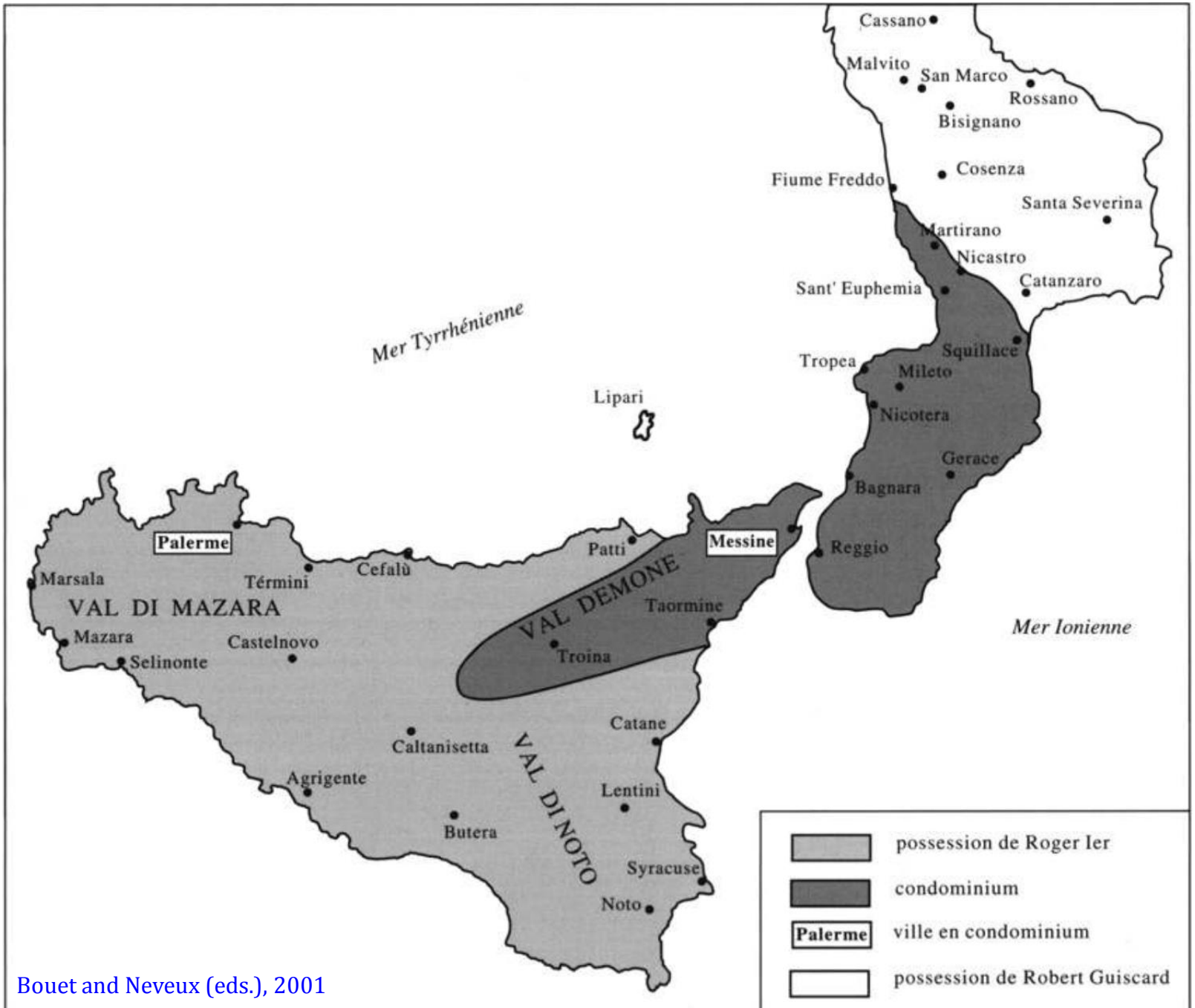
Bouet and Neveux (eds.), 2001



The Norman conquest of Calabria

Bouet and Neveux (eds.), 2001

The Norman County of Calabria, 1085 AD



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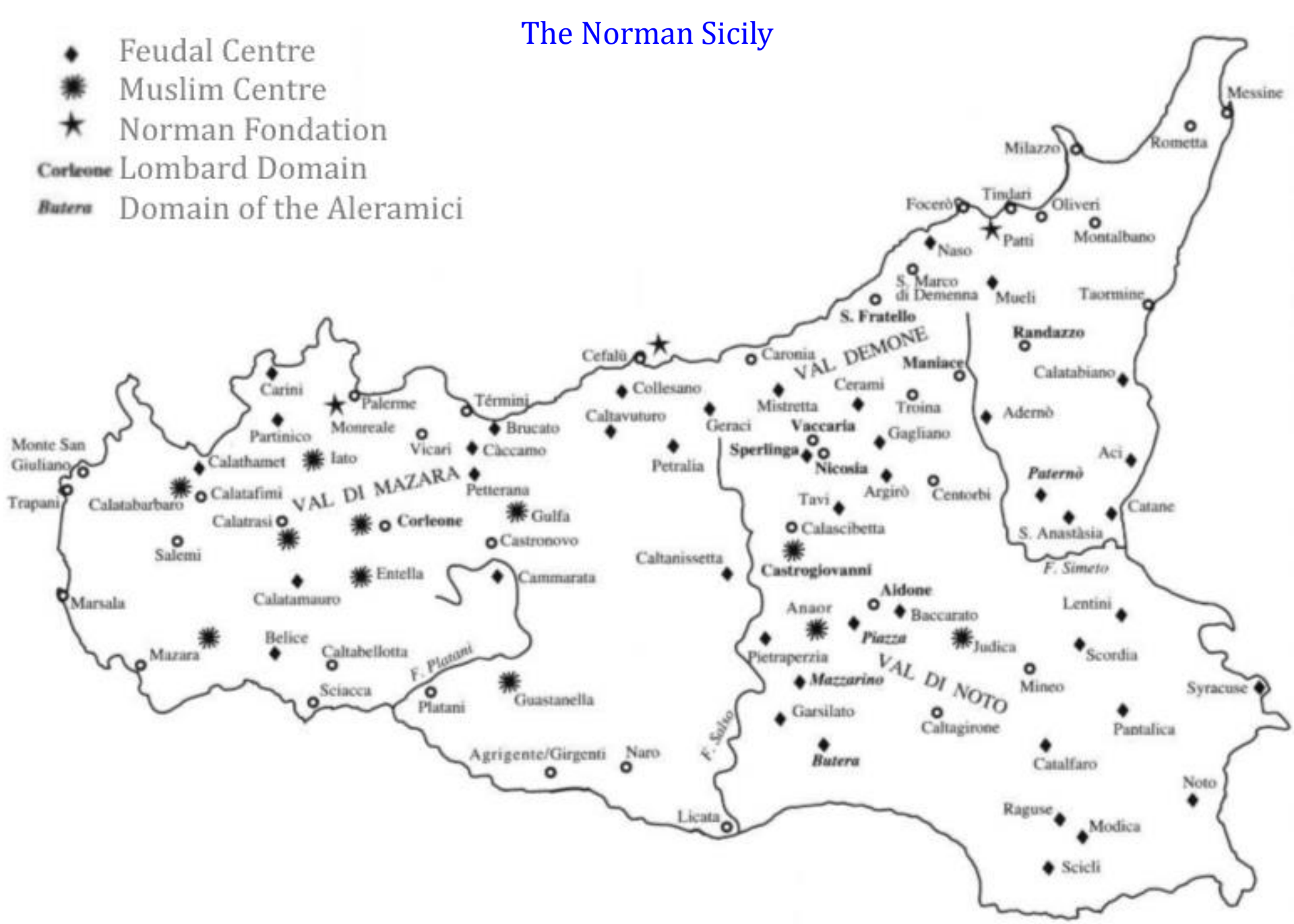
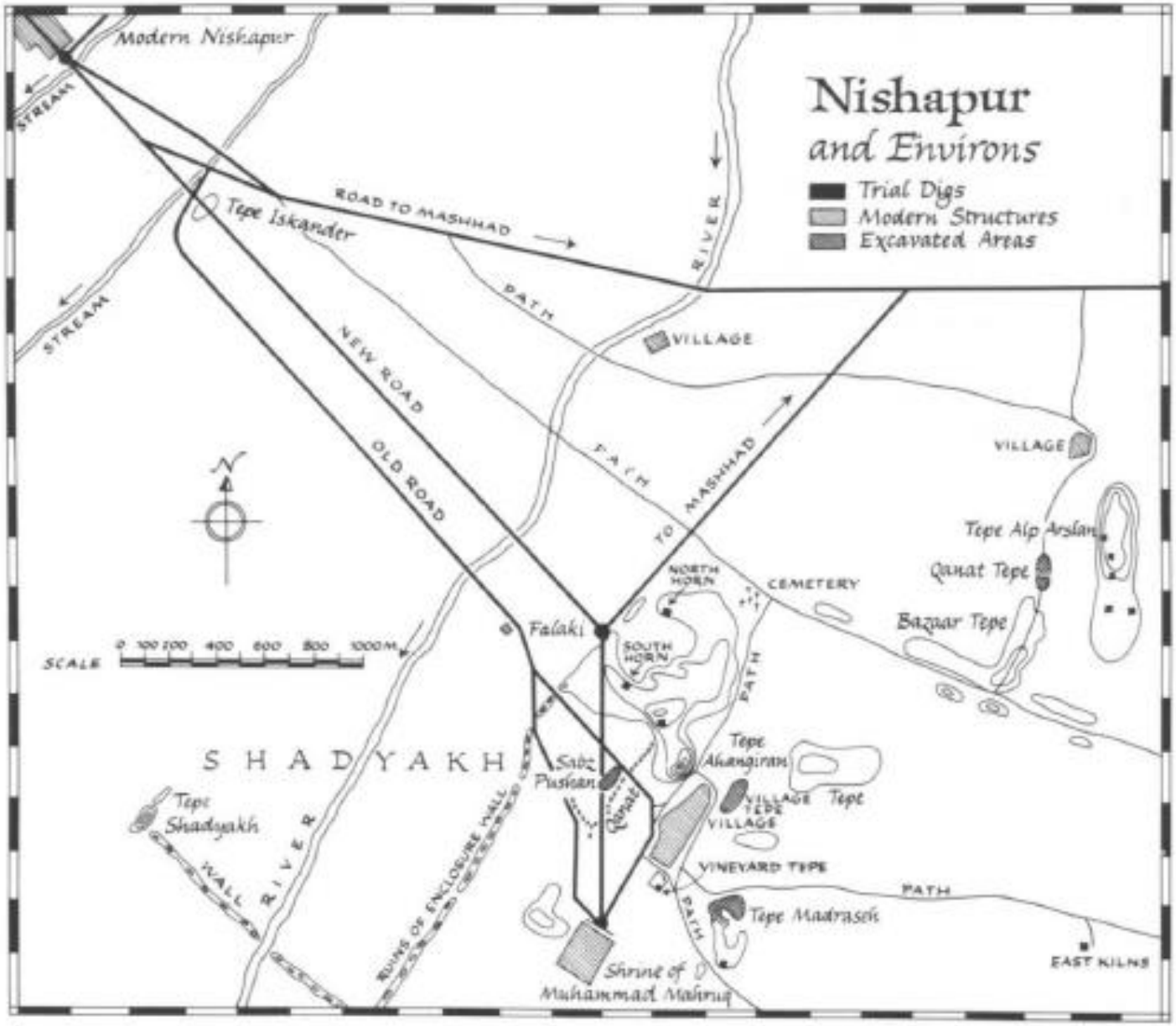
The Norman Sicily



Adapted from Bouet and Neveux (eds.), 2001

2. THE ORIGINS AND FIRST DEVELOPMENT OF *MUQARNAS*

Nīshāpūr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and Environs
Trial Digs
Modern Structures
Excavated Areas
Modern Nishapur
STREAM
STREAM
ROAD TO MASHHAD
Tepe Iskander
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PATH
VILLAGE
NEW ROAD
OLD ROAD
PATH TO MASHHAD
VILLAGE
Tepe Alp Arslan
Qanat Tepe
Bazaar Tepe
NORTH HORN
CEMETERY
Falaki
SOUTH HORN
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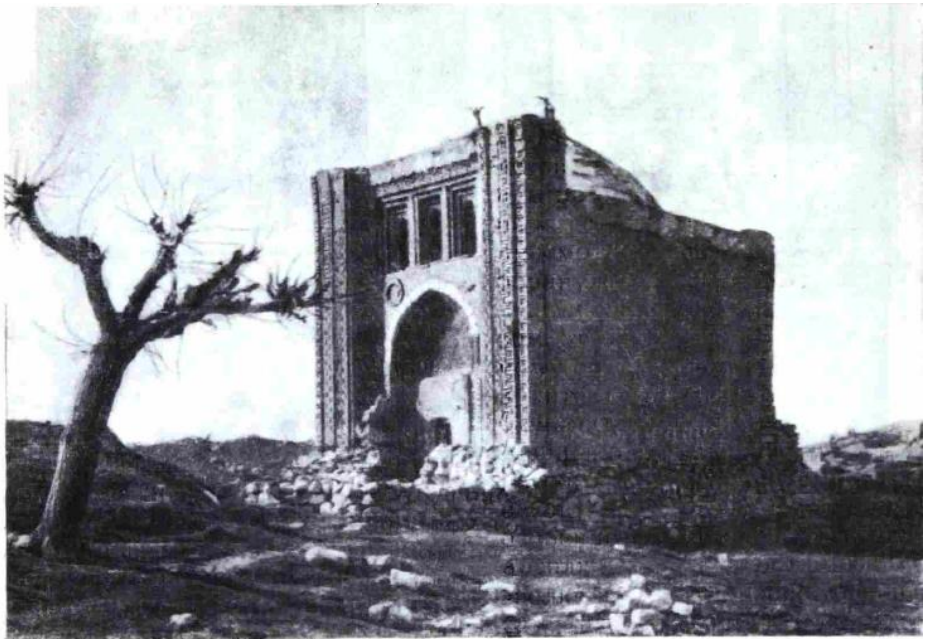
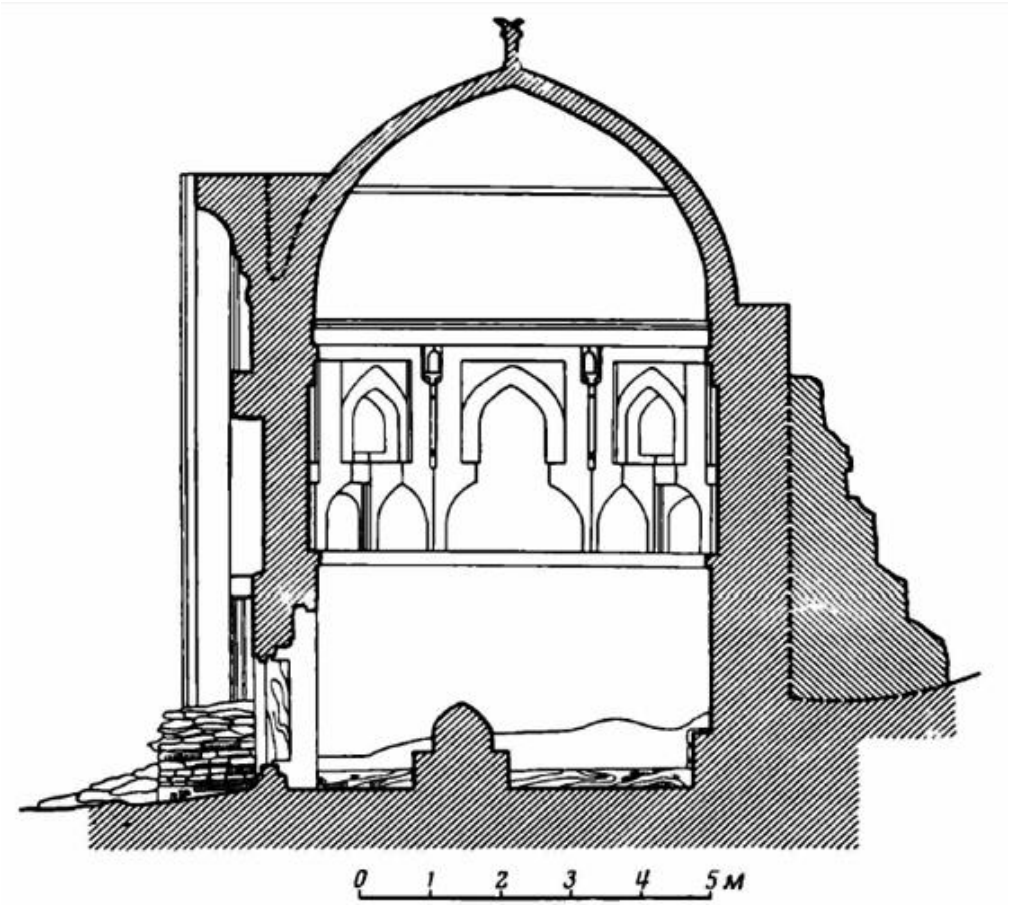
0 100 200 400 600 800 1000M
SHADYAKH
Tepe Ahangiran
Sabz Pushan
Qanat
VILLAGE TEPE
VILLAGE
Tepe
Tepe Shadyakh
WALL
RIVER
RUINS OF ENCLOSURE WALL
VINEYARD TEPE
PATH
PATH
Tepe Madraseh
Shrine of Muhammad Mahruq
EAST KILNS

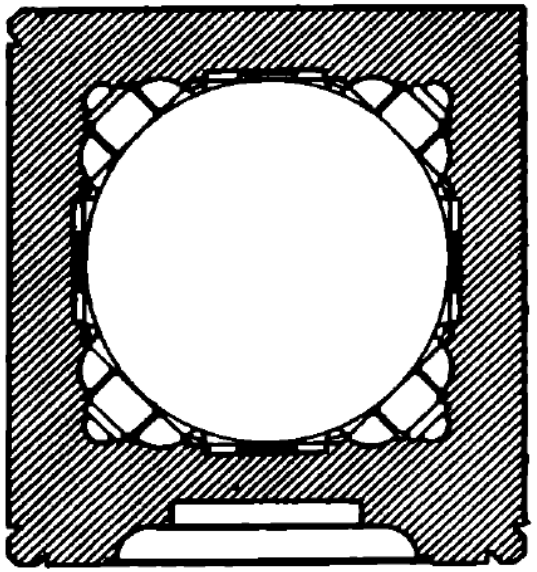
Wilkinson, 1986

Wilkinson, 1986

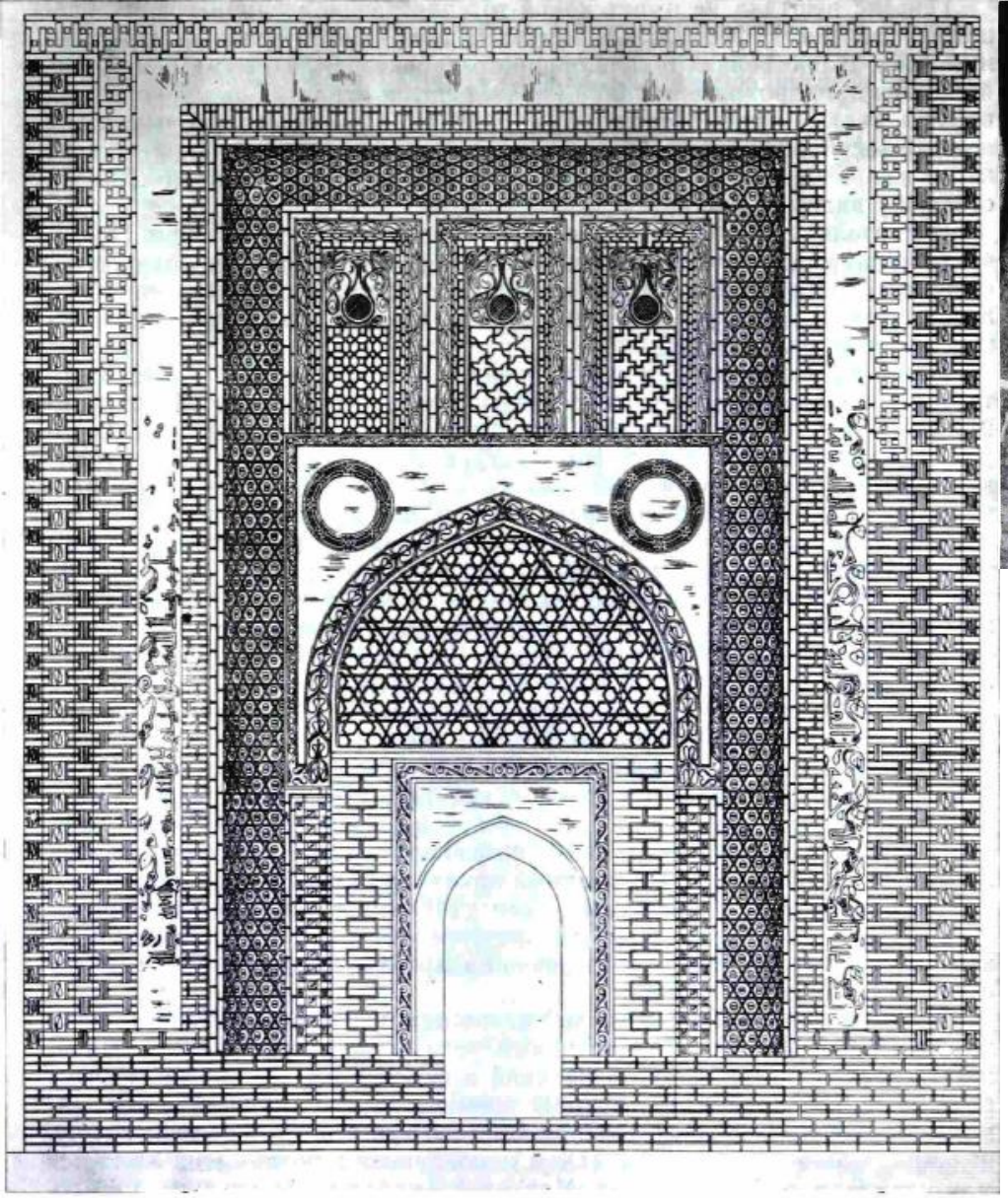


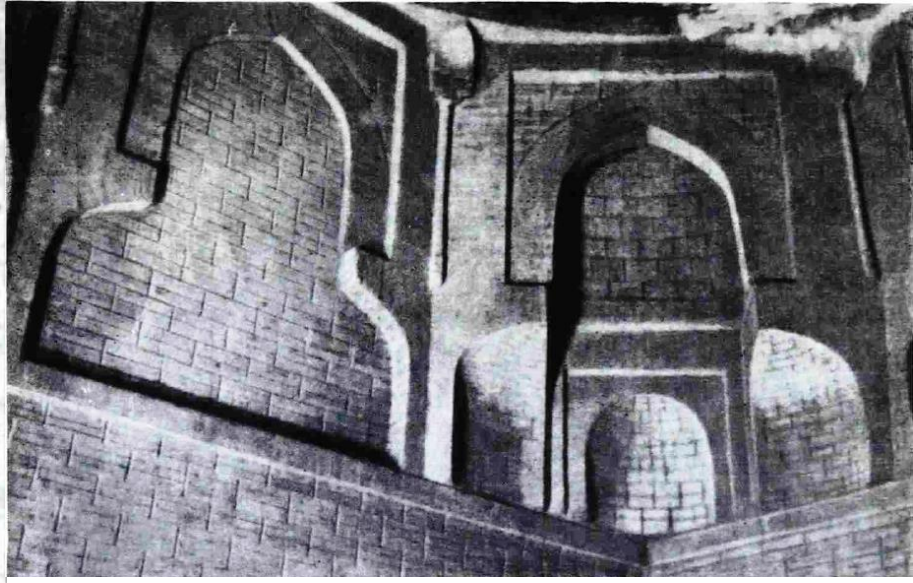
The Arab-Ata Mausleum

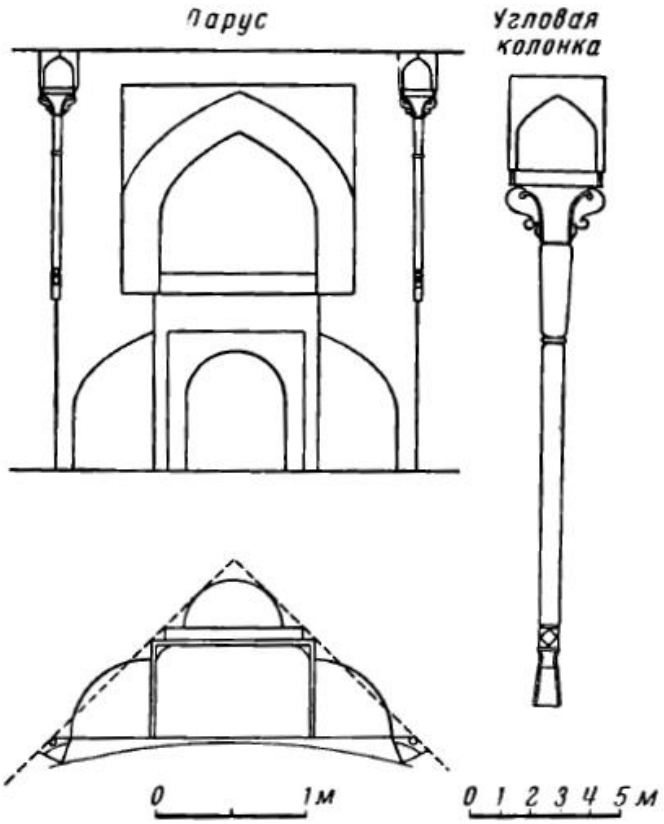




Pugachenkova, 1961



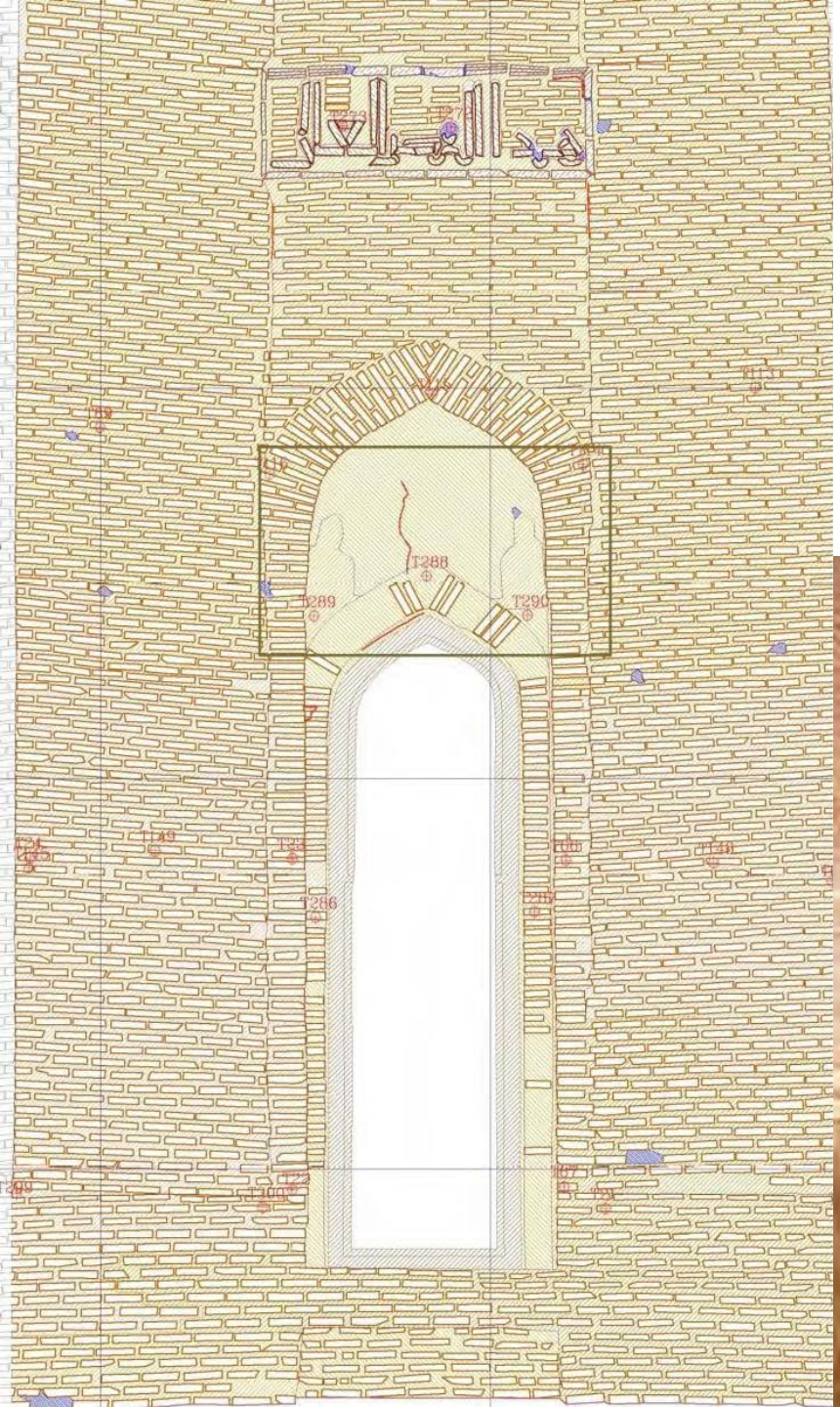




Pugachenkova, 1961

UNESCO Report - 2011

The Gunbad-i Qābūs at Gurgān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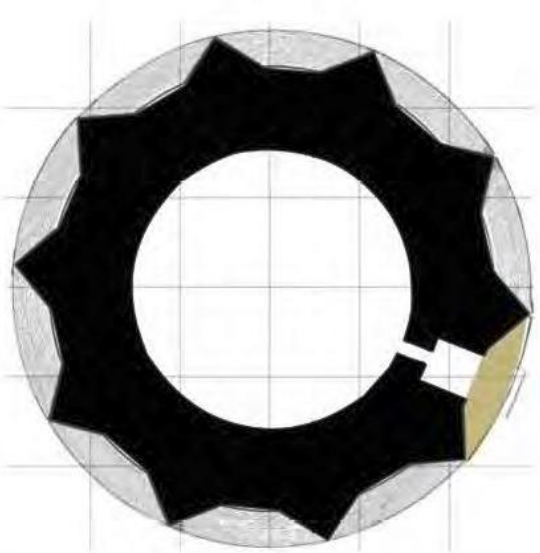

Anisi, 2007

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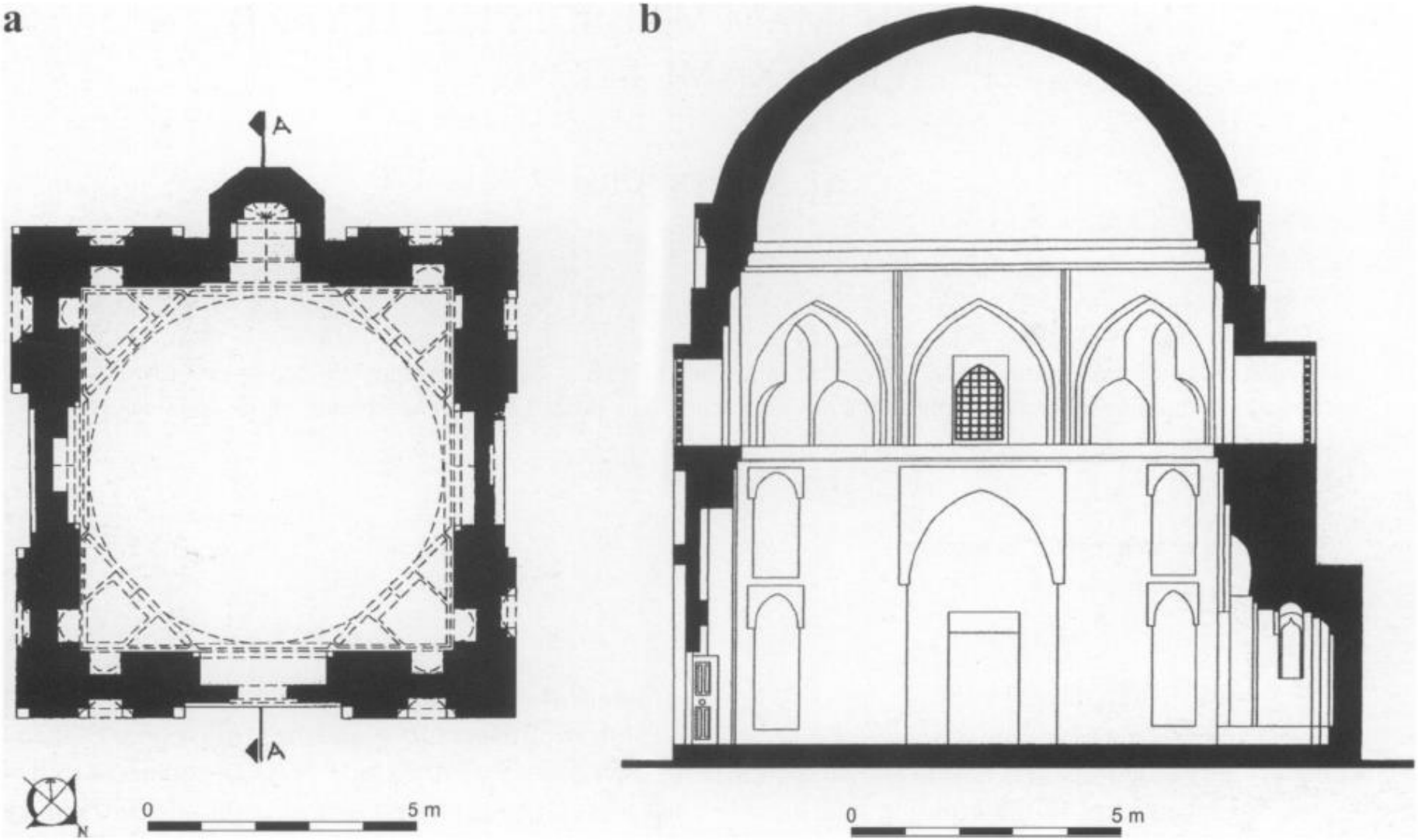
Davāzdah Imām Sanctuary at Yazd



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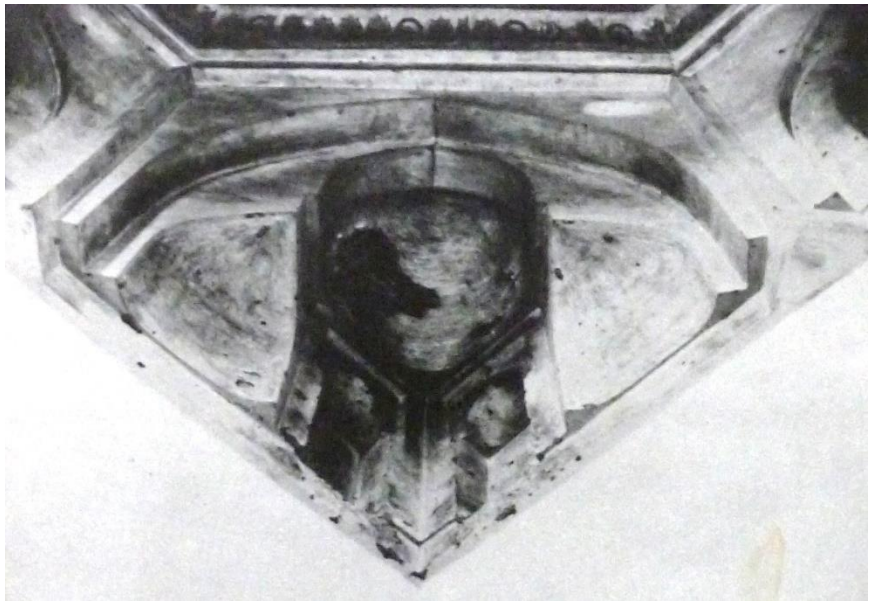

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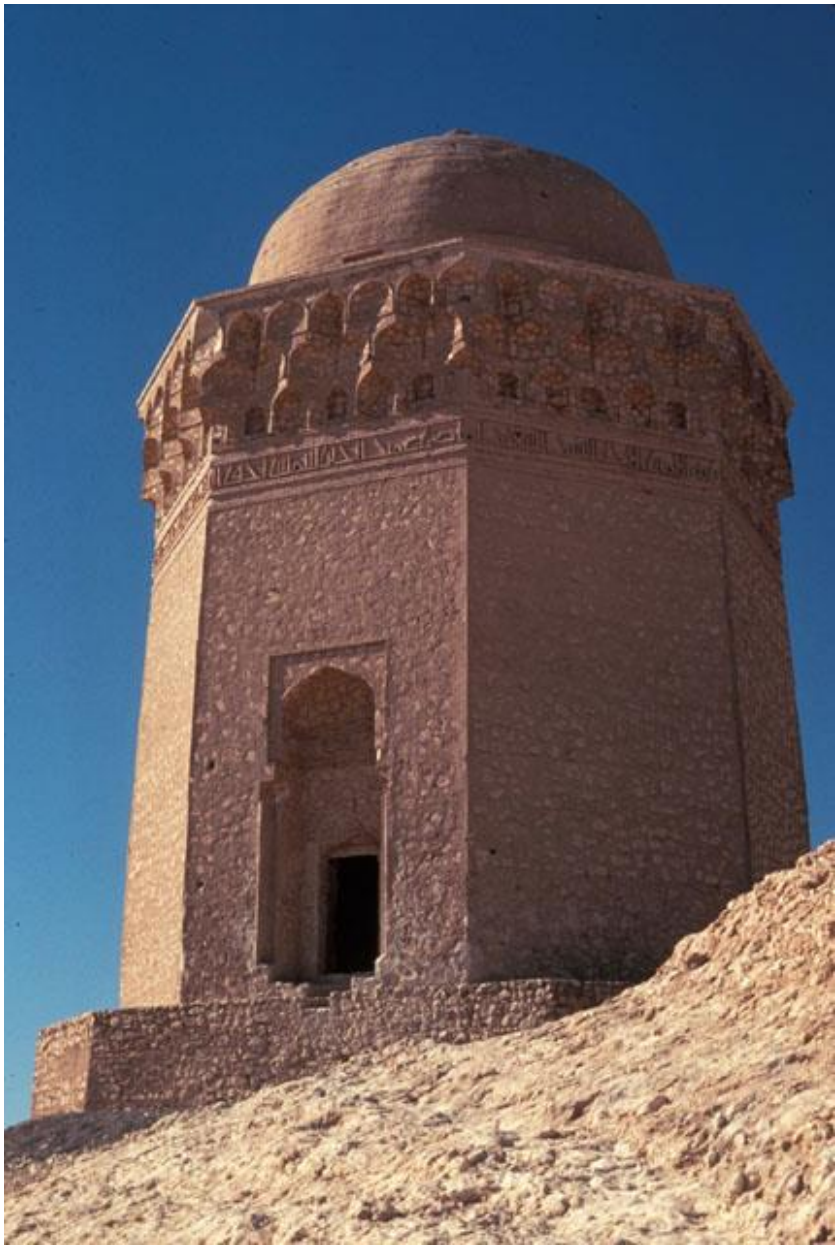
The Gunbad-i ʿAlī

Pope, 1967



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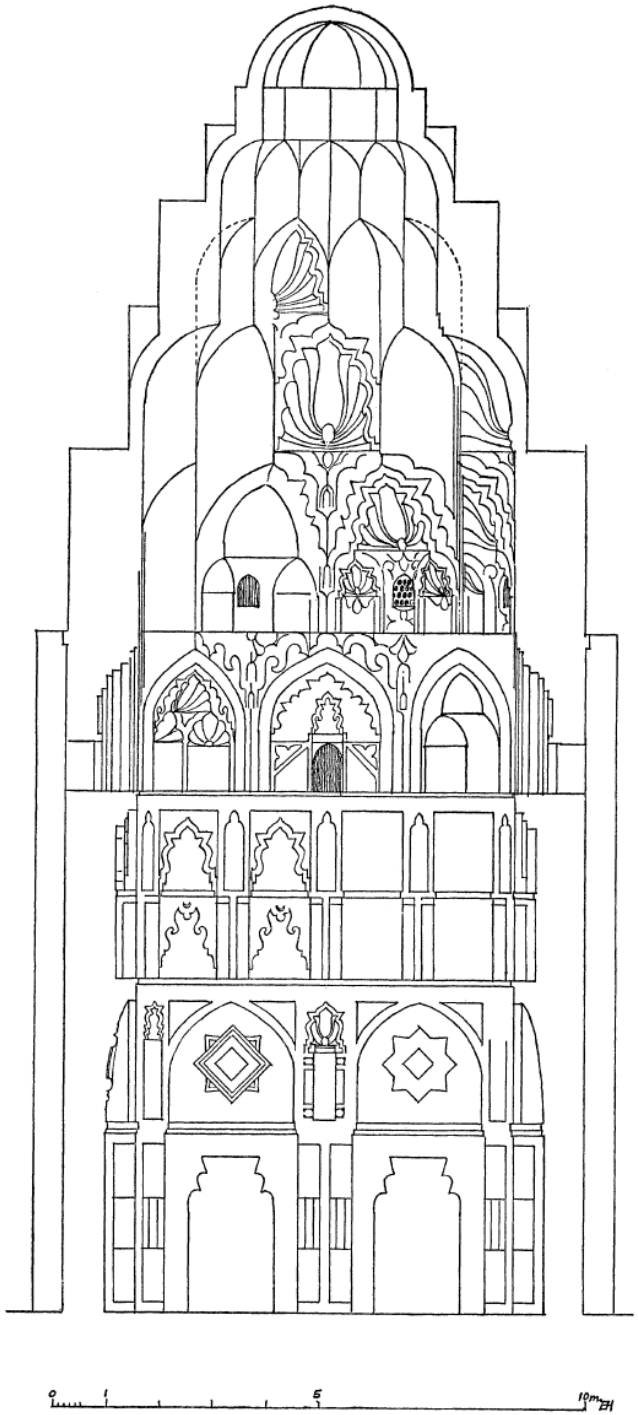
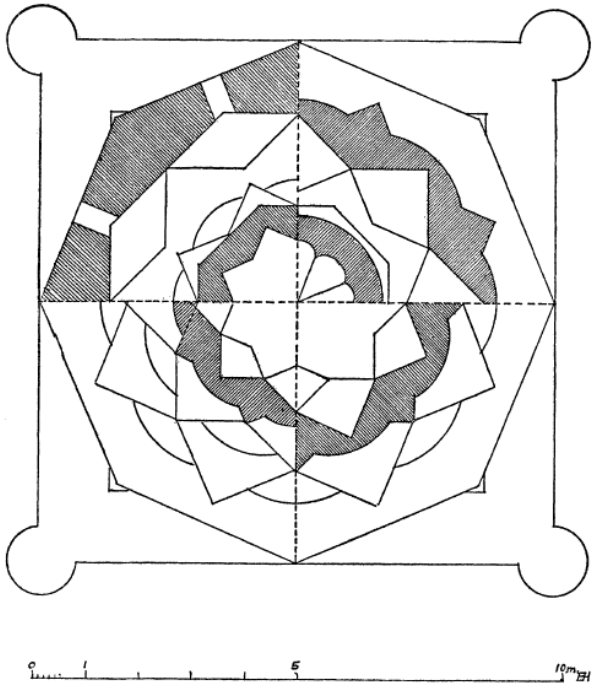
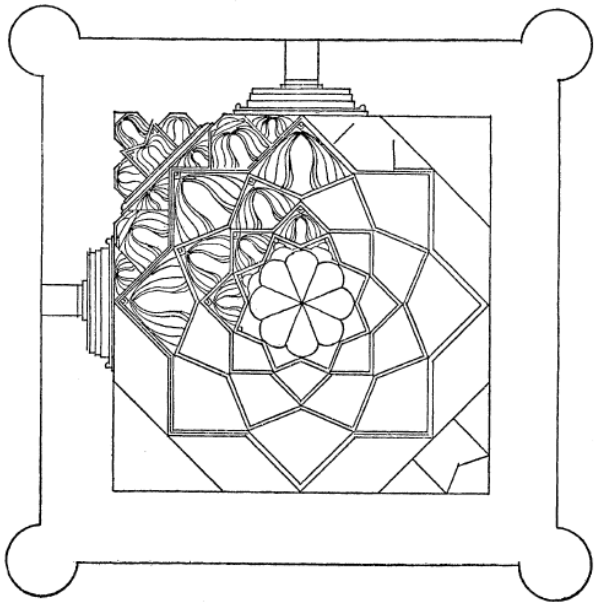
Herzfeld, 1942

Mausoleum of the Imām al-Dawr







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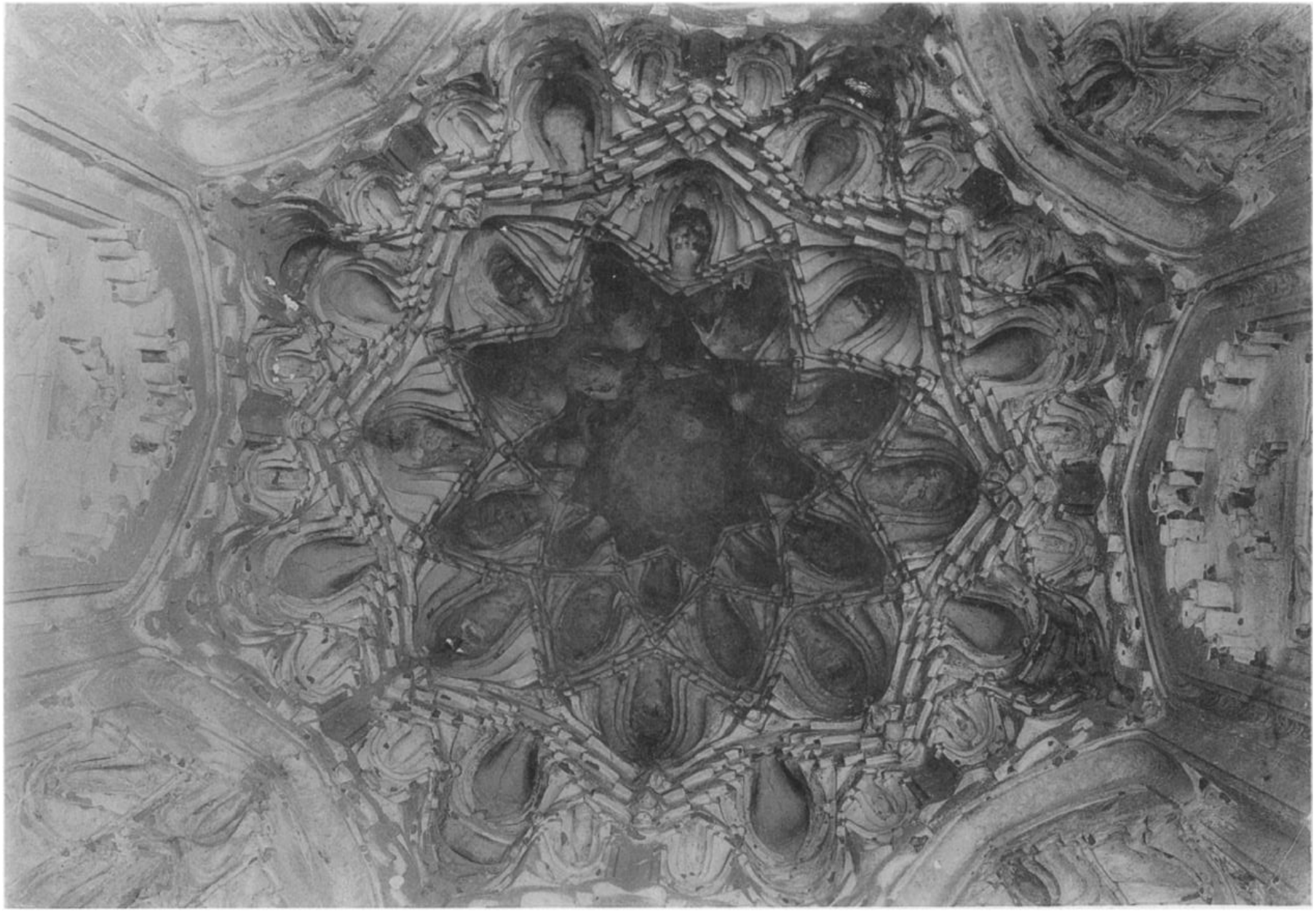

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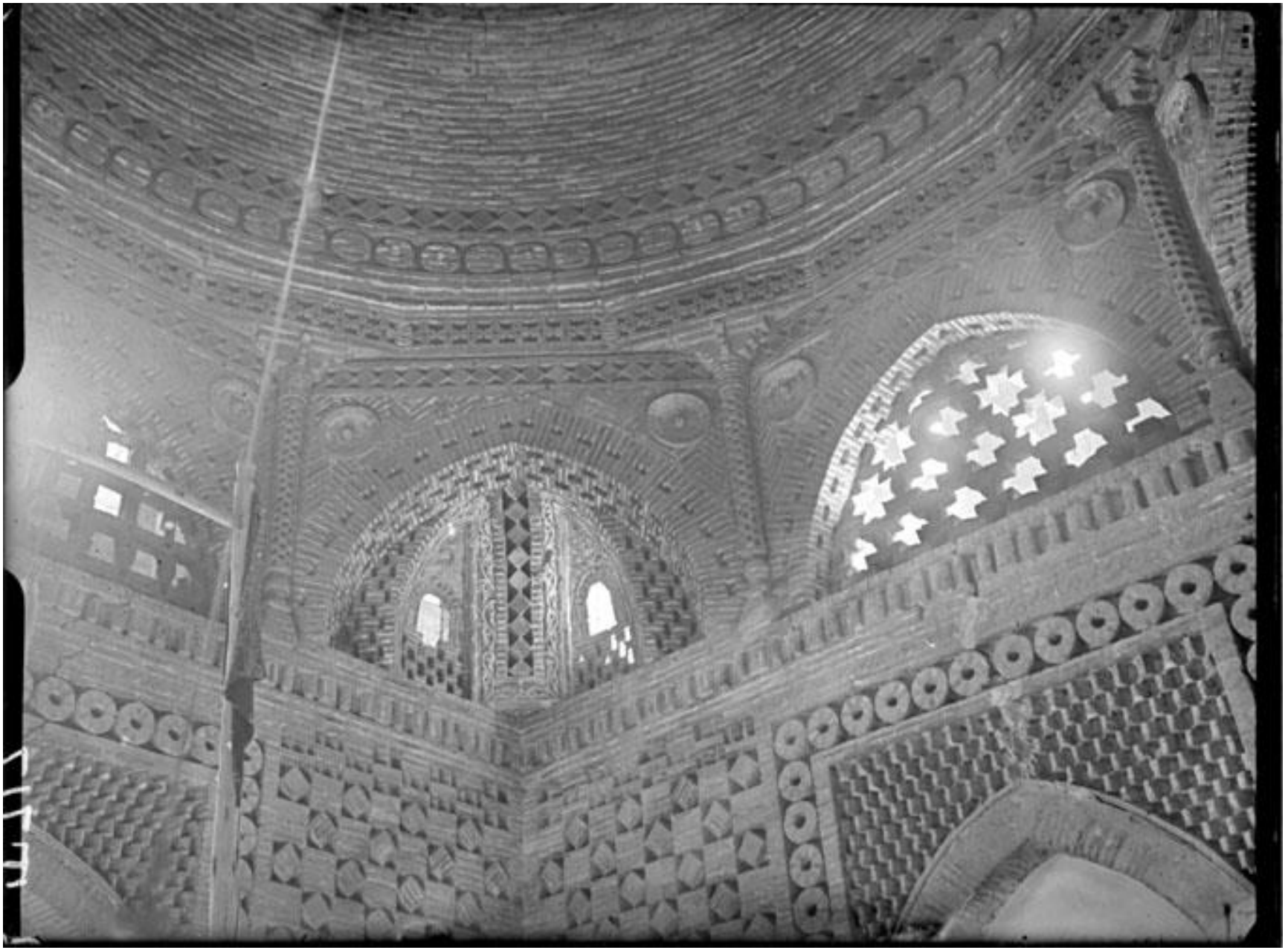
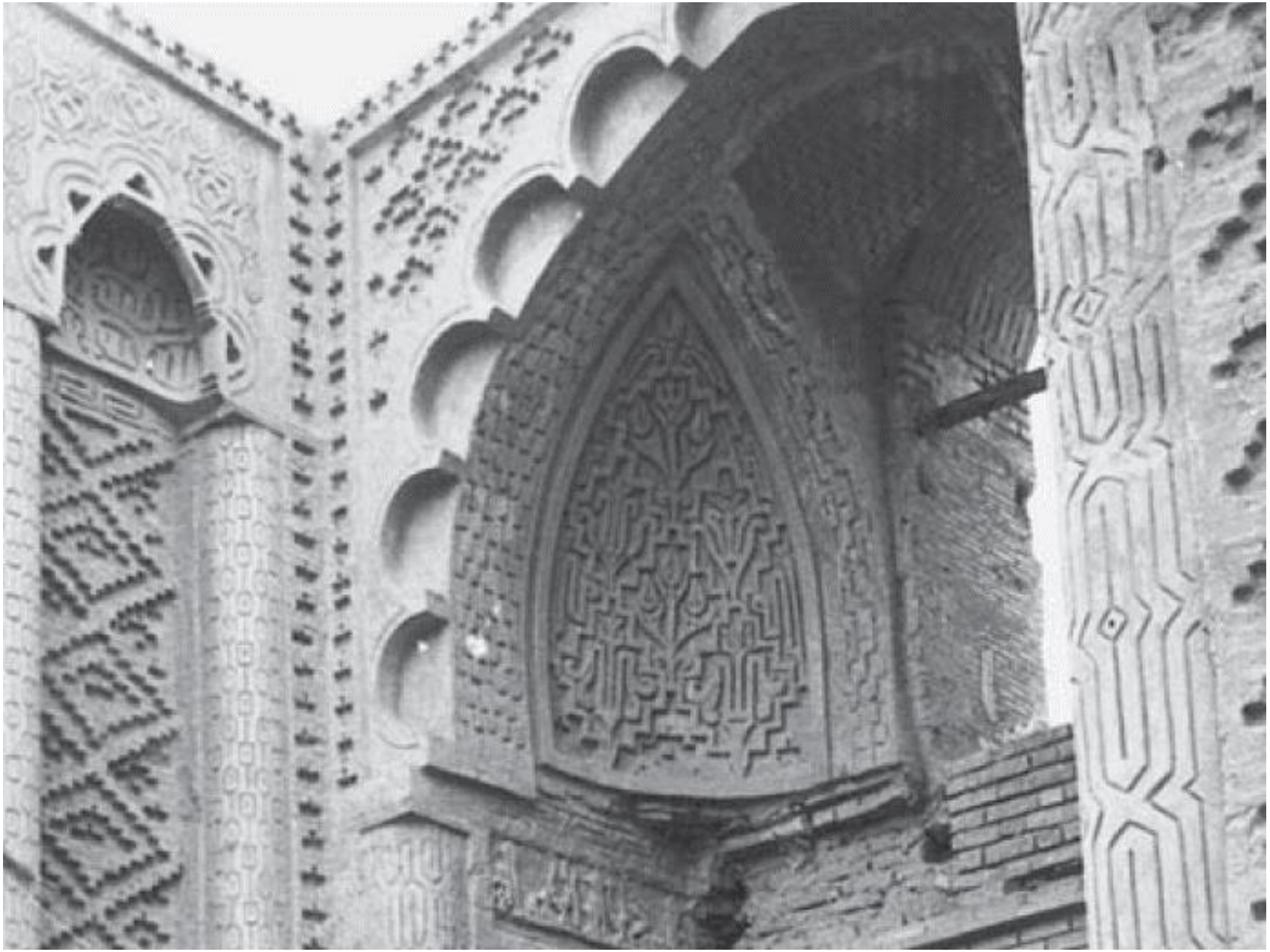
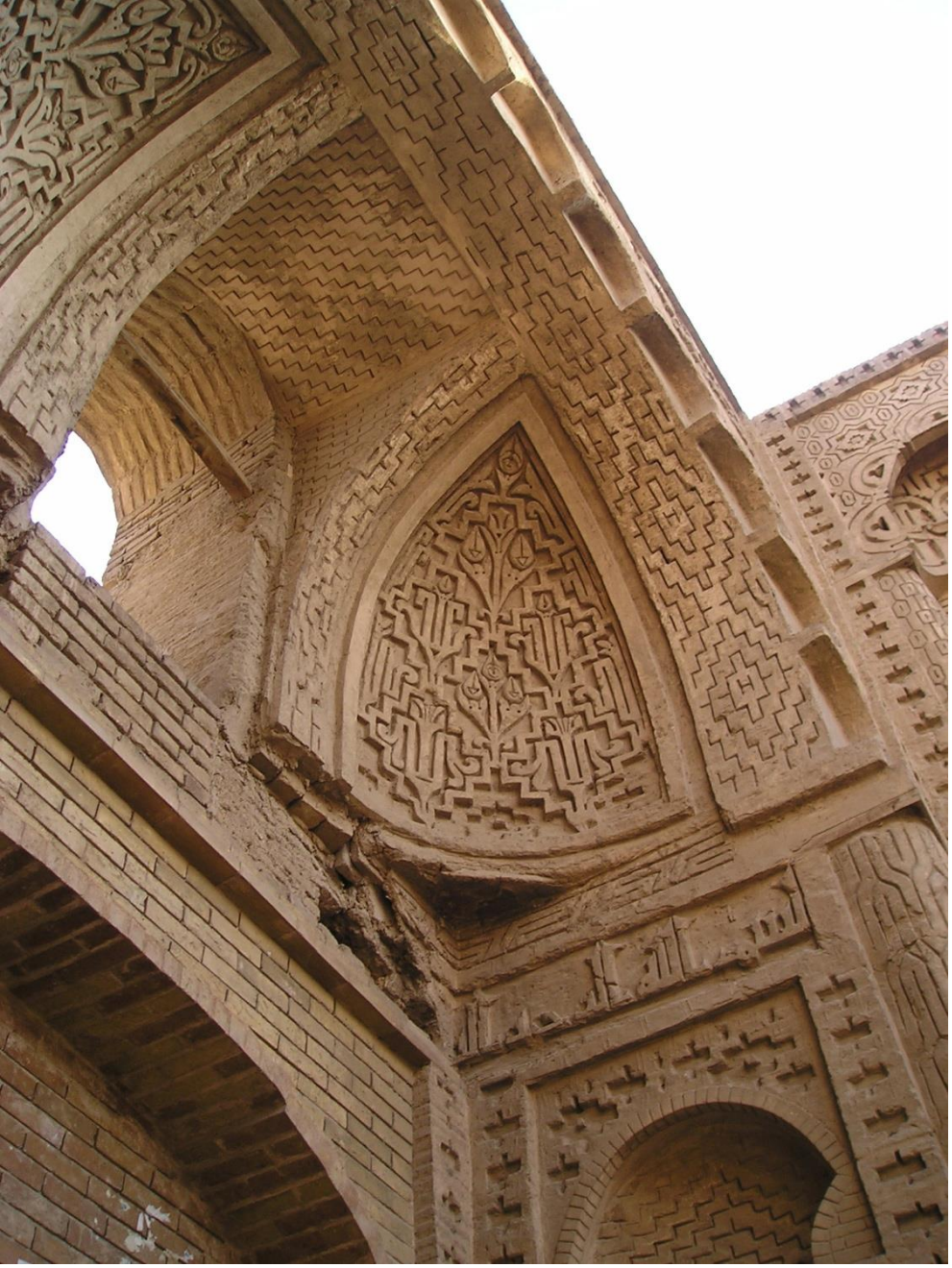


The Mausoleum of Bukhara

The Mosque of Jurjir, Isfahan

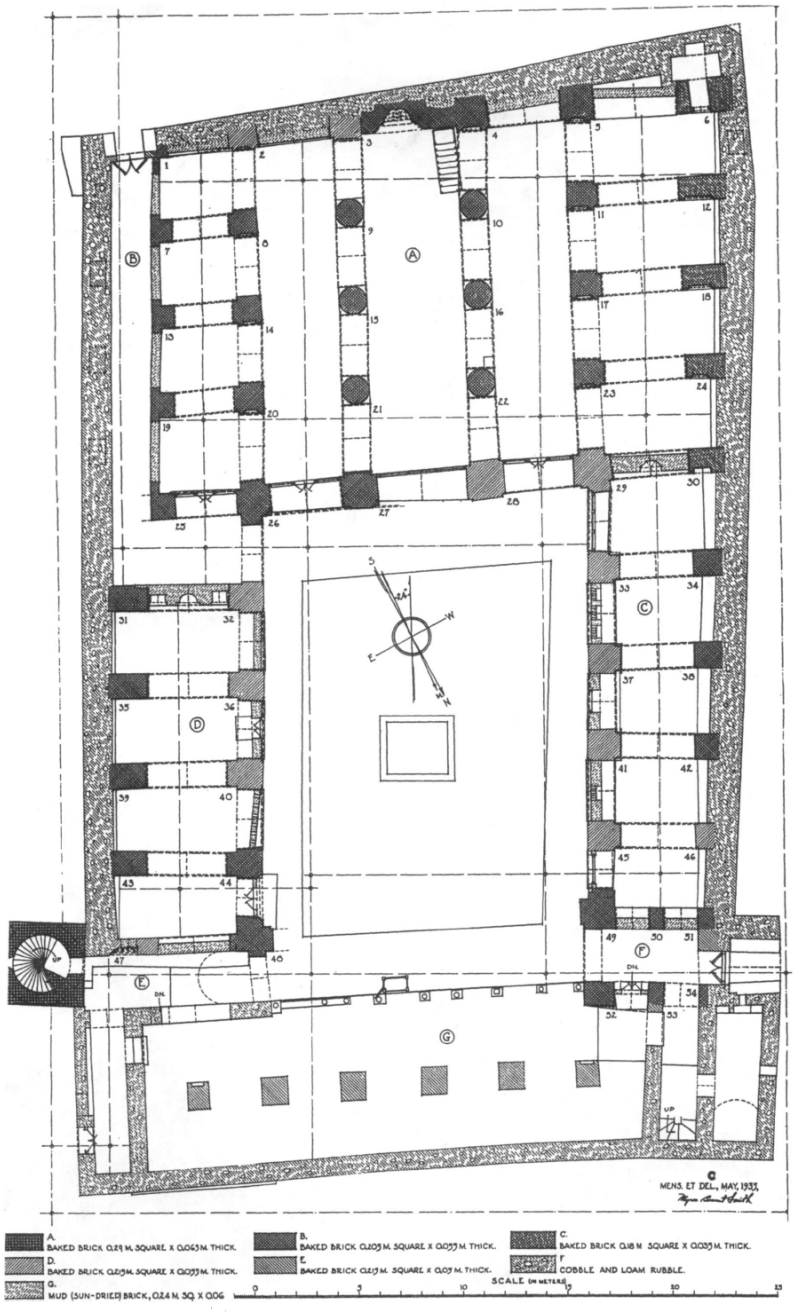




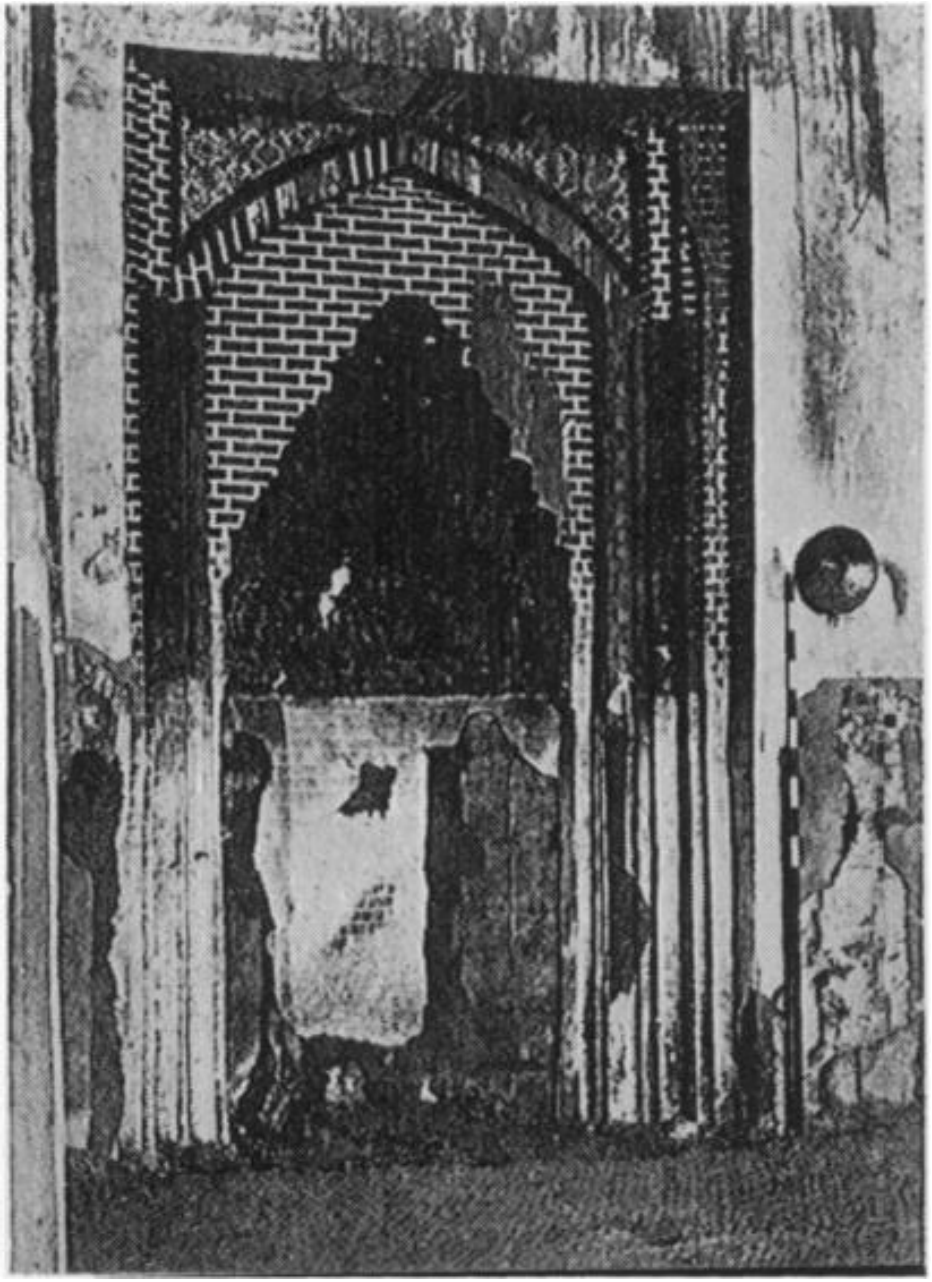
3. THE SALJŪQ EXAMPLES IN IRAN

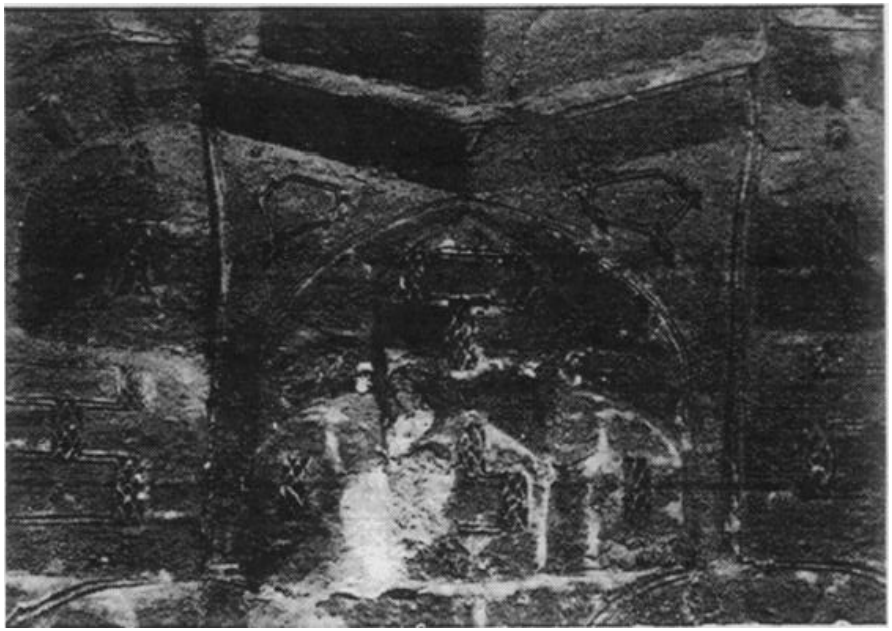
Linear *muqarnas*

The Demāvend Mosque



M. B. Smith, 1935





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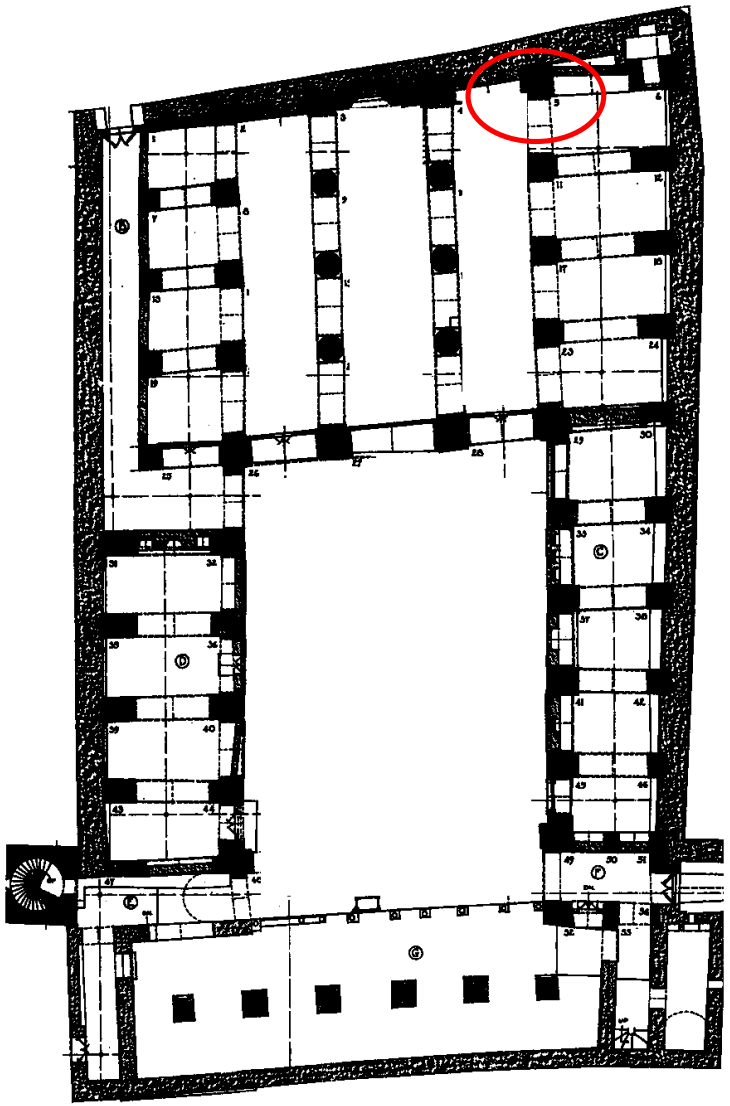

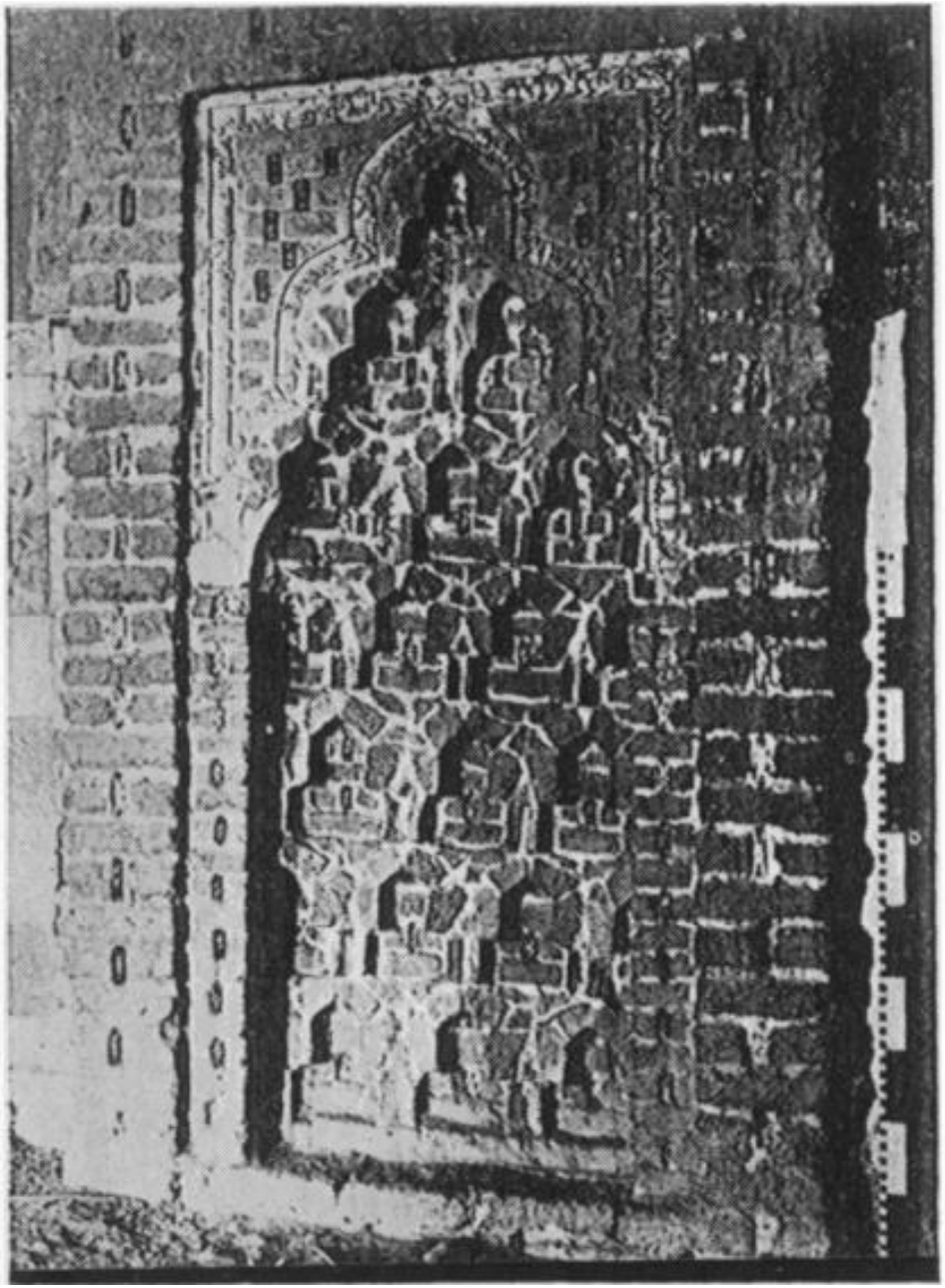

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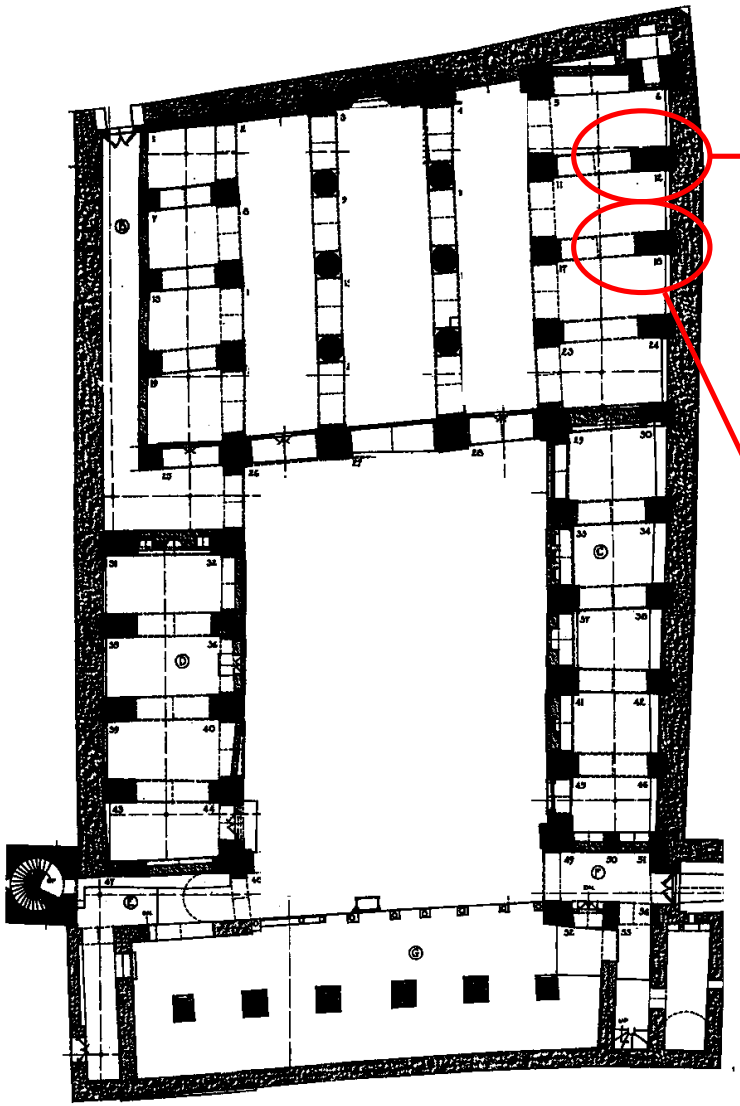

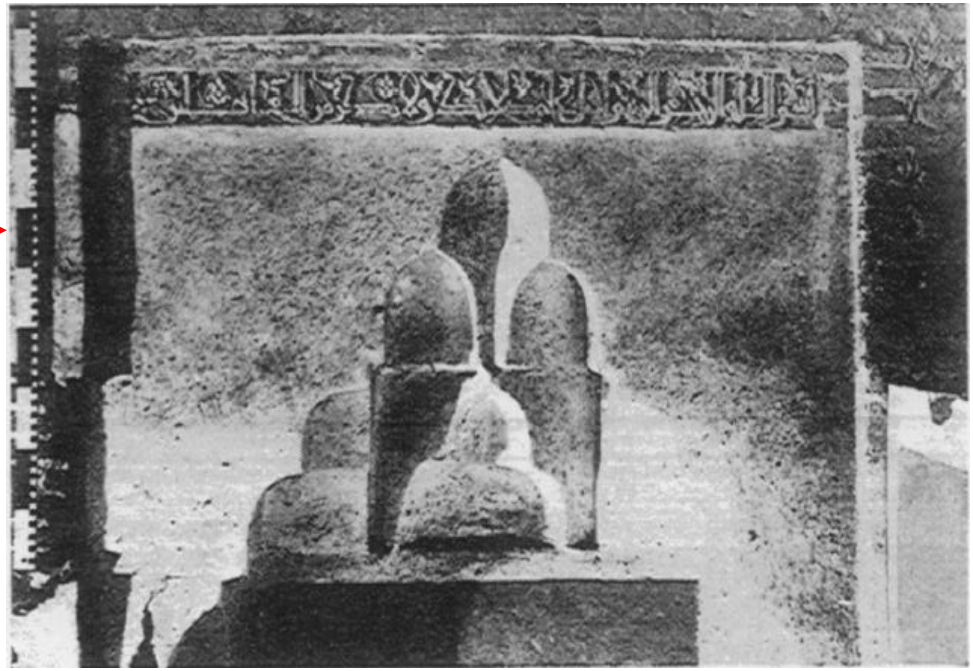

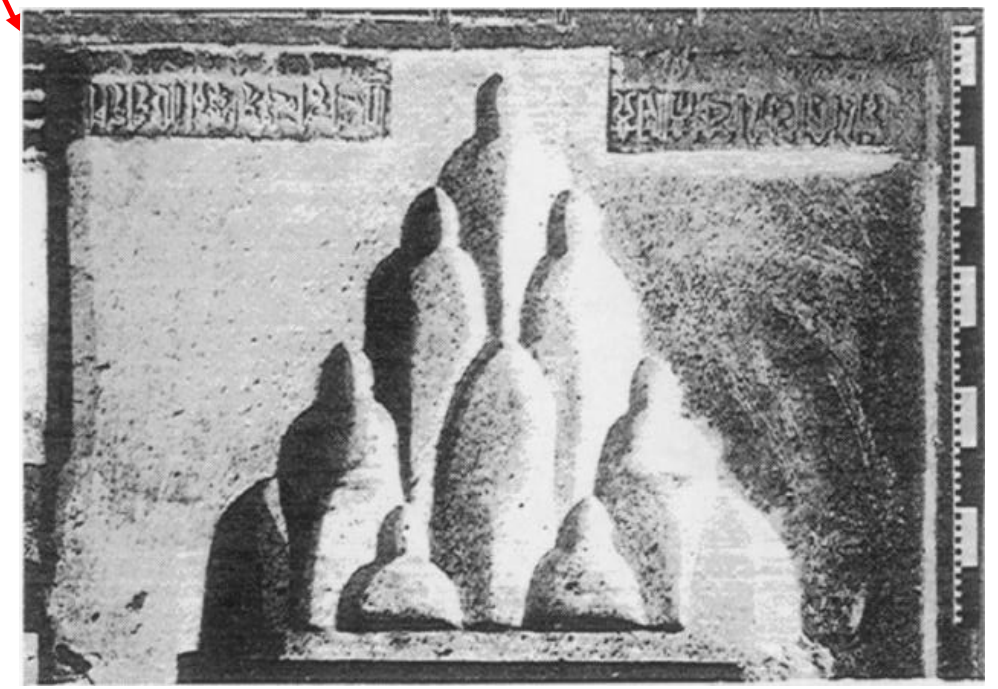

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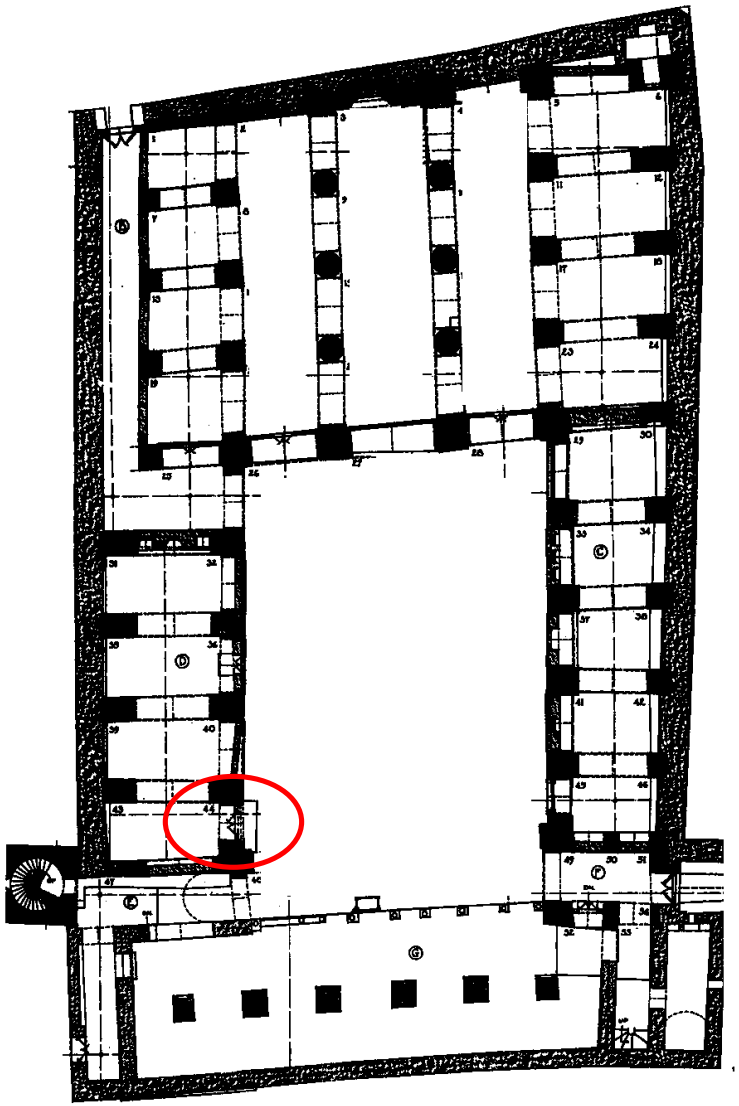
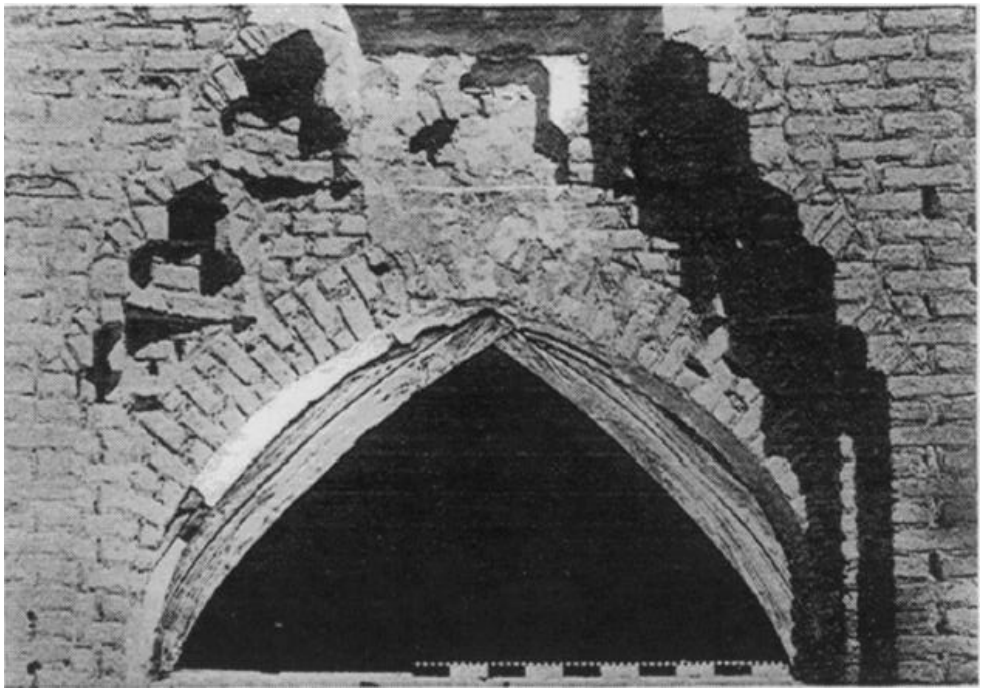
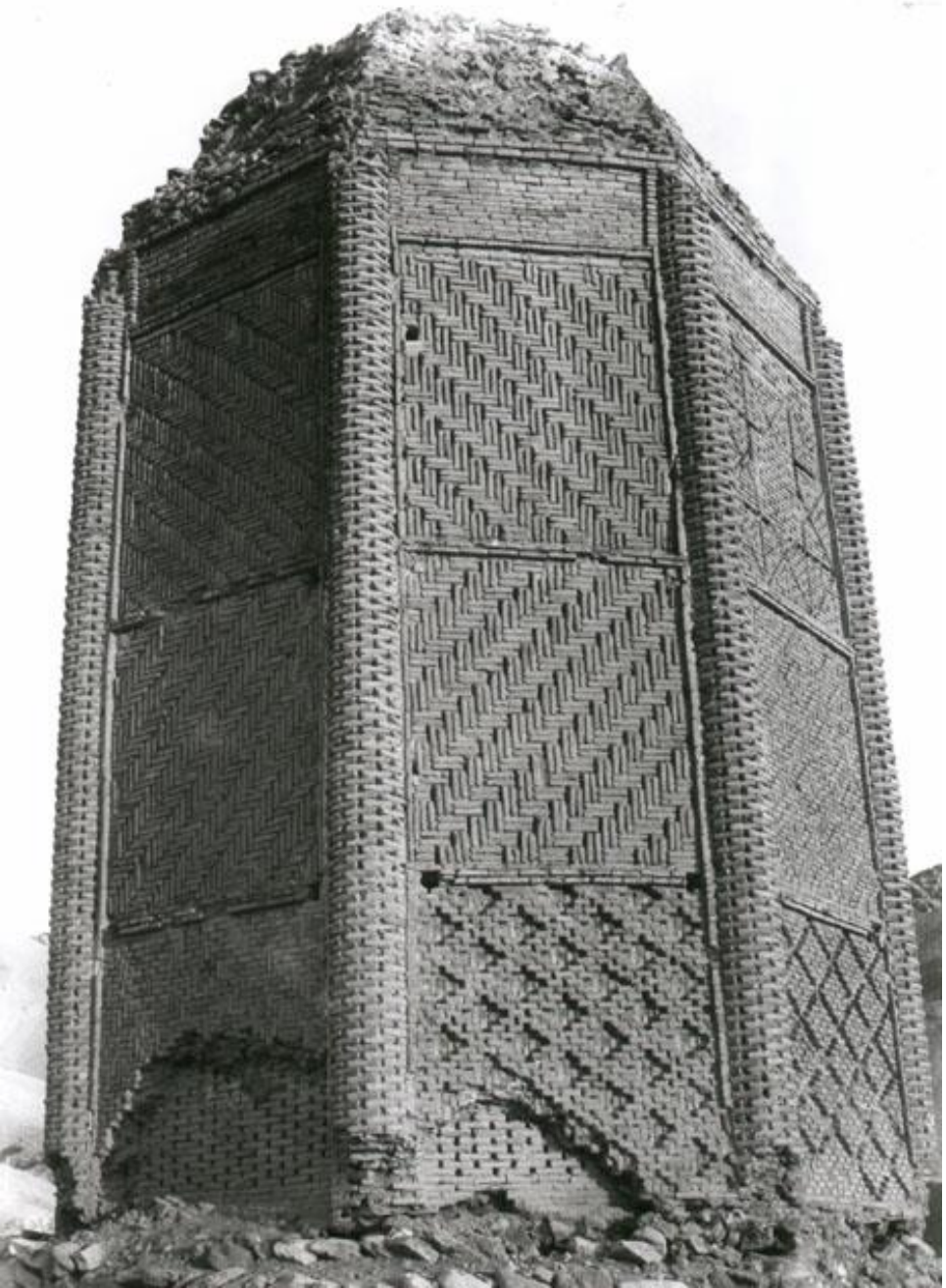




M. B. Smith, 1935

The Demāvend Tower



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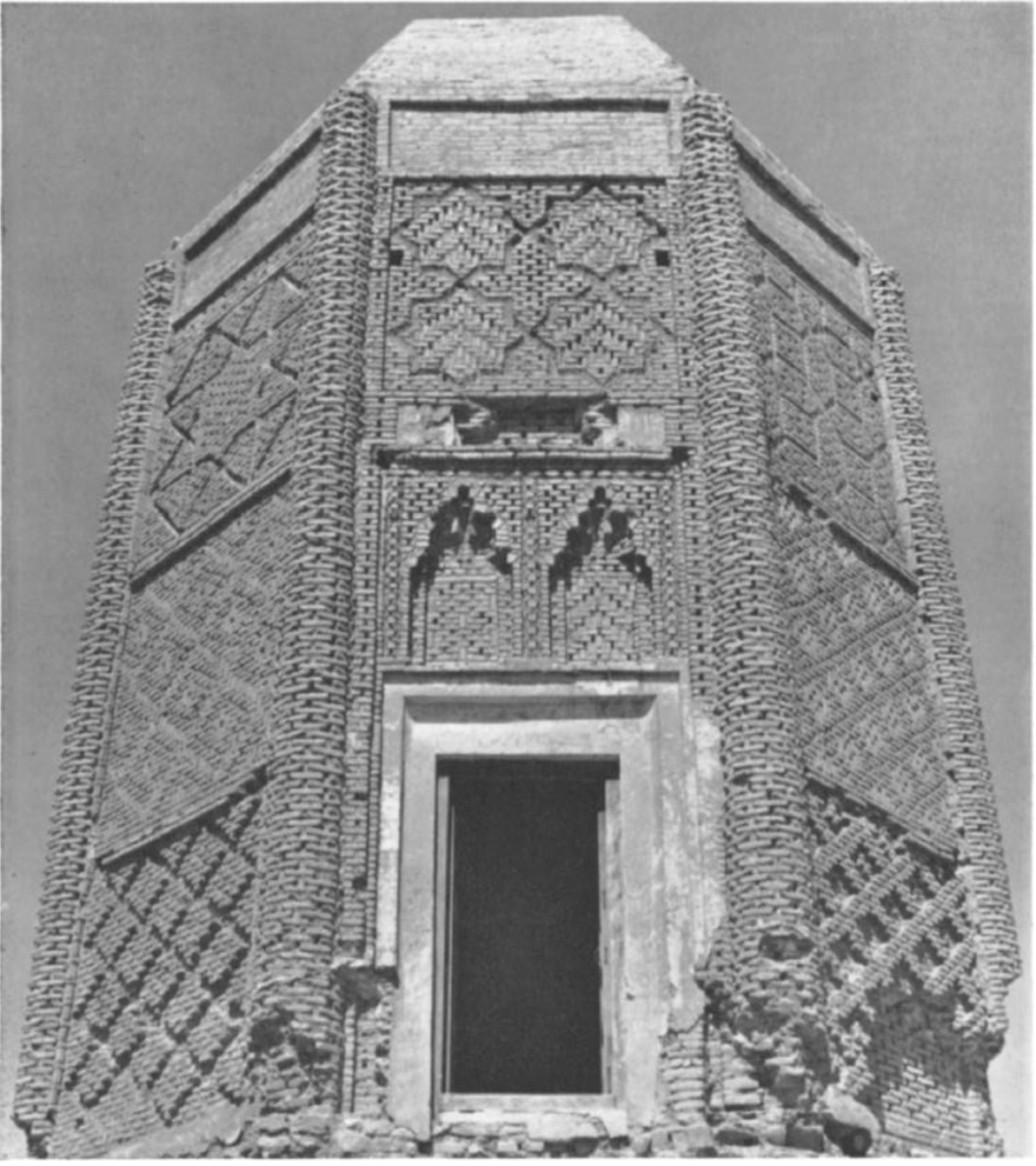
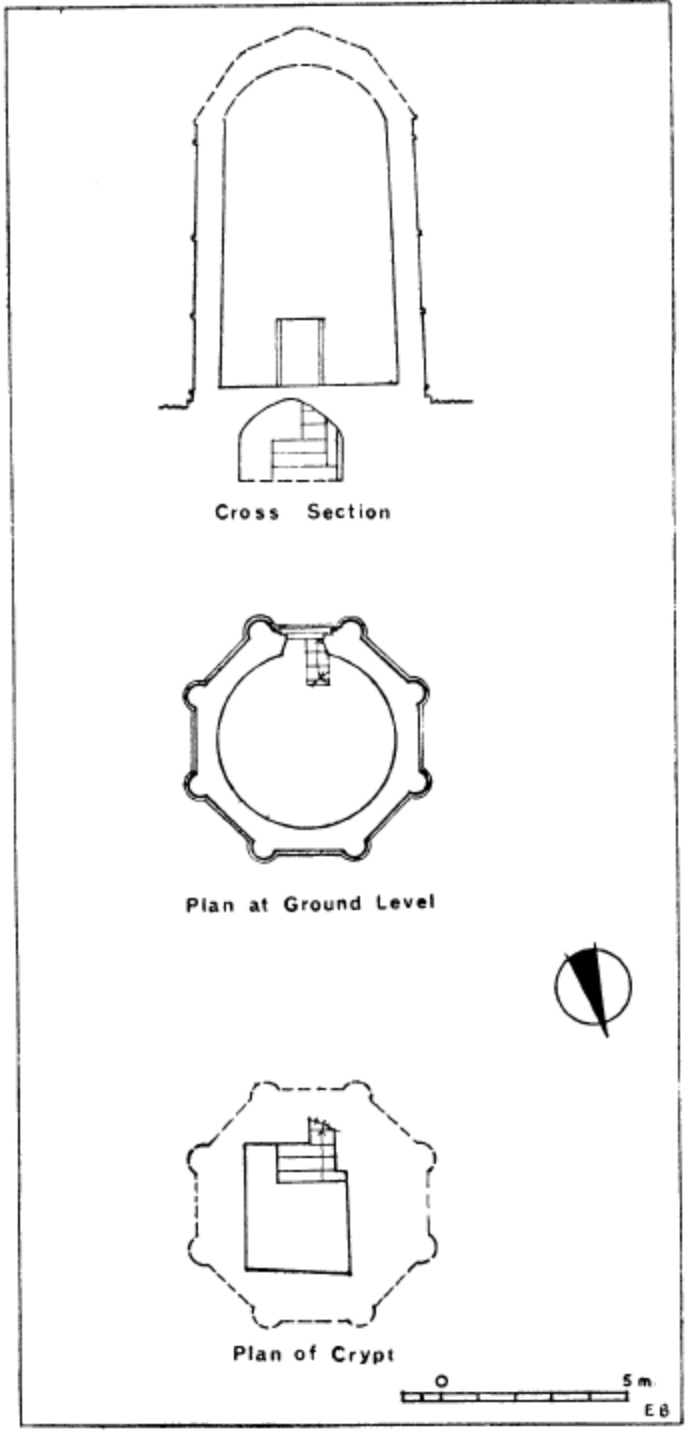
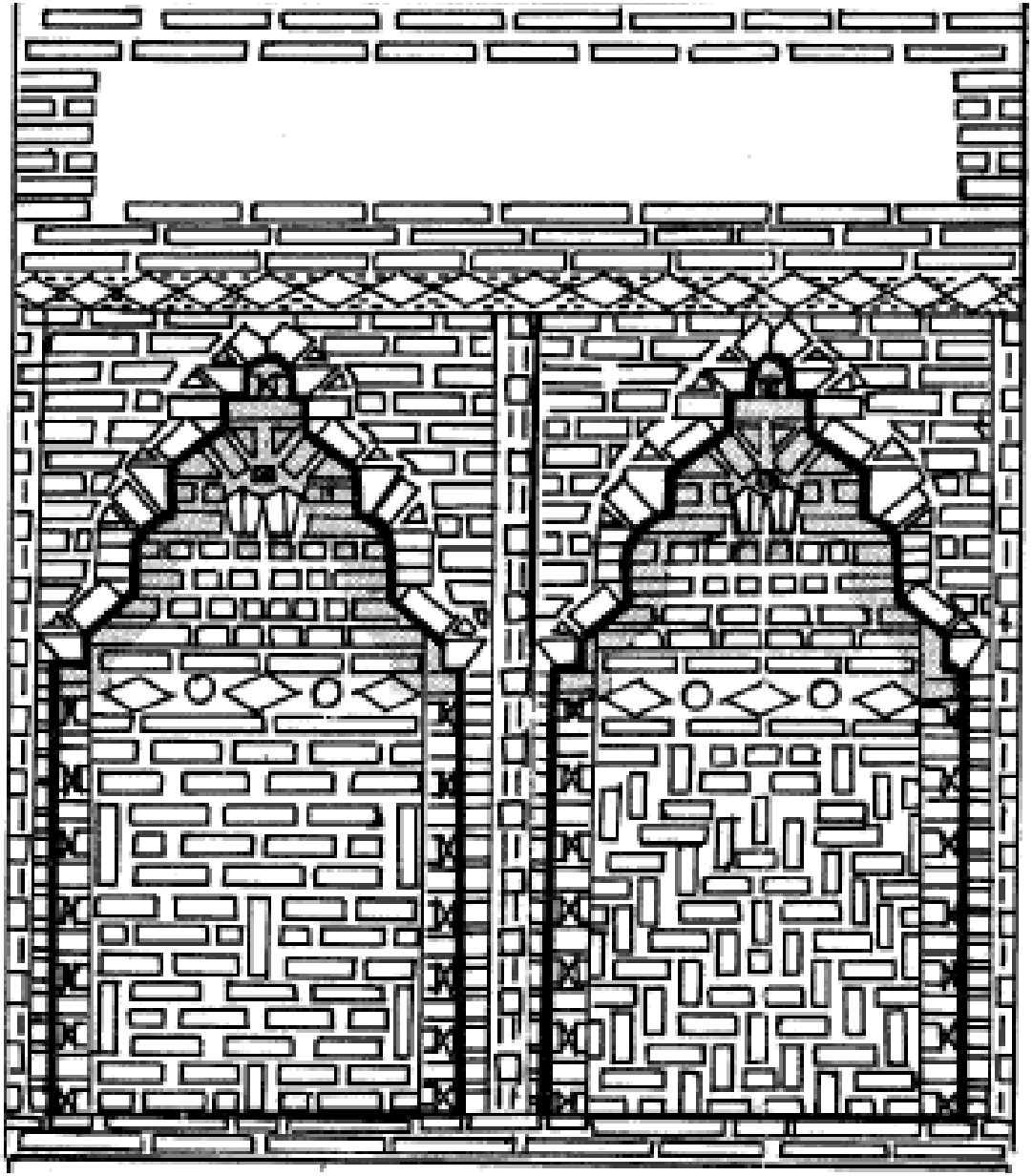




Stronach and Cuyler, 1966

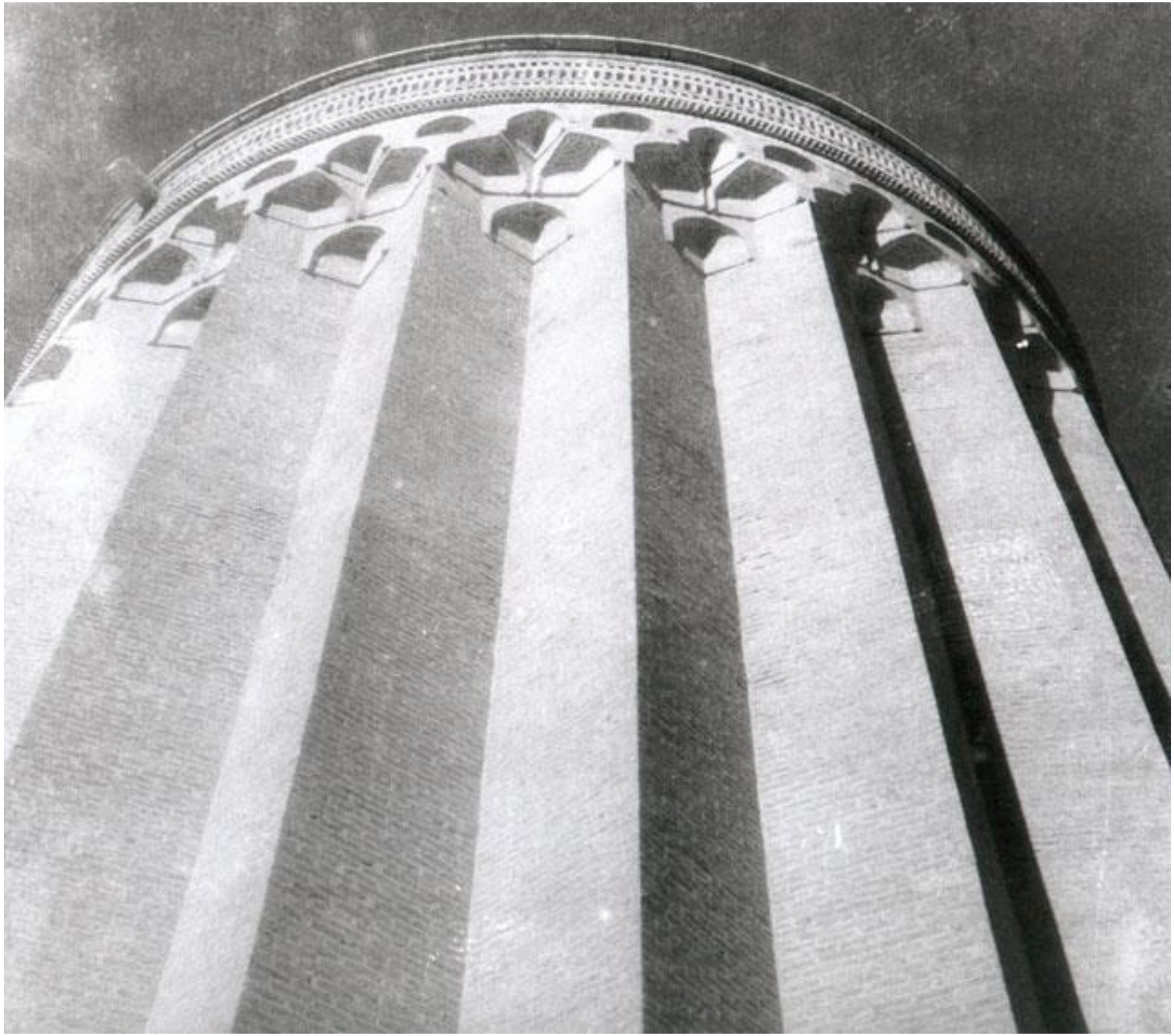
Stronach and Cuyler, 1966



Stronach and Cuyler, 1966

The commonly named Ṭughril Tower at Ray

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



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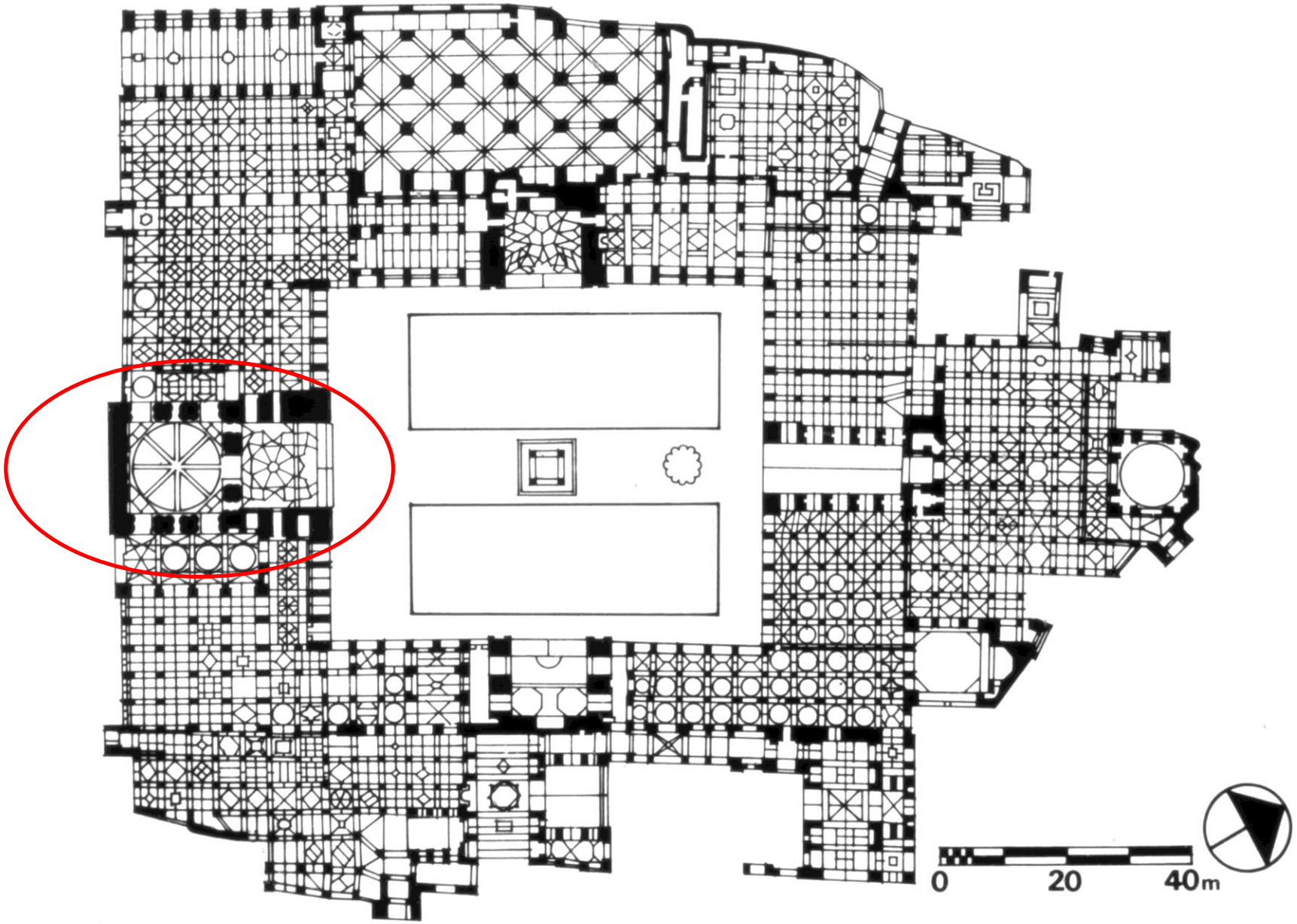
3. THE SALJŪQ EXAMPLES IN IRAN

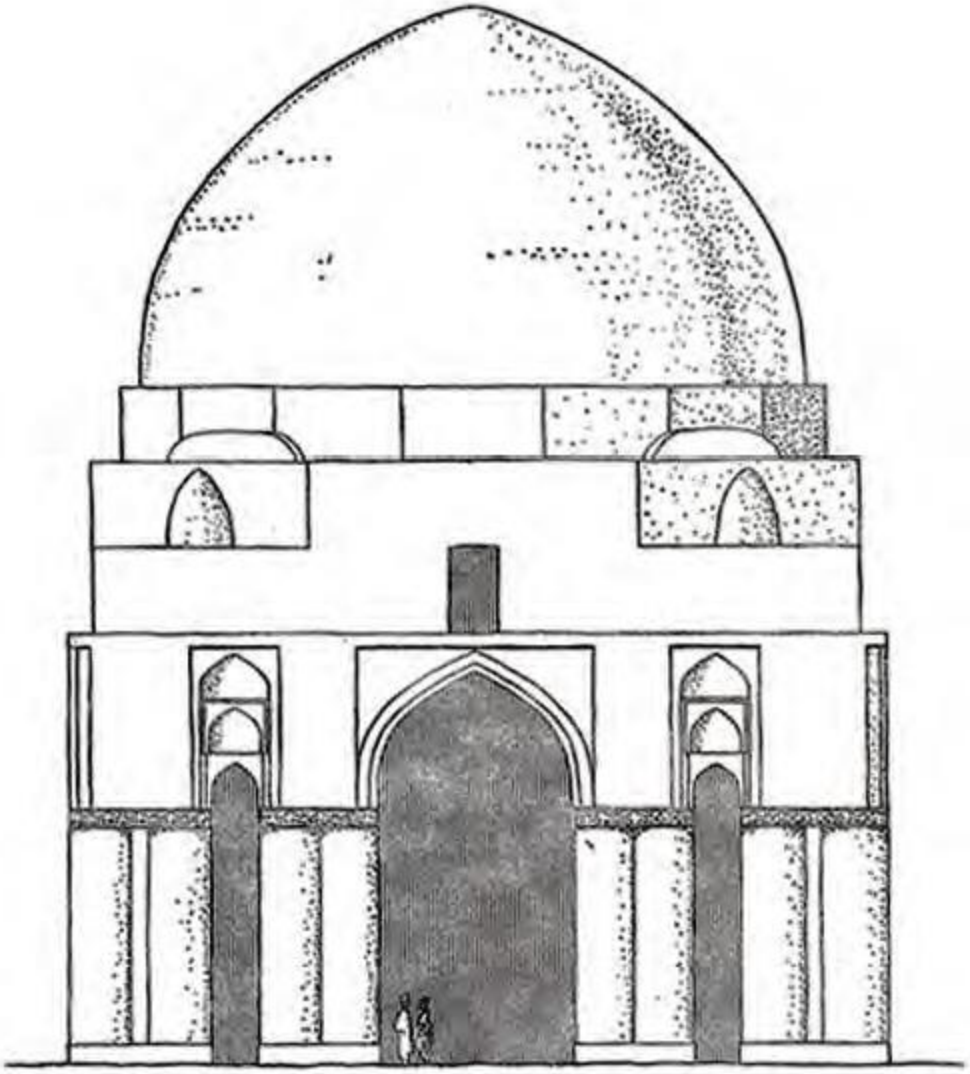
The squinch

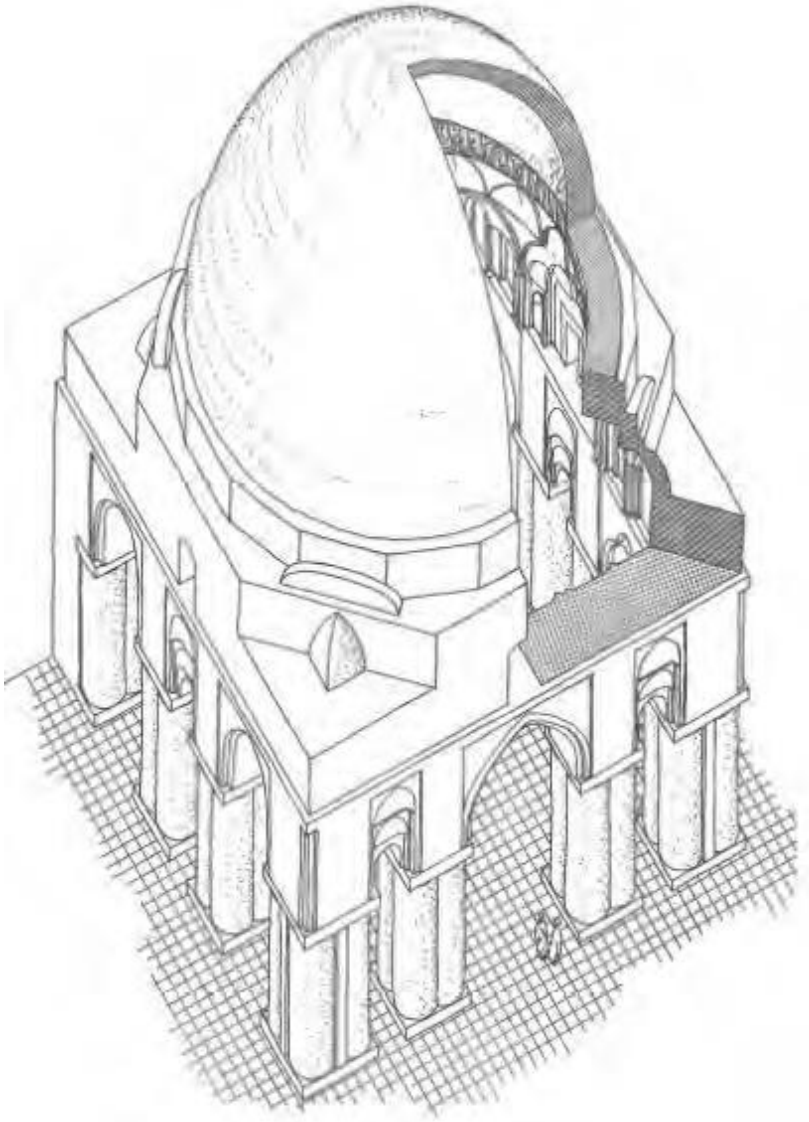
Copyright: Conway Library, Courtauld Institute of Art

The domed halls of the Friday Mosque of Iṣfahān
The South Dome



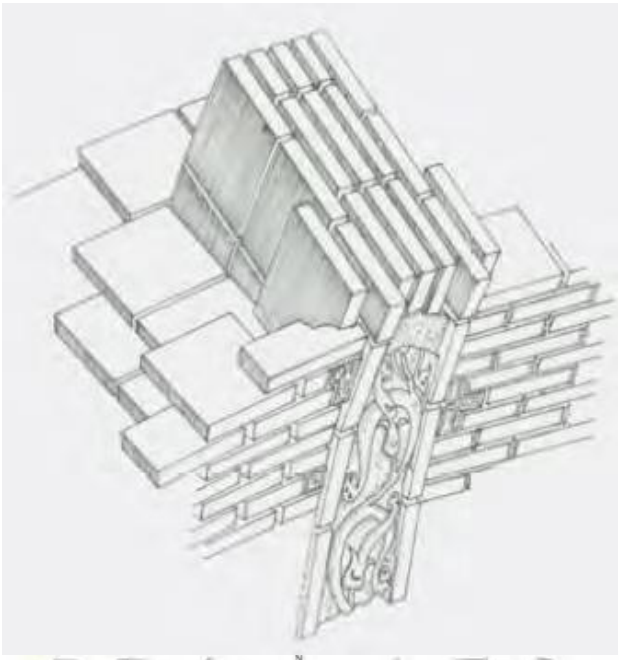
Aga Khan Visual Archive (AKVA)

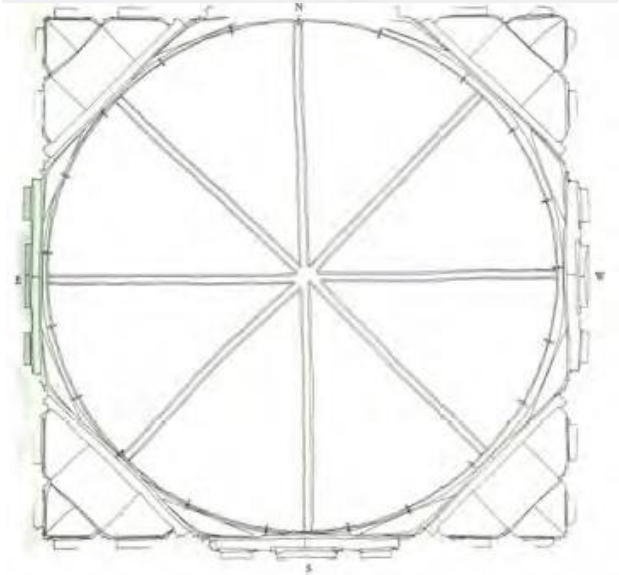




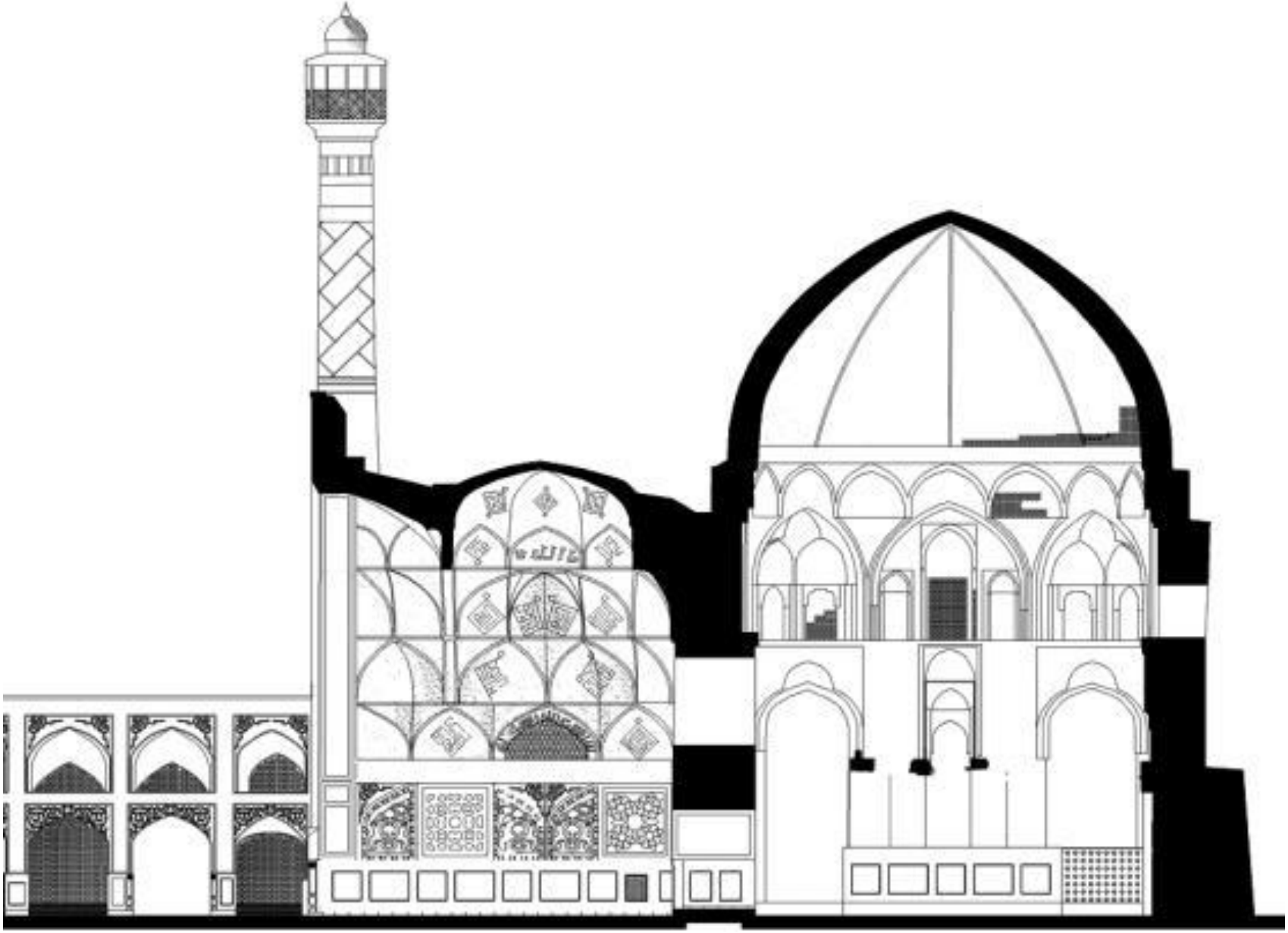
Galdieri, 1972

Galdieri, 1972

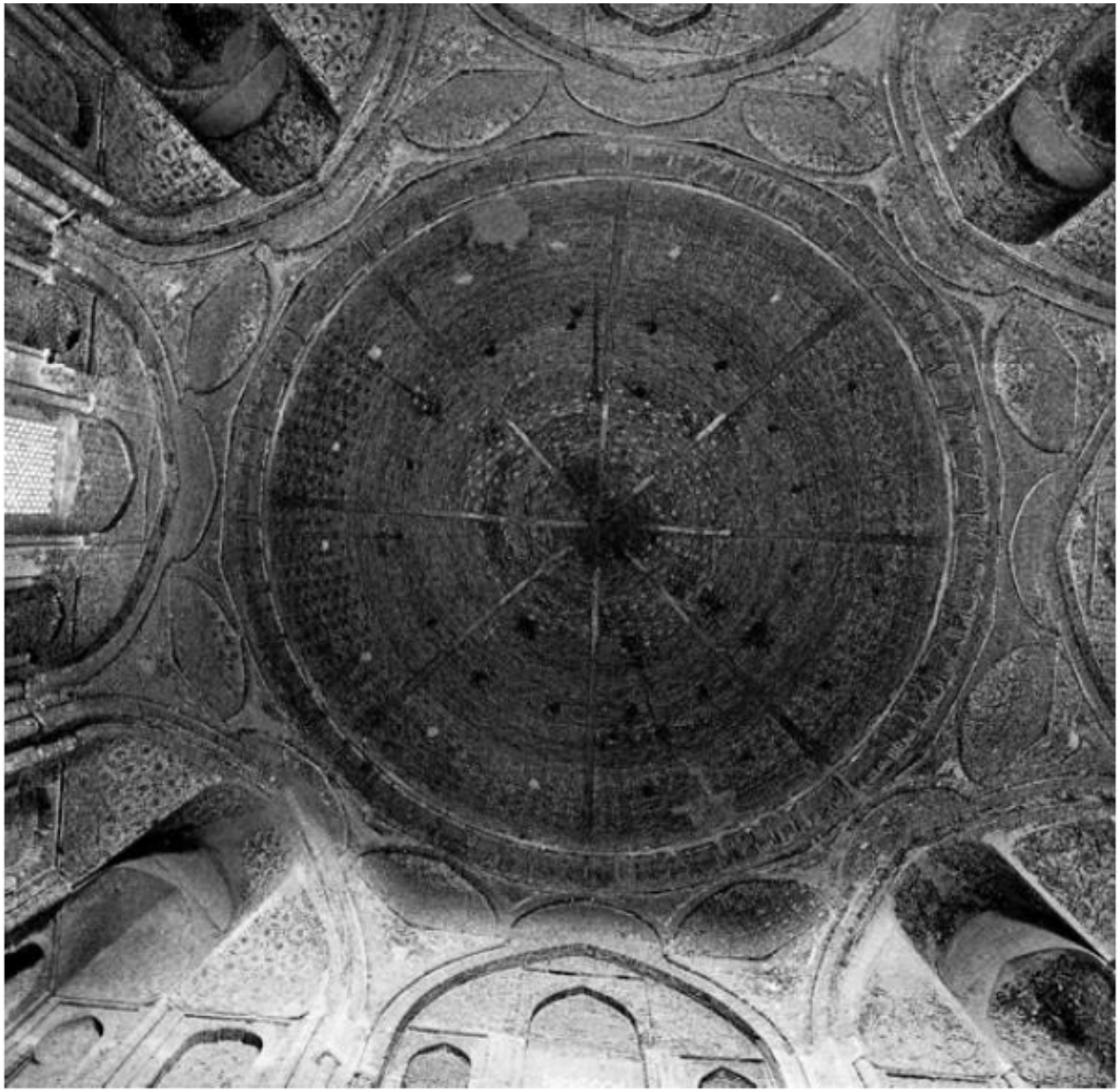




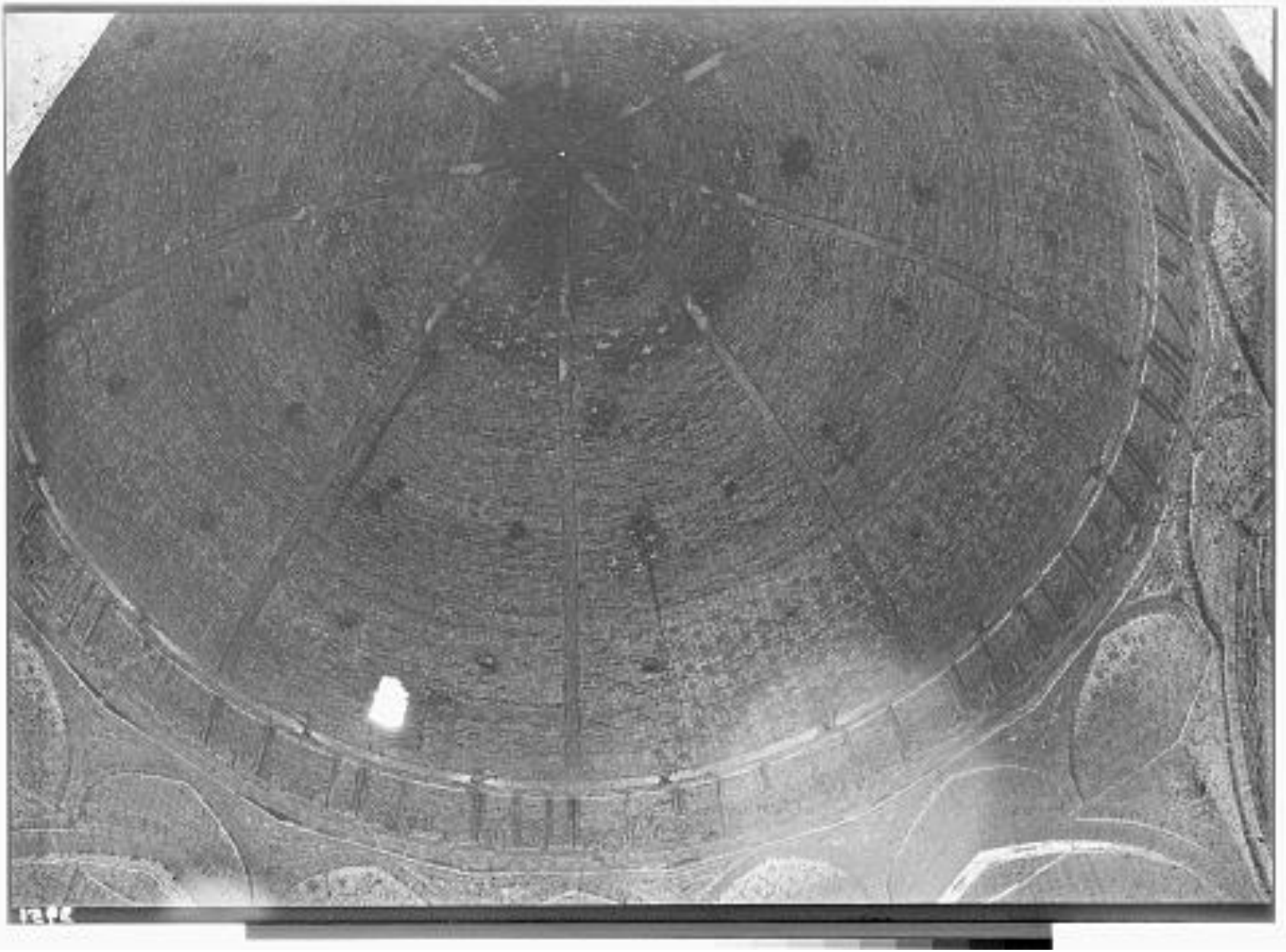
South Dome, Bearing ribs



UNESCO Report - 2011

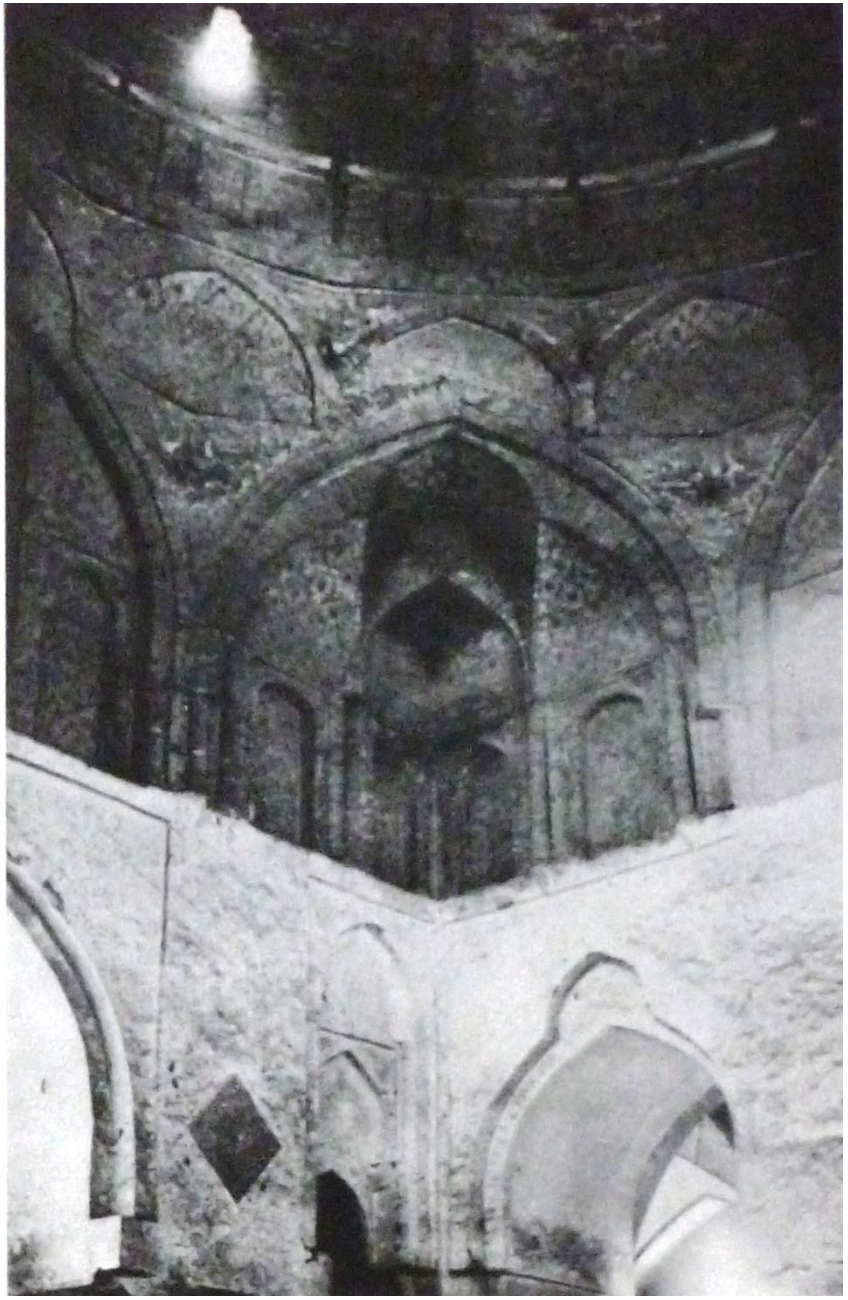


Ettinghausen and Grabar, 2001



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



Creswell, 1968

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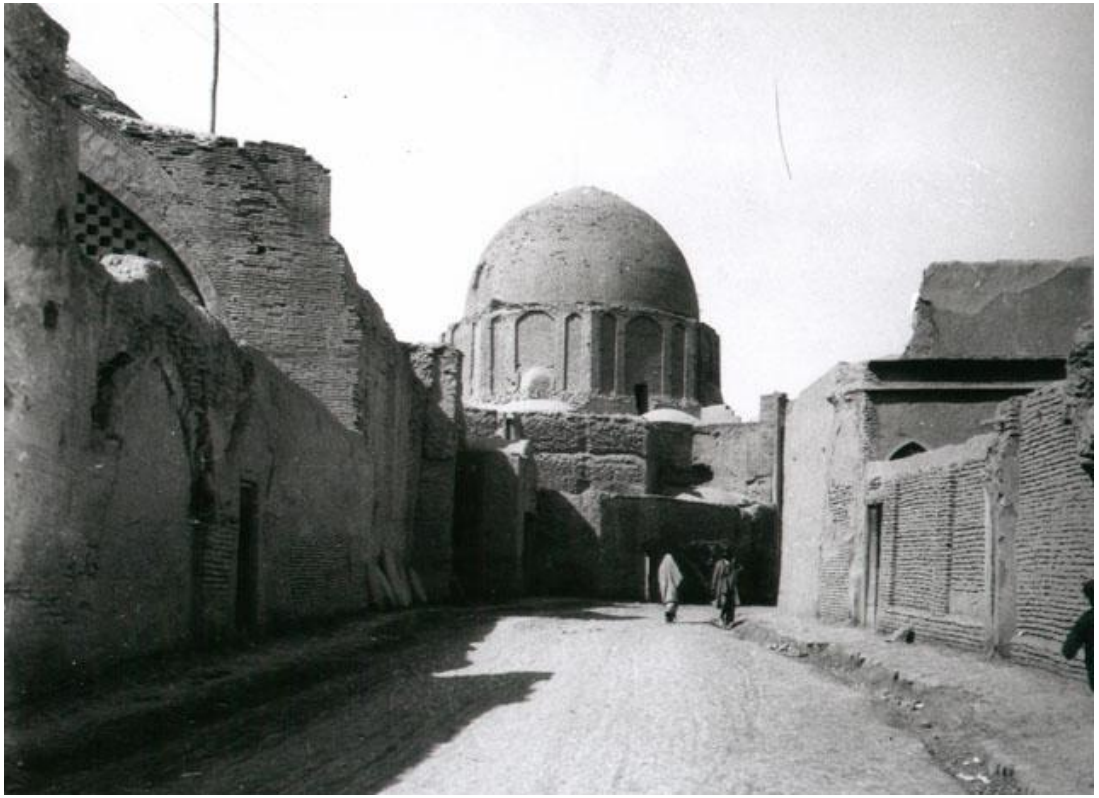

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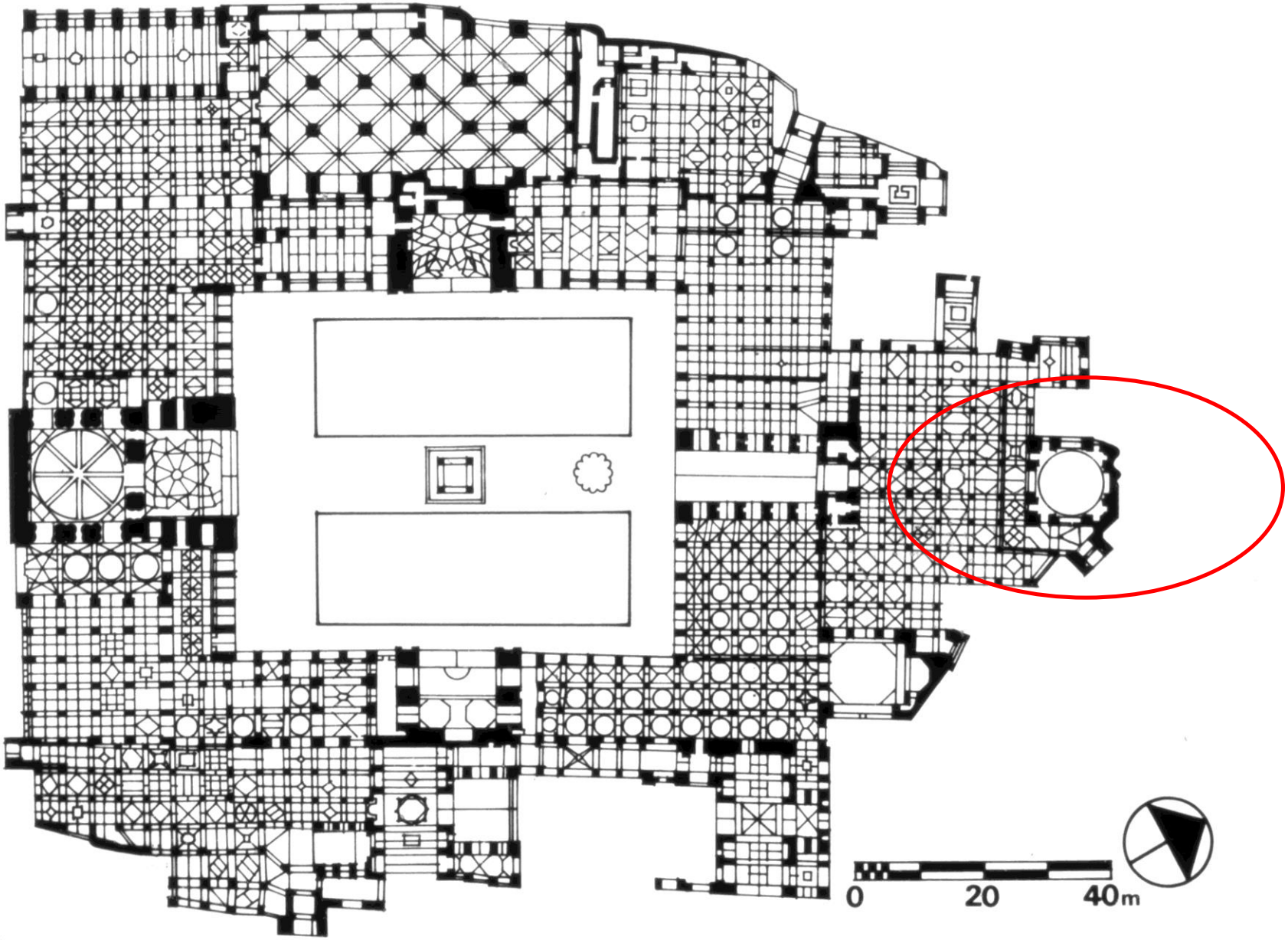
The domed halls of the Friday Mosque of Iṣfahān
The North Dome



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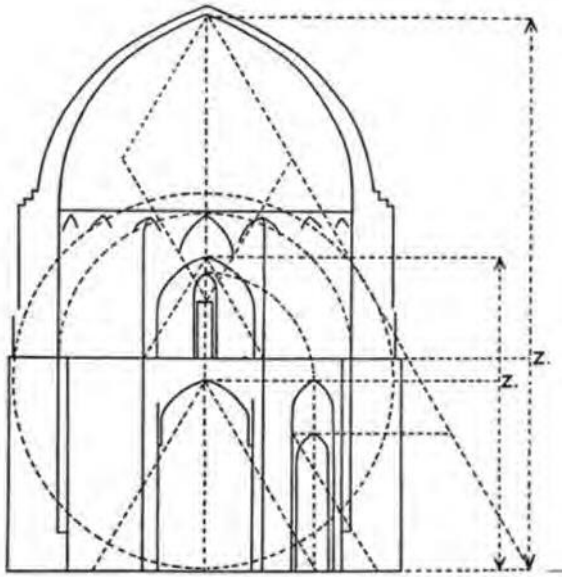
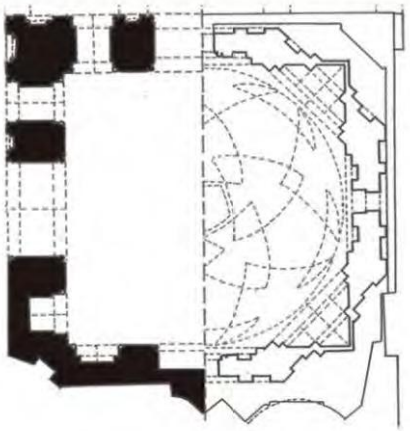
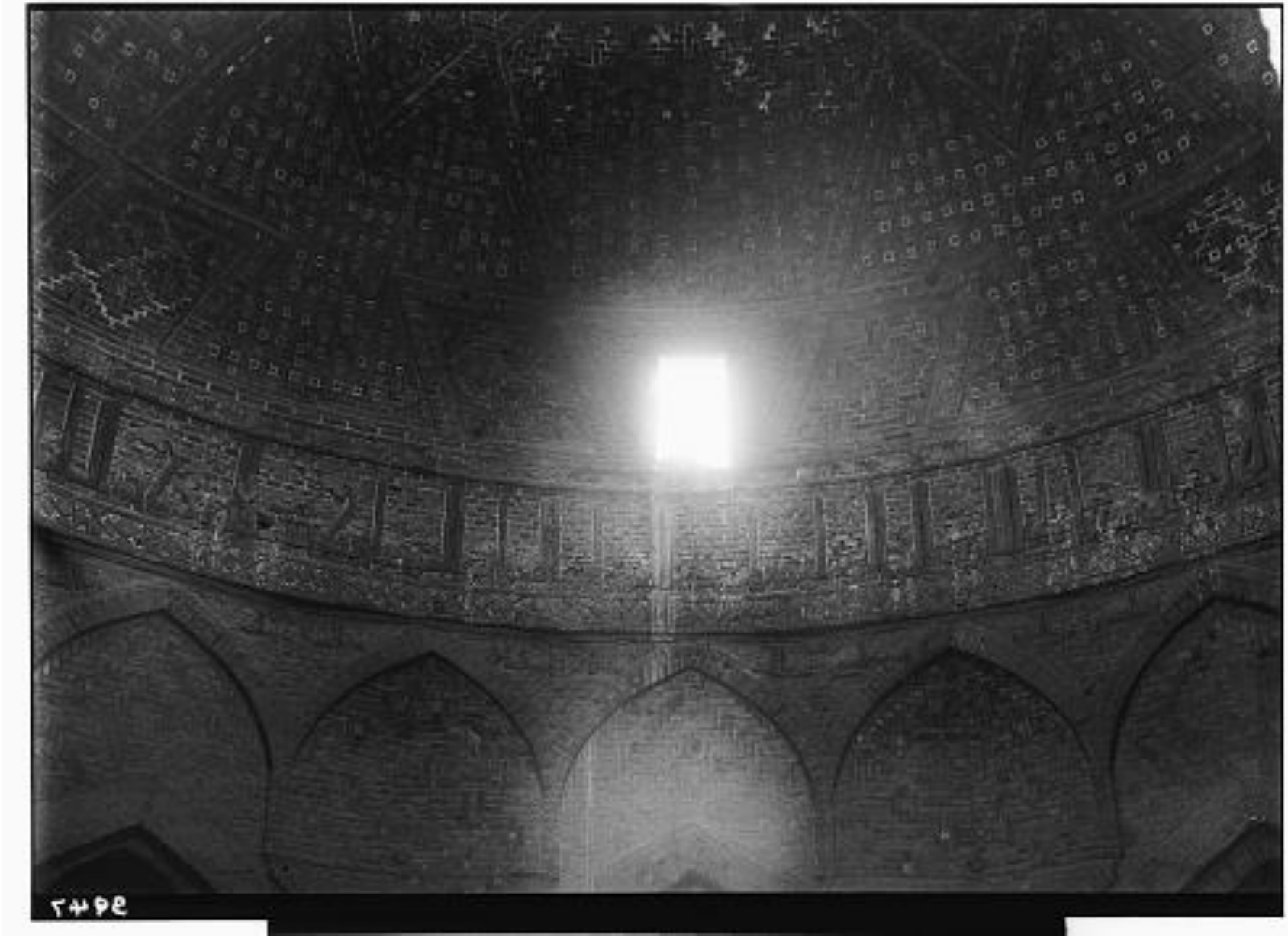




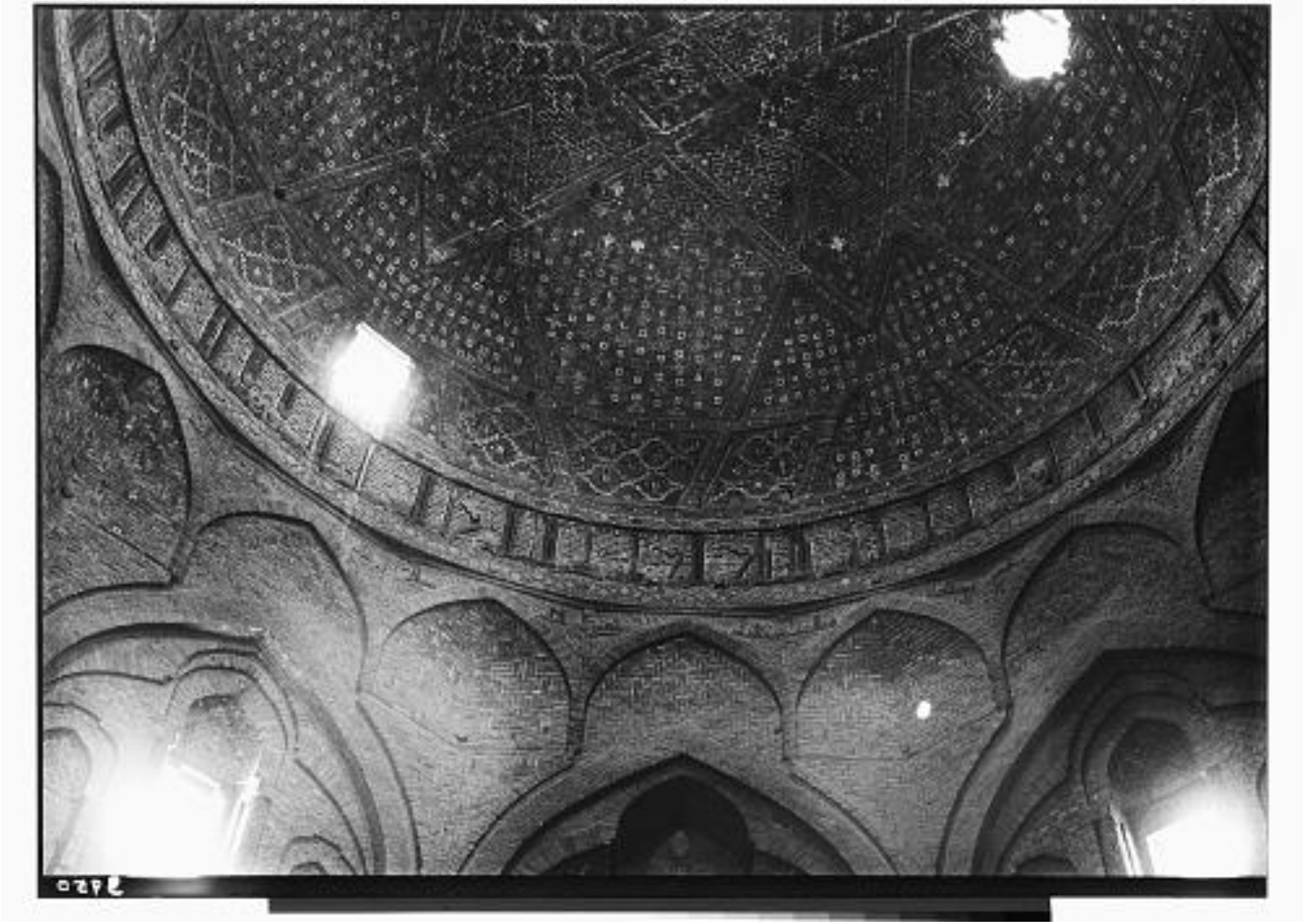
Galdieri, 1973

UNESCO - Masjed-e Jame of Isfahan. Report for Inscription on the World Heritage List

UNESCO - Masjed-e Jame of Isfahan. Report for Inscription on the World Heritage List



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



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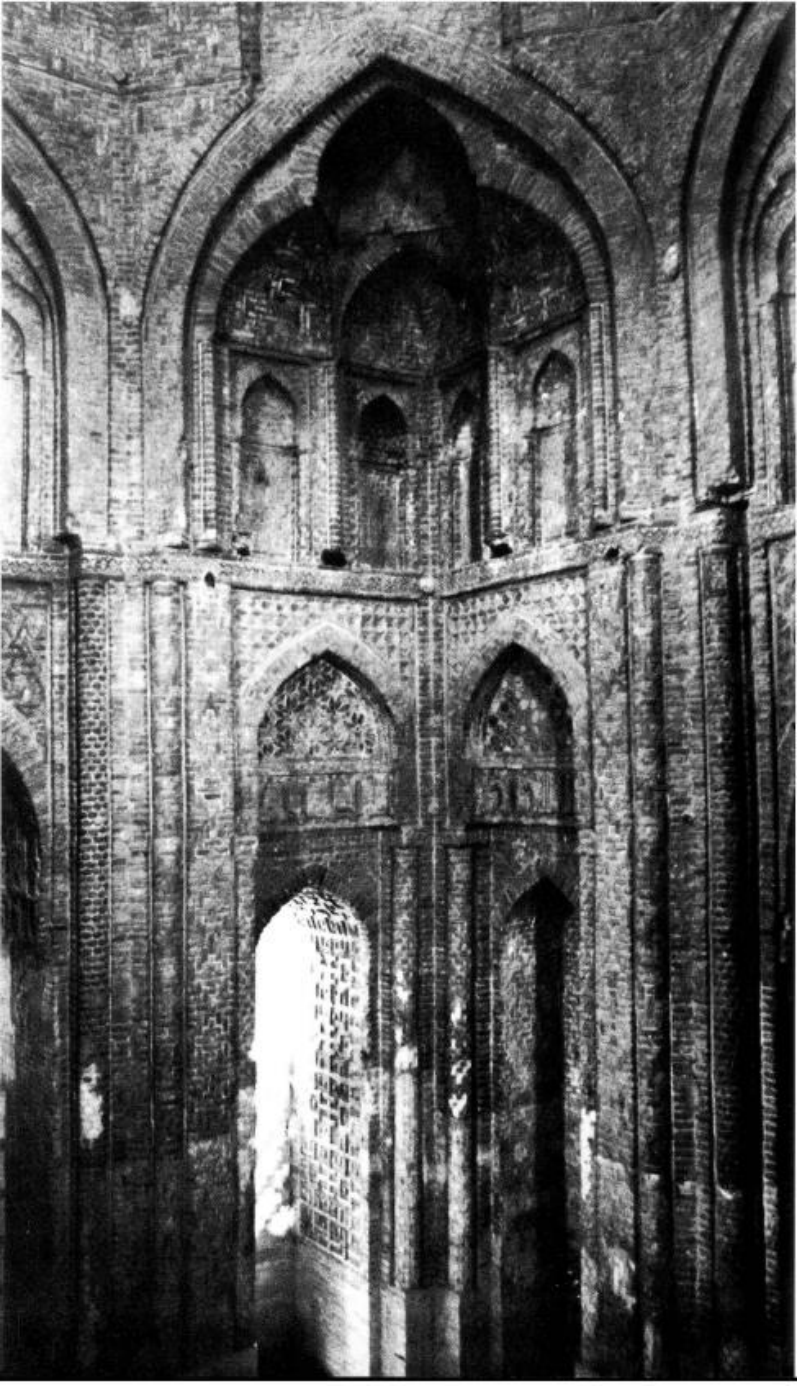
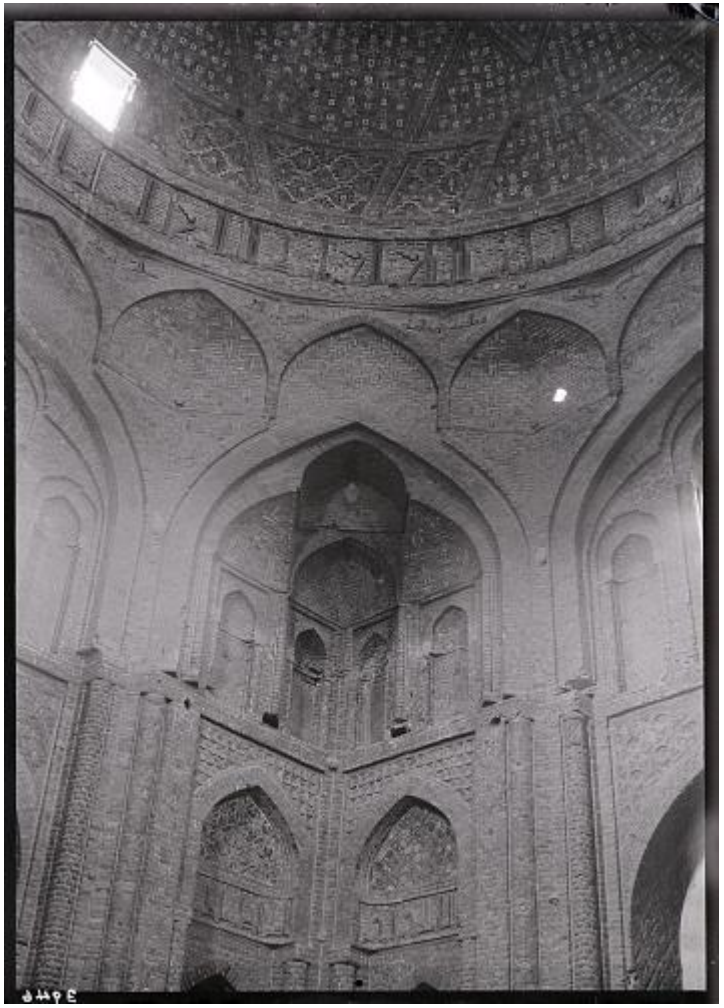


Tabbaa, 2001



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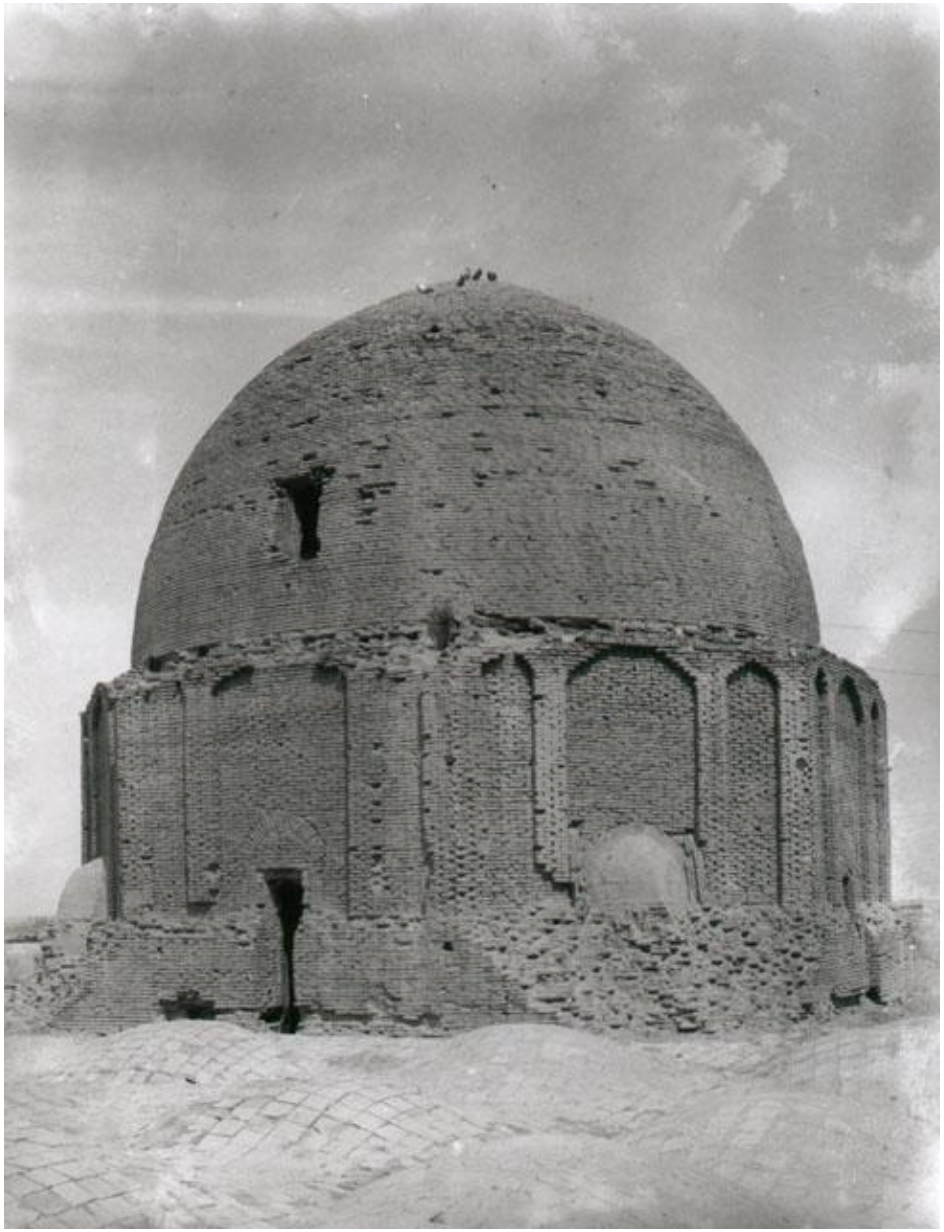

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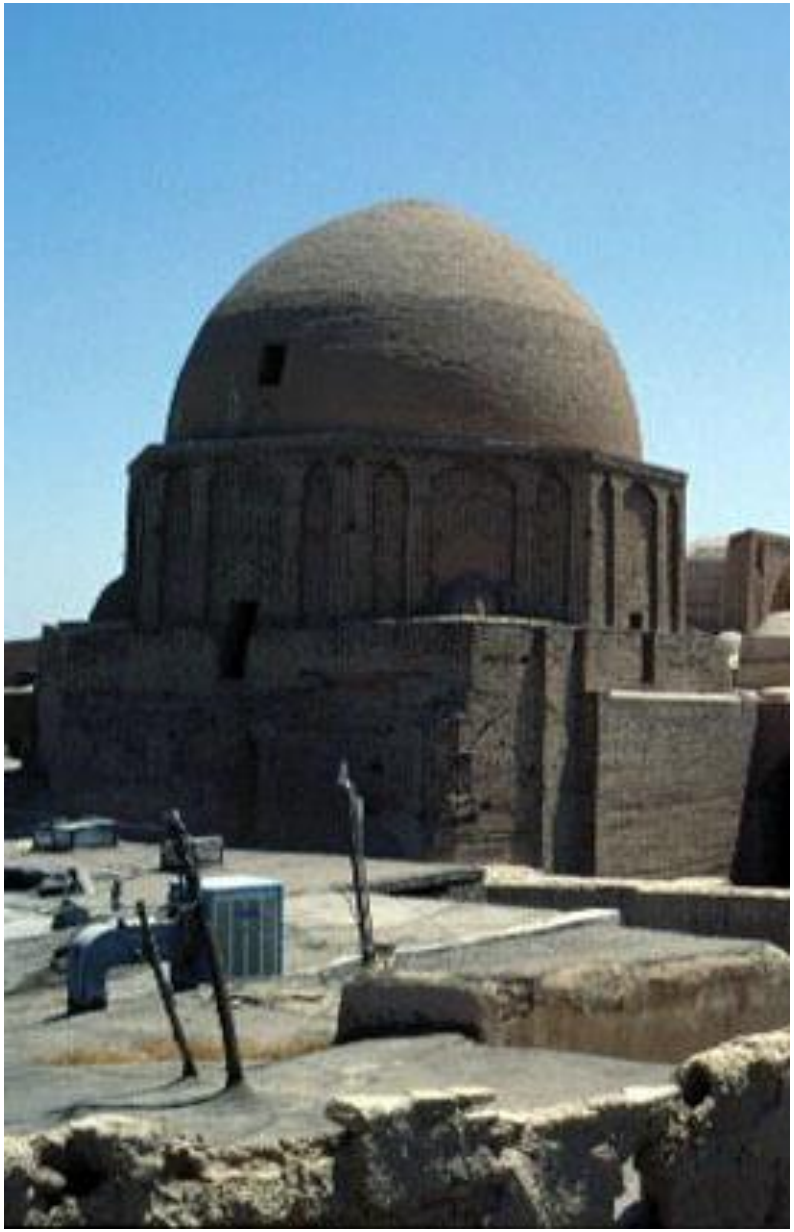
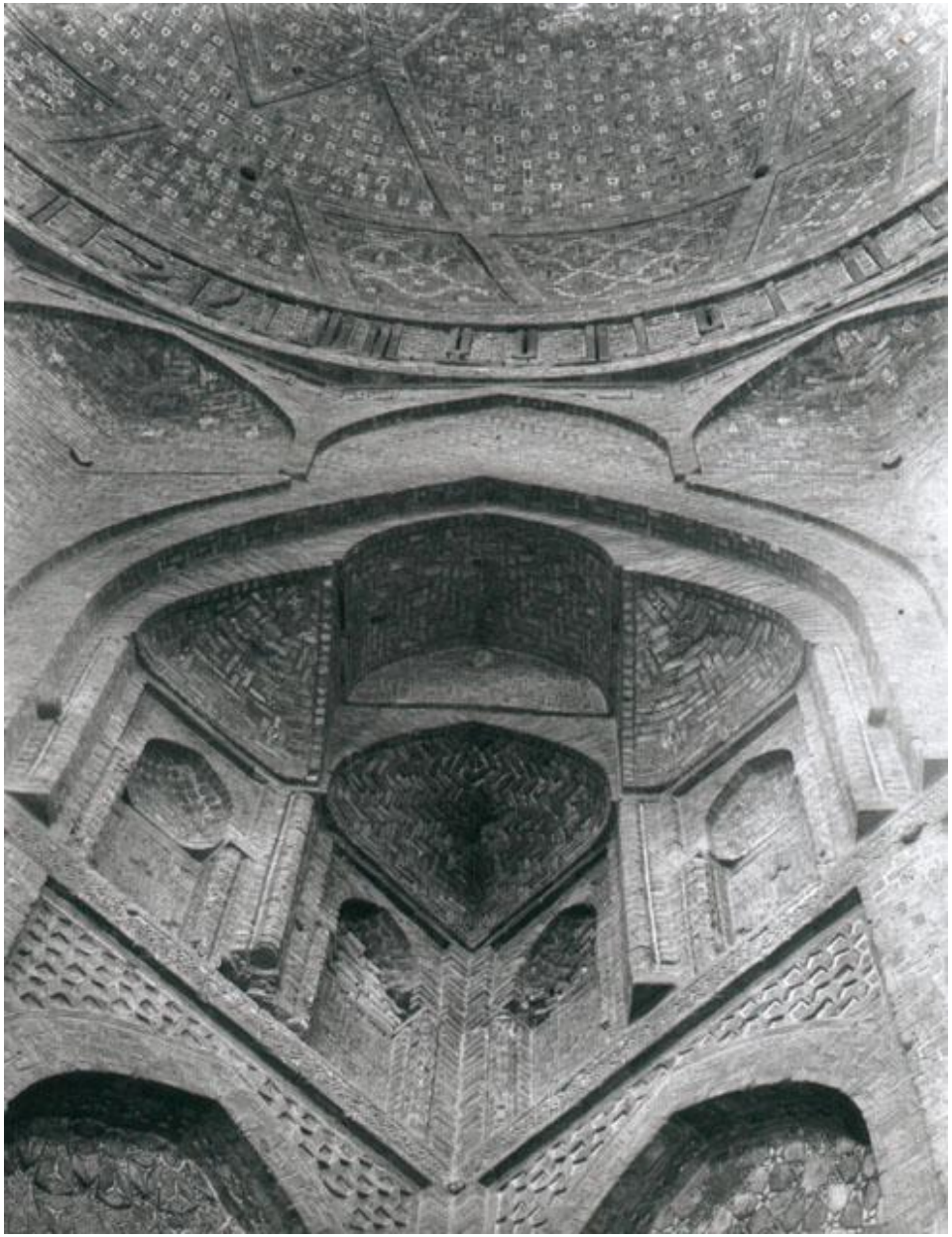


Tim Bradley, copyright: Aga Khan Award for Architecture



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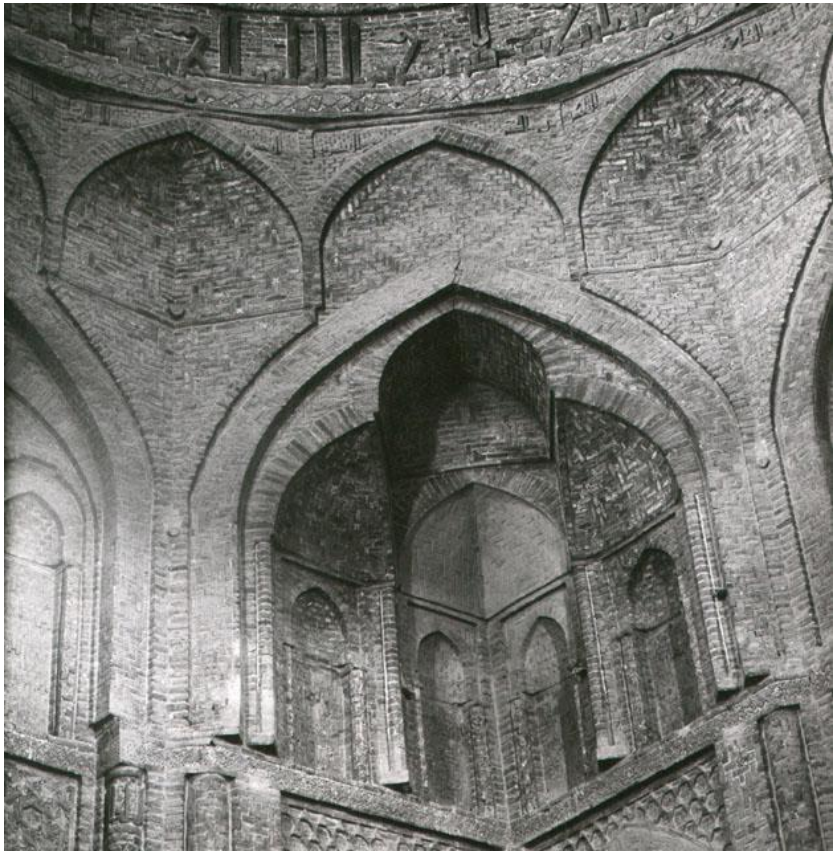

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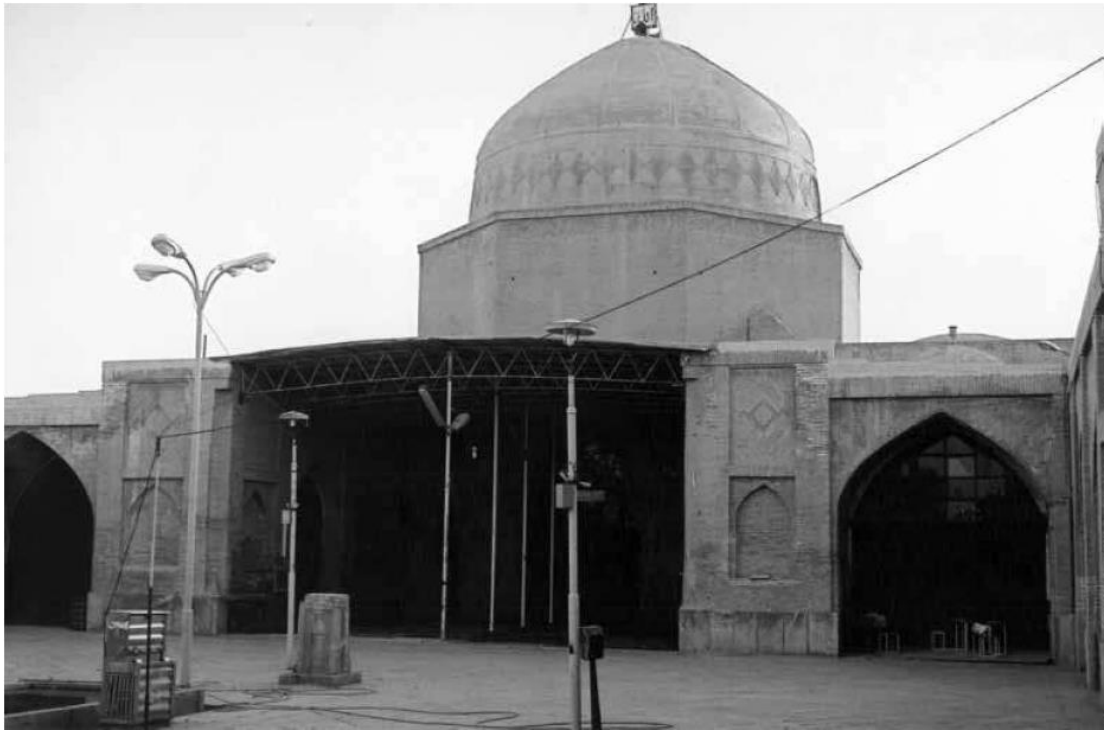
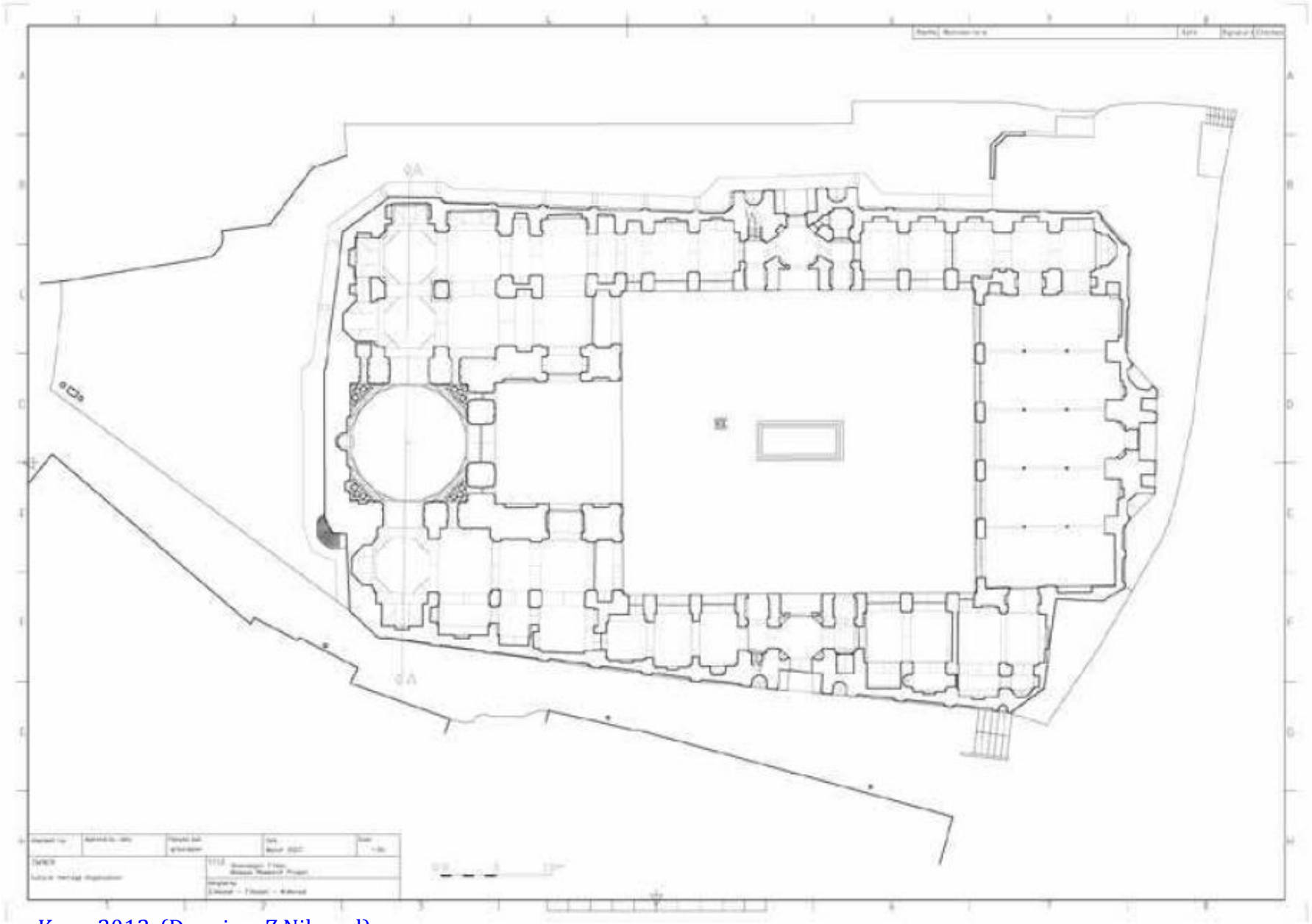


Korn, 2012

The Mosque of Gulpāygān



Korn, 2012, (Drawing: Z.Nikzard)

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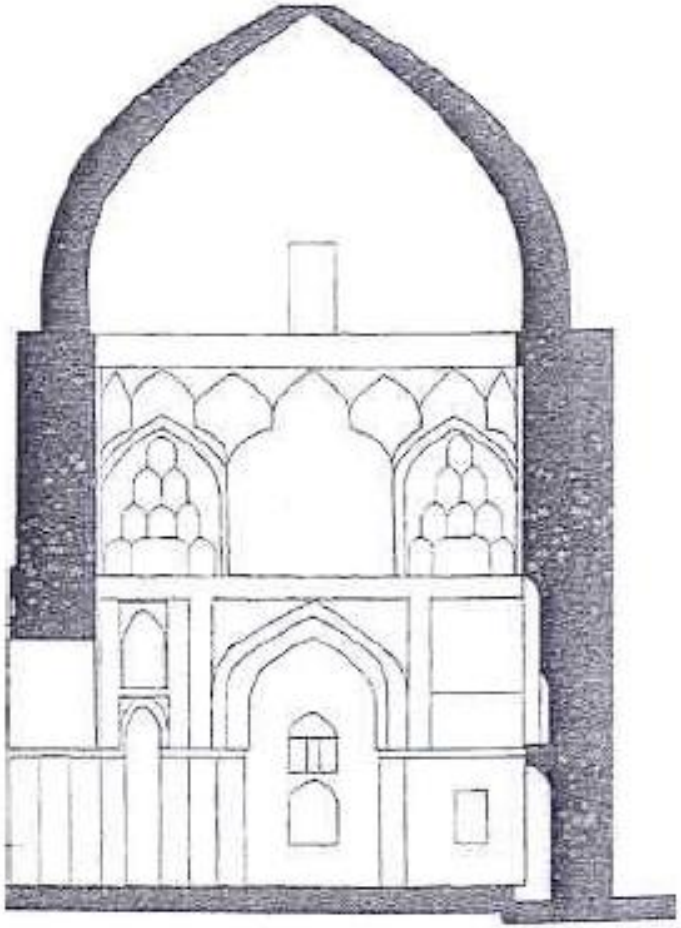
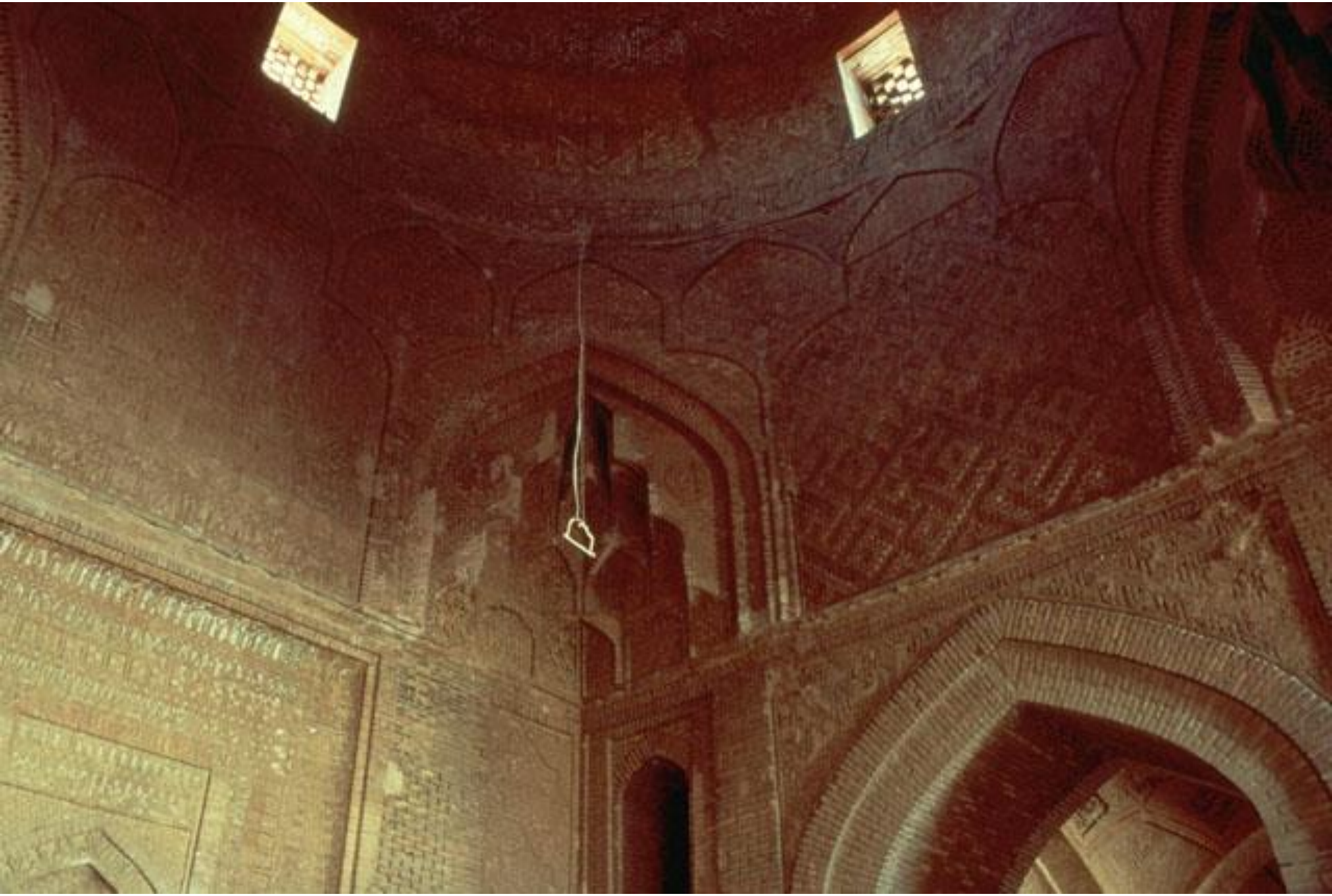


Mahdavinejad et al., 2012



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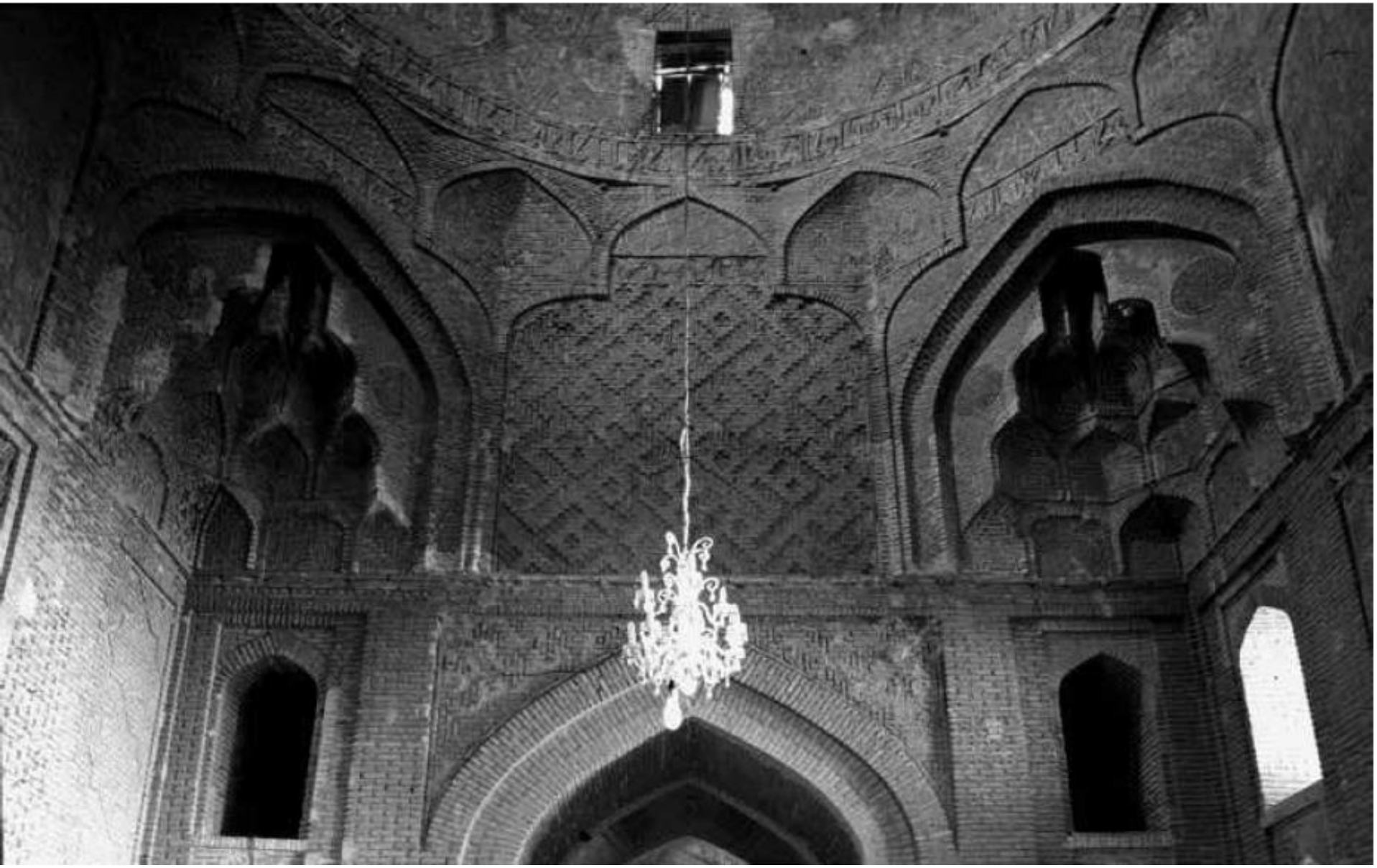
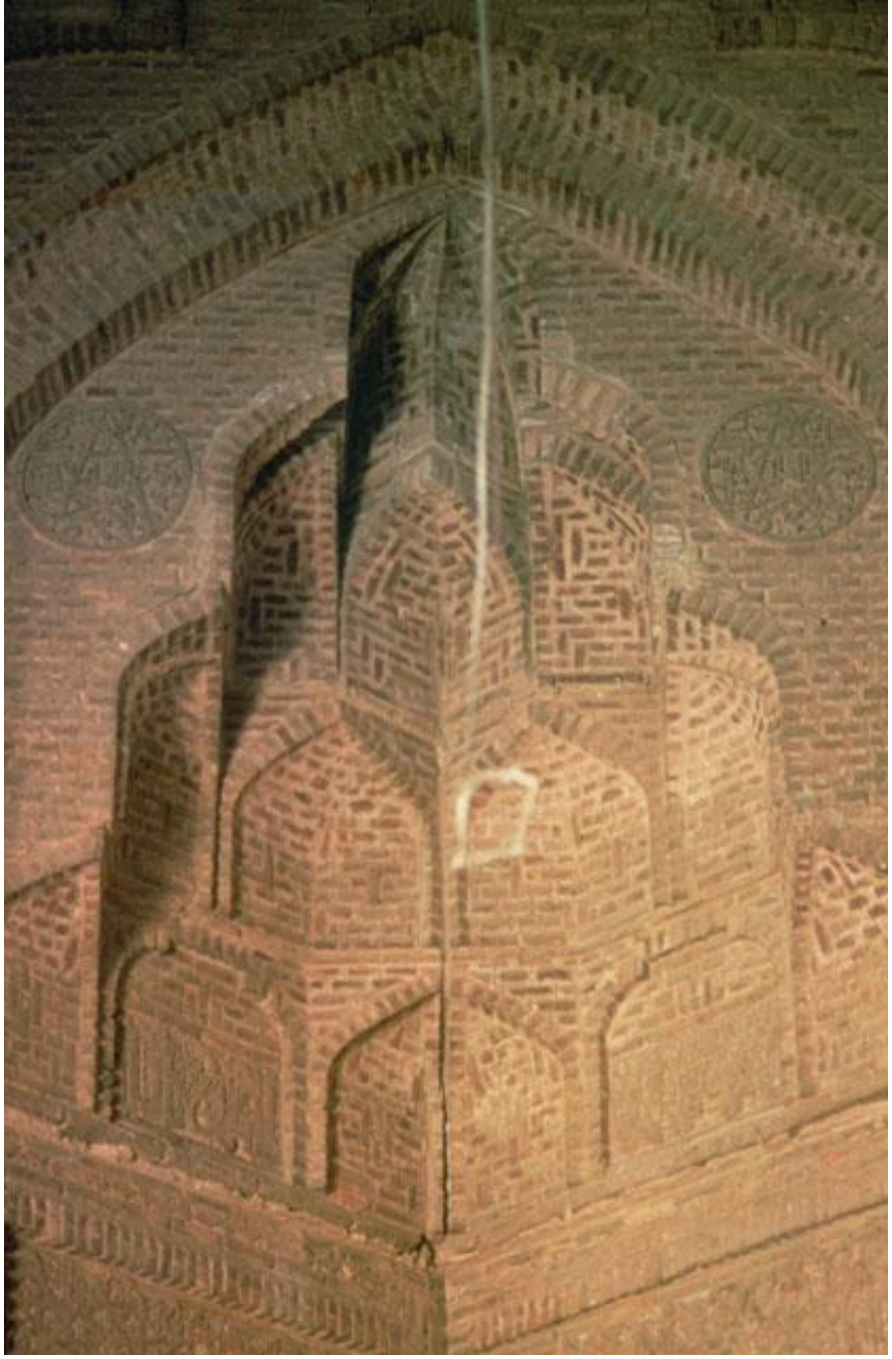


Korn, 2012



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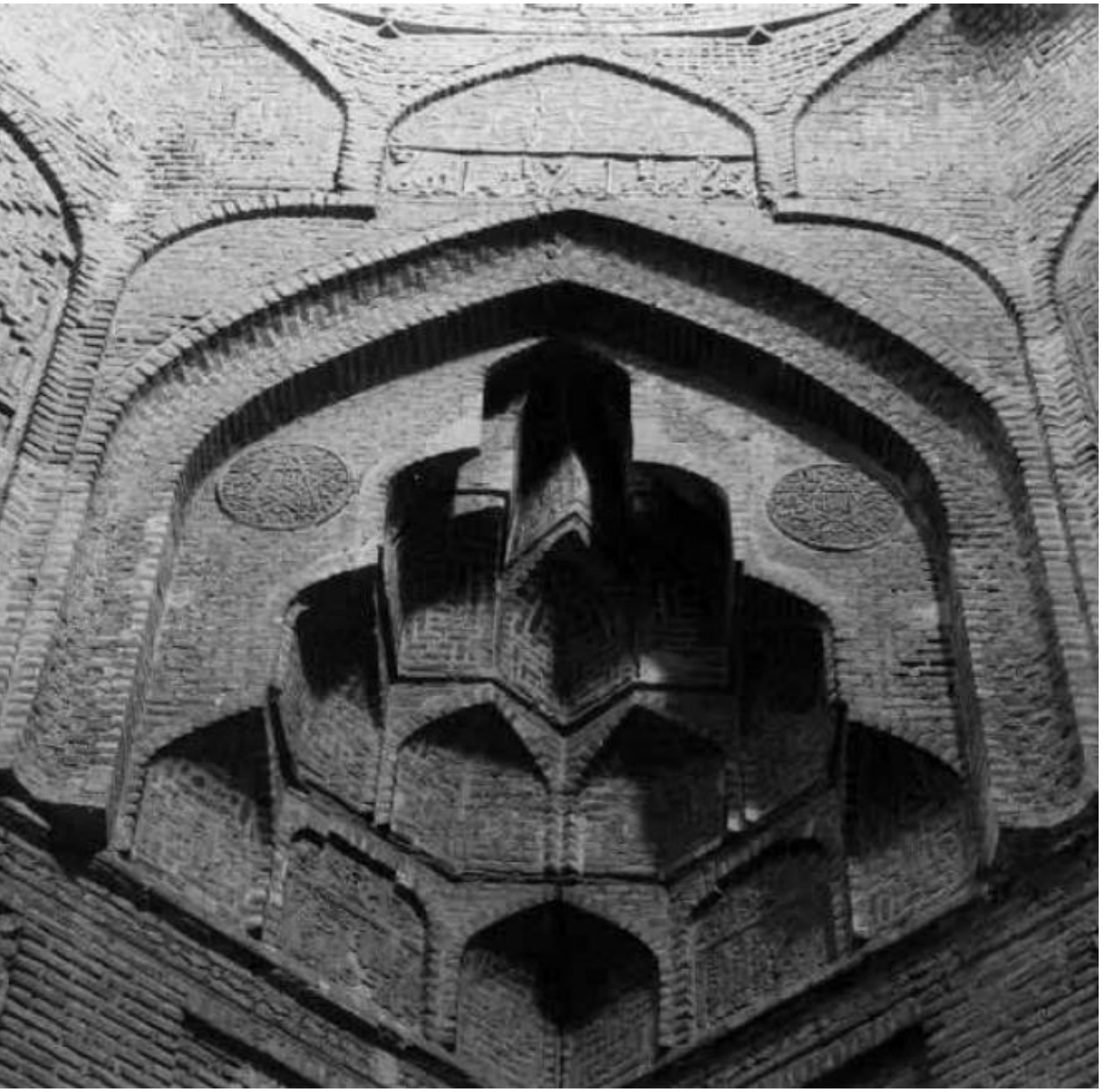

Korn, 2012

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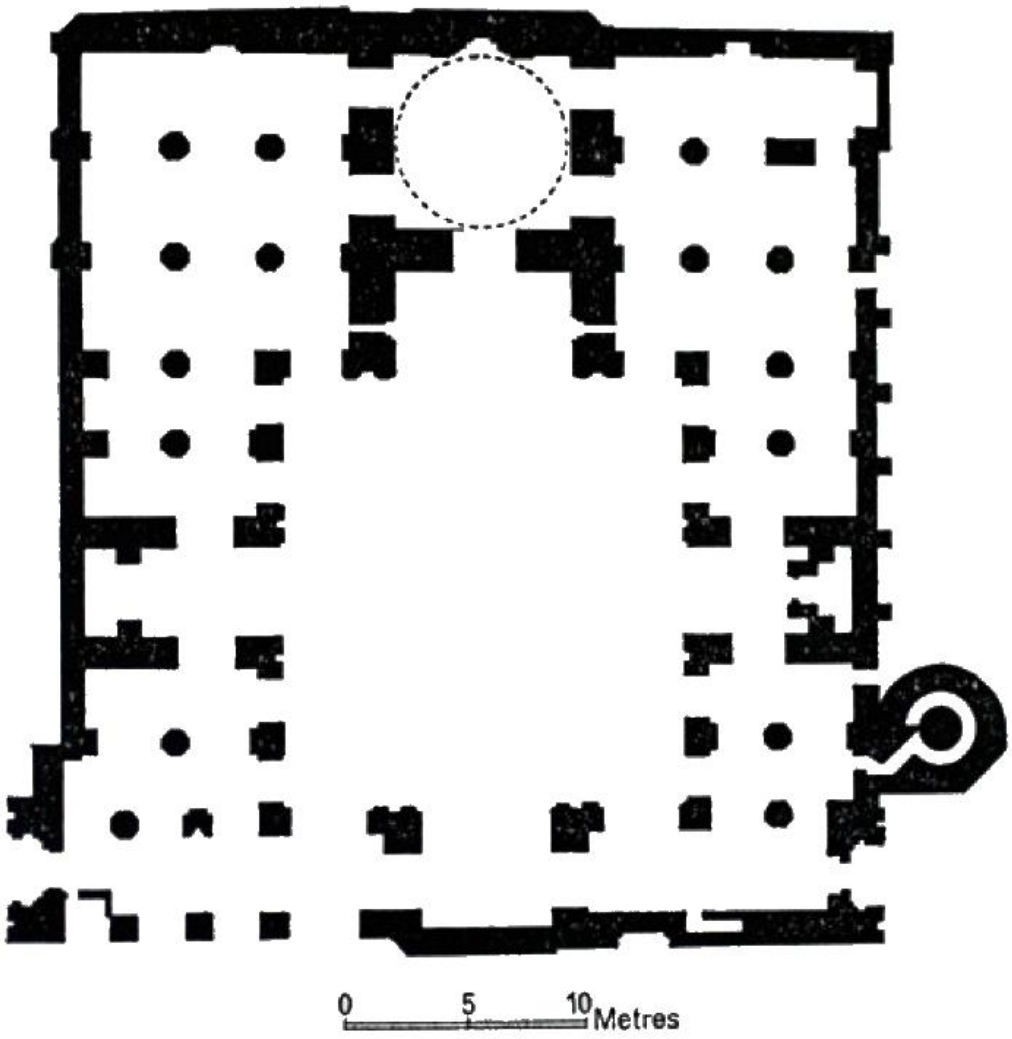
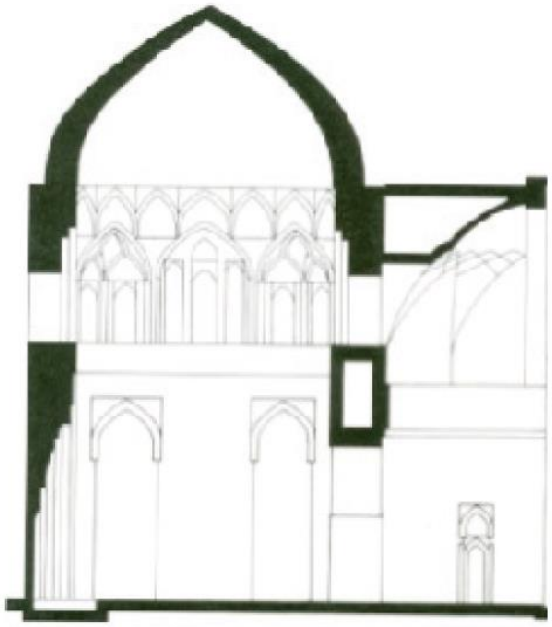
The Mosque of Zavāreh, the Mosque of Ardestān and the influence of the Iṣfahān Mosque's domed halls

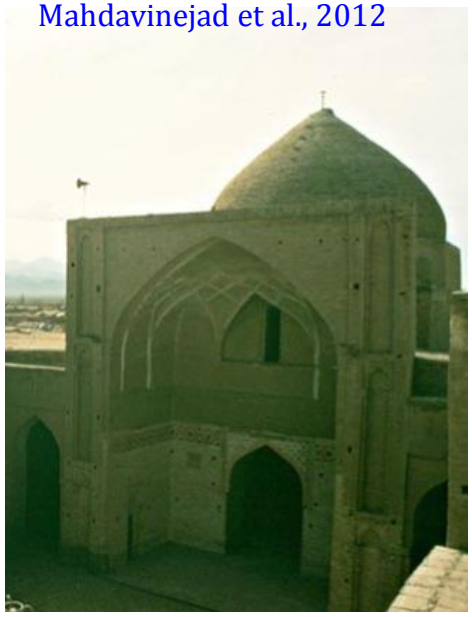
The Mosque of Zavāreh (1135-36)



G. Michell, 1978, (Adapted from)



Mahdavinejad et al., 2012



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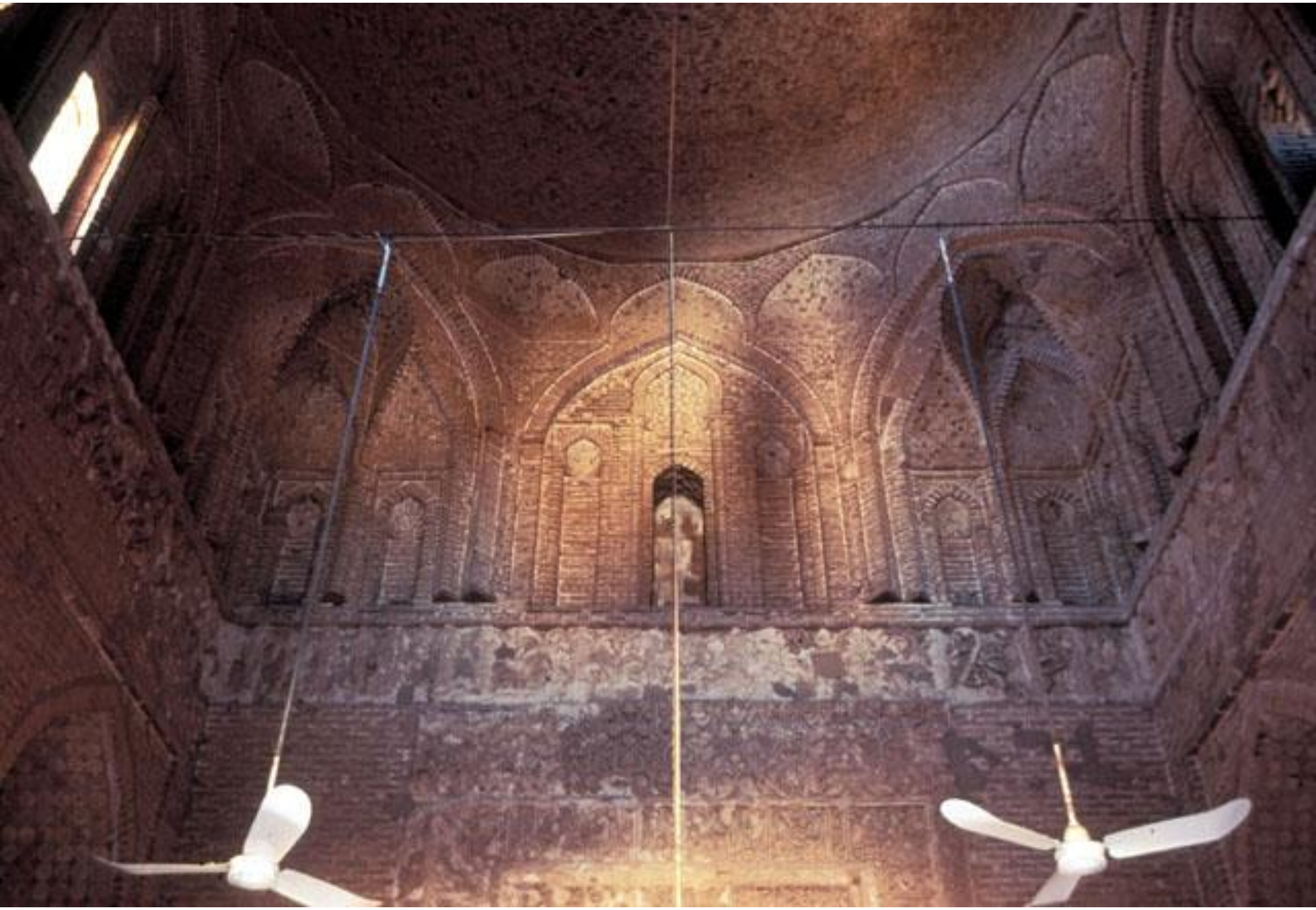

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Hillenbrand, 1976, (Photo: J. W. Allan)

The Mosque of Ardestān

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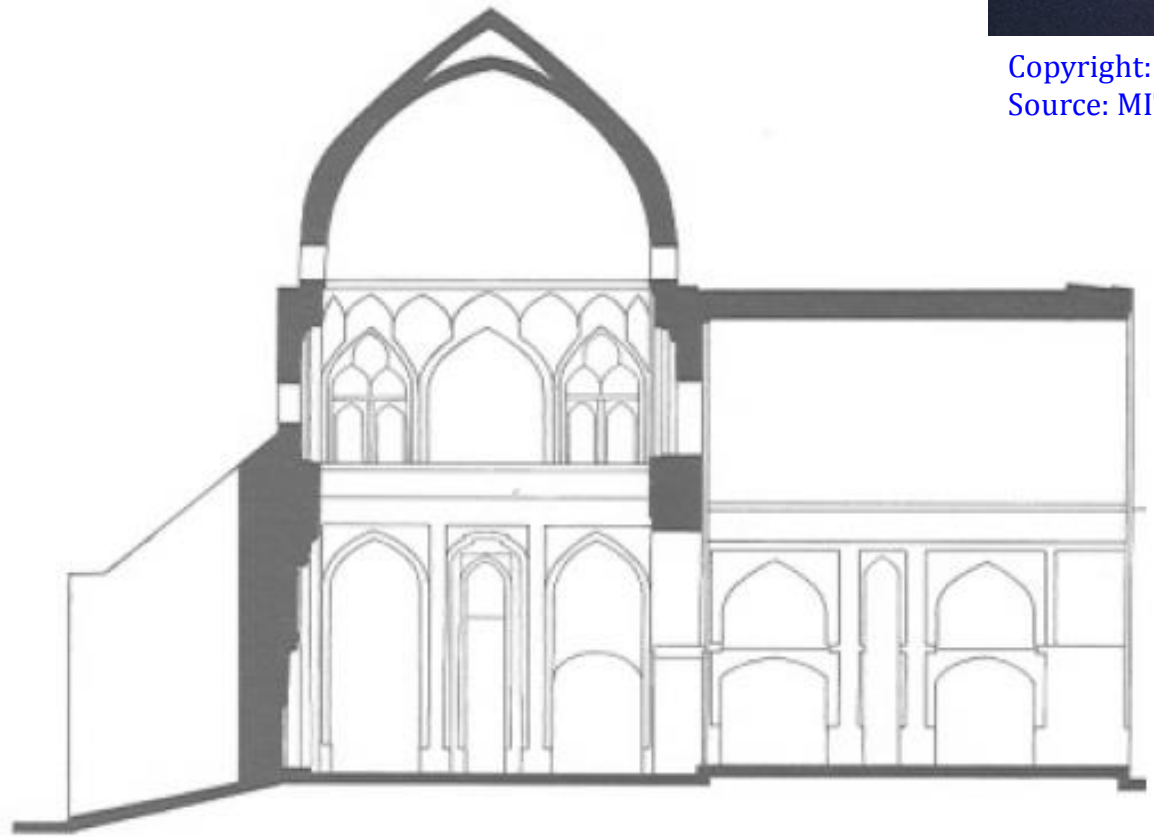
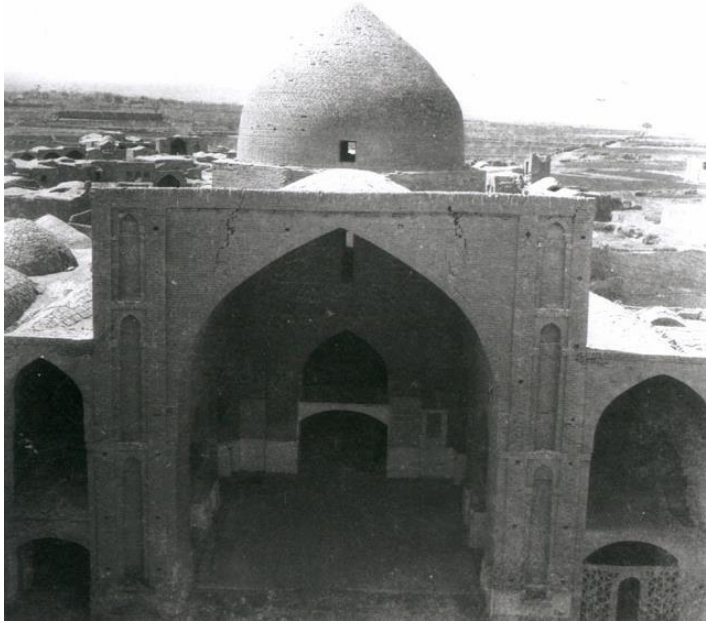
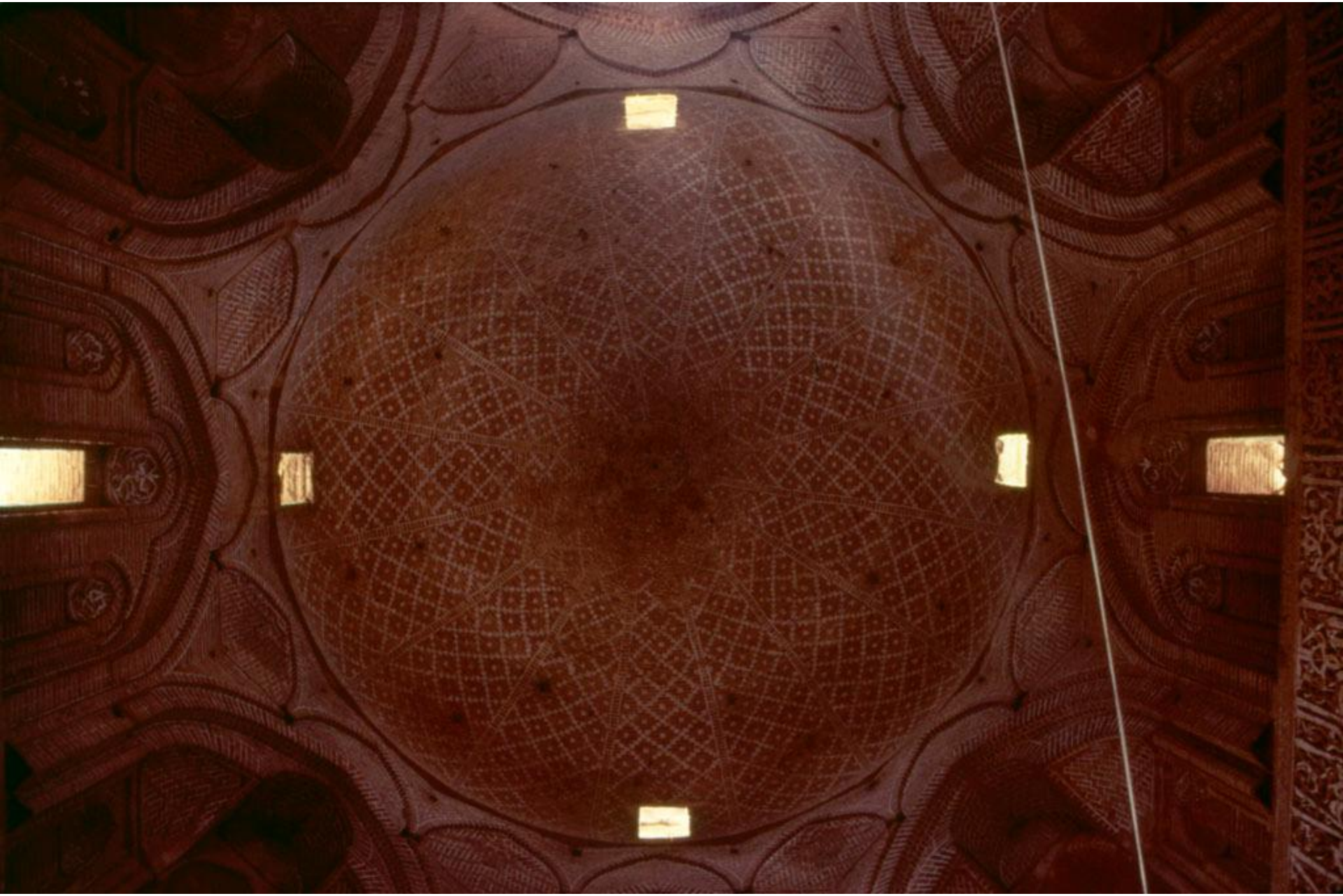


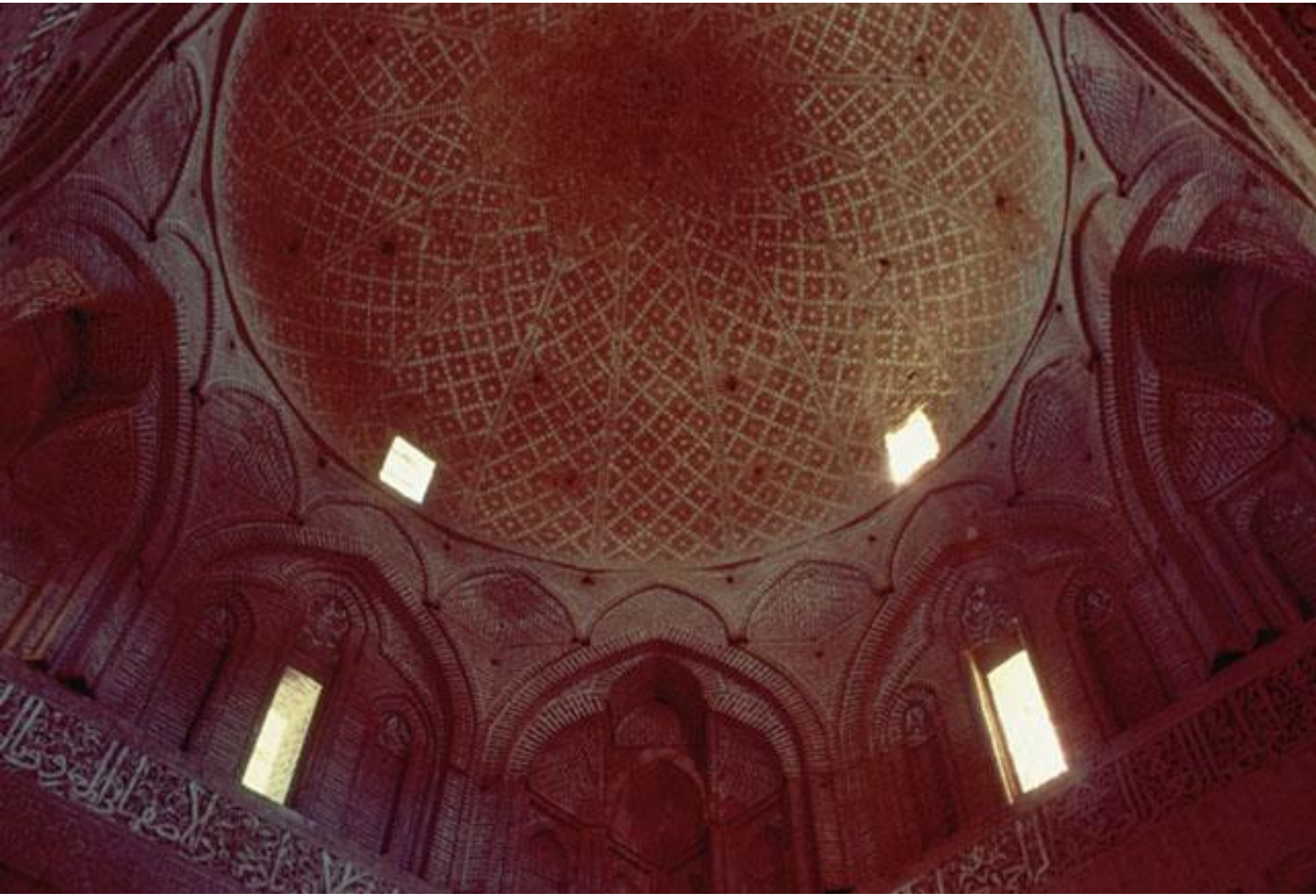
Mahdavinejad et al., 2012



Copyright: Robert Byron
Source: Fine Arts Library, Harvard College Library



Copyright: S. Blair and J. Bloom. Source: MIT Libraries, Aga Khan Visual Archive



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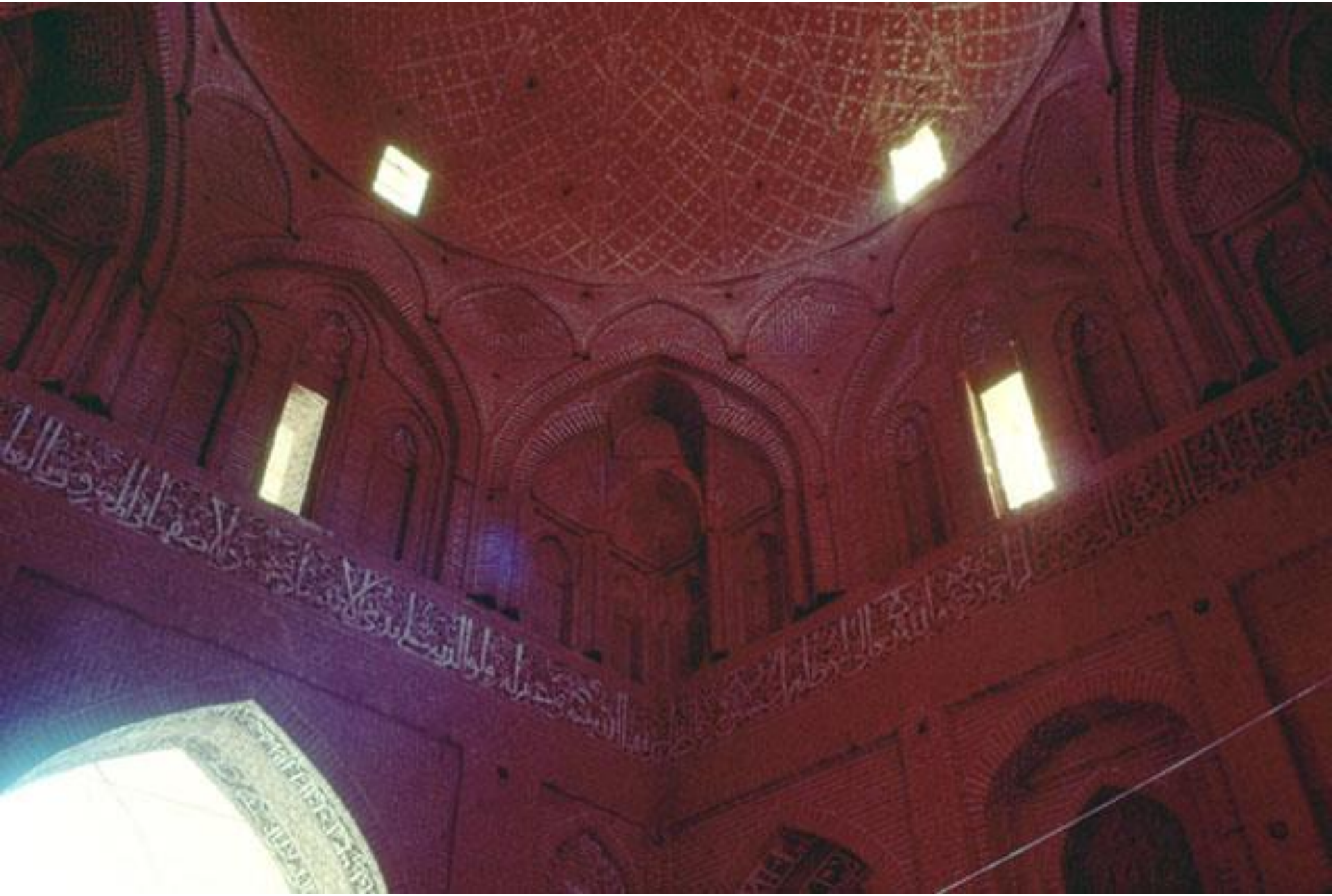
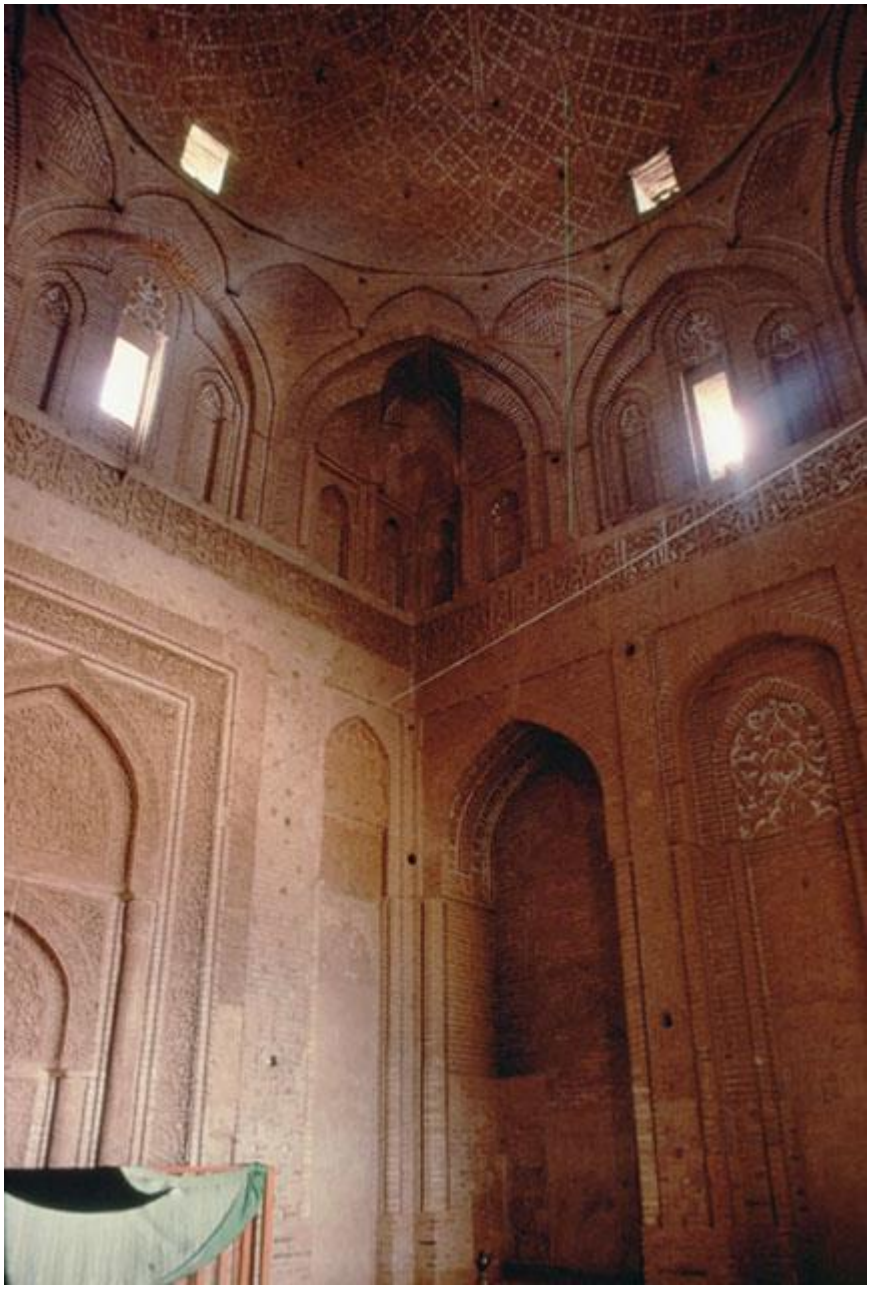
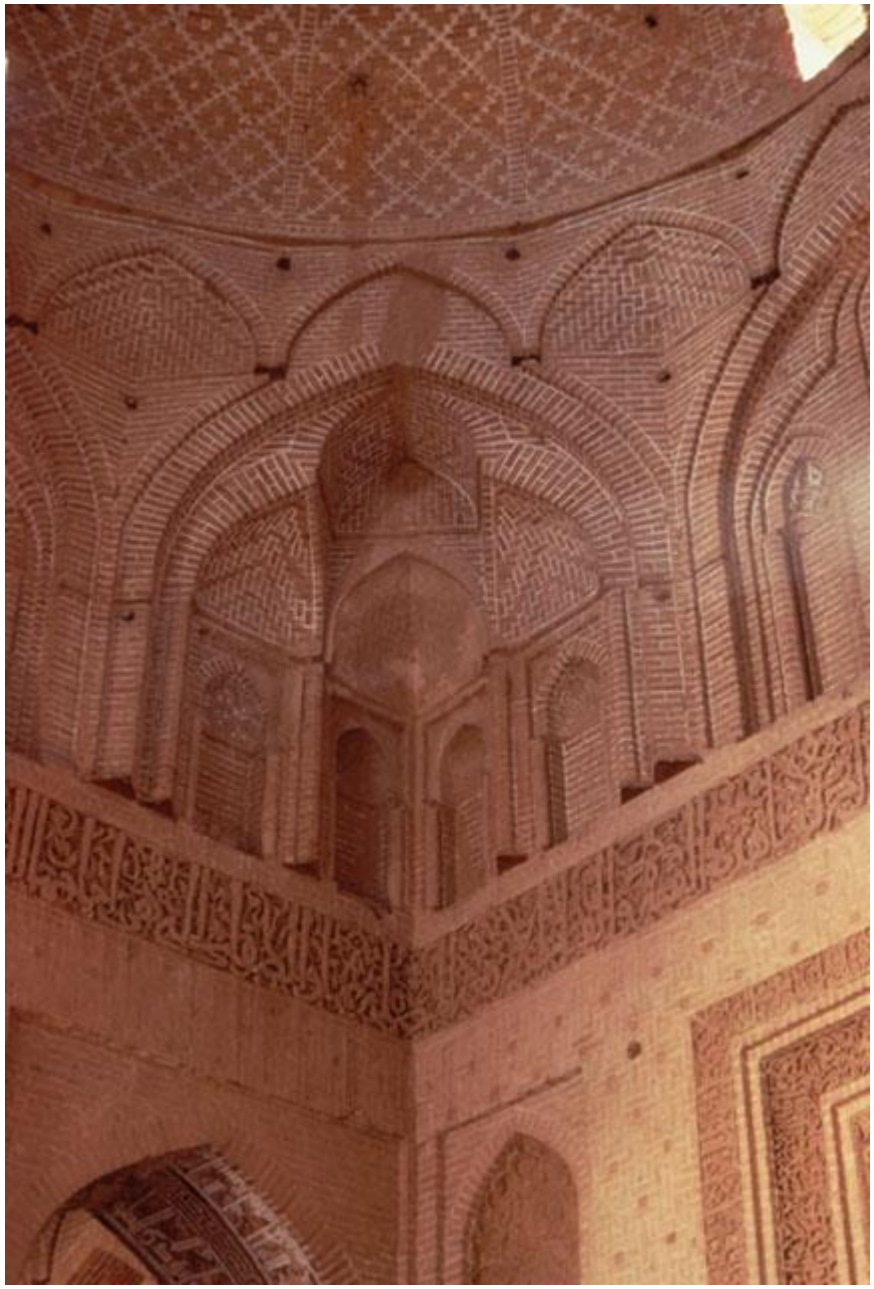


Copyright: S. Blair and J. Bloom. Source: MIT Libraries, Aga Khan Visual Archive

Copyright: Chala Hadimi. Source: MIT Libraries, Aga Khan Visual Archive





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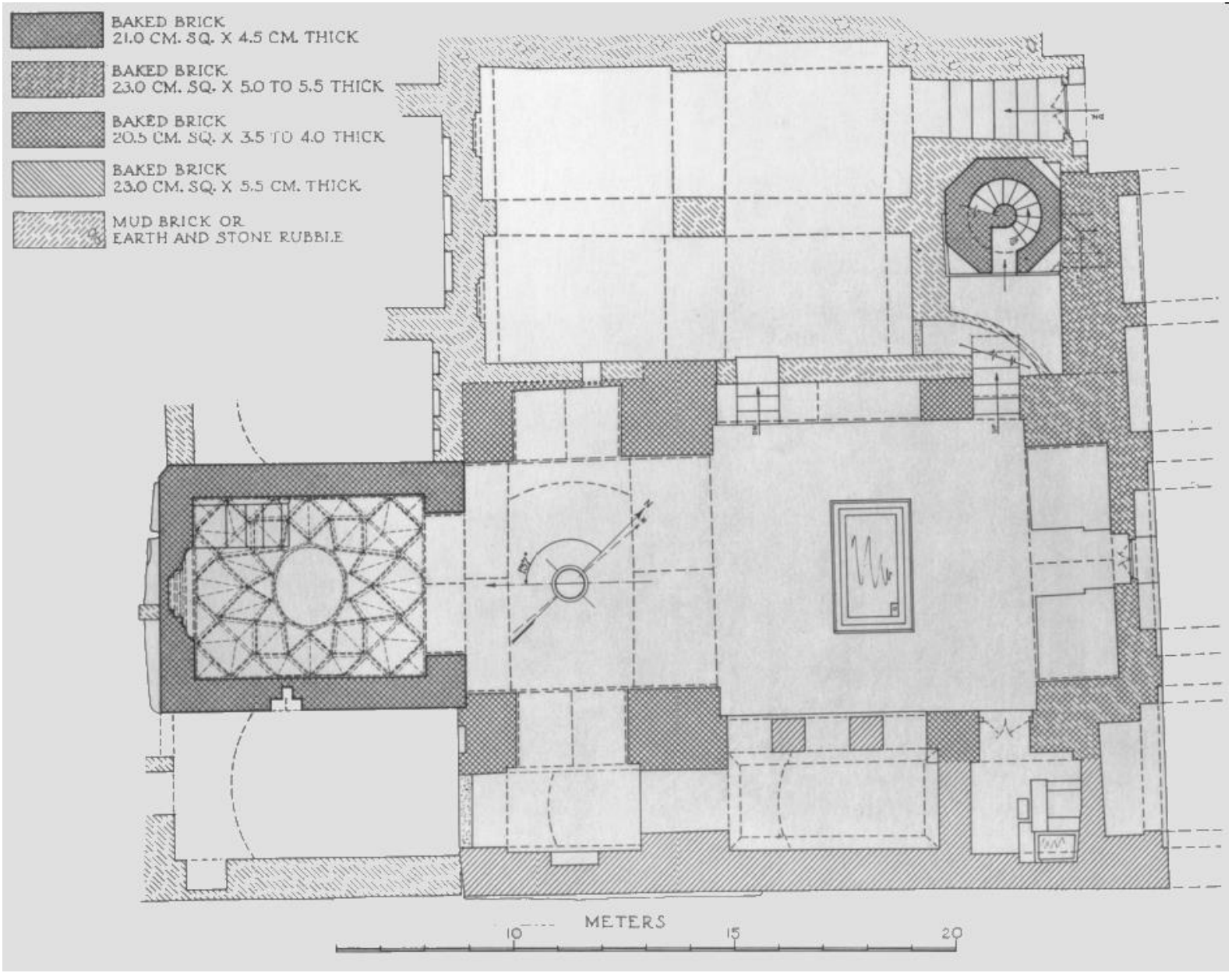
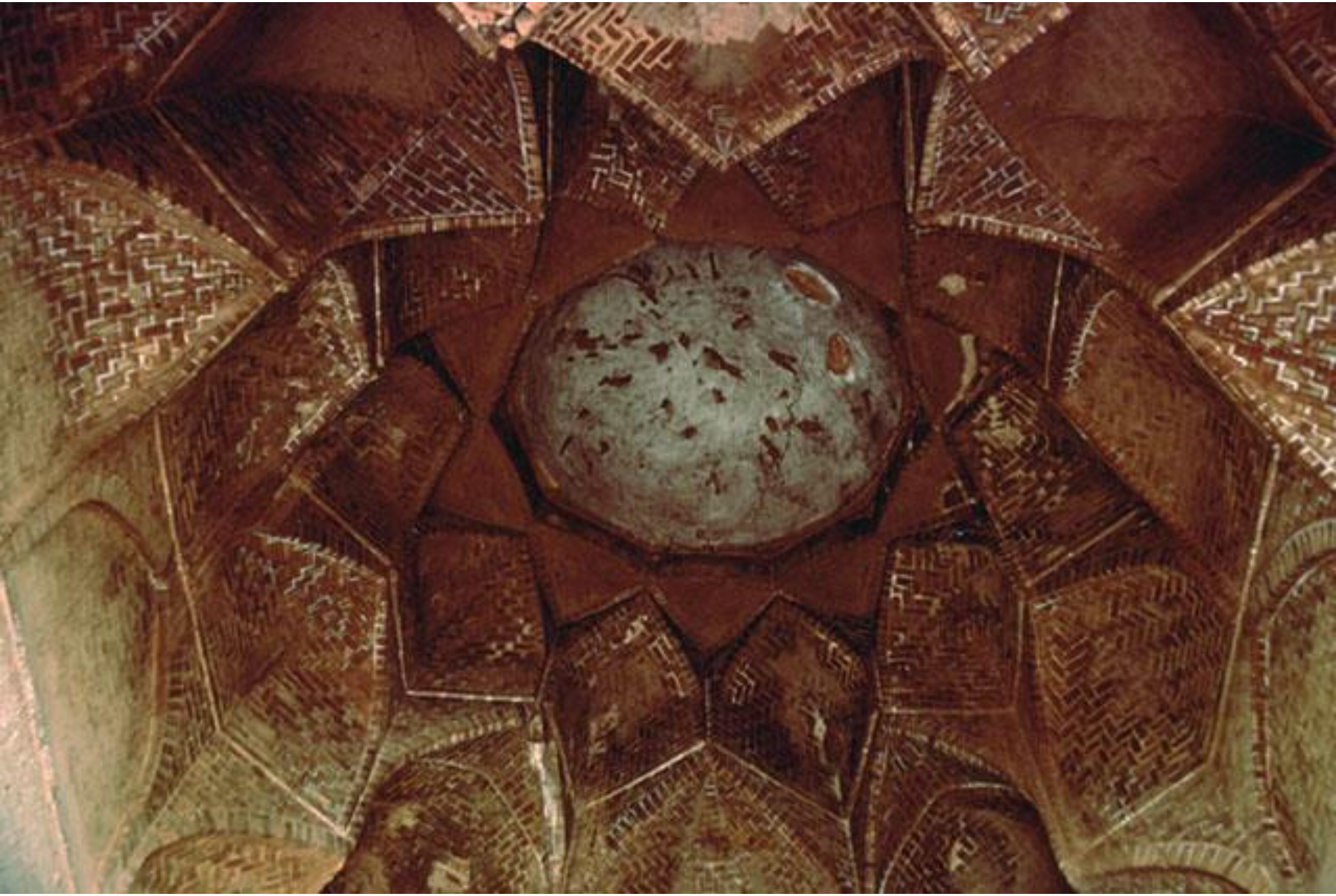
3. THE SALJŪQ EXAMPLES IN IRAN

The vaults

The Mosque of Sīn



Smith, 1939 (Adapted from)



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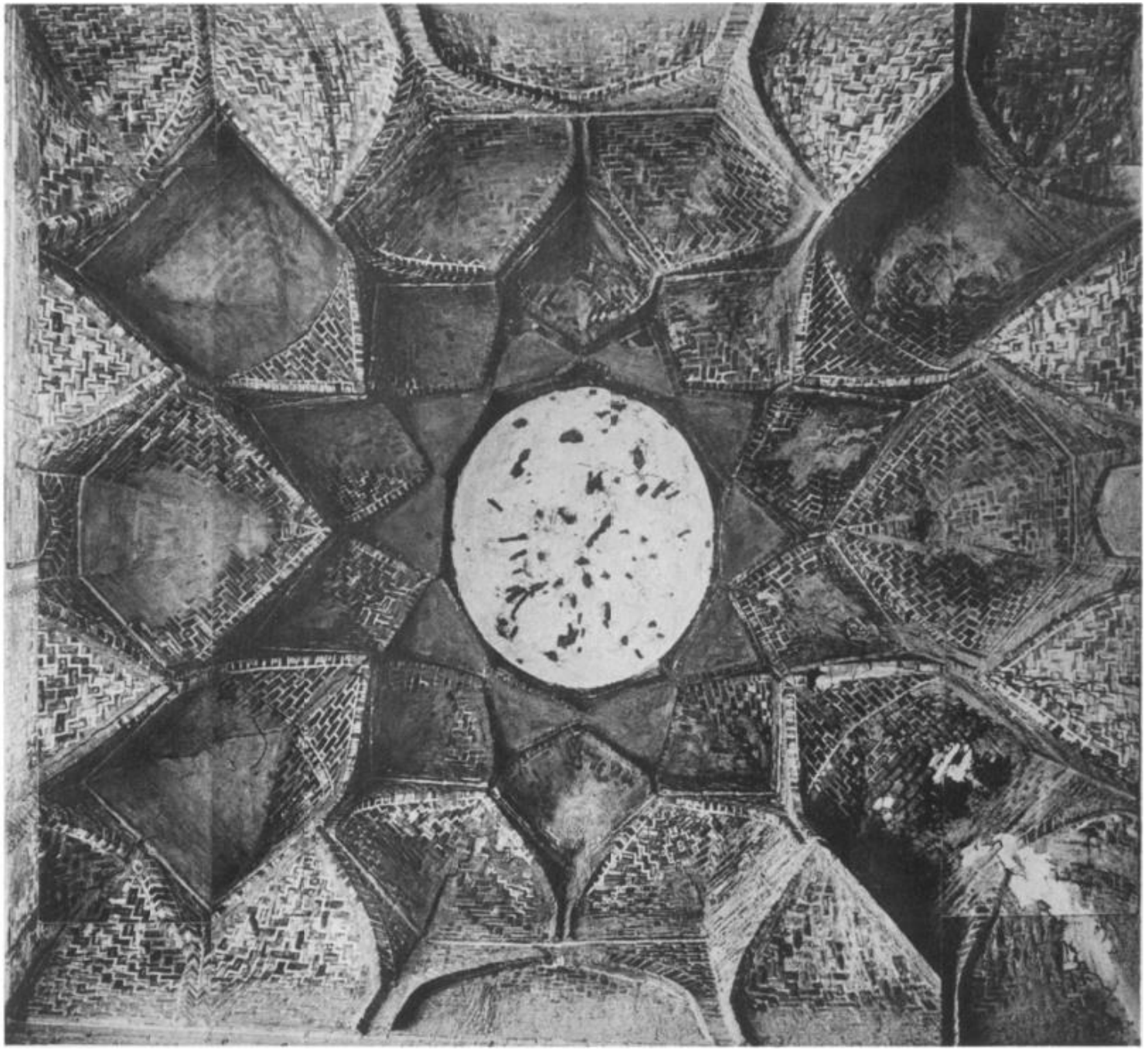
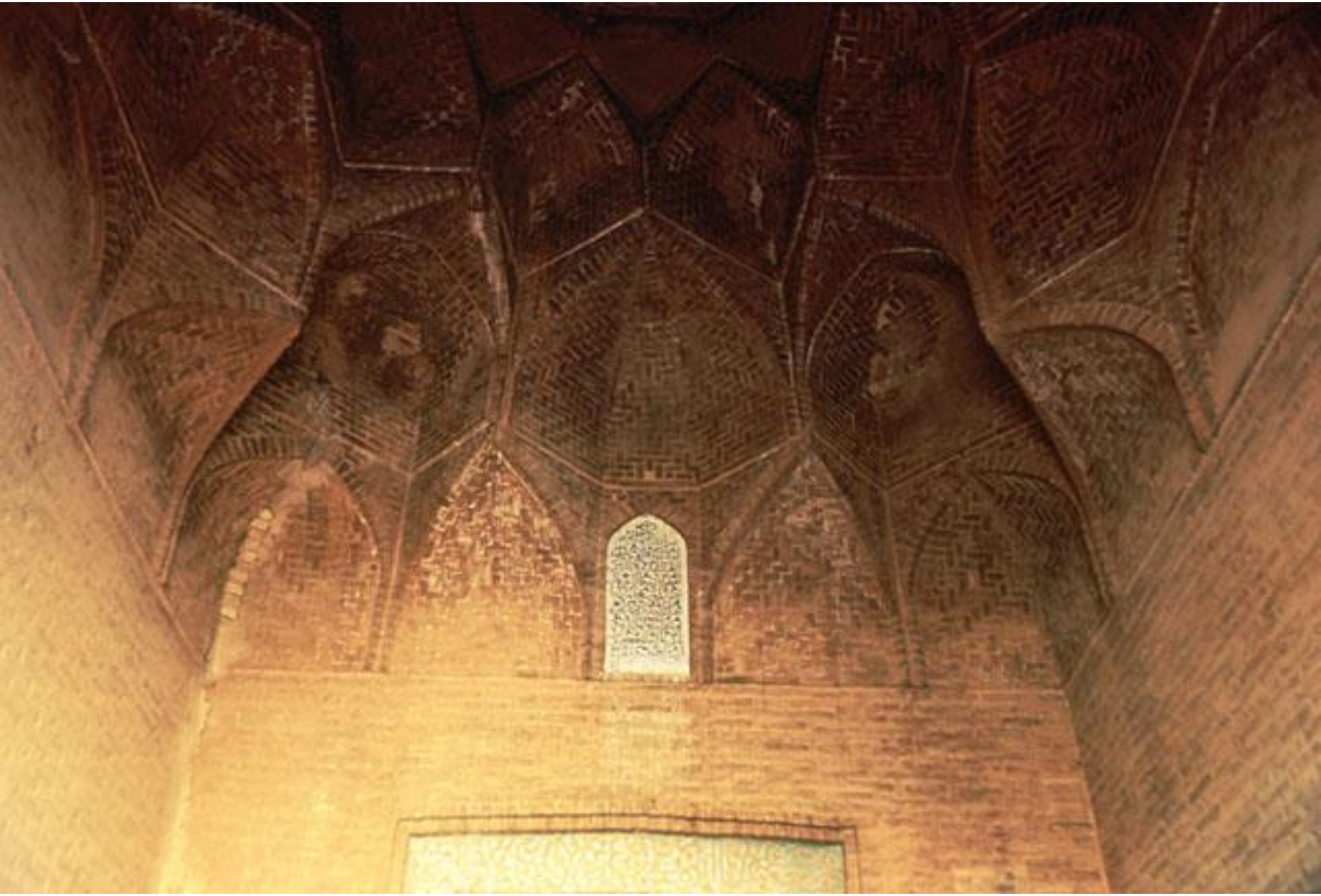


Smith, 1939, (Photo-mosaic)



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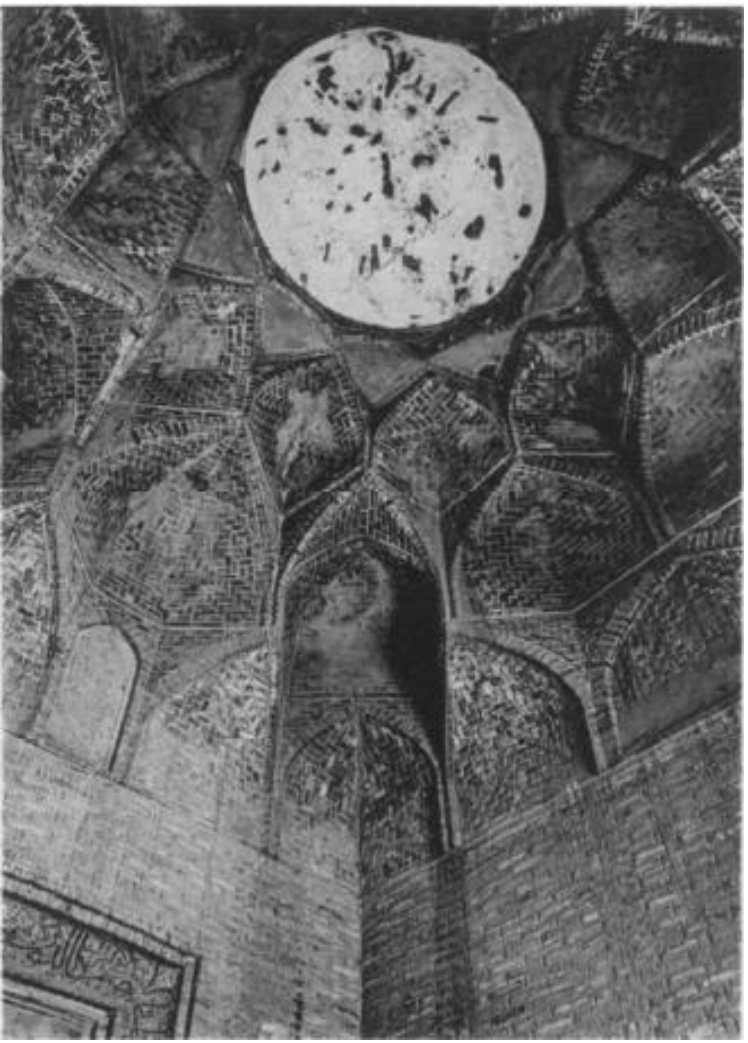
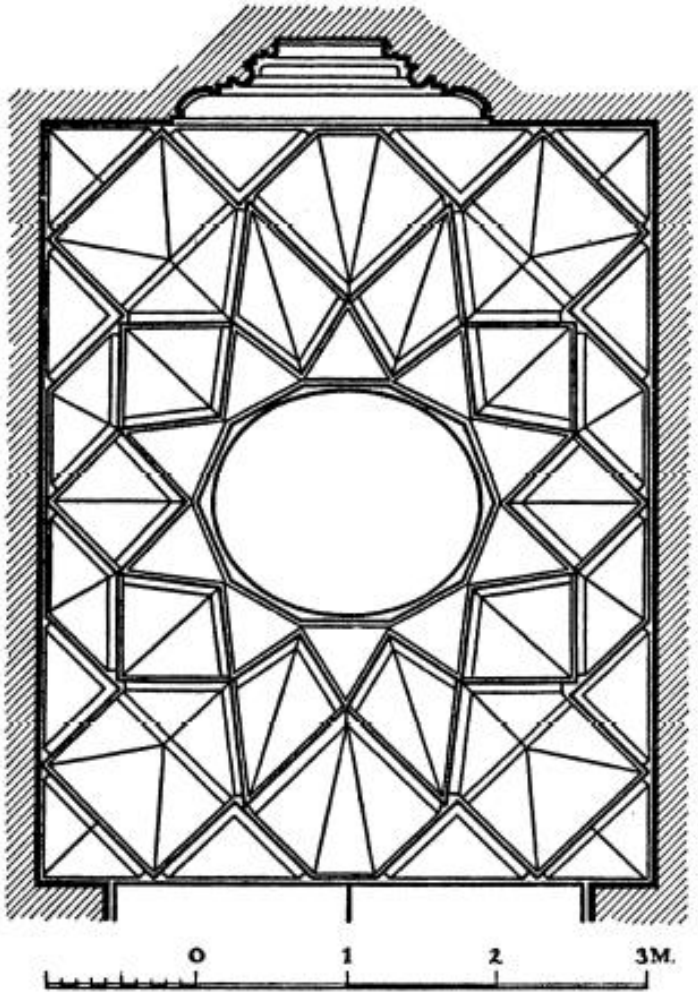
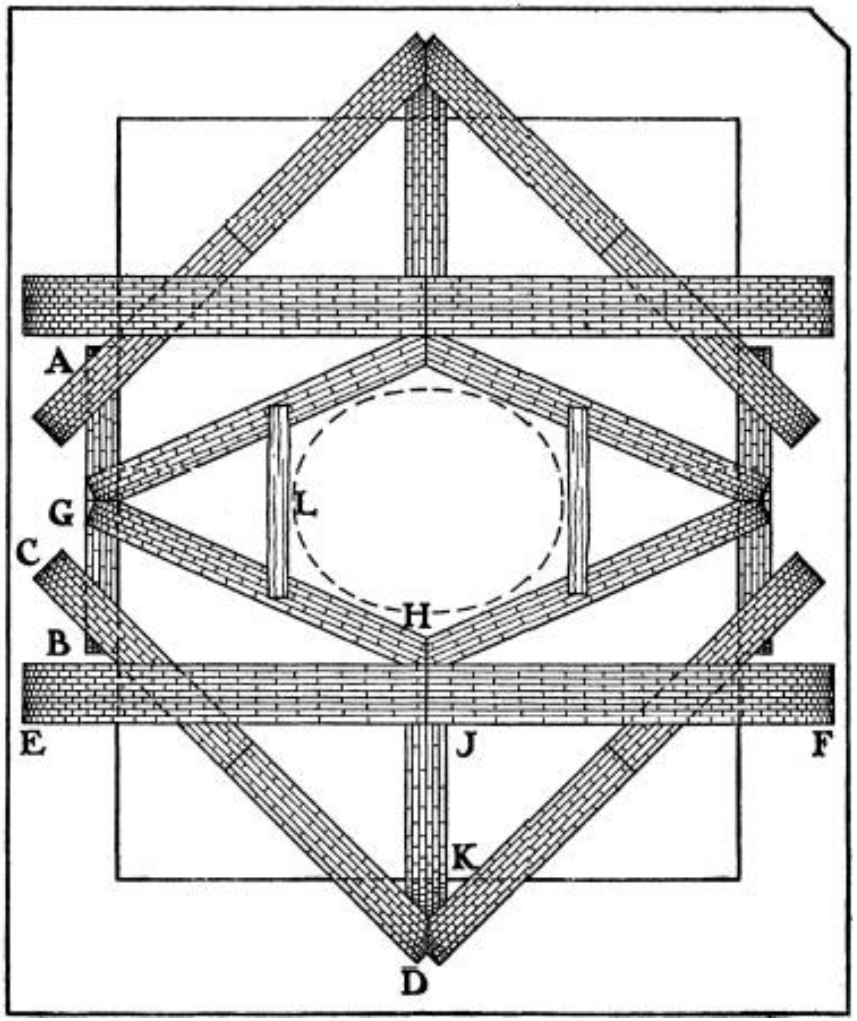


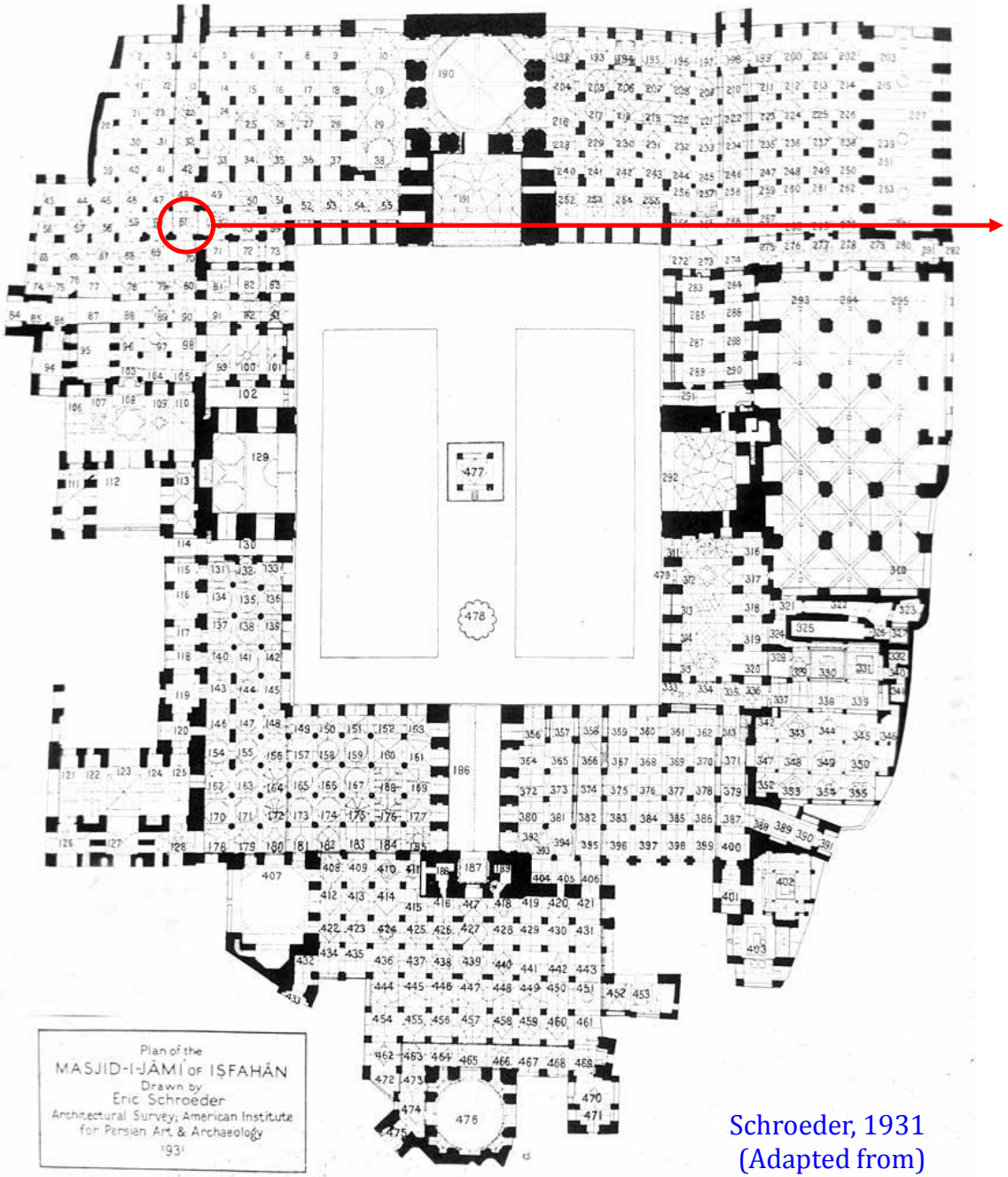
Smith, 1939





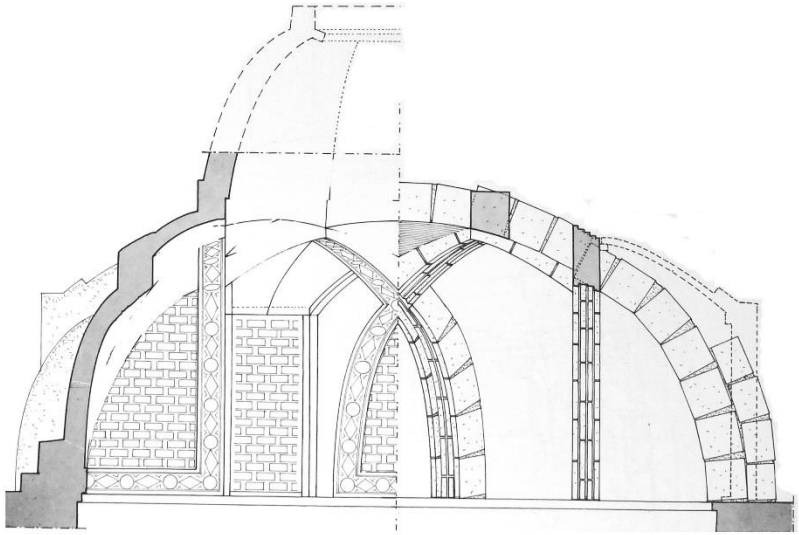
Smith, 1939

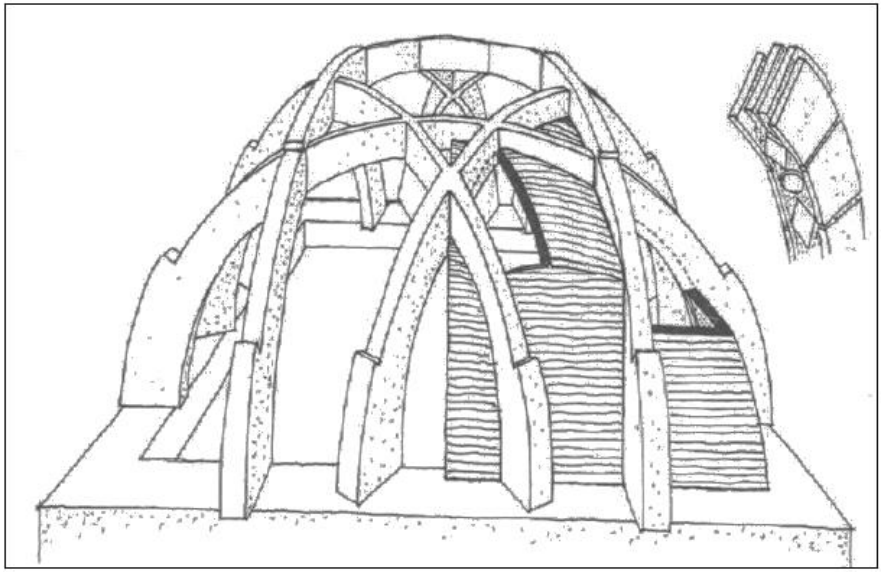
The undated vaults of the Iṣfahān Mosque. Vault n. 60

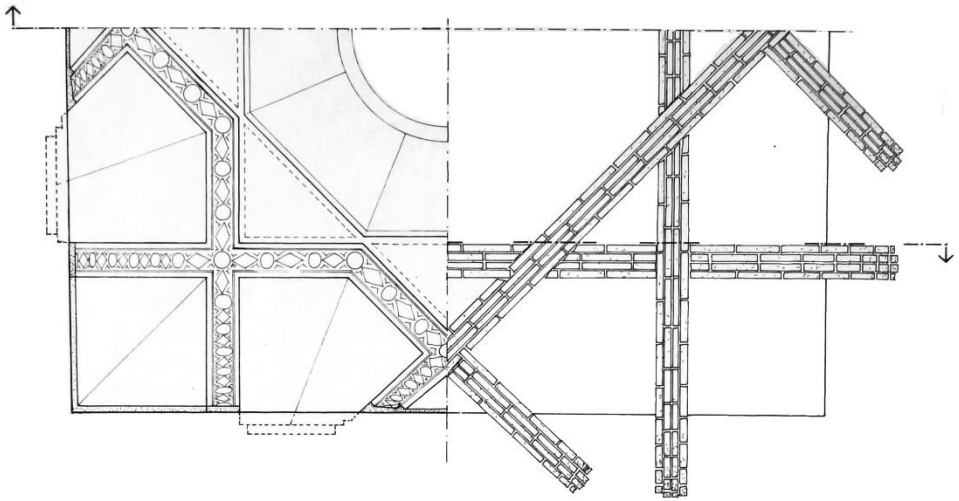


Schroeder, 1931
(Adapted from)

Galdieri, 1972



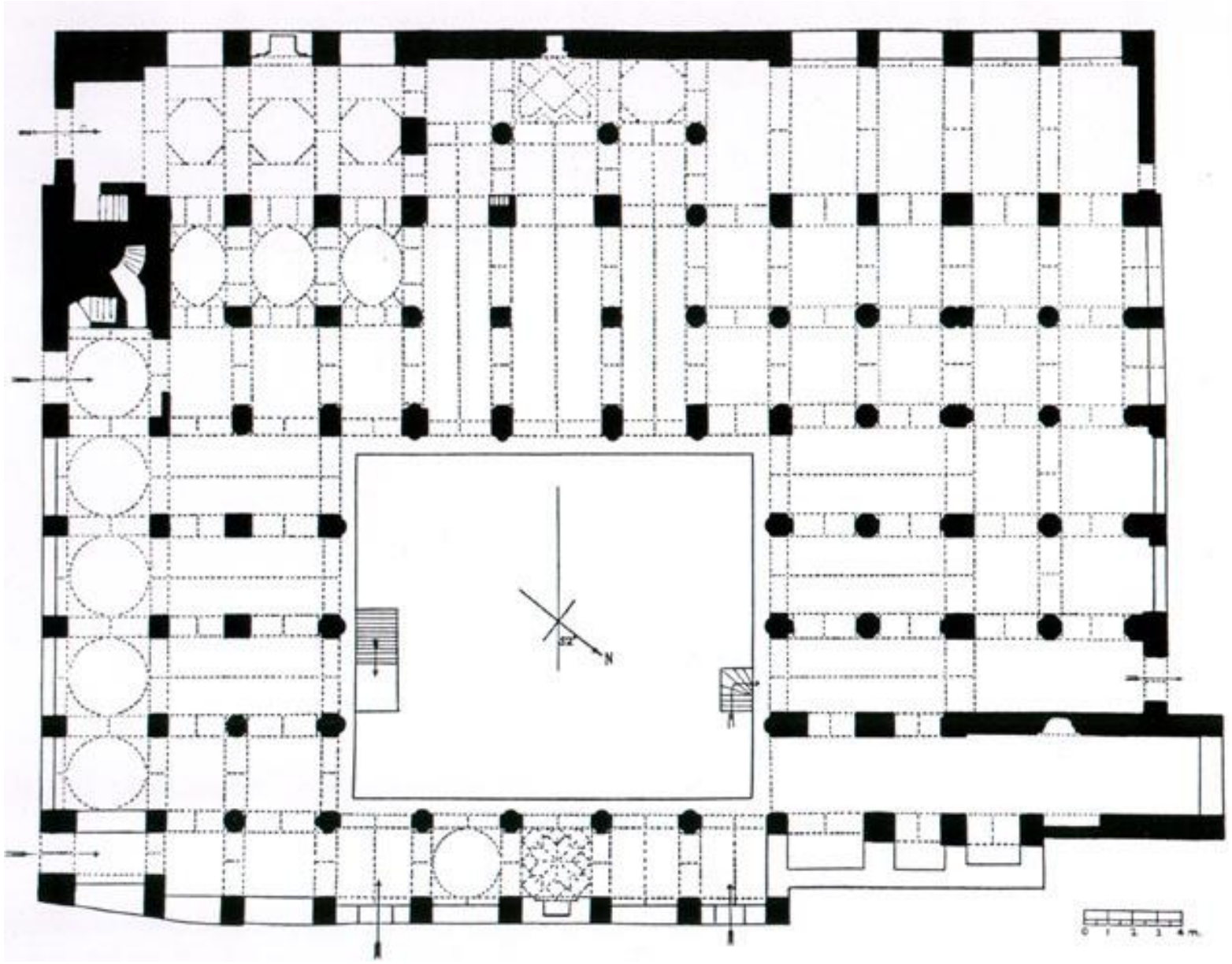




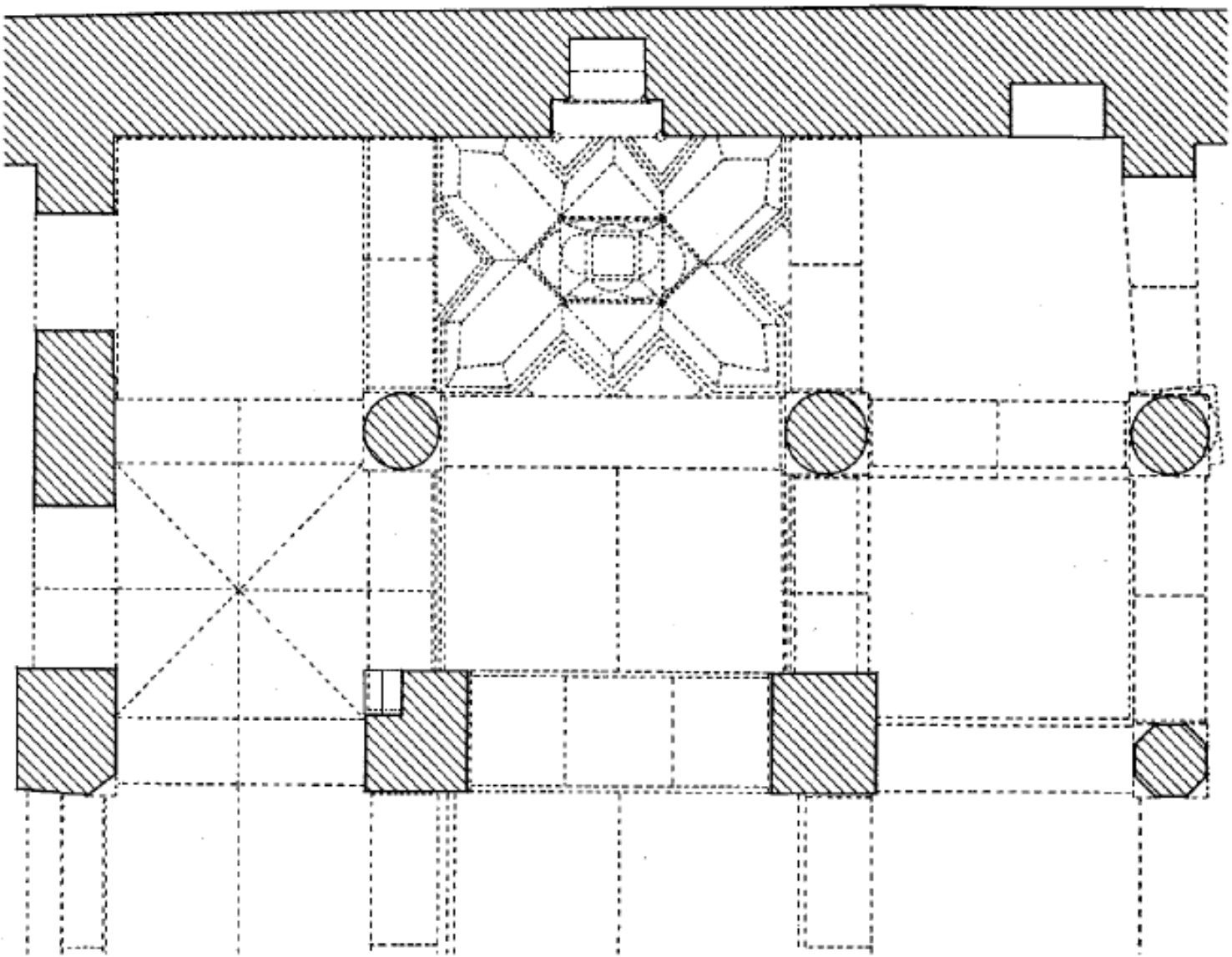
Galdieri, 1972

Mosque of Nāʿīn

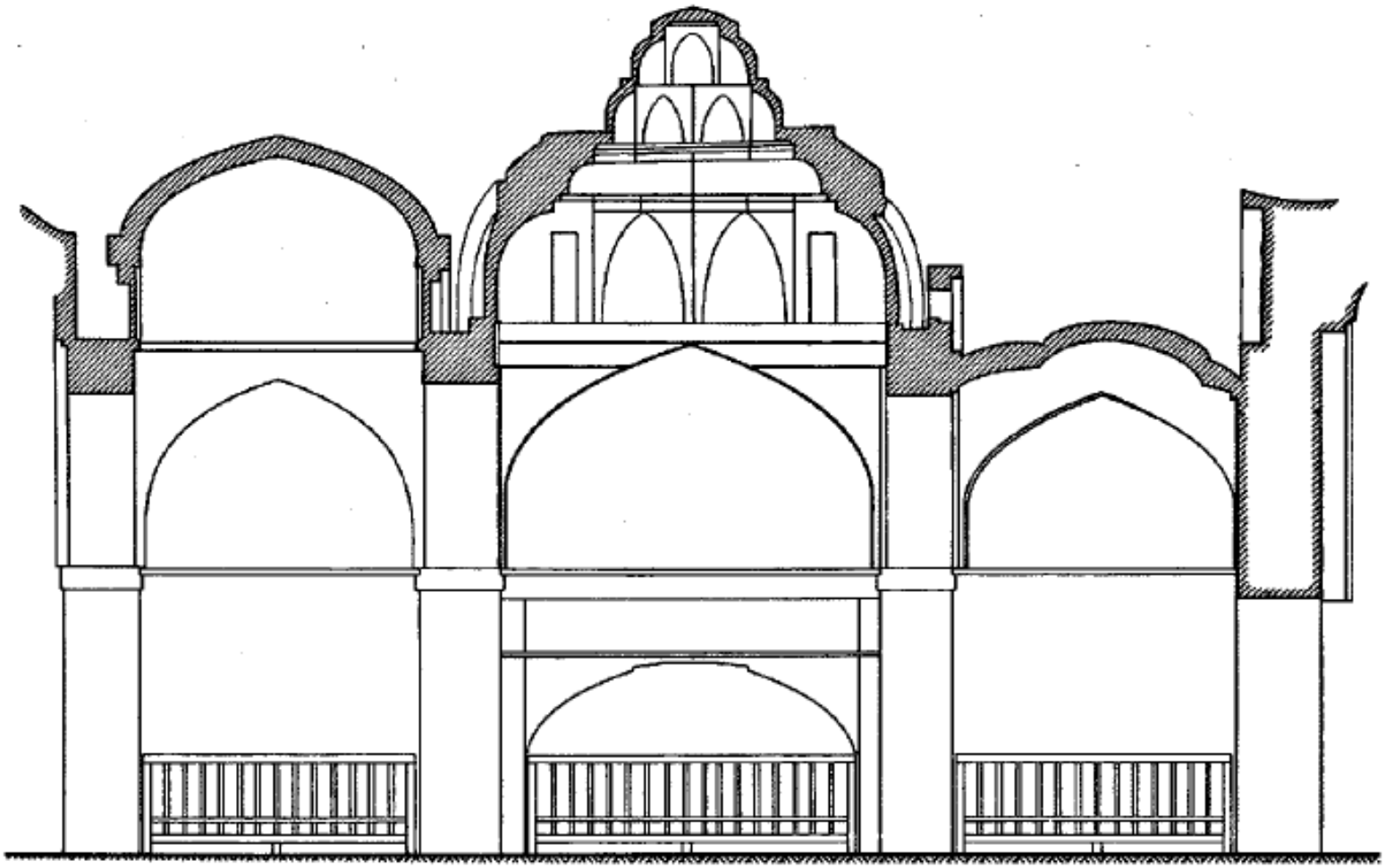
Baroness Marie-Thérèse Ullens de Schooten (Copyright: Fine Arts Library of the Harvard College Library)



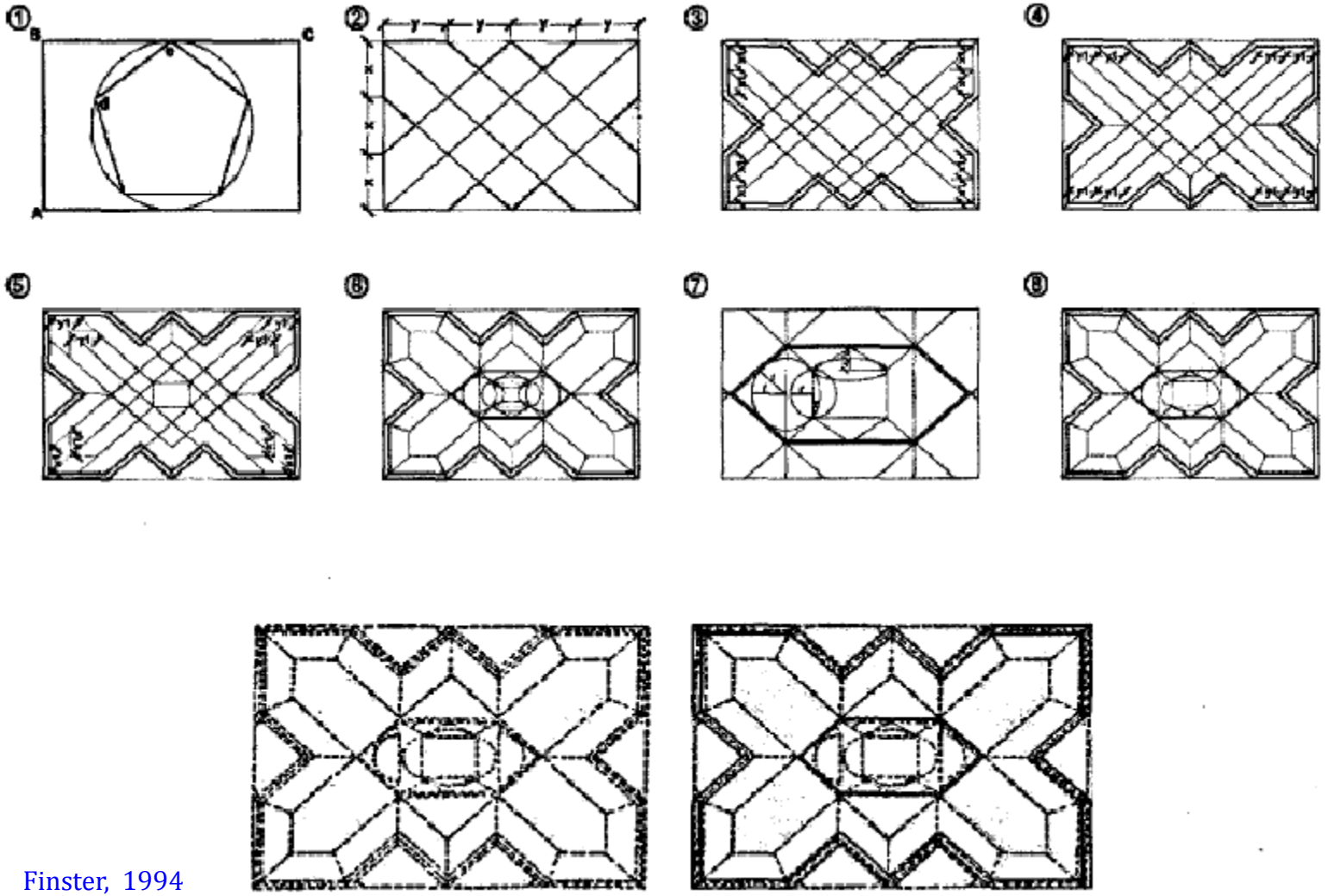
Schroeder (From Pope, repr. 1981)



Finster, 1994

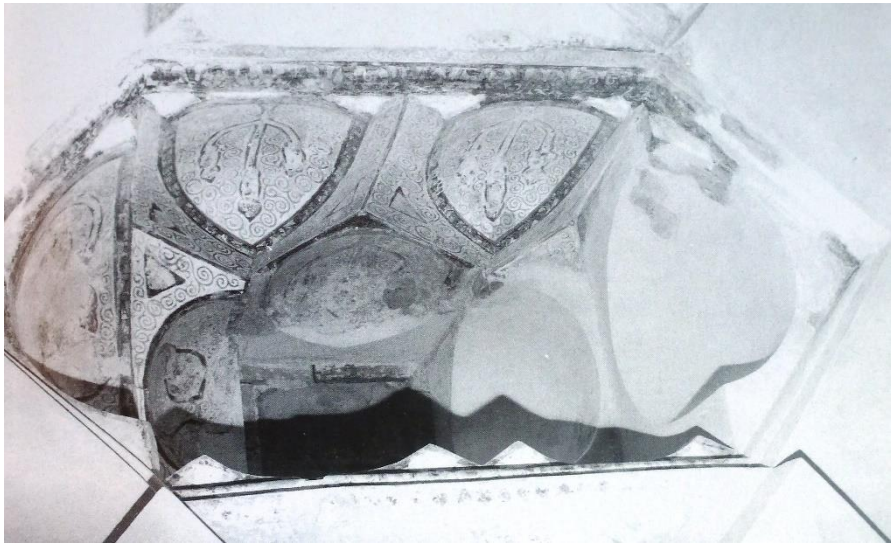


Finster, 1994



Finster, 1994

Ainisi, 2008



Finster, 1994

Pope, 1939

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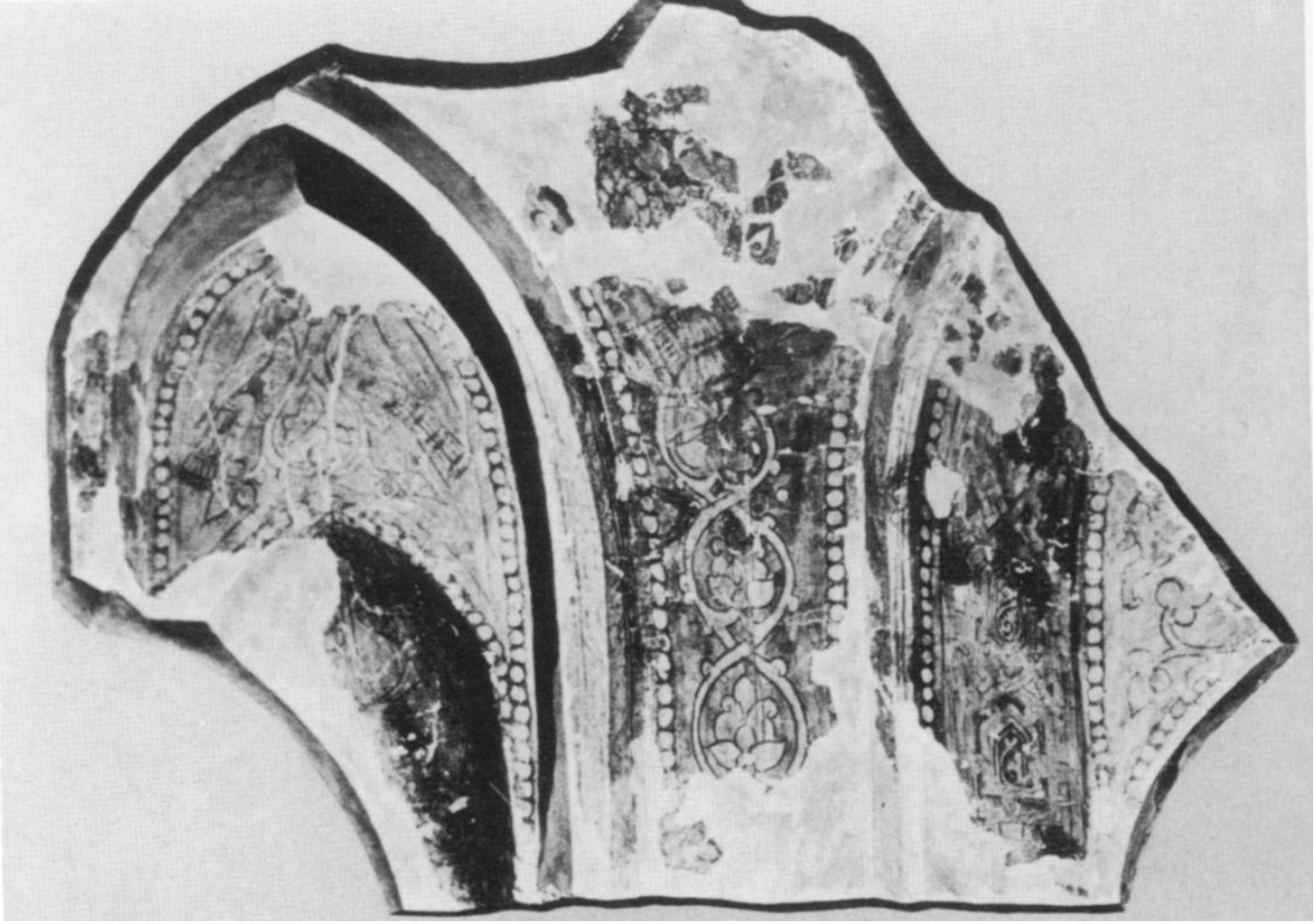
Source: MIT Libraries, Aga Khan Visual Archive

4. *Muqarnas* in Egypt
The problem of the earliest examples

Bloom, 1988

The al-Fusṭāṭ bath

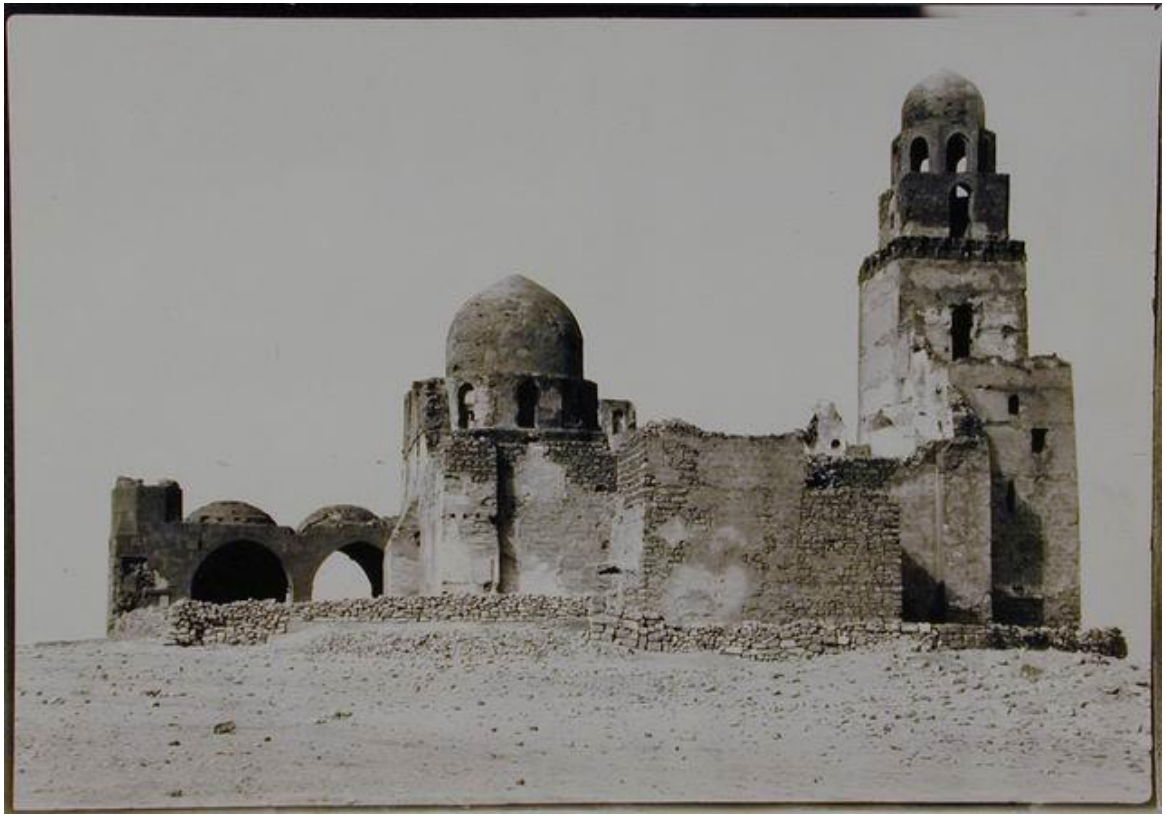
Copyright: M. Ardash, Source: qantara-med-org



Grube, 1985

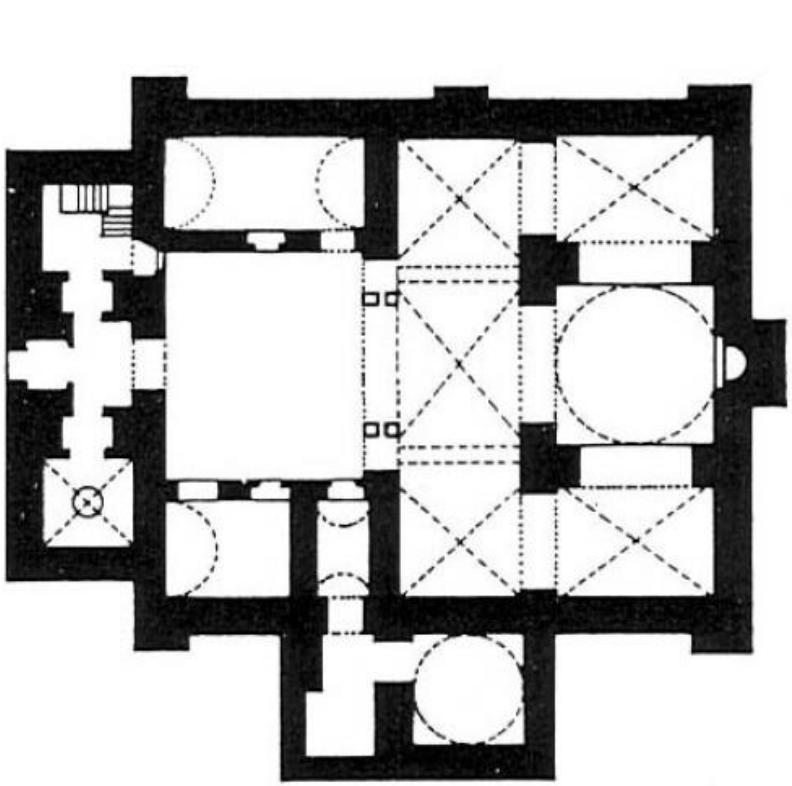
Bloom, 1988

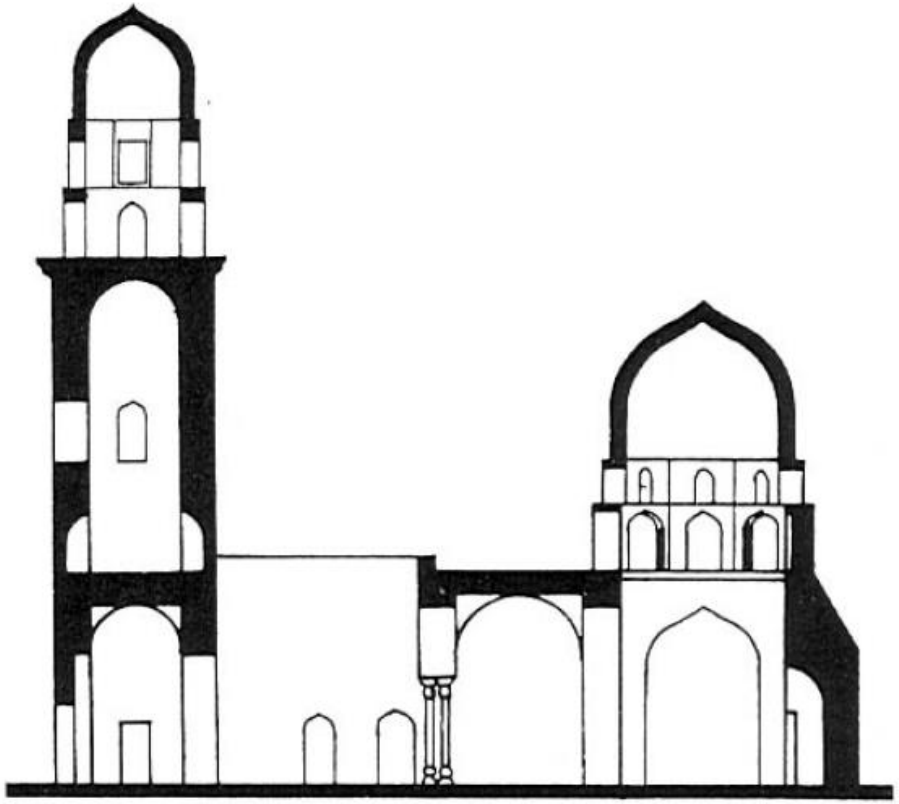
Ettinghausen , 1942



Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.3400

The Mosque of al-Juyūshī





Behrens-Abouseif, 1992 (adapted from Creswell)

Murtaza Shk Fakhruddin (adapted from) – Source: http://www.panoramio.com/user/6338198

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Bloom, 2007

The Bāb al-Futūḥ

Warner, 2004, fig. 44c, p. 74 (Photo Creswell)

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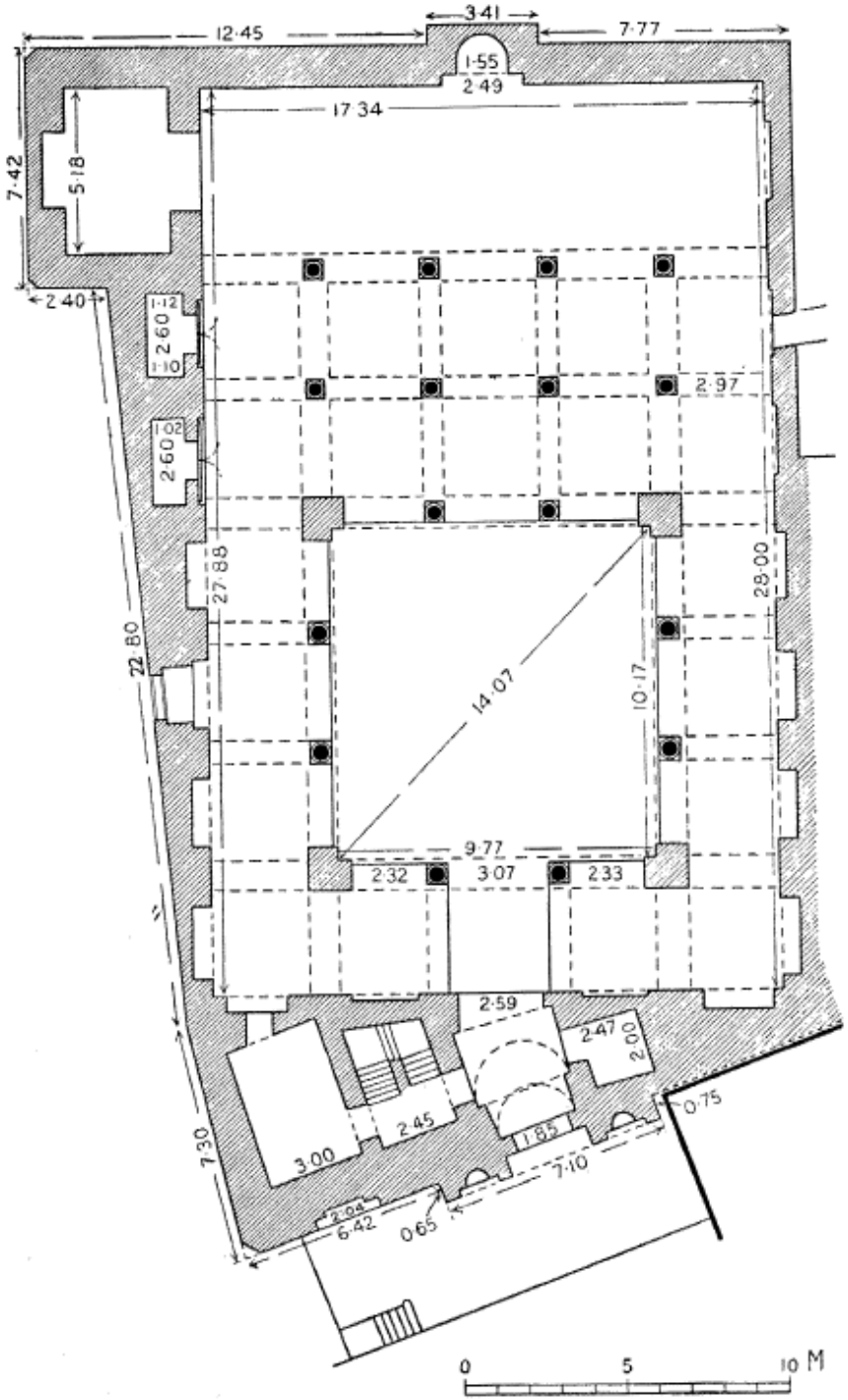
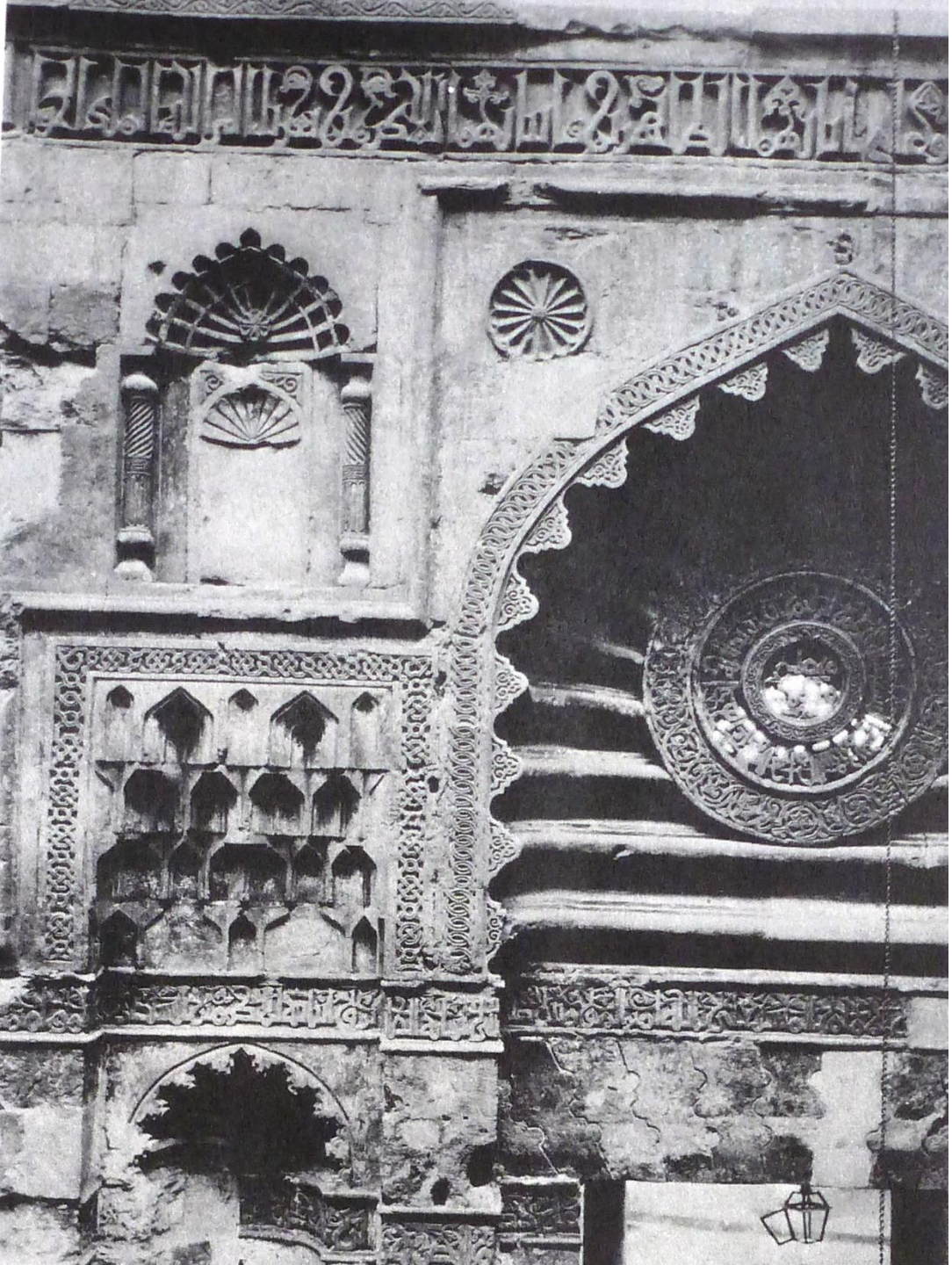
Behrens-Abouseif, 1992

Al-Aqmar mosque



Creswell, 1978

Copyright: N. Rabbat. Source: Archnet.org



Creswell, 1978

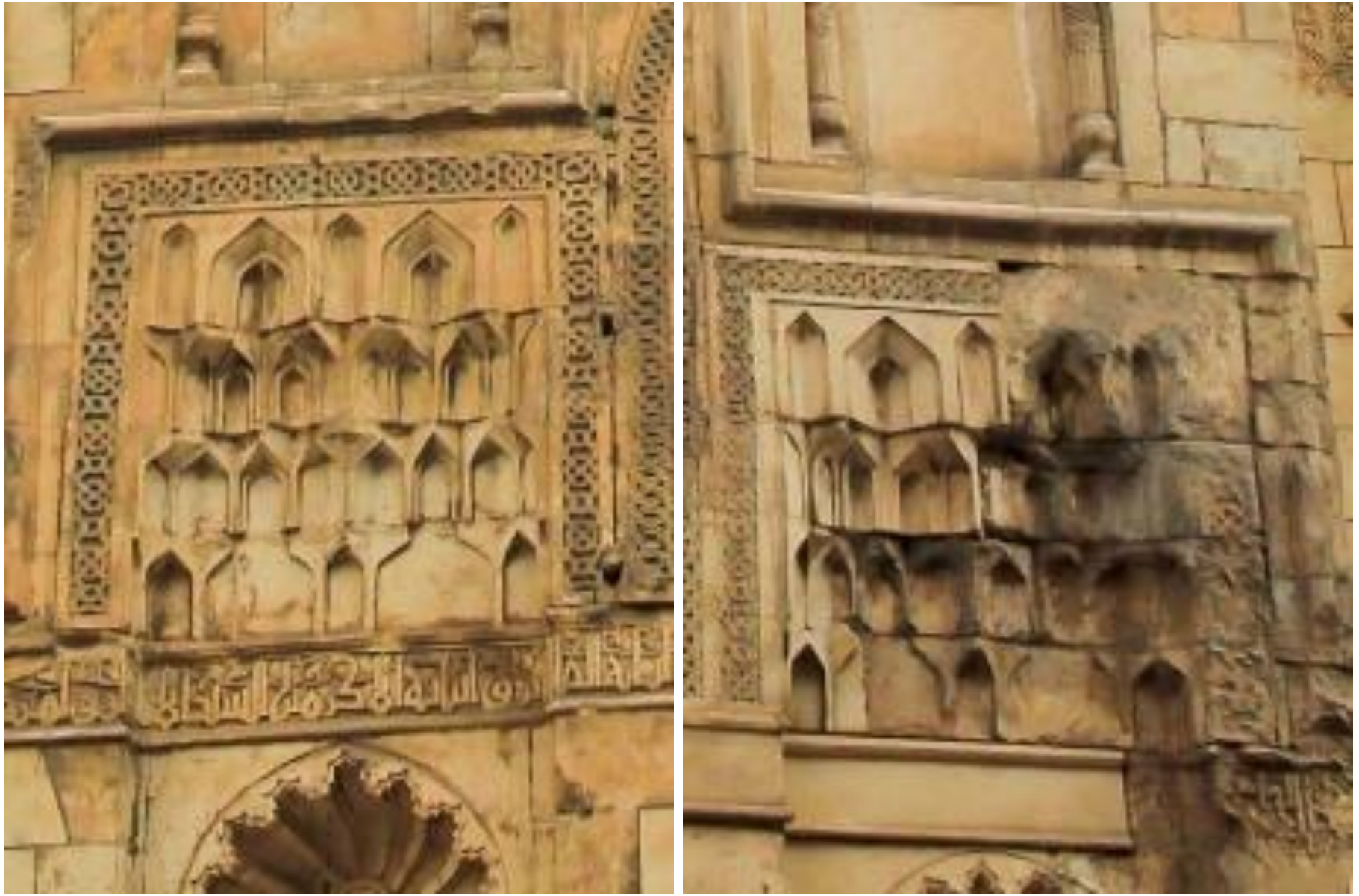
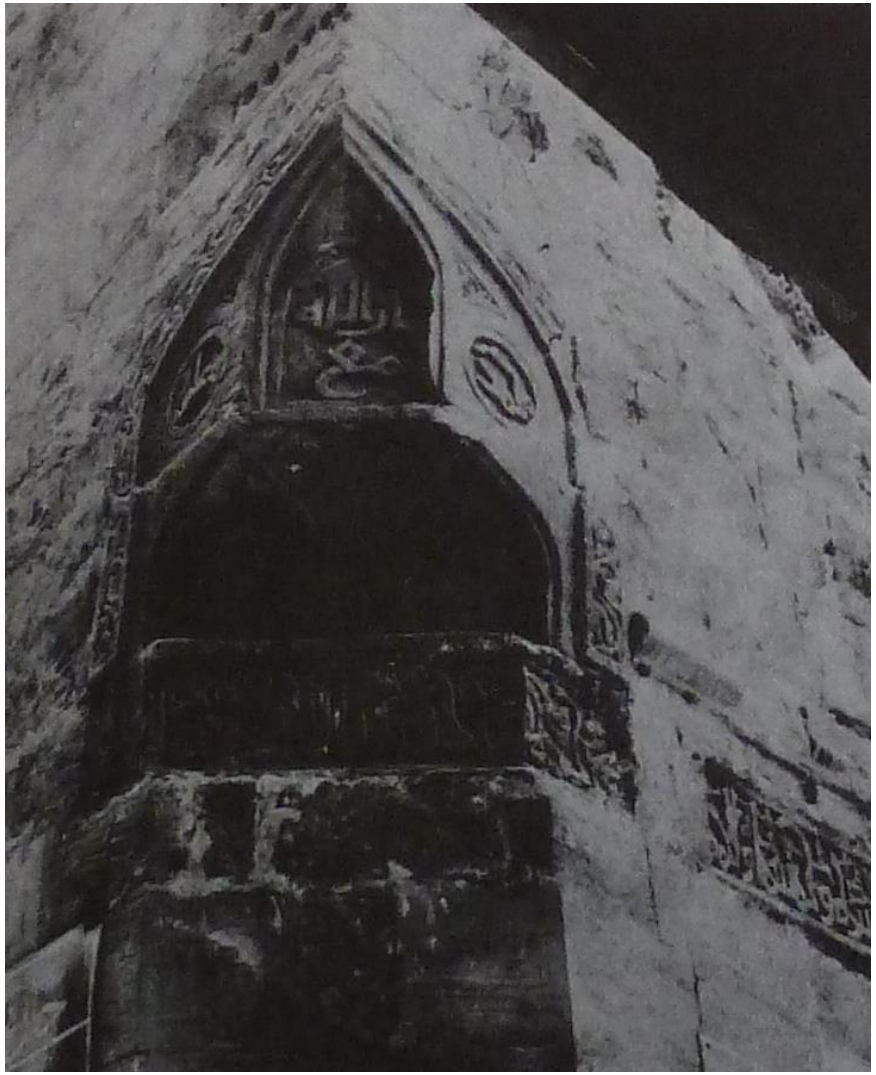


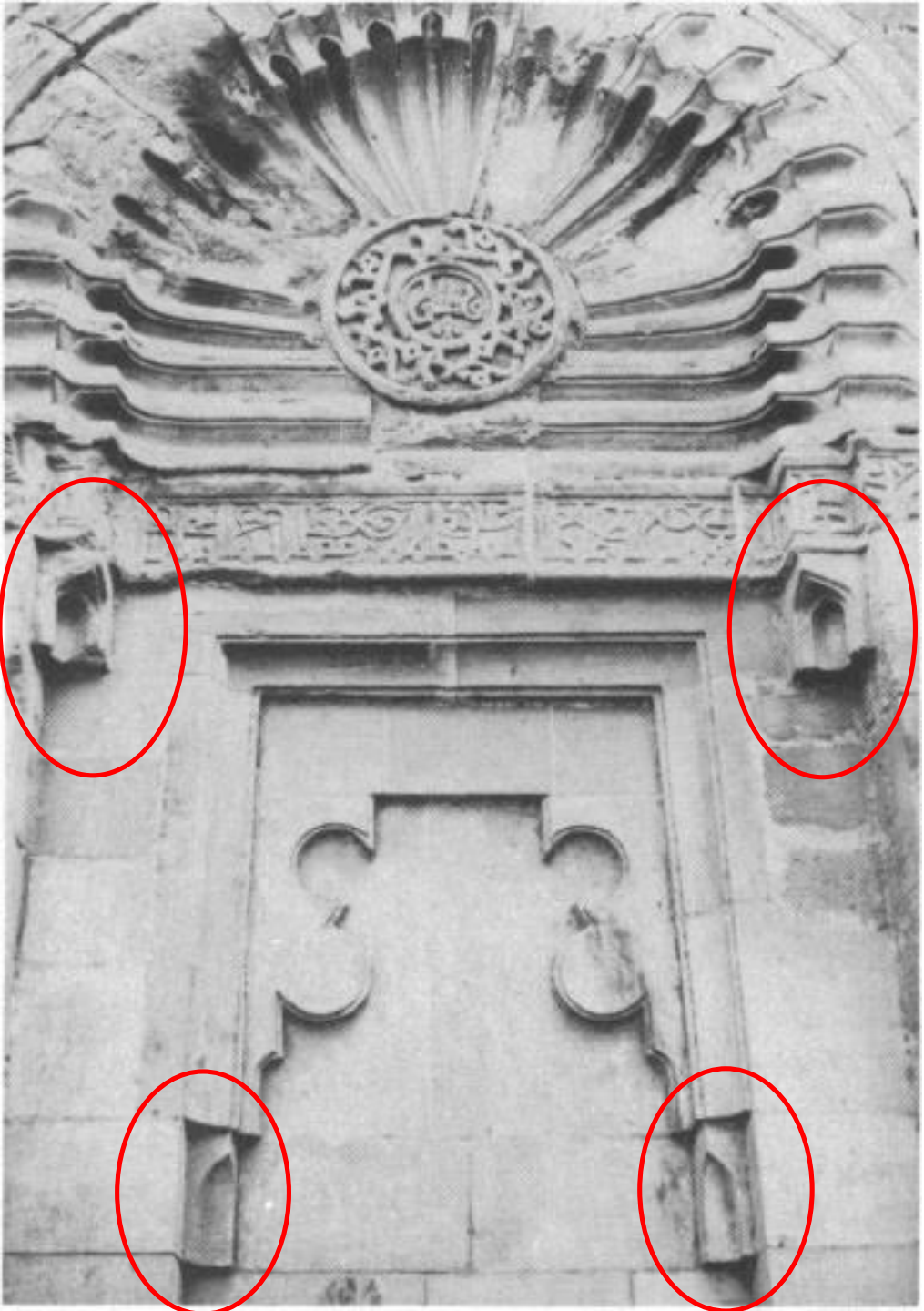
Photo: Mohammed Moussa (adapted from) Source: Wikipedia



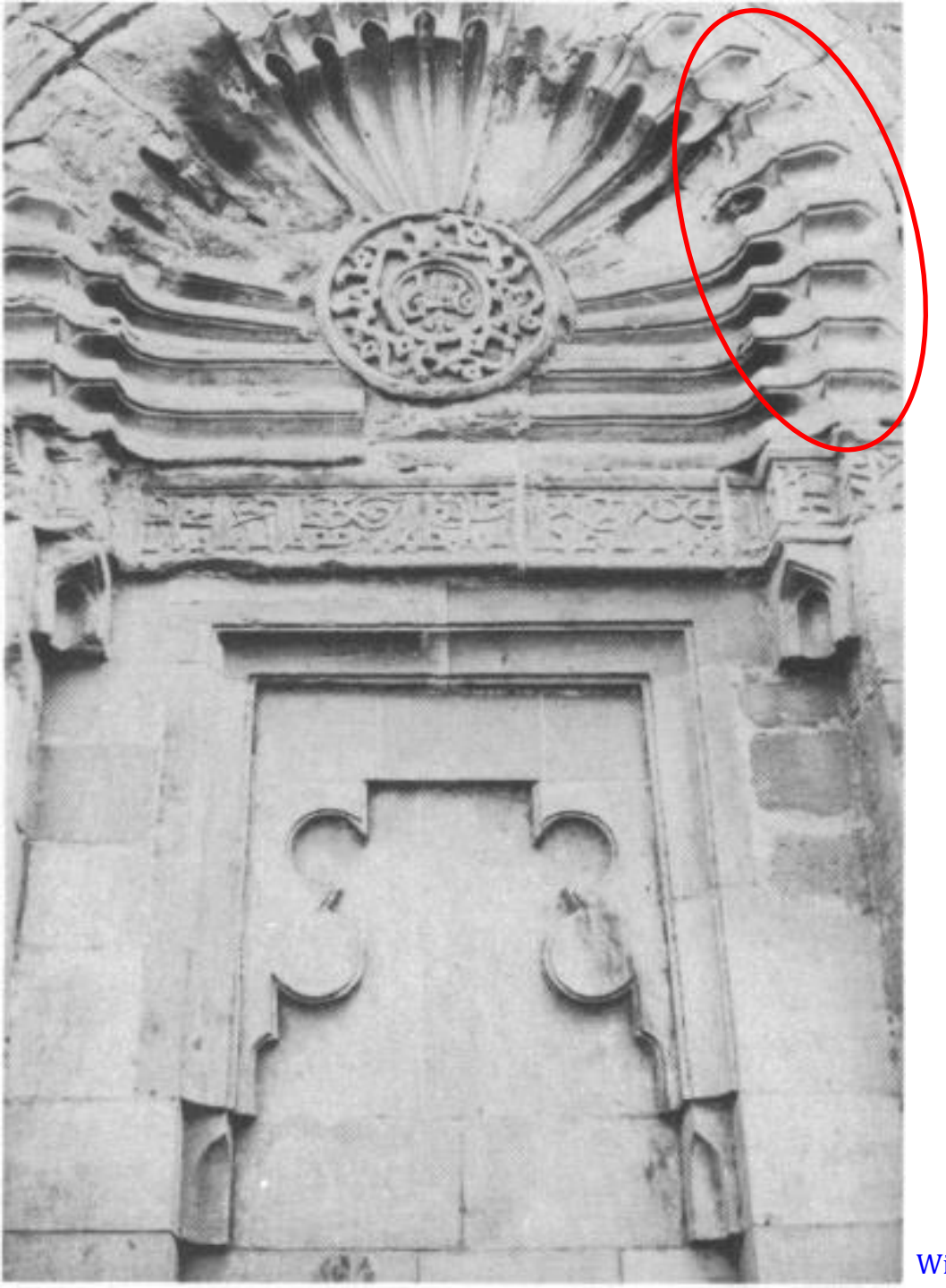
Creswell, 1978

Copyright: N. Rabbat. Source: Archnet.org

Williams, 1983 (Adapted from)



Williams, 1983 (Adapted from)



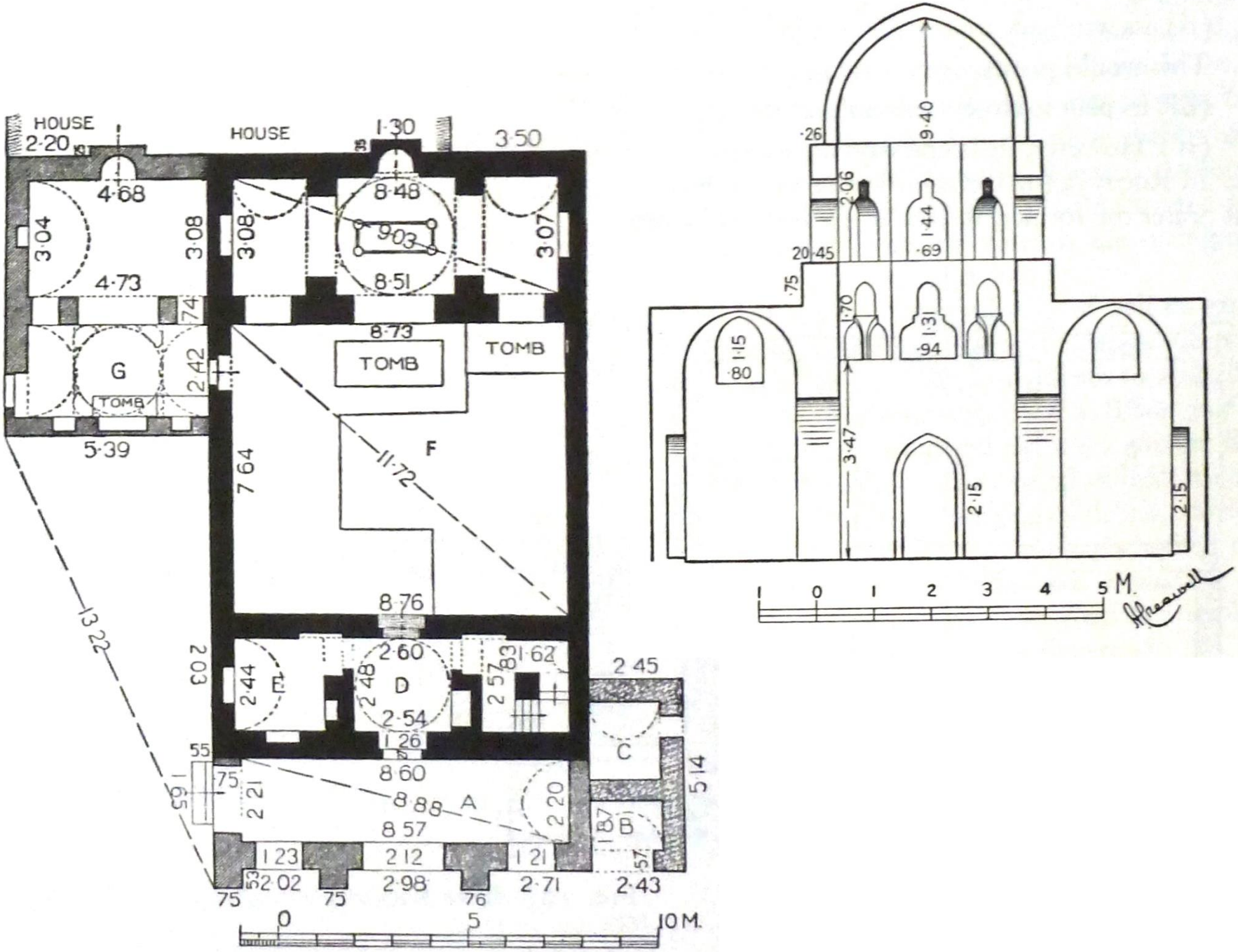
Williams, 1983 (Adapted from)

4. *Muqarnas* in Egypt

The evolution of the ‘stalactite pendentive’ in Fatimid Egypt

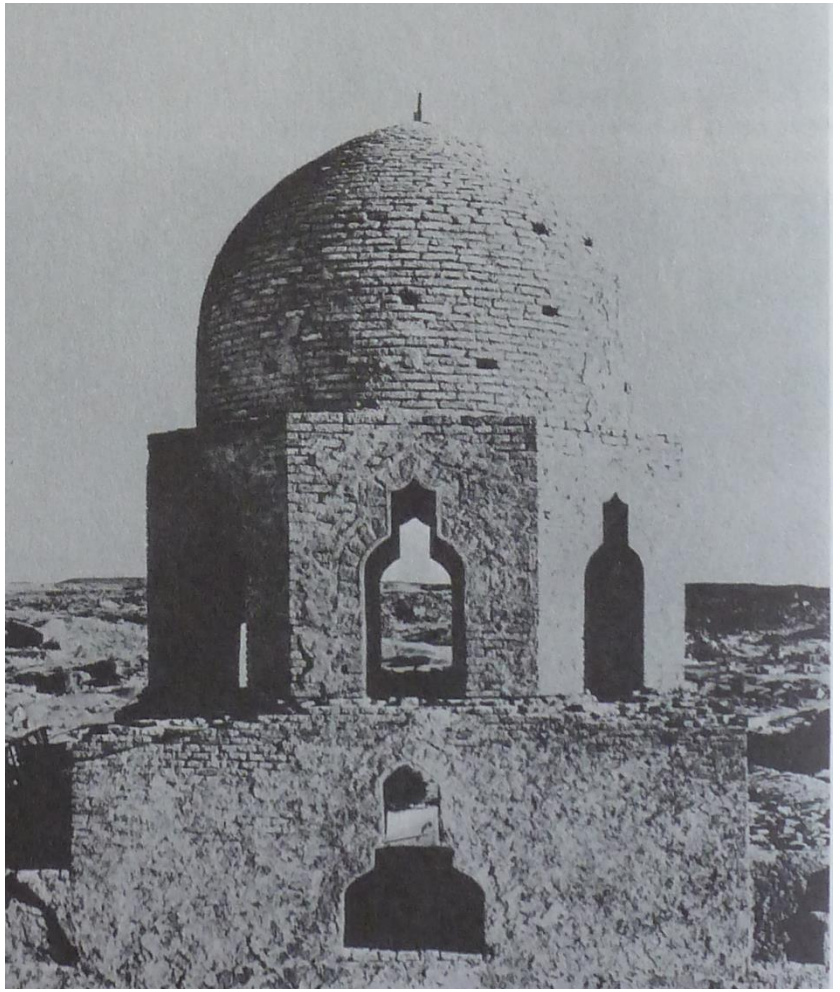
The Mashhad at Aswān

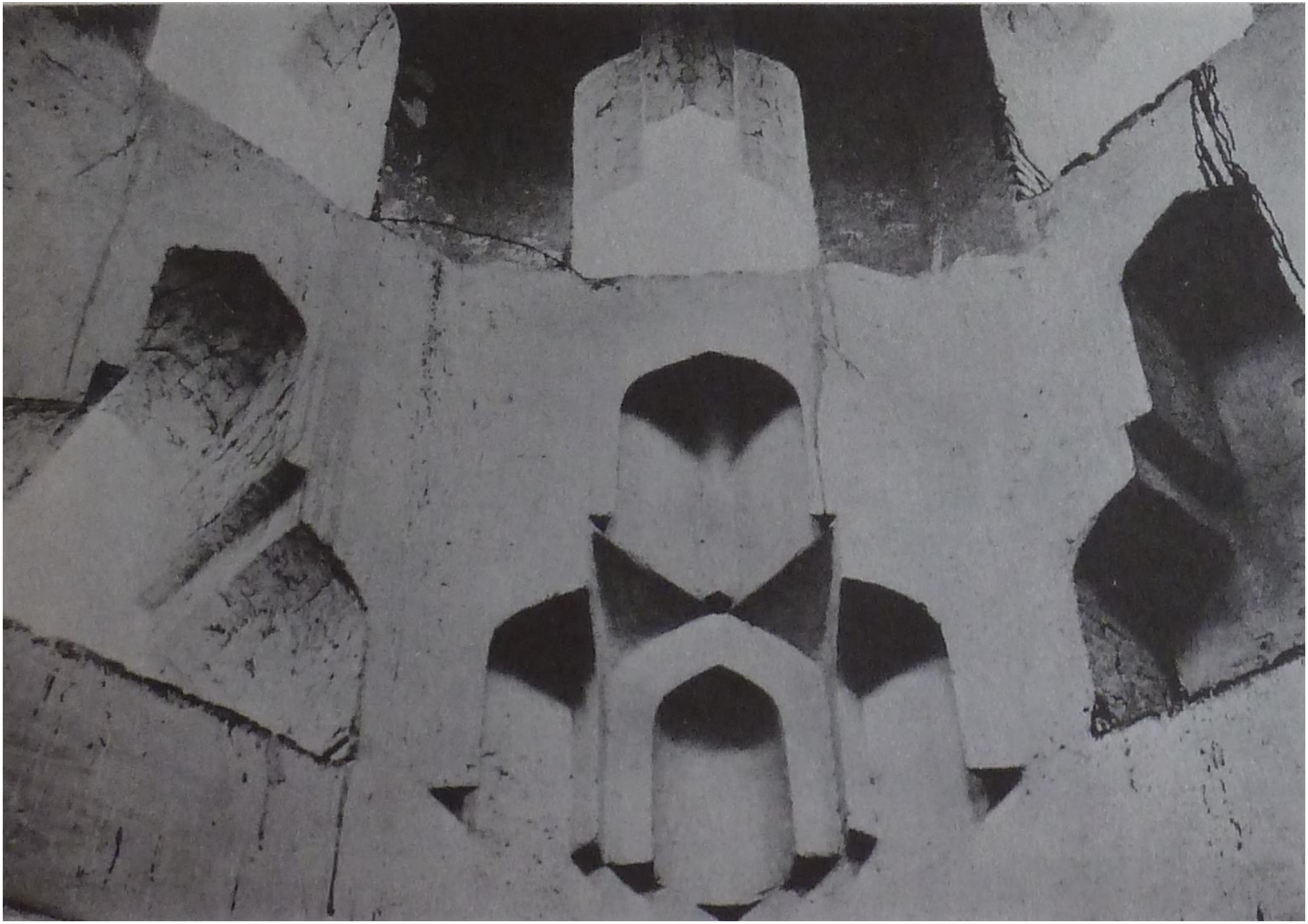
Creswell, 1978



Creswell, 1978

Creswell, 1978

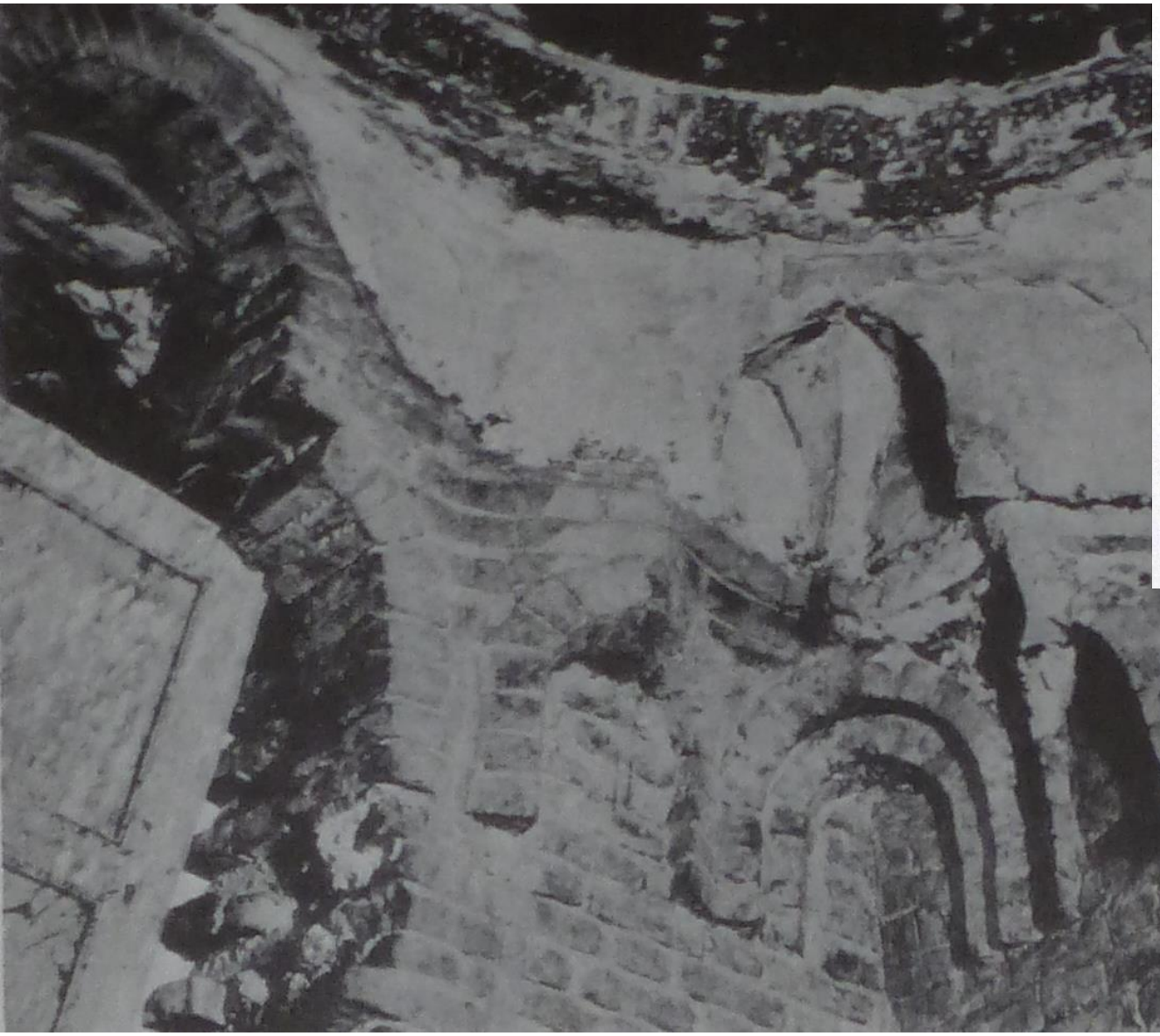


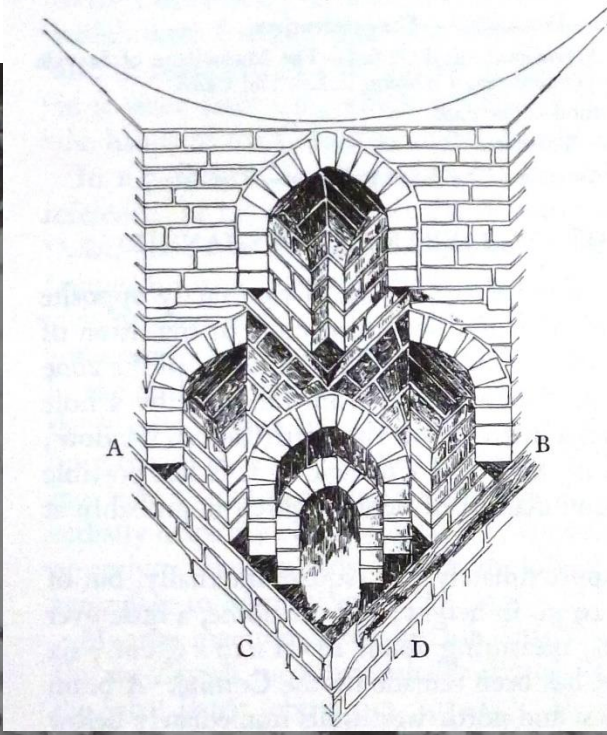


Creswell, 1978

The mausoleum opposite
the Khānqā of Baybars al-Jāshankīr

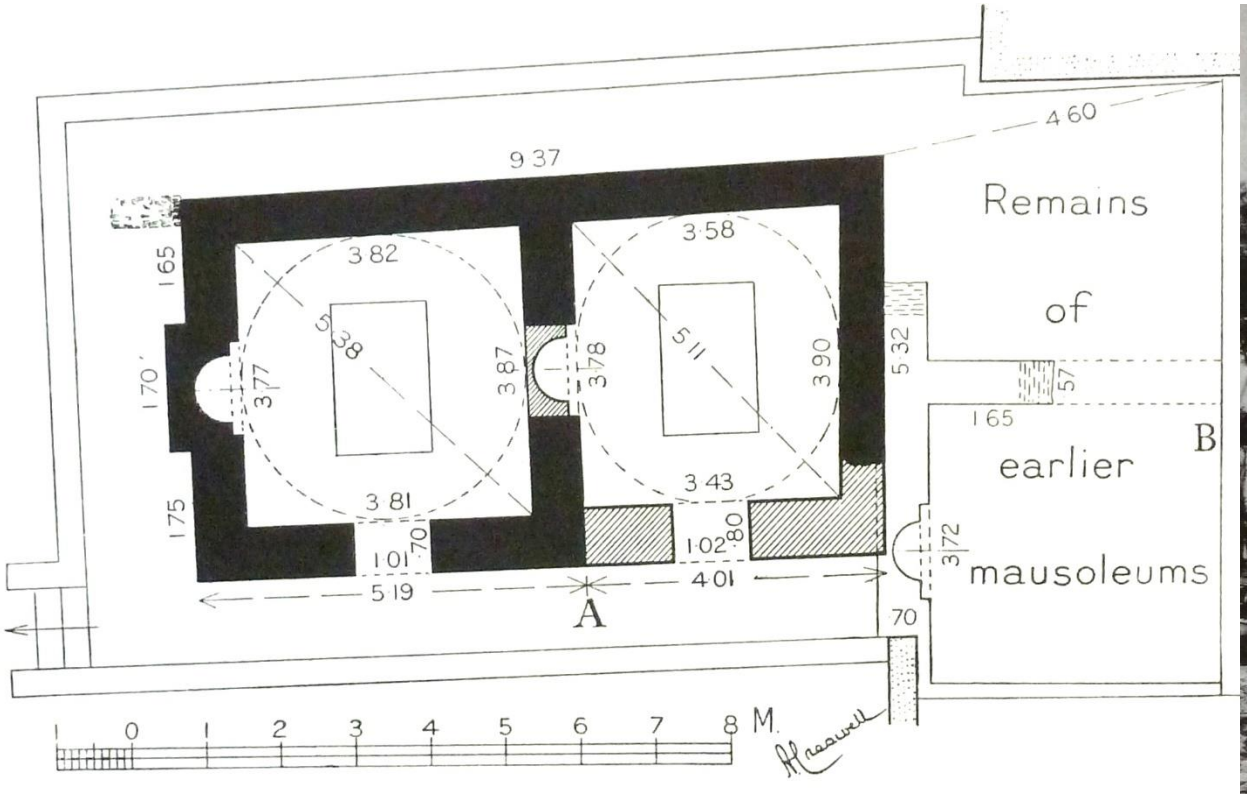
Copyright: Michel Setboun. Source: ww.setboun.com

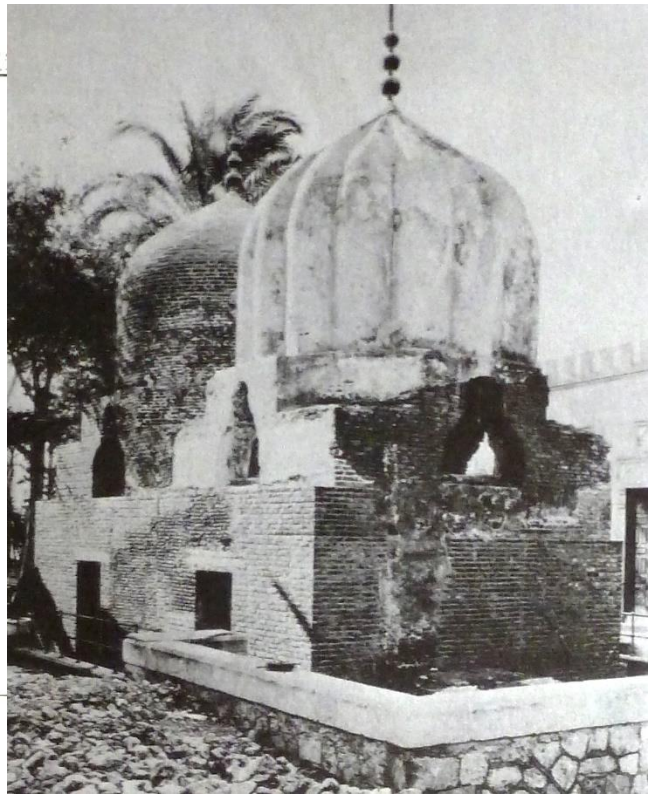




Creswell, 1978

The mausoleums of Muḥammad al-Jaʿfarī and Sayyida ʿĀtika



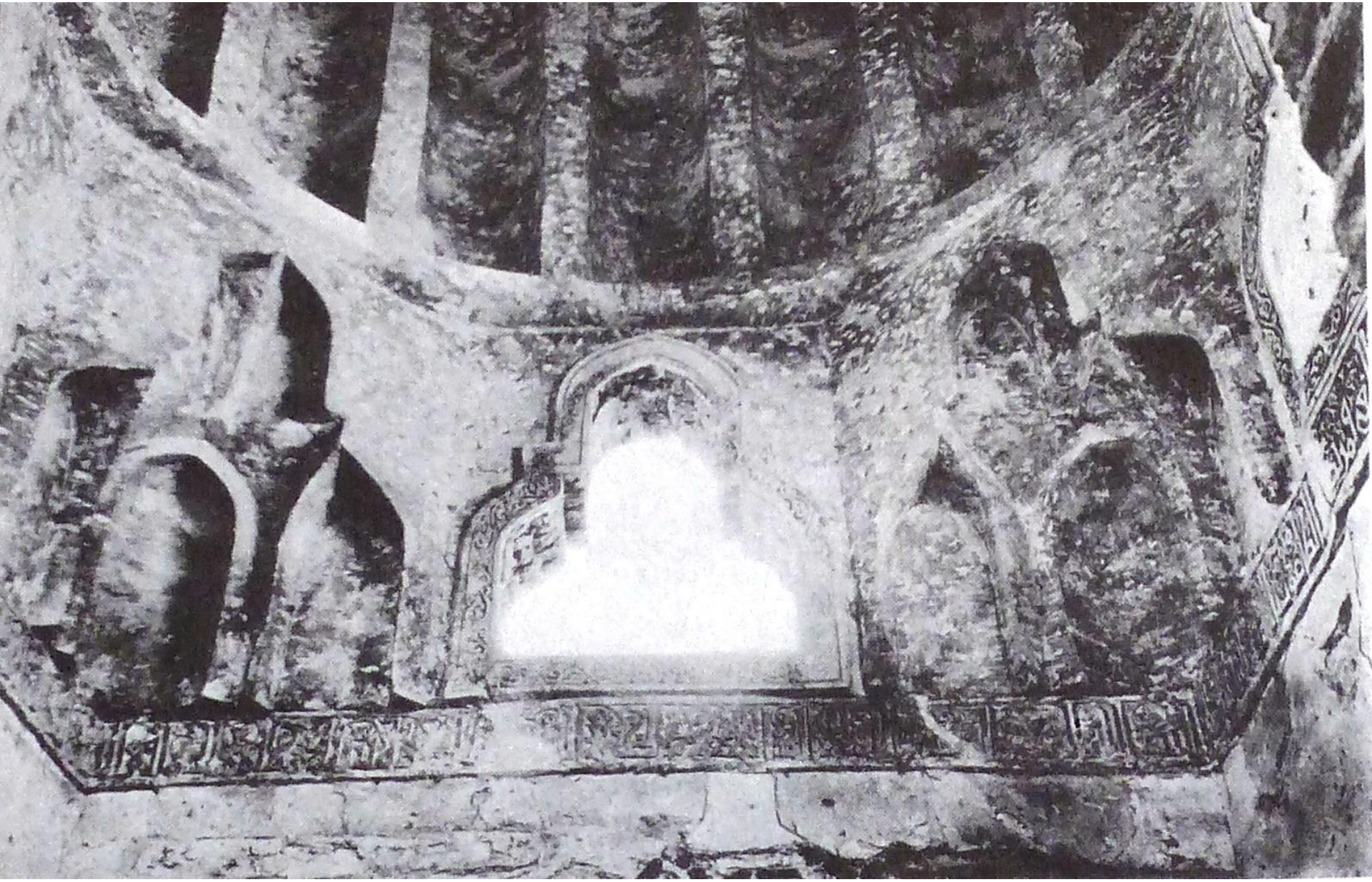


Creswell, 1978

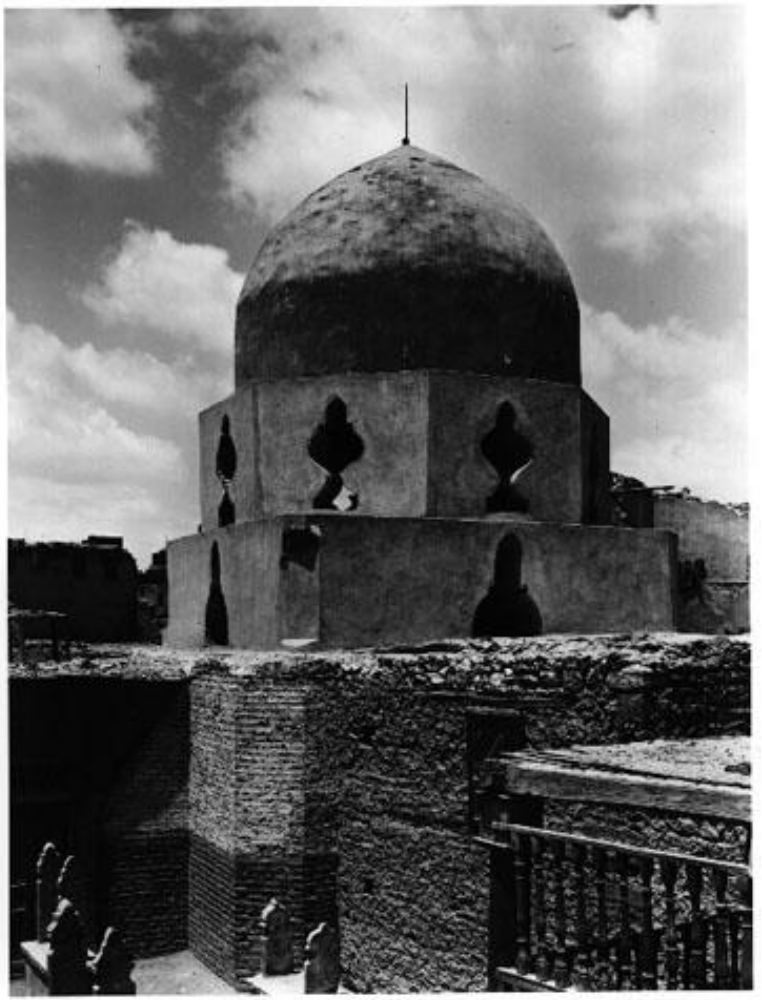
The mausoleum of Muḥammad al-Jaʿfarī

Creswell, 1978

The mausoleum of Sayyida ʿĀtika

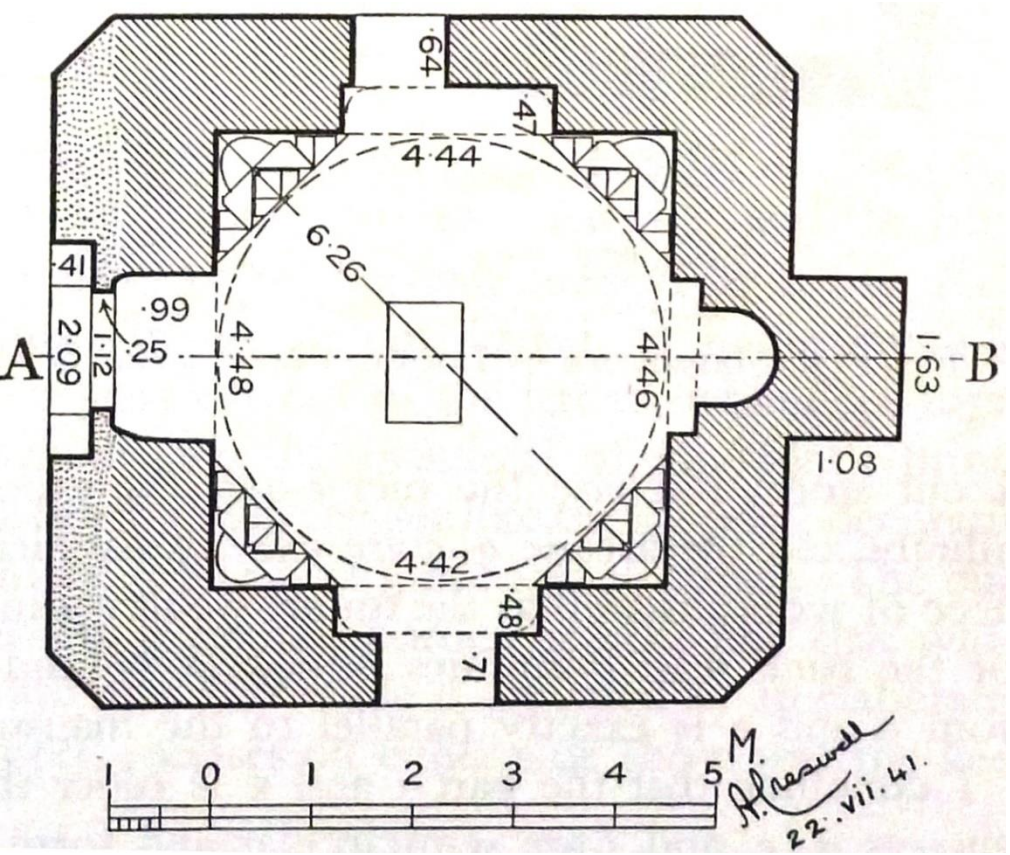


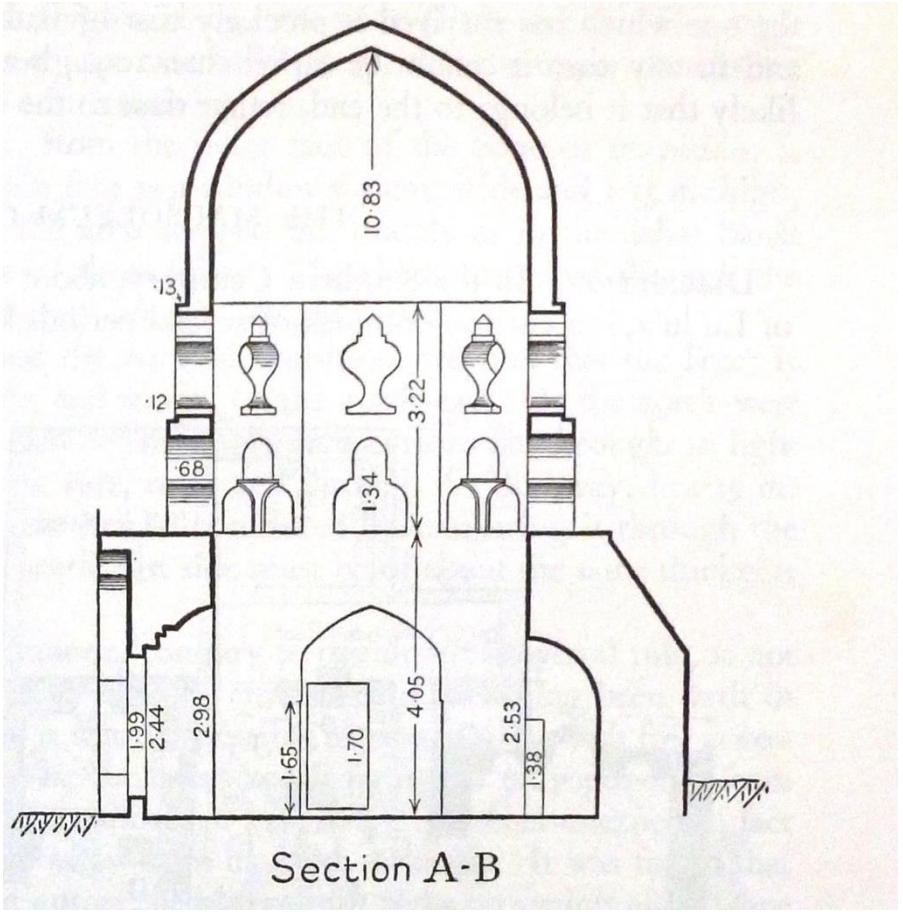
Creswell, 1978



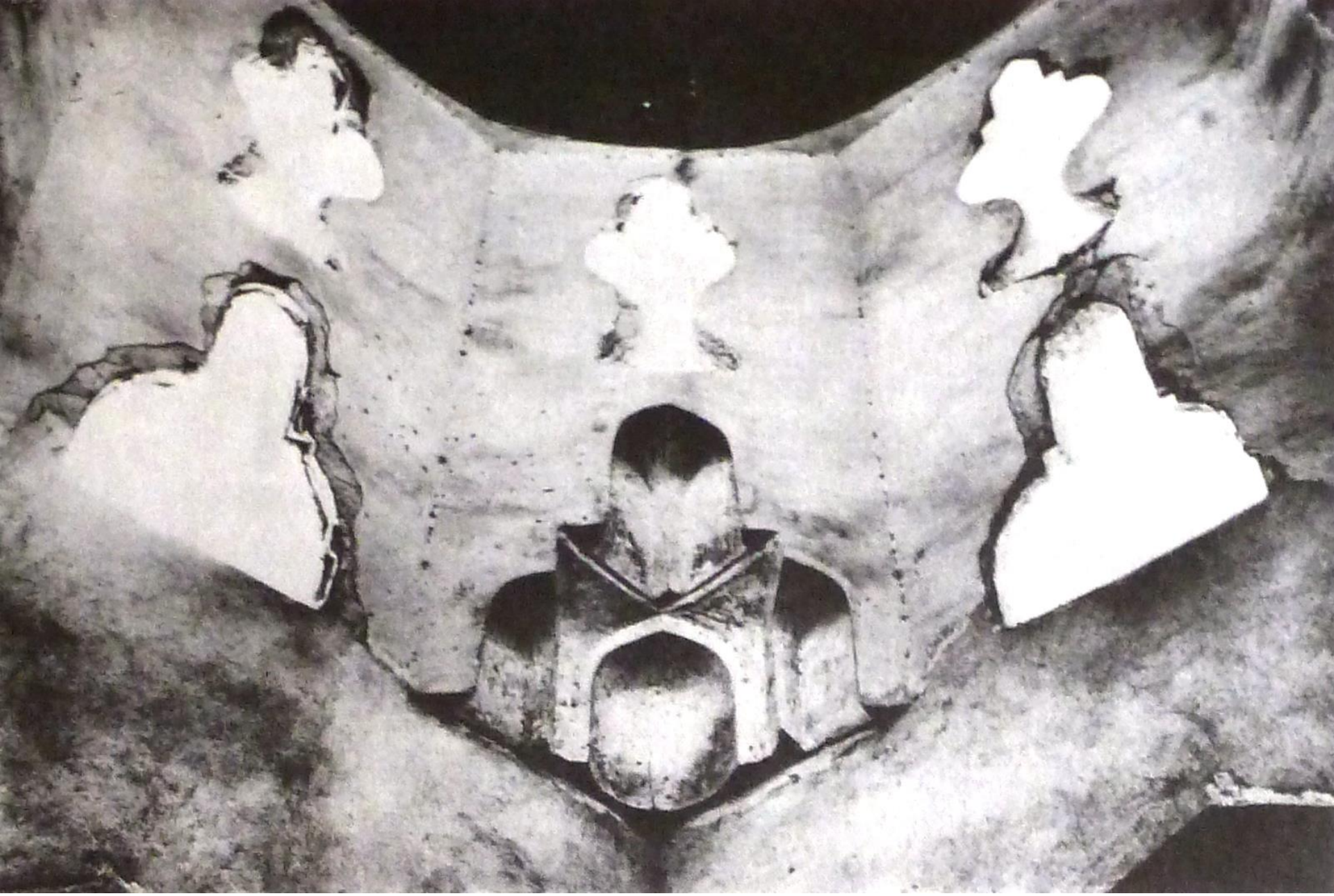
Creswell Archive, Ashmolean Museum, neg. EA.CA.3853

The mausoleum of Shaykh Yūnus



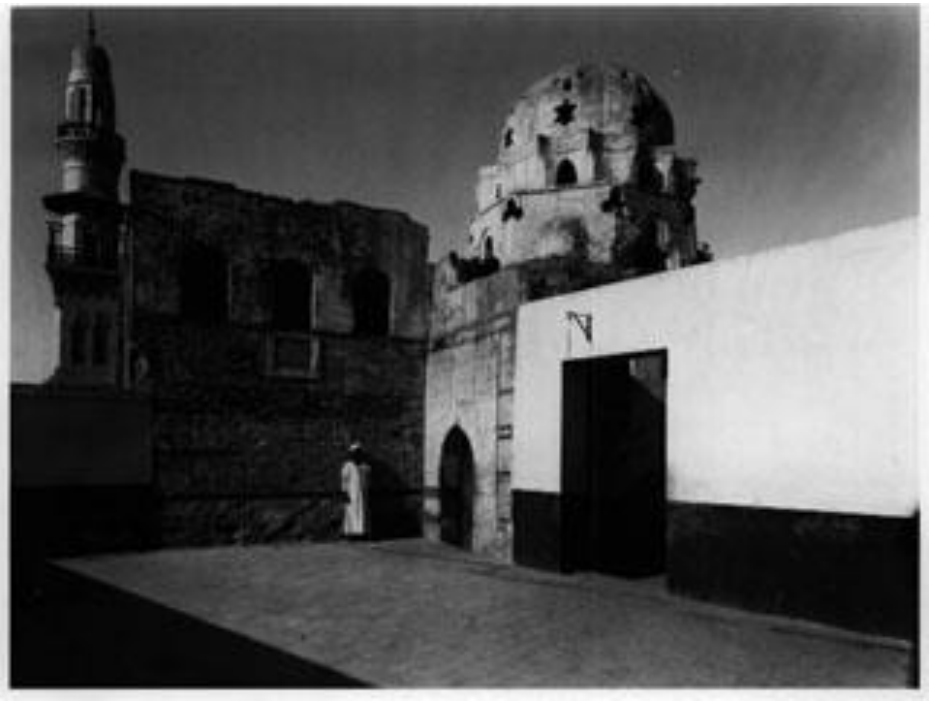


Creswell, 1978



Creswell, 1978

The Fatimid mausoleum at Qūṣ



Creswell Archive, Ashmolean Museum, neg. EA.CA.3867

أبو عباس
Kirdas
الآثار
الشيخ يوسف

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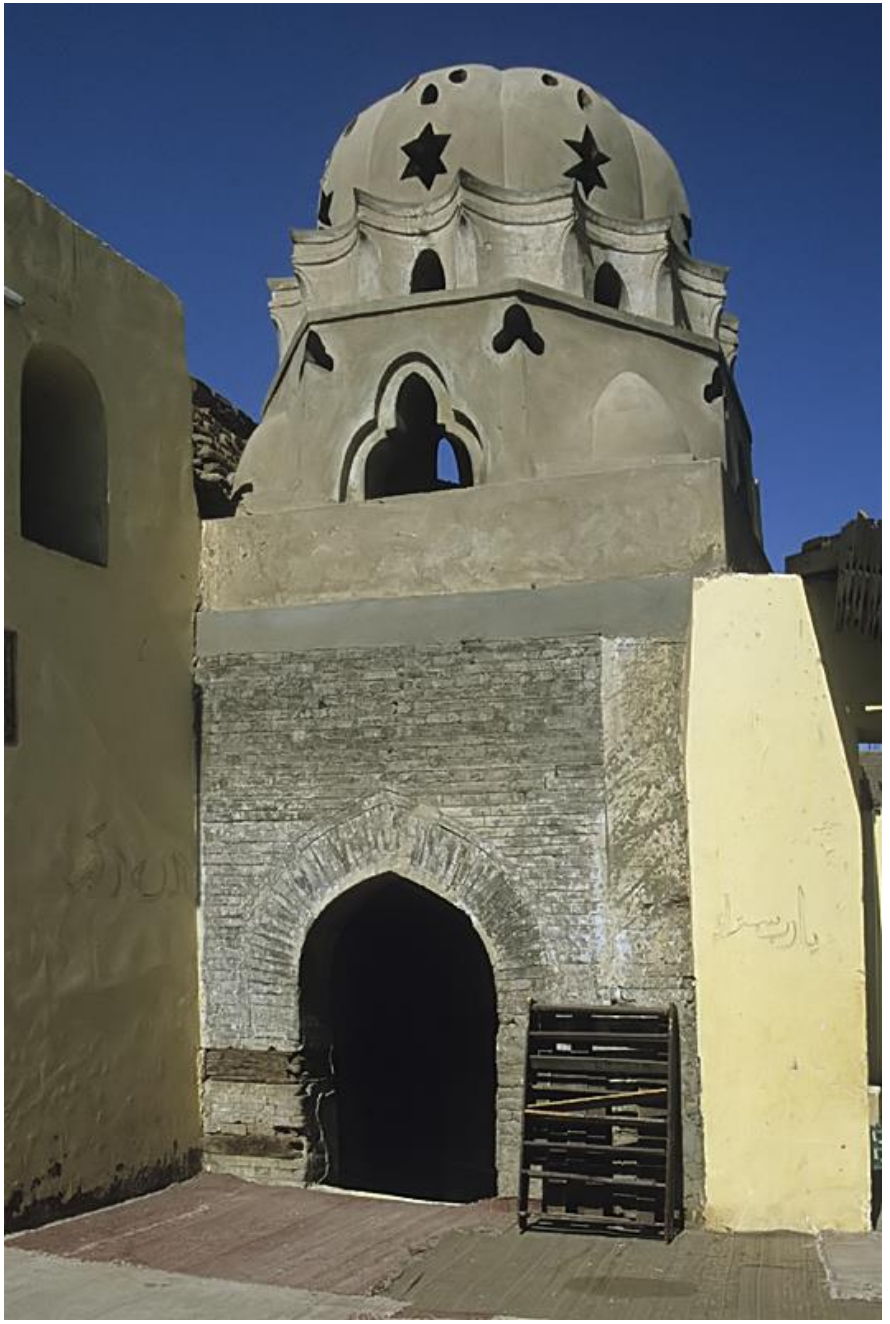

Photo: Roland Hunger. Source: wikipedia

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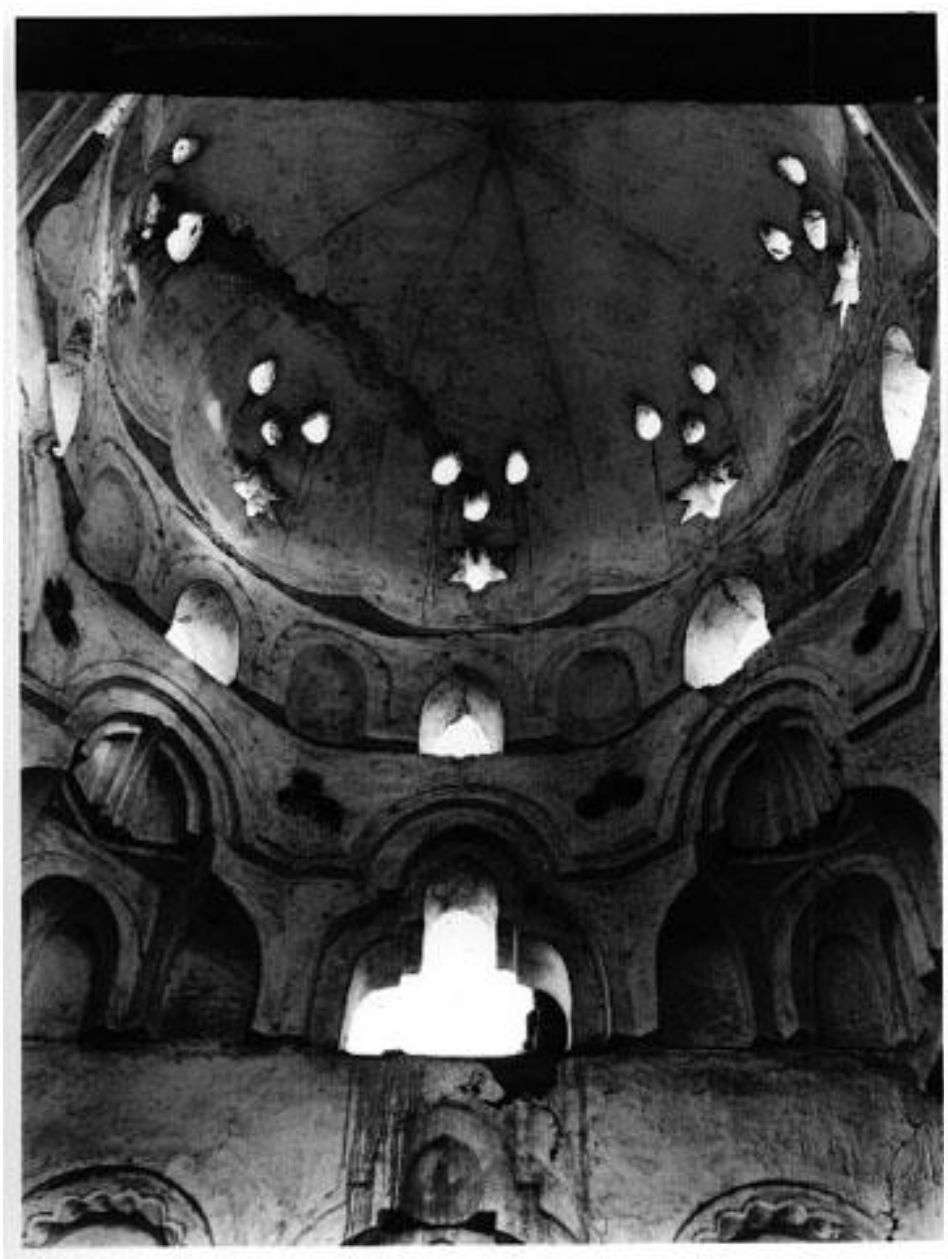

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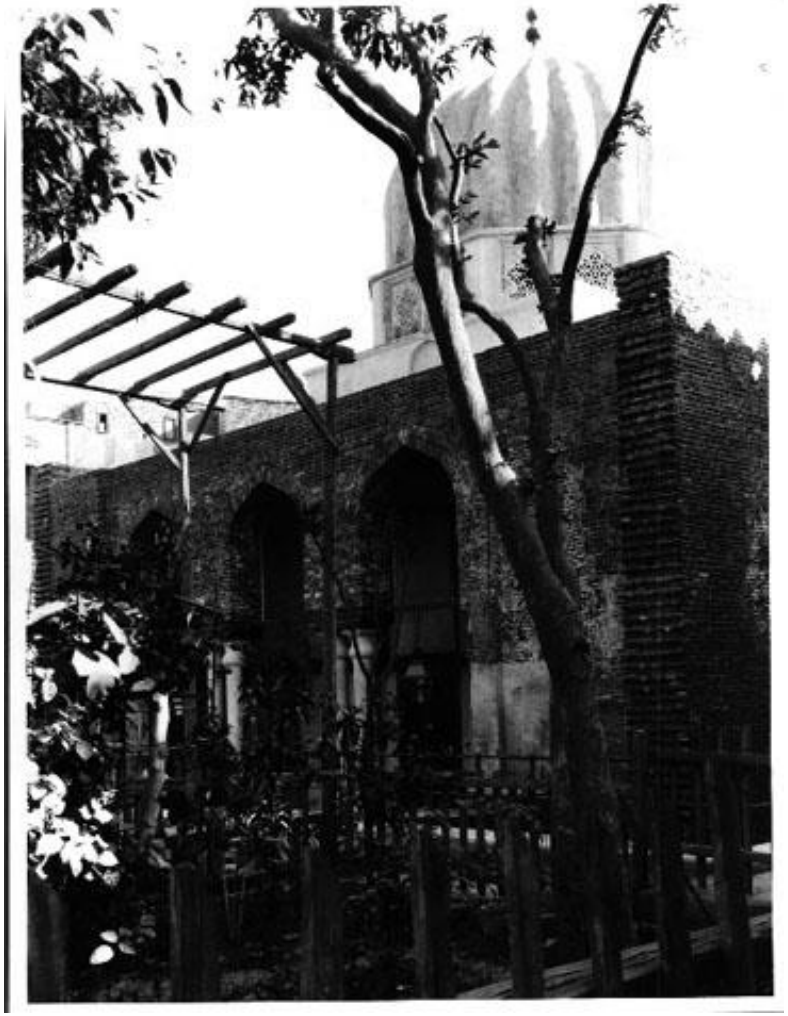
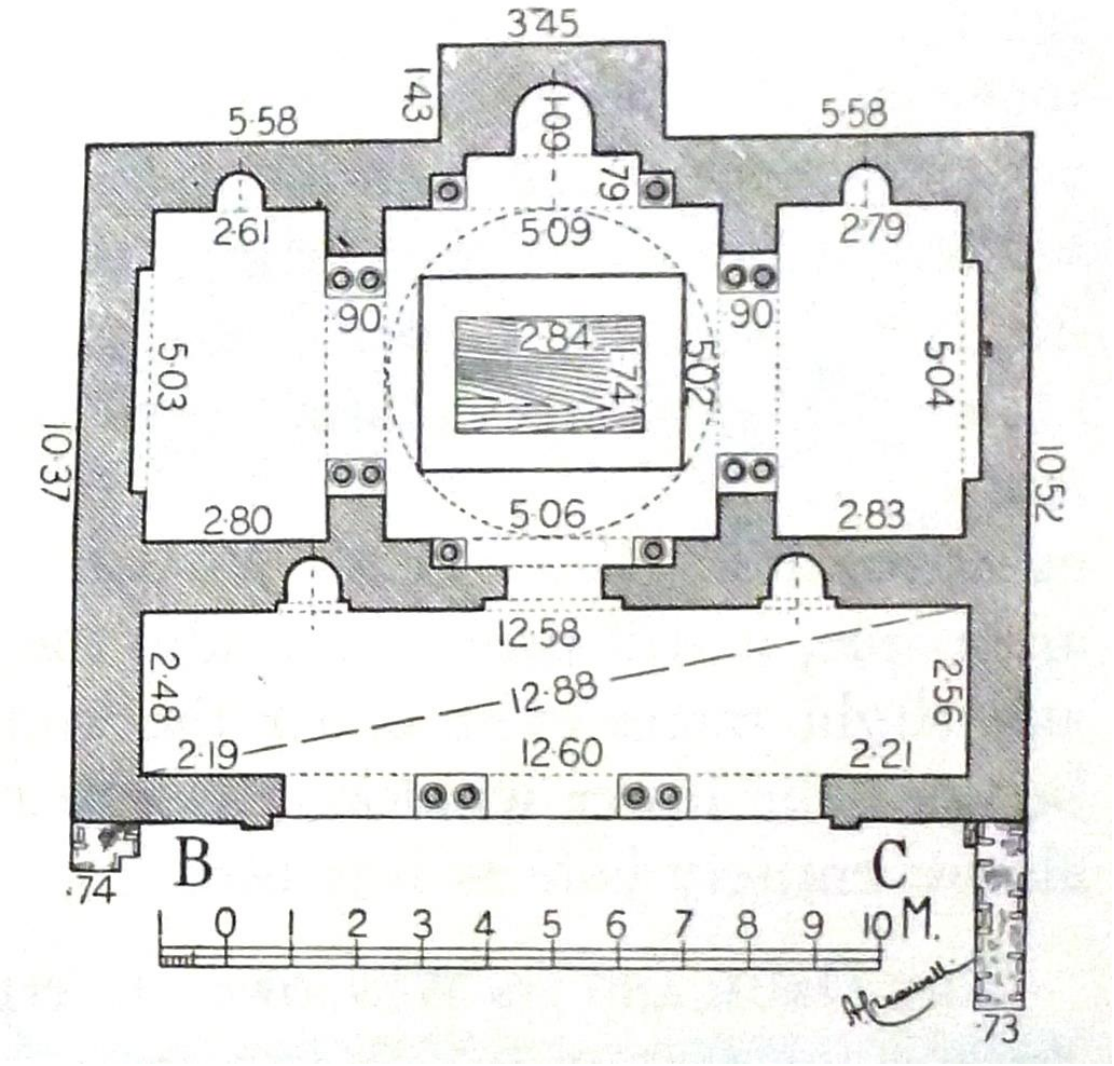
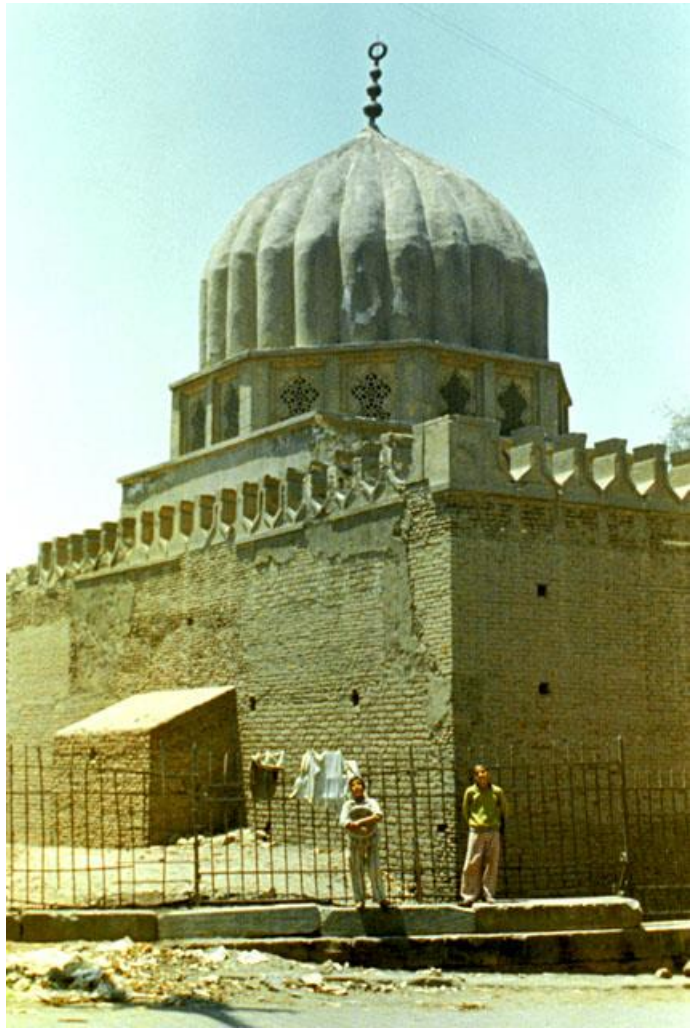
The mausoleum of Sayyida Ruqayya



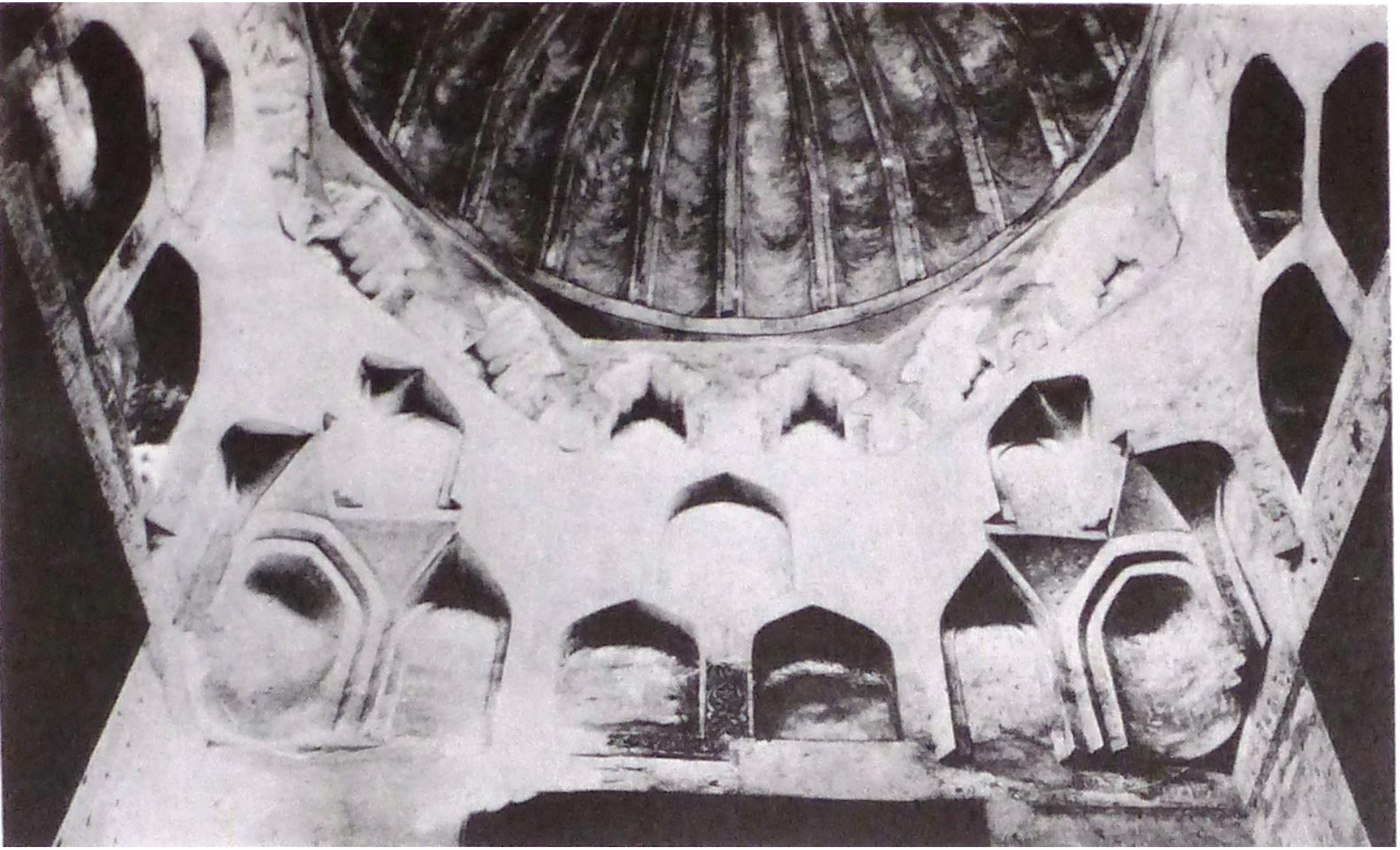
Creswell Archive, Ashmolean Museum, neg. EA.CA.3900



Creswell, 1978

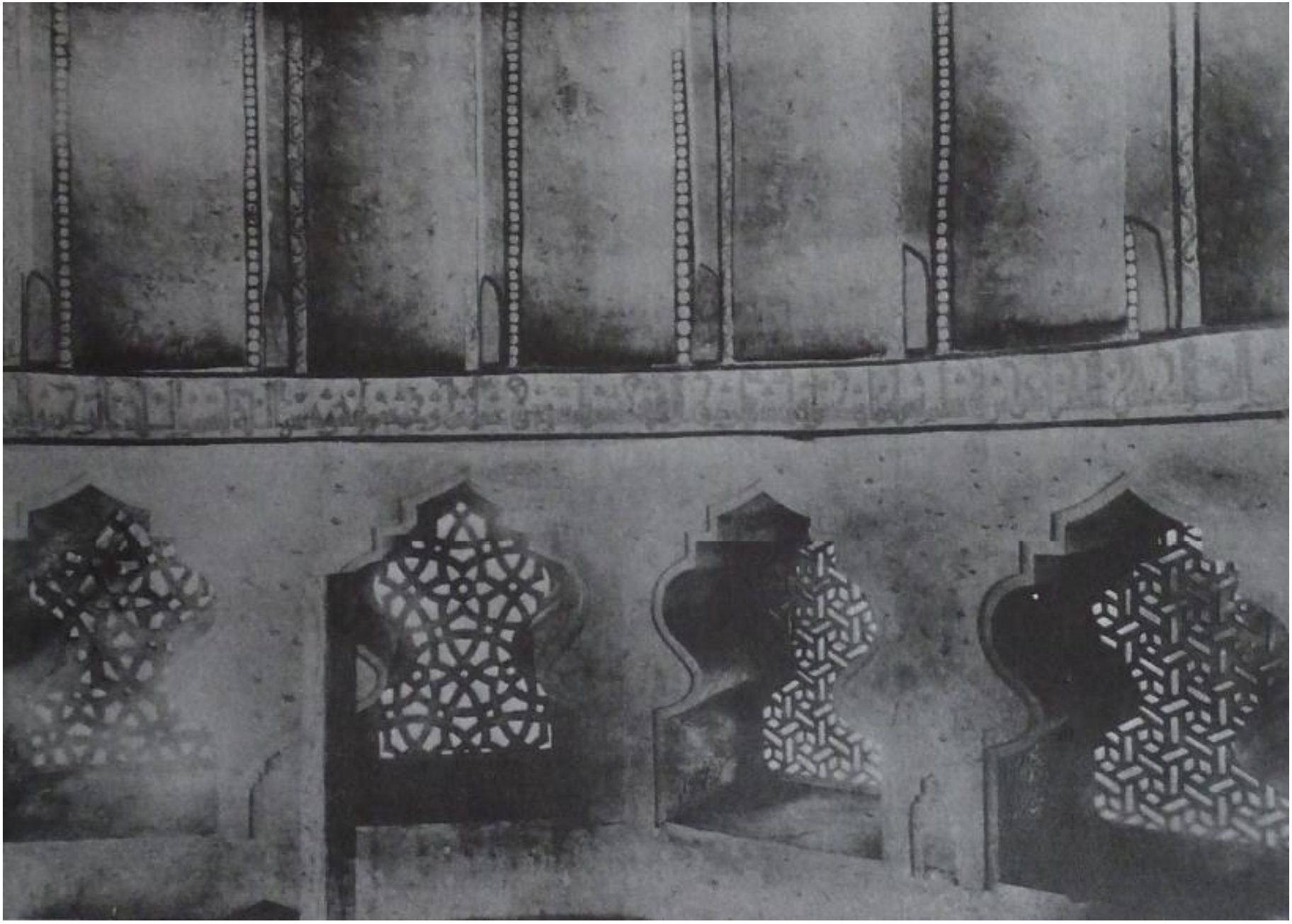


Copyright: John A. and C. Williams
Source: Archnet.org

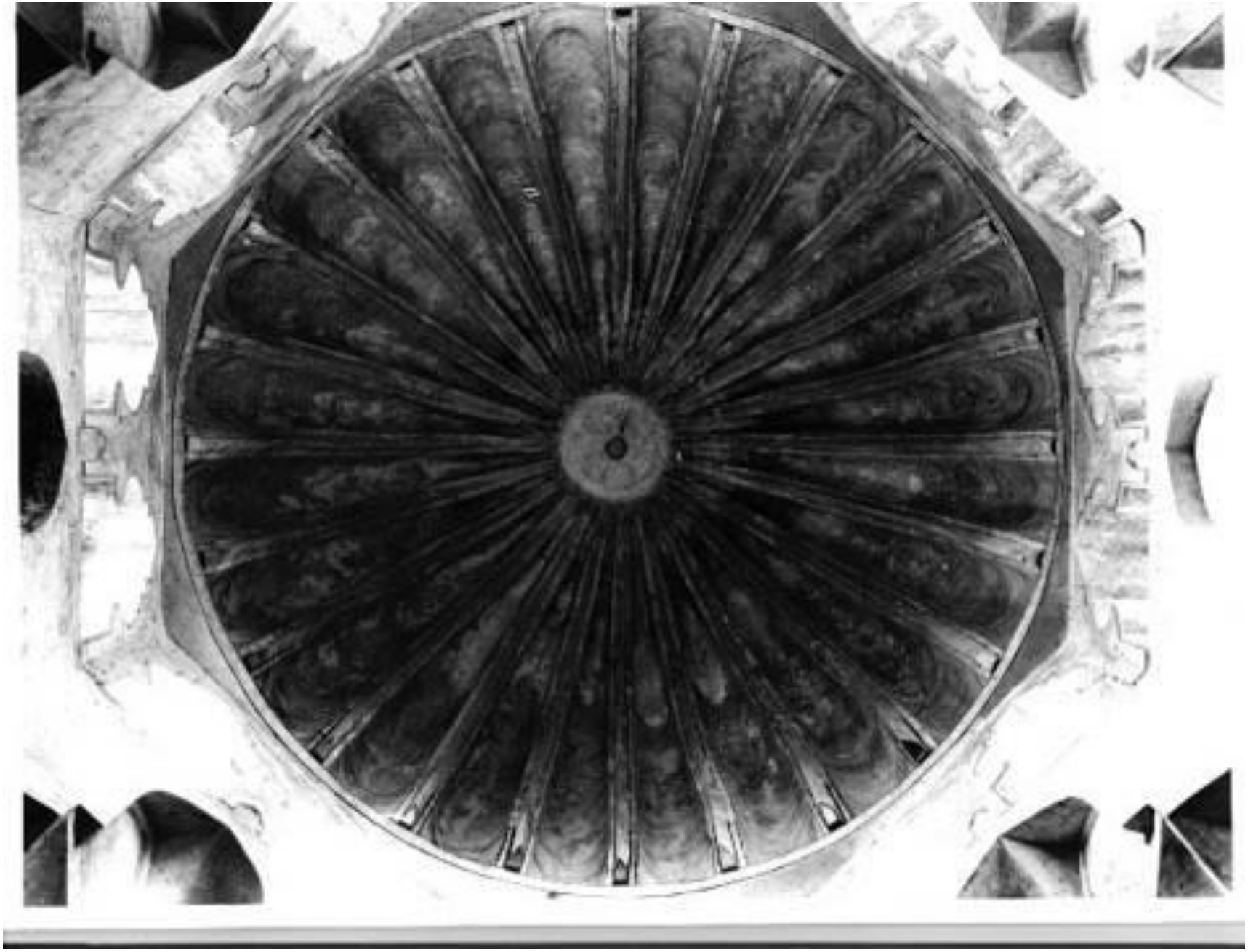


Creswell, 1978

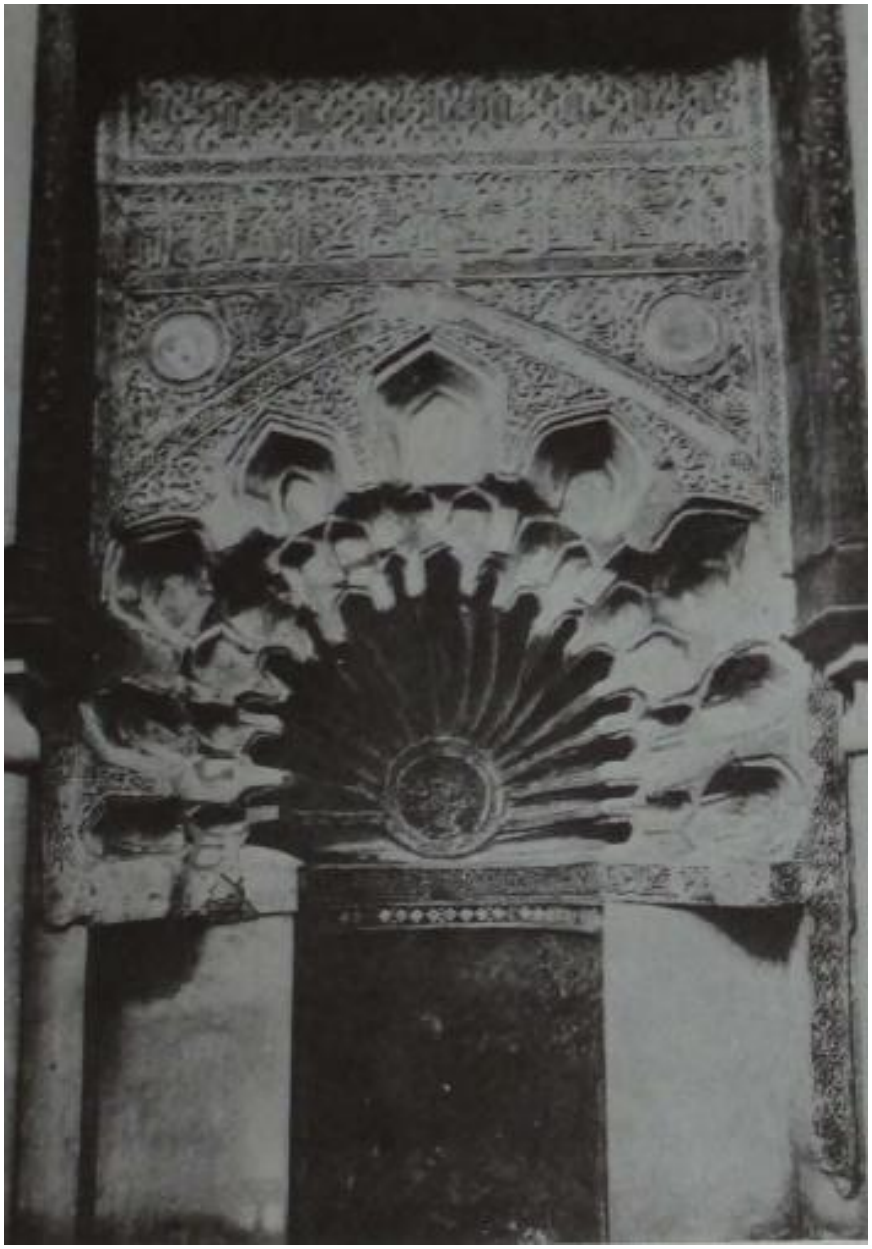
Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.3909



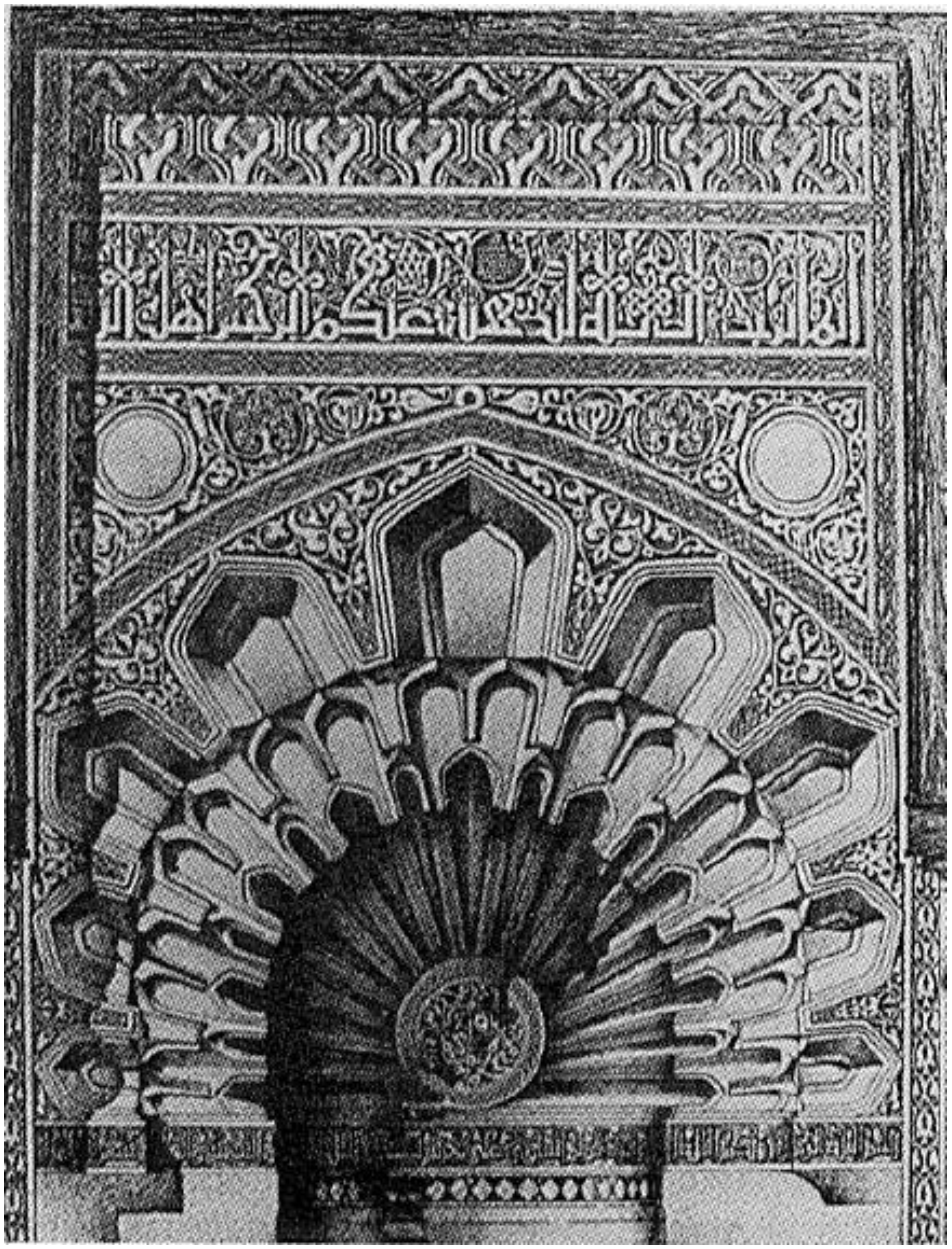
Creswell, 1978



Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.3910

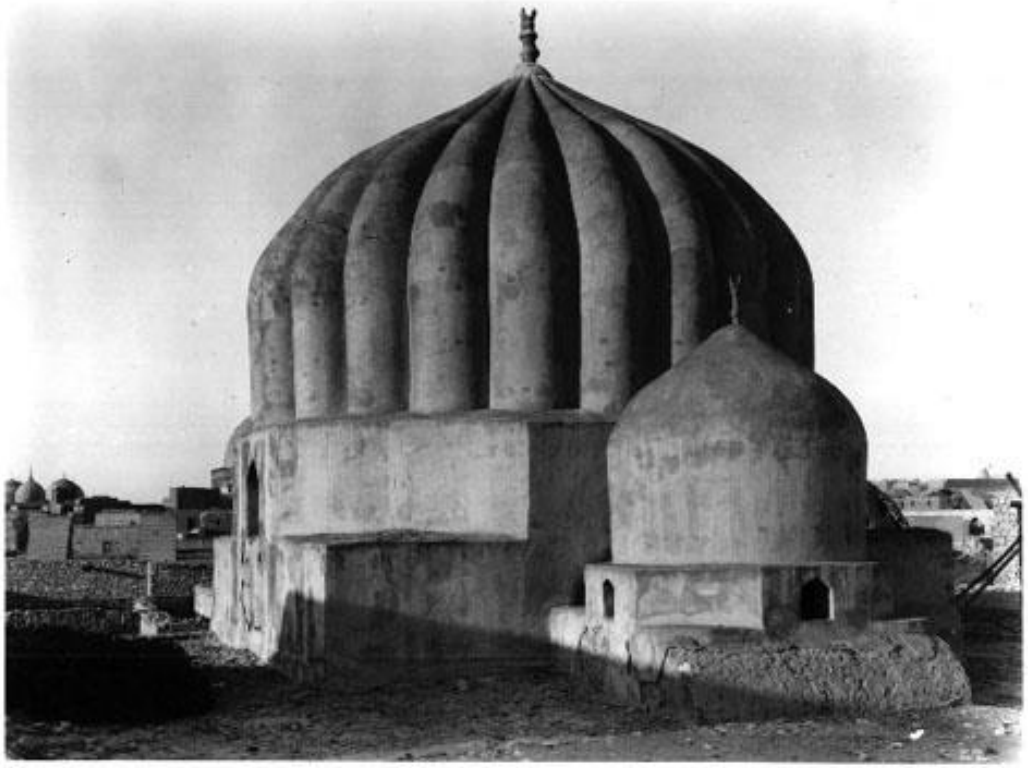


Creswell, 1978

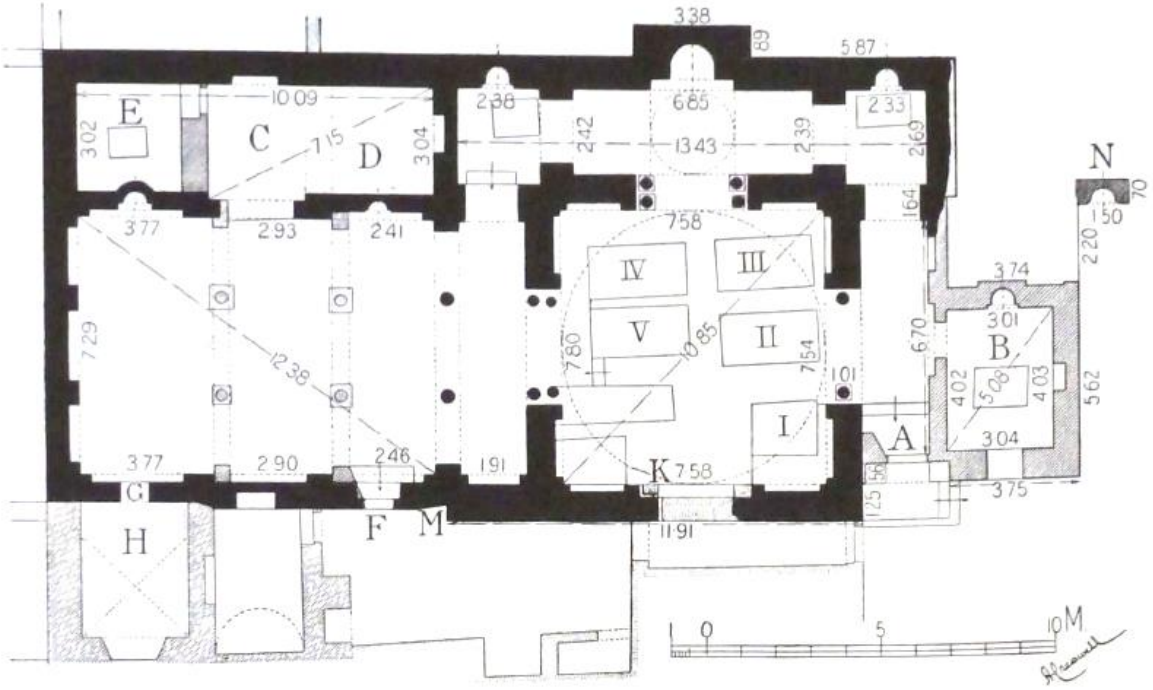


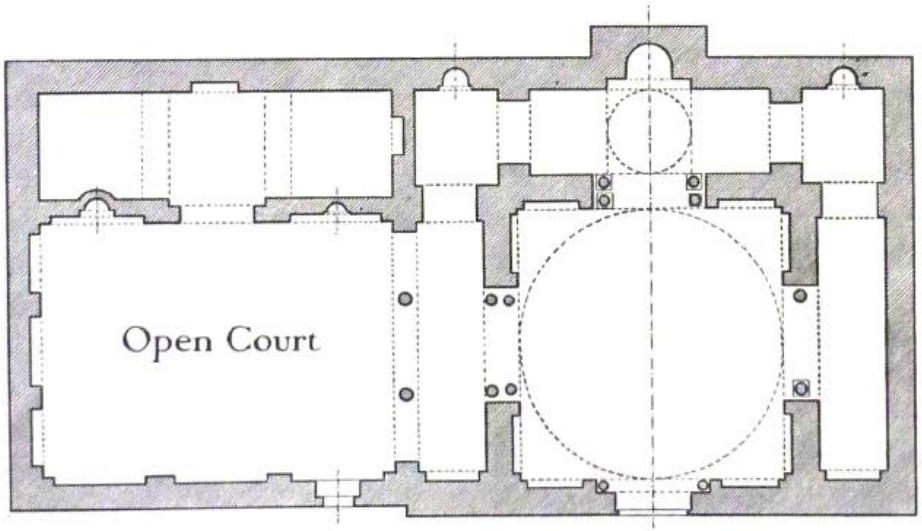
Behrens-Abouseif, 1996 (from ‘the mosques of Egypt’, 1949)

Creswell Archive, Ashmolean Museum, neg. EA.CA.4009

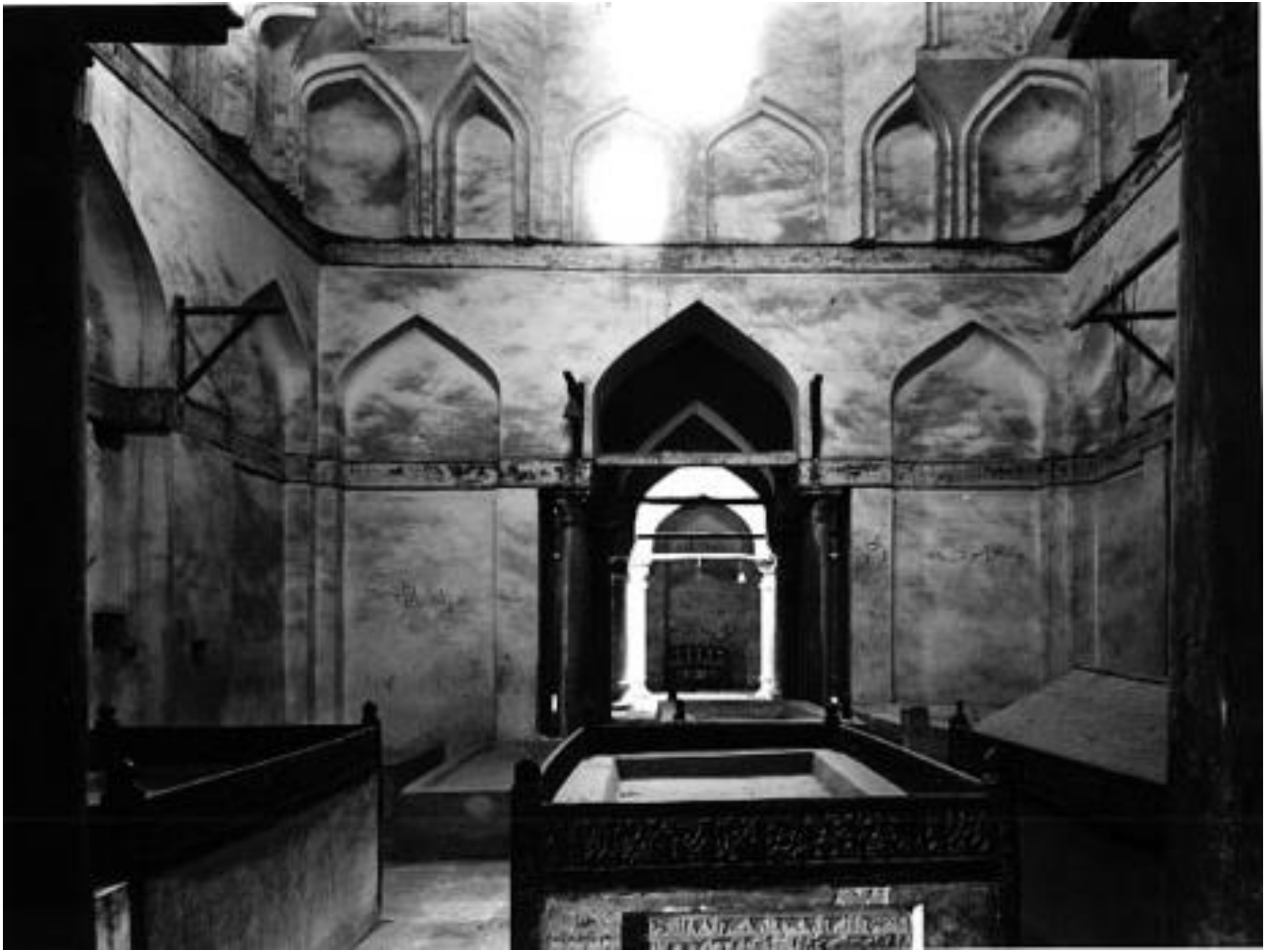


The mausoleum of Yaḥyā al-Shabīh





Creswell, 1978. (Plan of the existing structures and proposed reconstruction)



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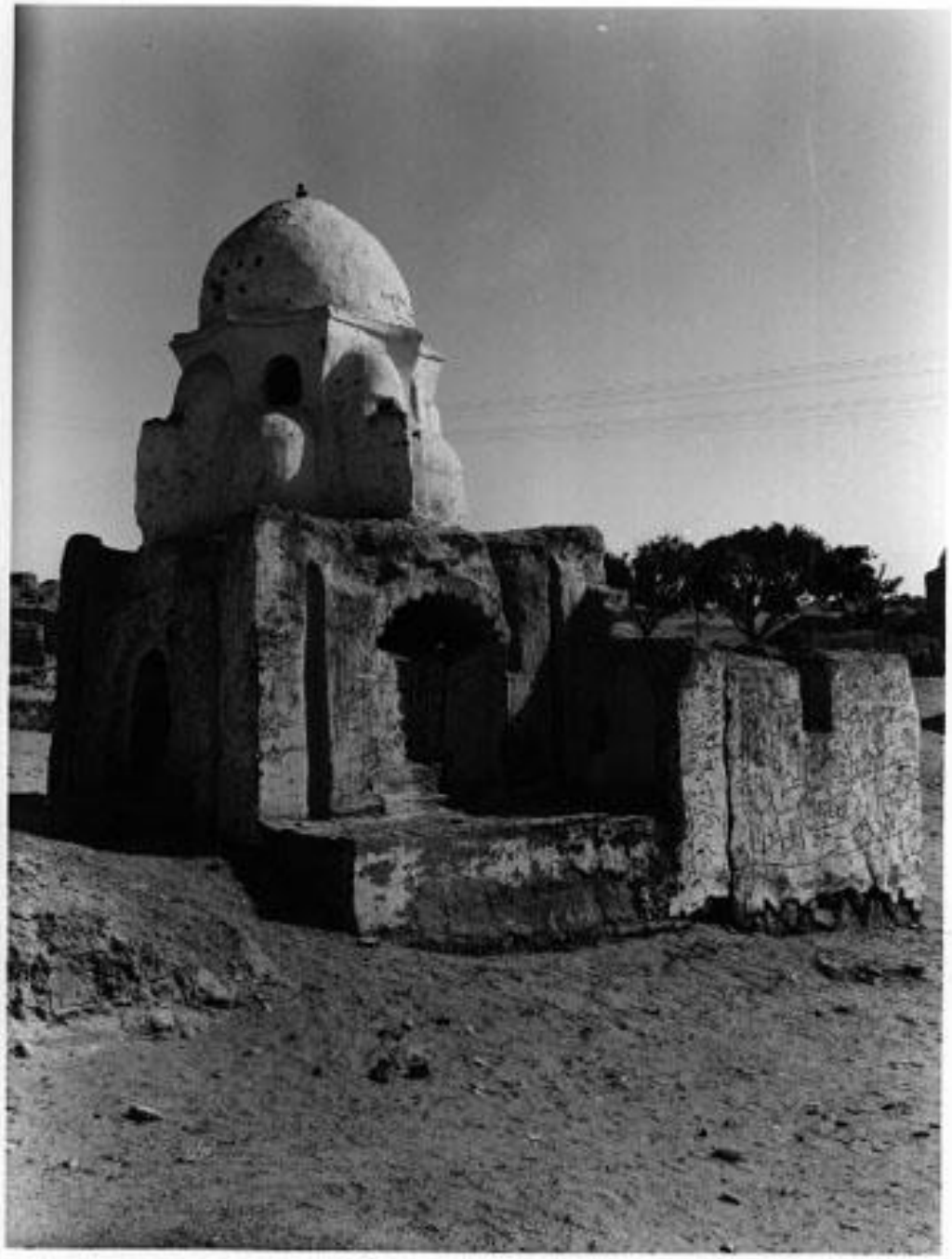
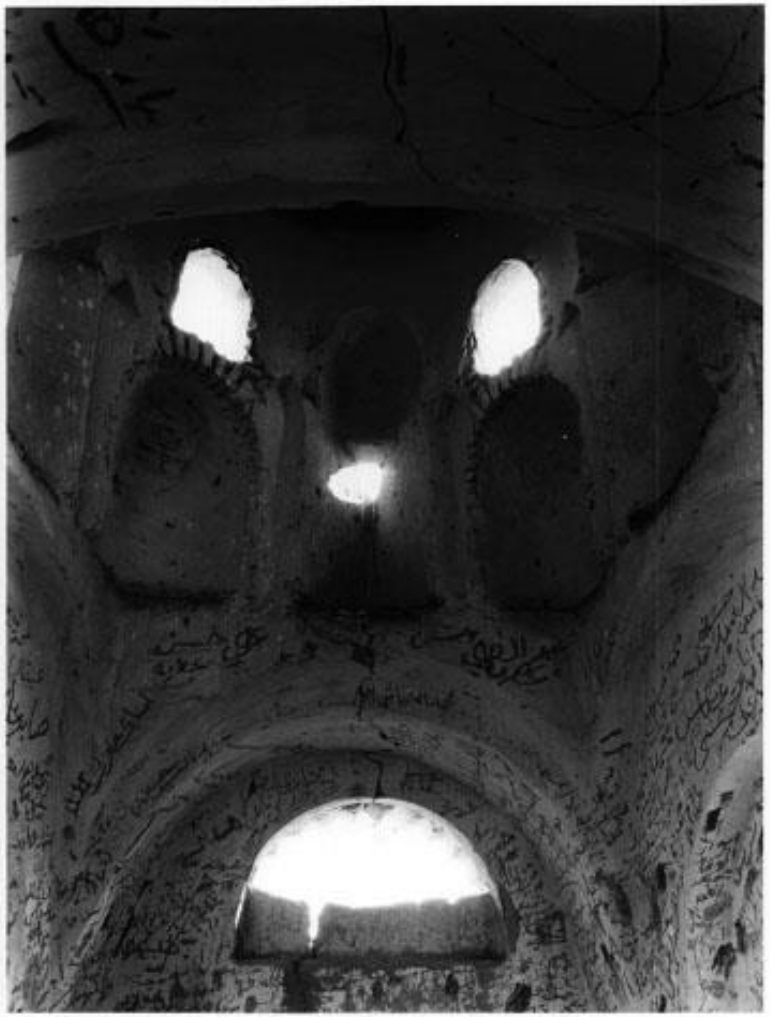
Copyright: A. Paasch. Source:http://baugeschichte.a.tu-berlin.de/bg

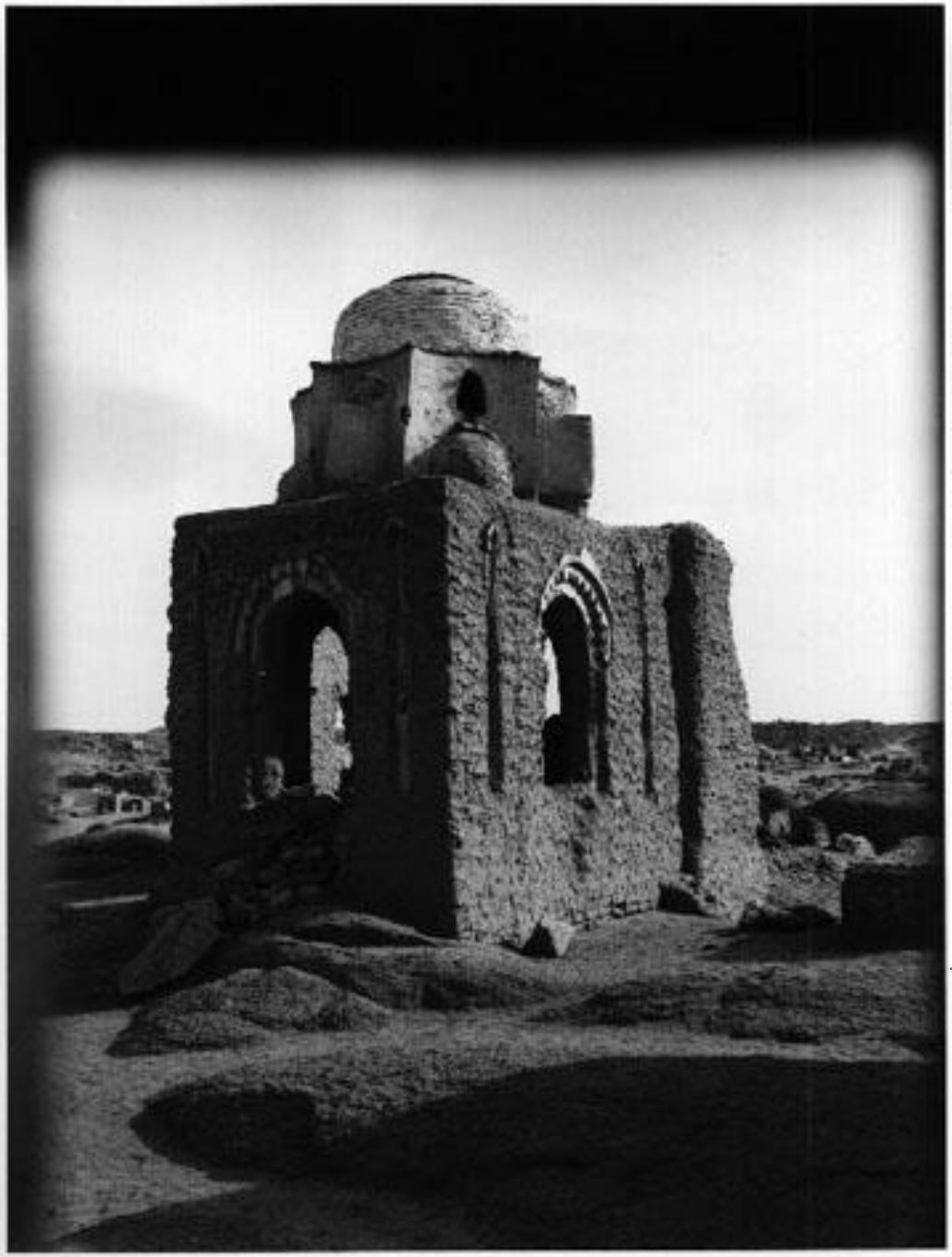
The Aswān mausoleums

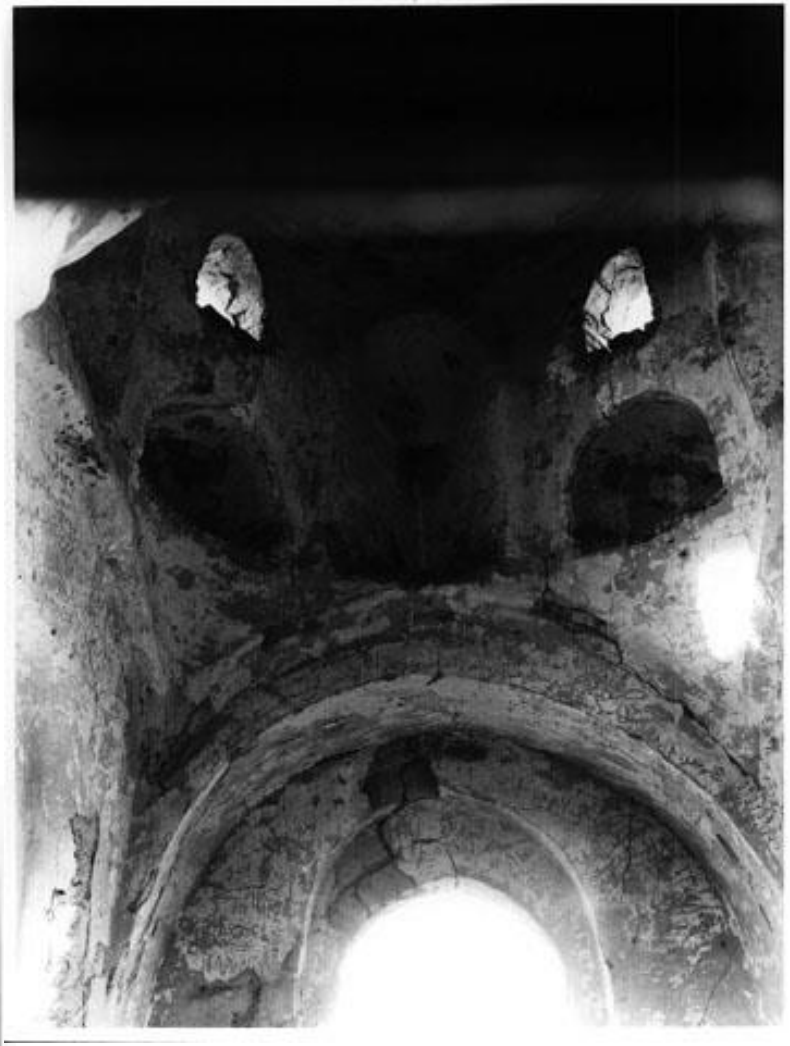




Mausoleum n. 5

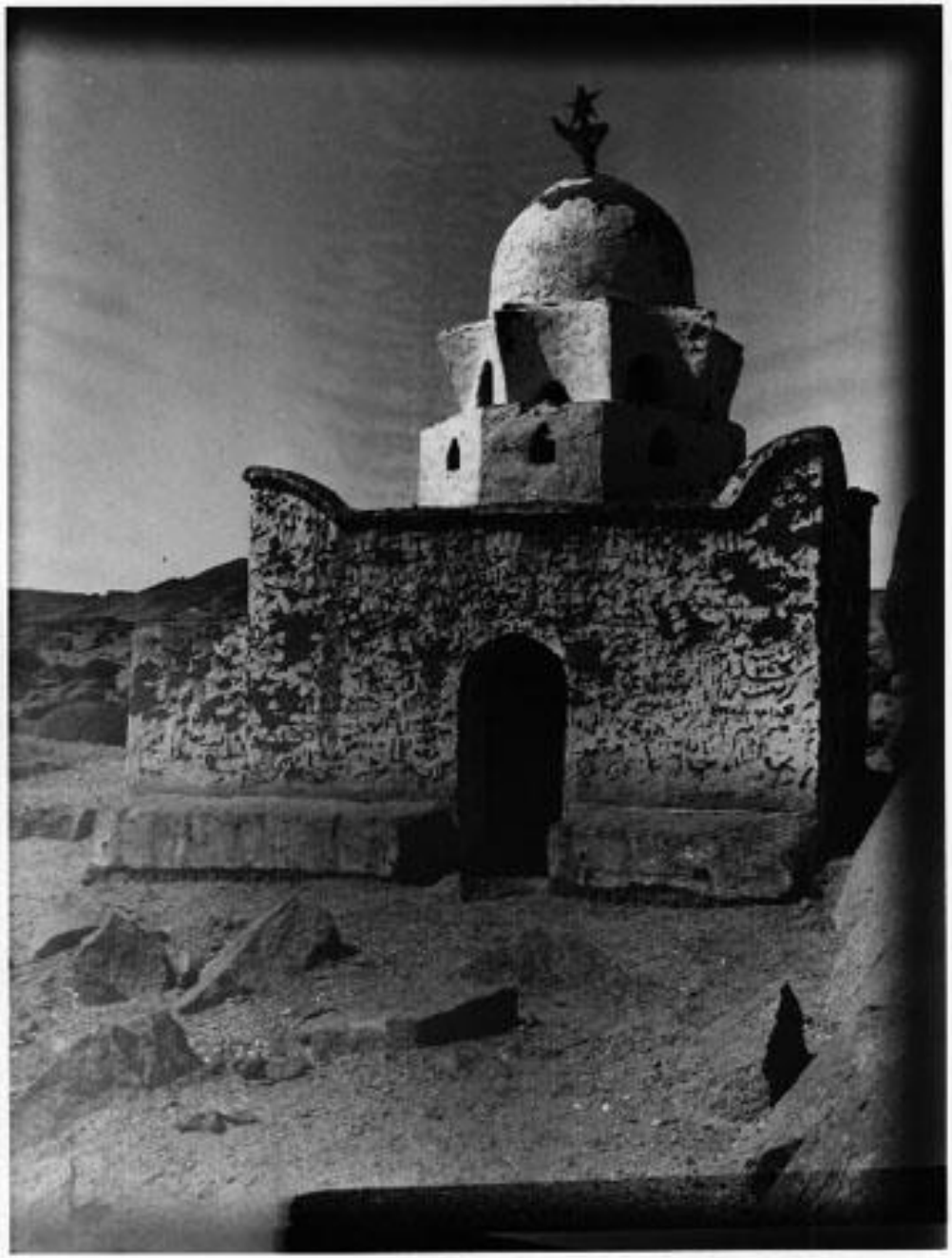
Creswell Archive, Ashmolean Museum, negs. EA.CA.3210 and 3211





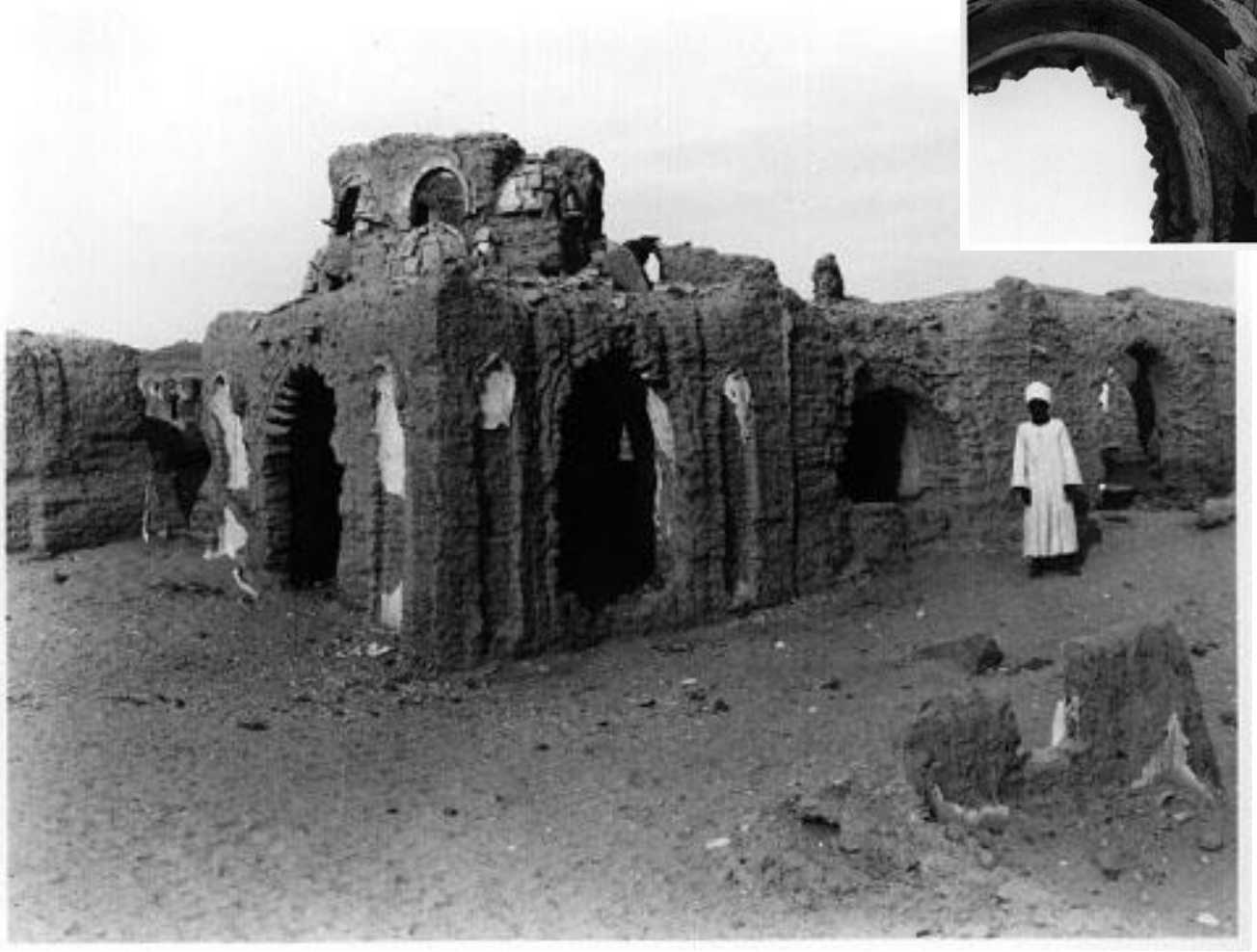
Mausoleum n. 7

Creswell Archive, Ashmolean Museum, negs. EA.CA.3213 and 3214



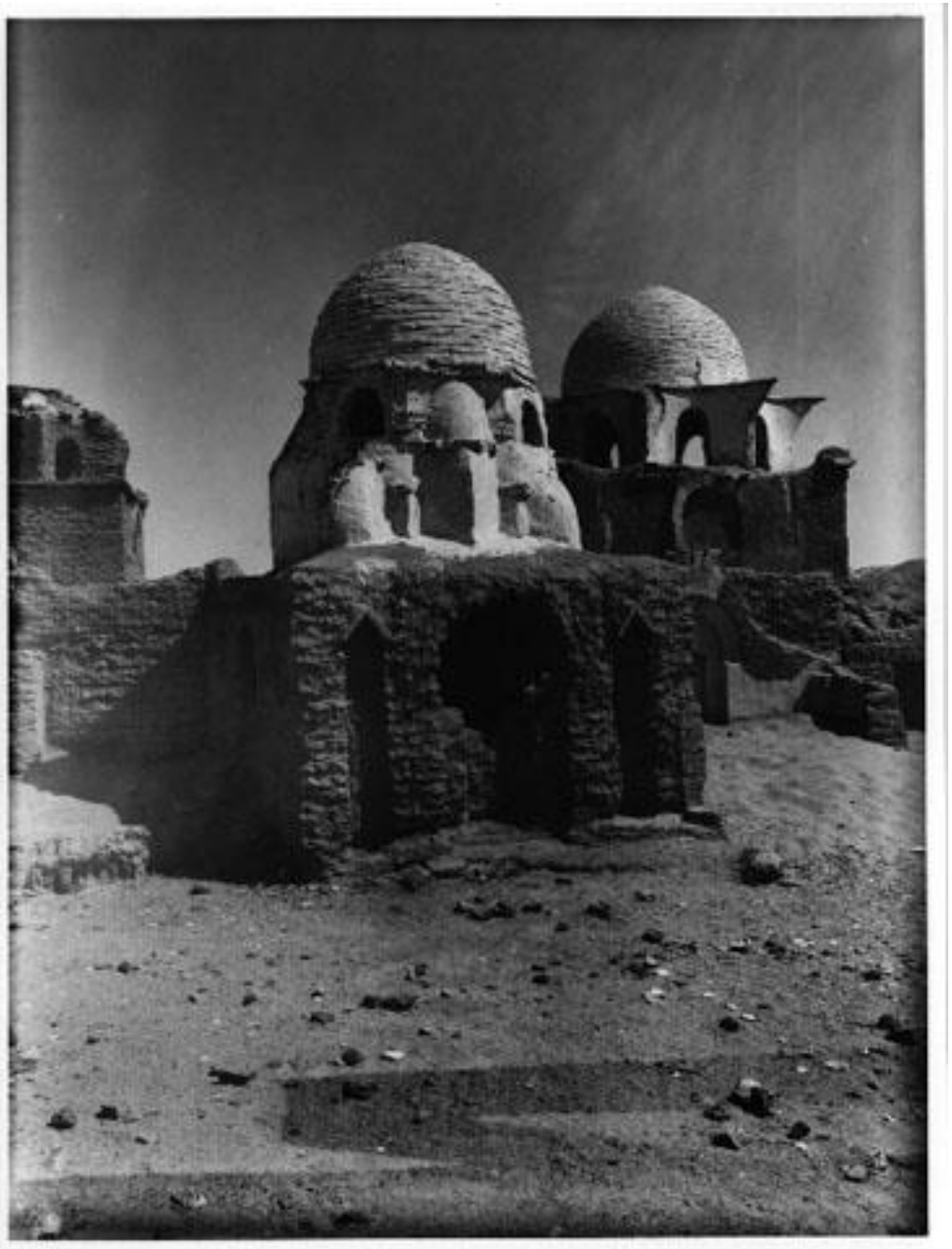
Mausoleum n. 11

Creswell Archive, Ashmolean Museum, negs. EA.CA.3217 and 3218



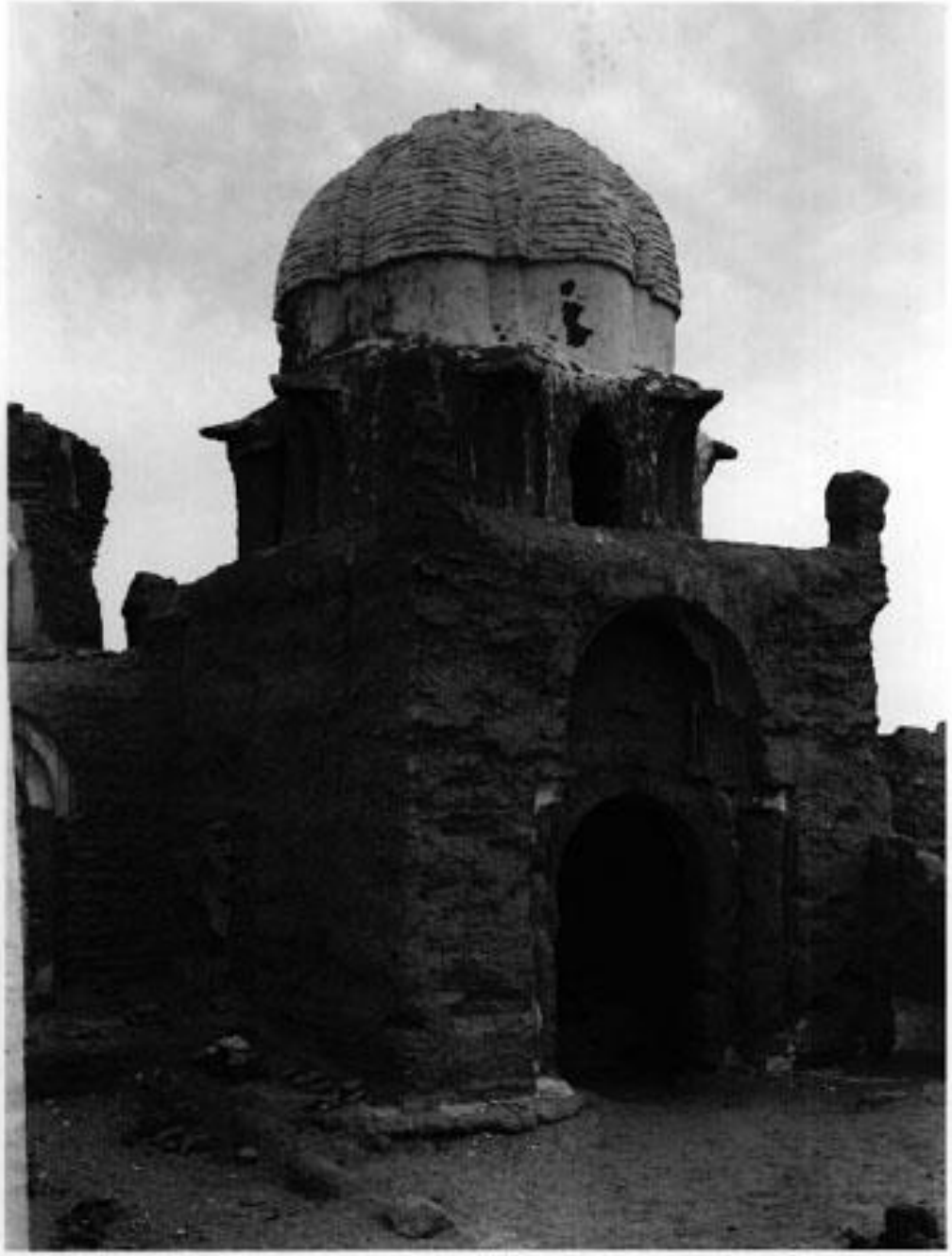
Mausoleum n. 19

Creswell Archive, Ashmolean Museum, negs. EA.CA.32149 and 3218



Mausoleum n. 15

Creswell, 1978

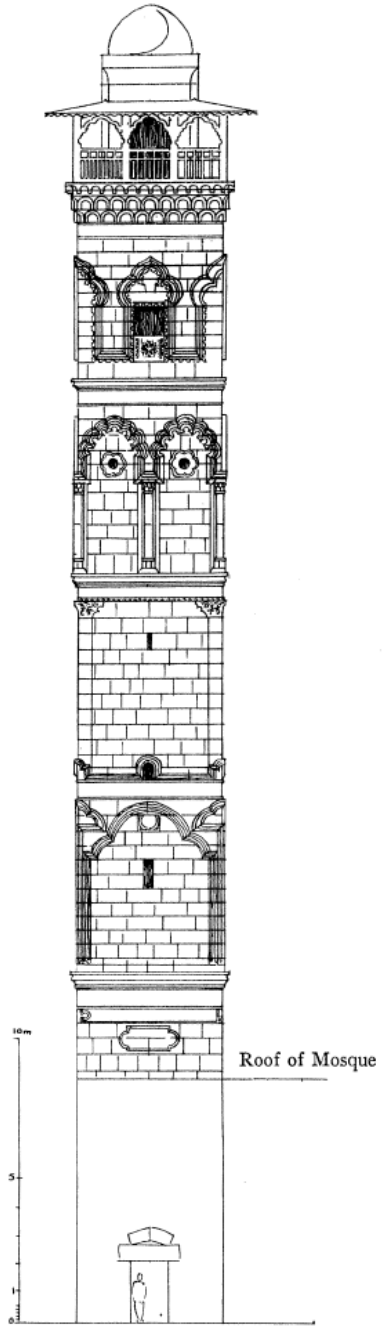


Mausoleum n. 24

Creswell Archive, Ashmolean Museum, negs. EA.CA.3220 and 3218

5. *Muqarnas* in Syria
The earliest examples

The minaret of the Friday Mosque, Aleppo

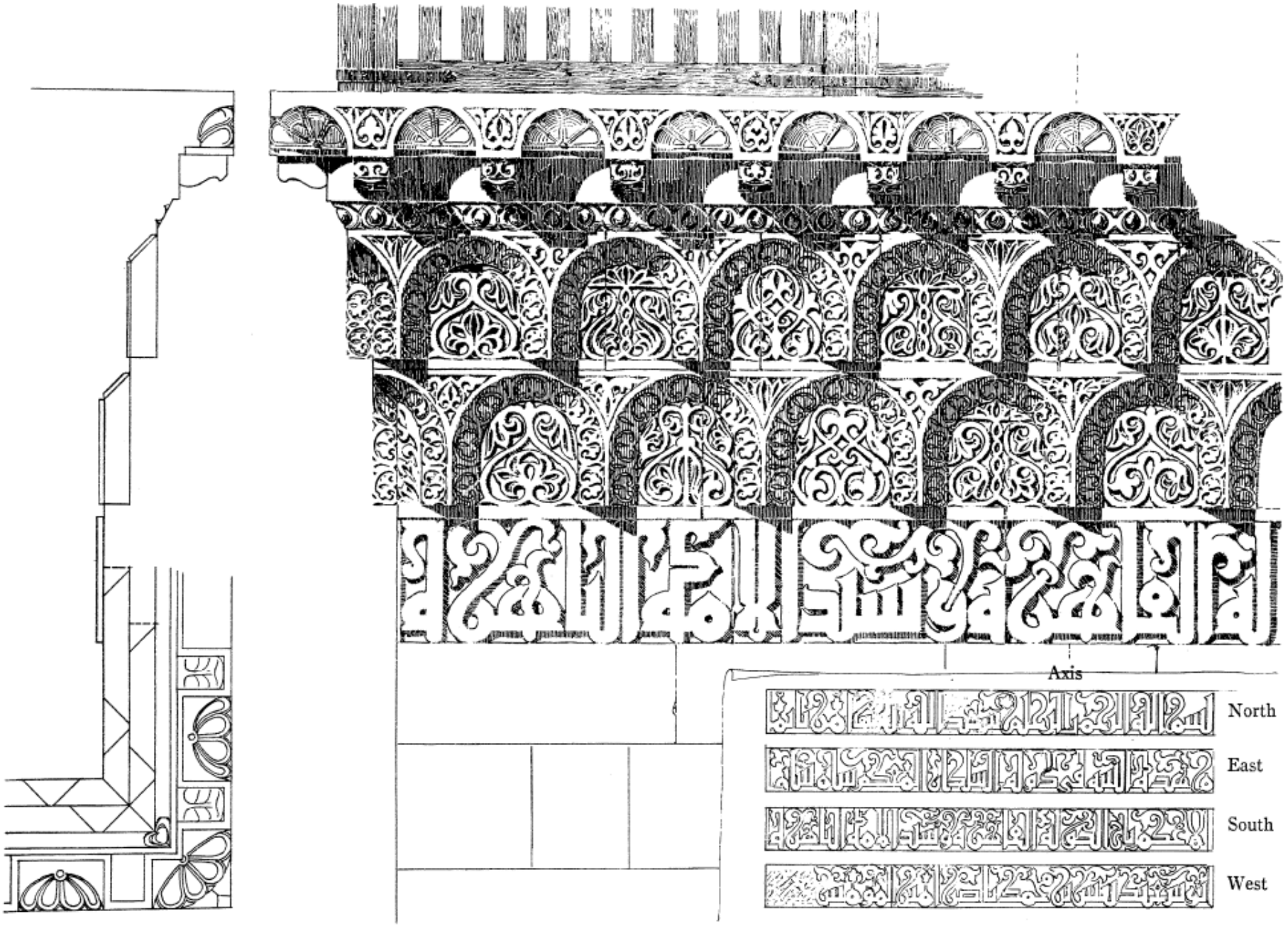


Herzfeld, 1943

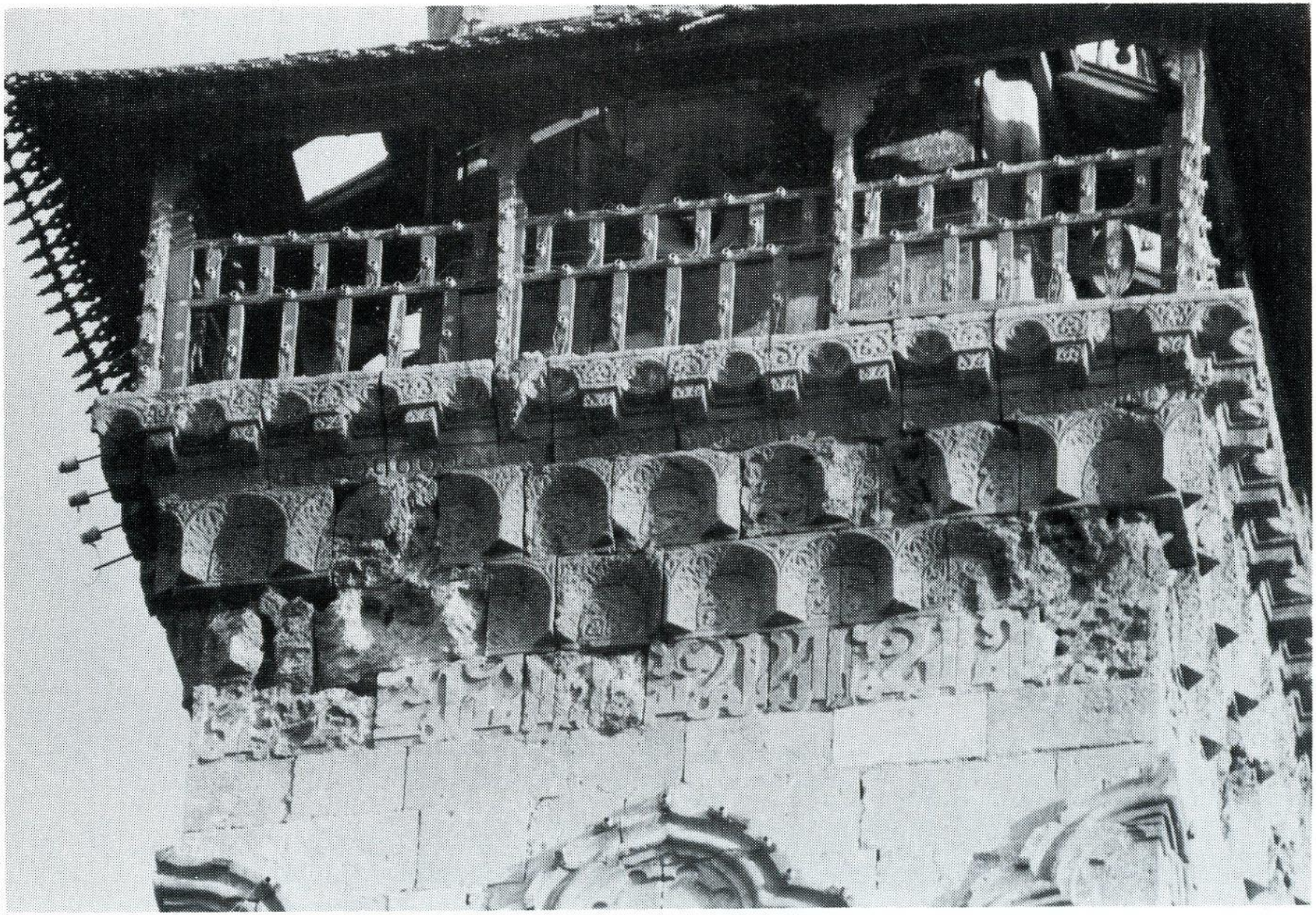
Allen, 1999

Allen, 1999

Herzfeld, 1943

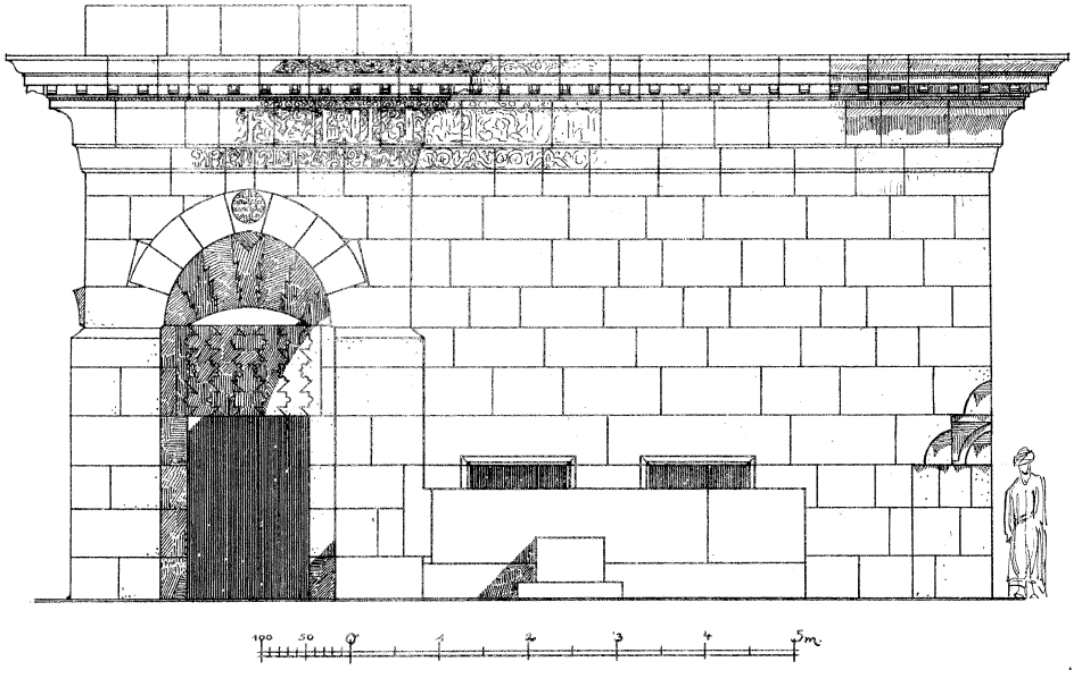


Herzfeld, 1943

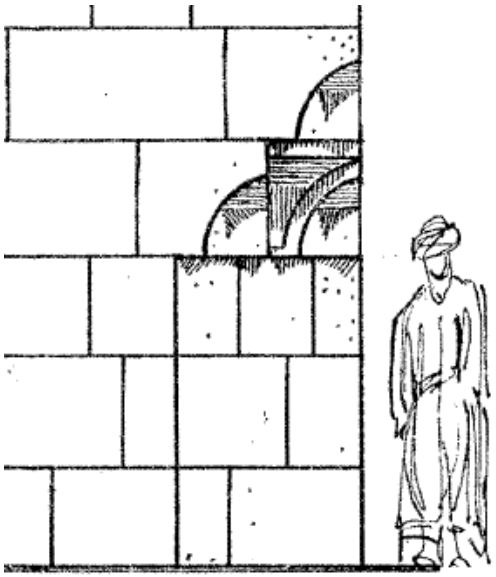


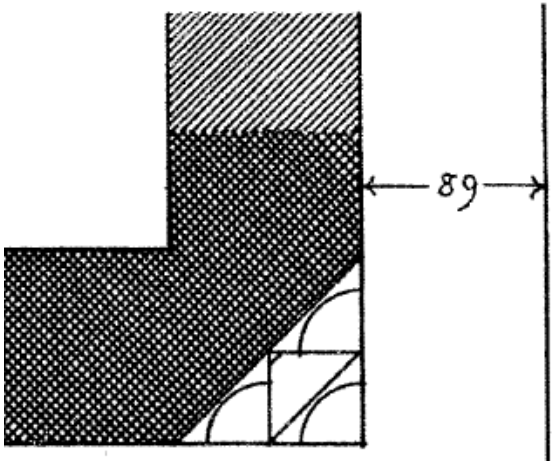
Allen, 1986

Herzfeld, 1943



Madrasa Shuʿaybiyya, Aleppo



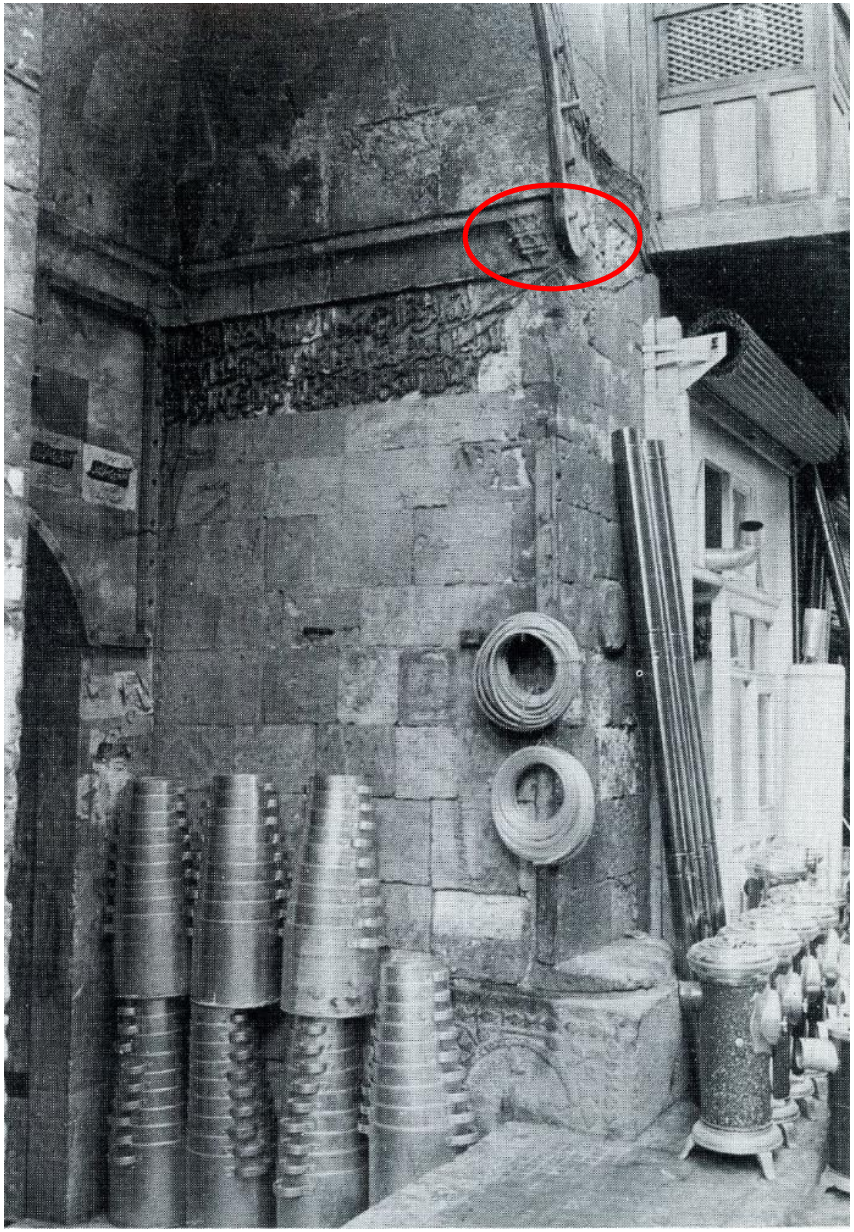


Herzfeld, 1943

Allen, 1986

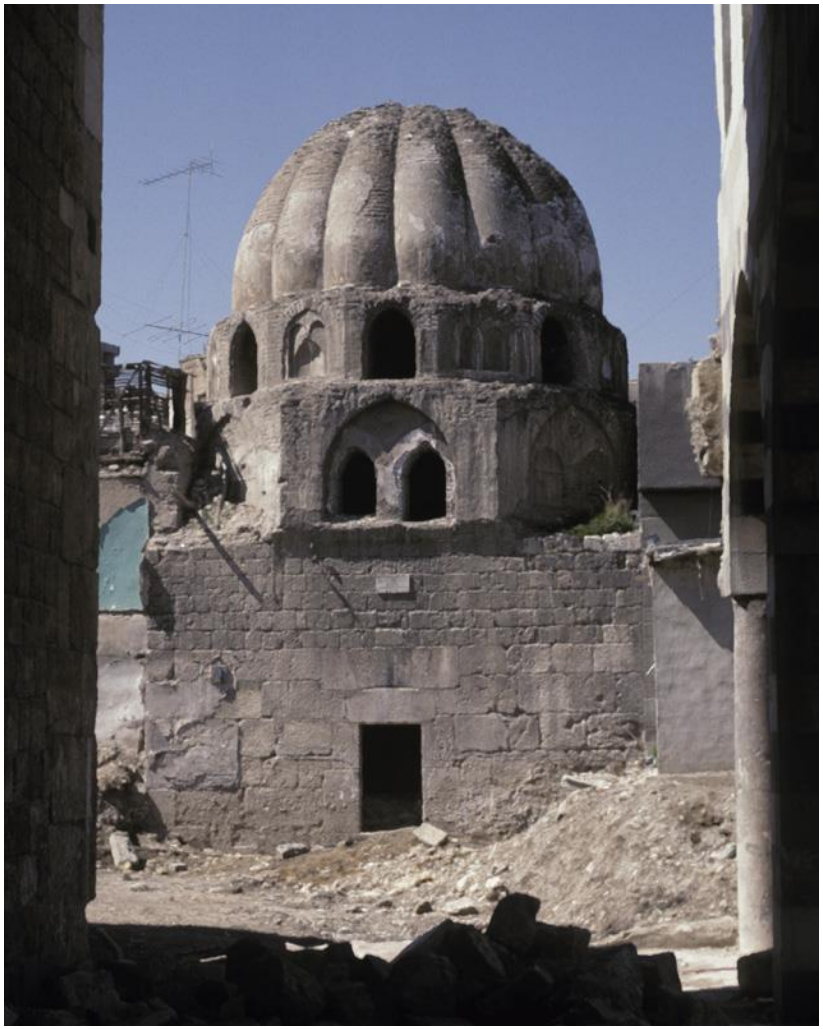
Allen, 1999

Madrasa Halāwiyya, Aleppo

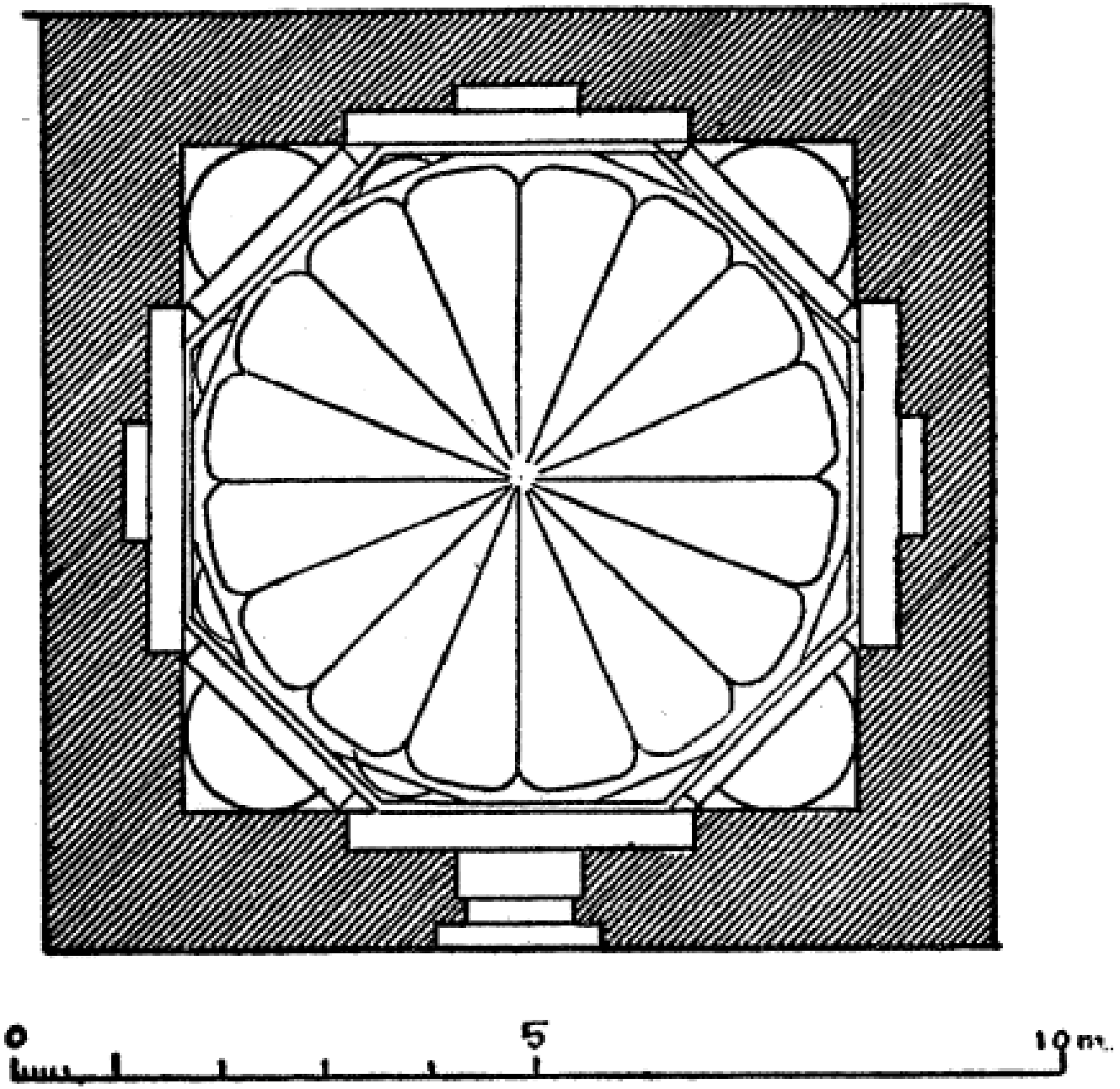


Allen, 1986

Allen, 1999

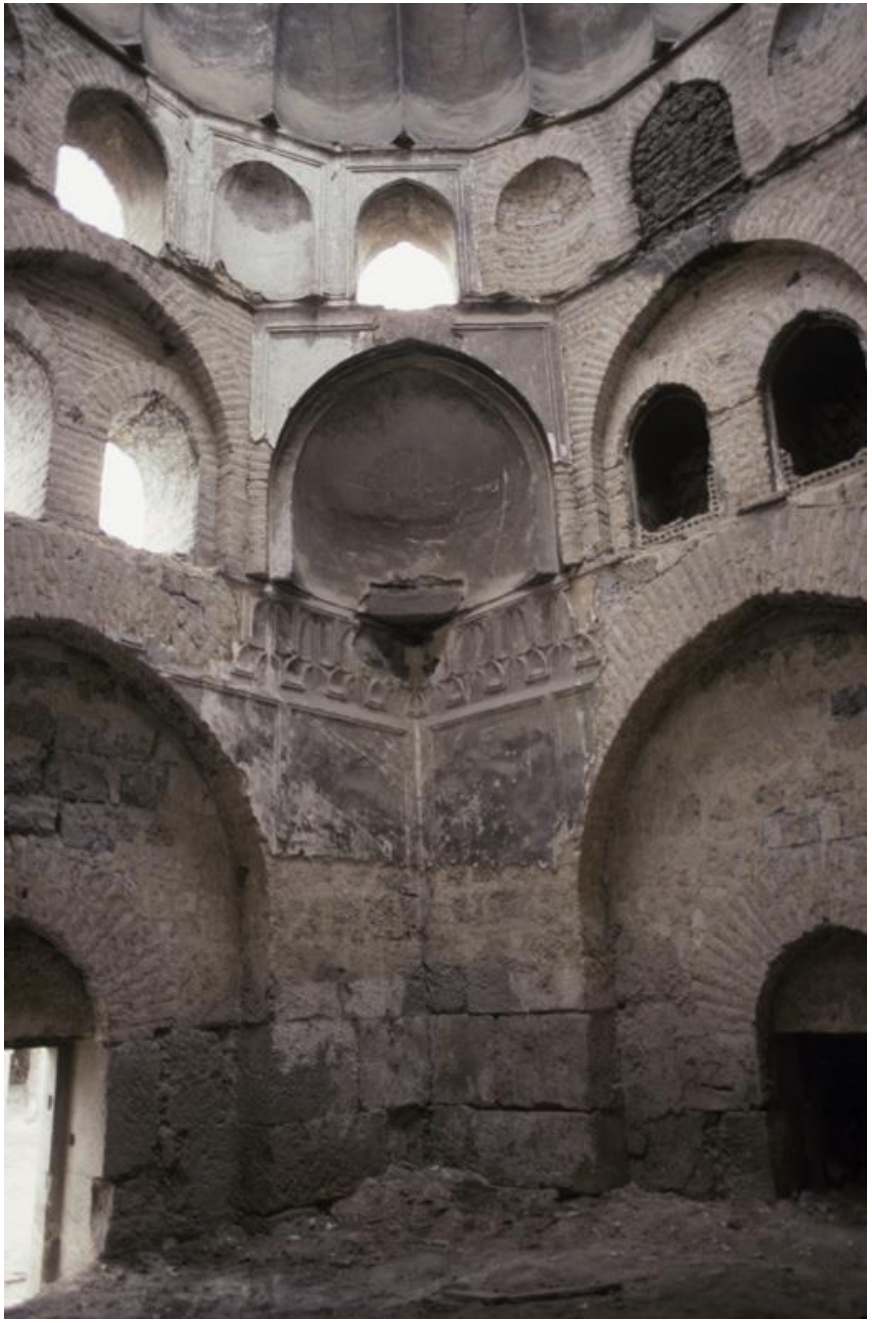


Turba Najmiyya, Damascus

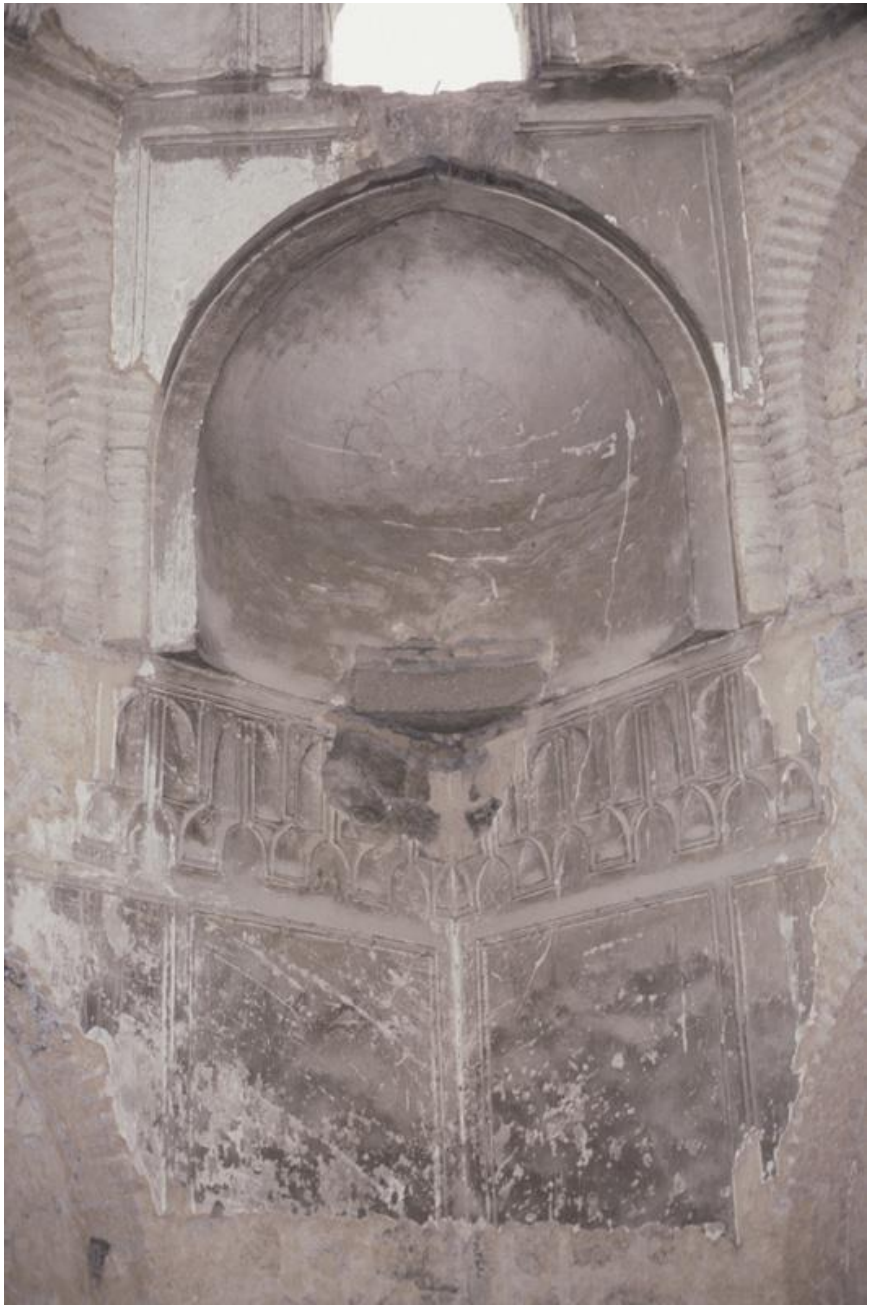


Herzfeld, 1946

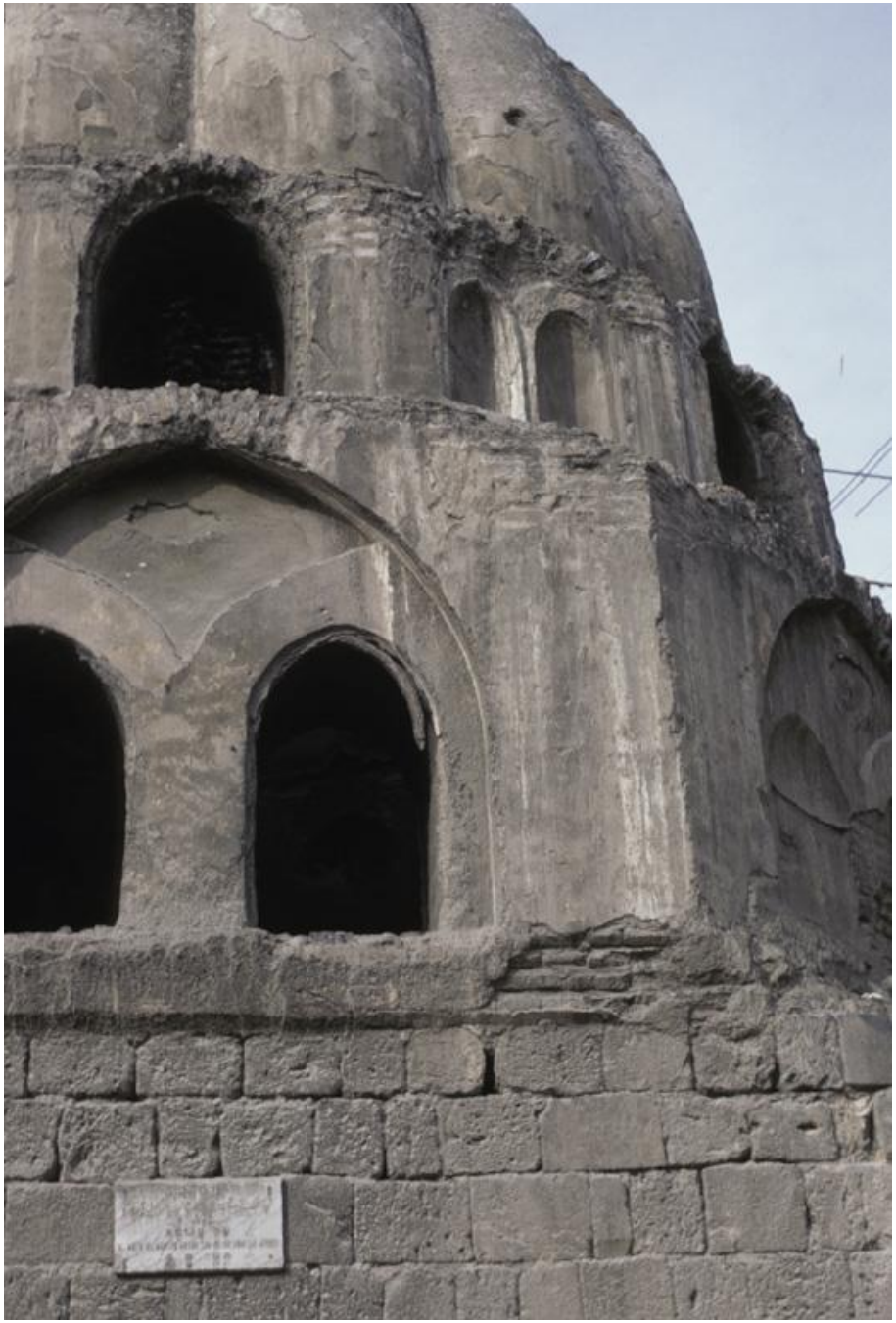
Allen, 1999



Allen, 1999

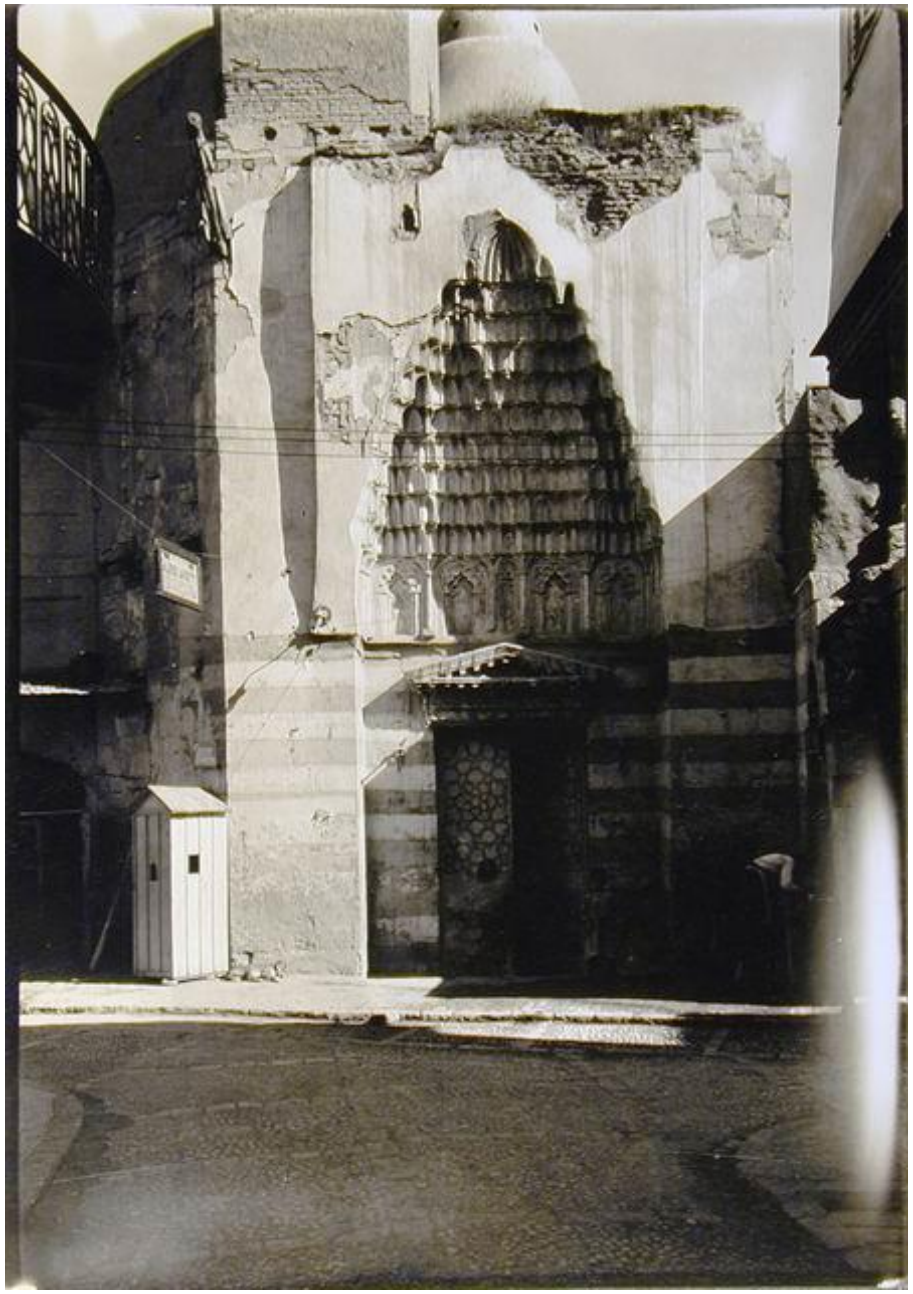


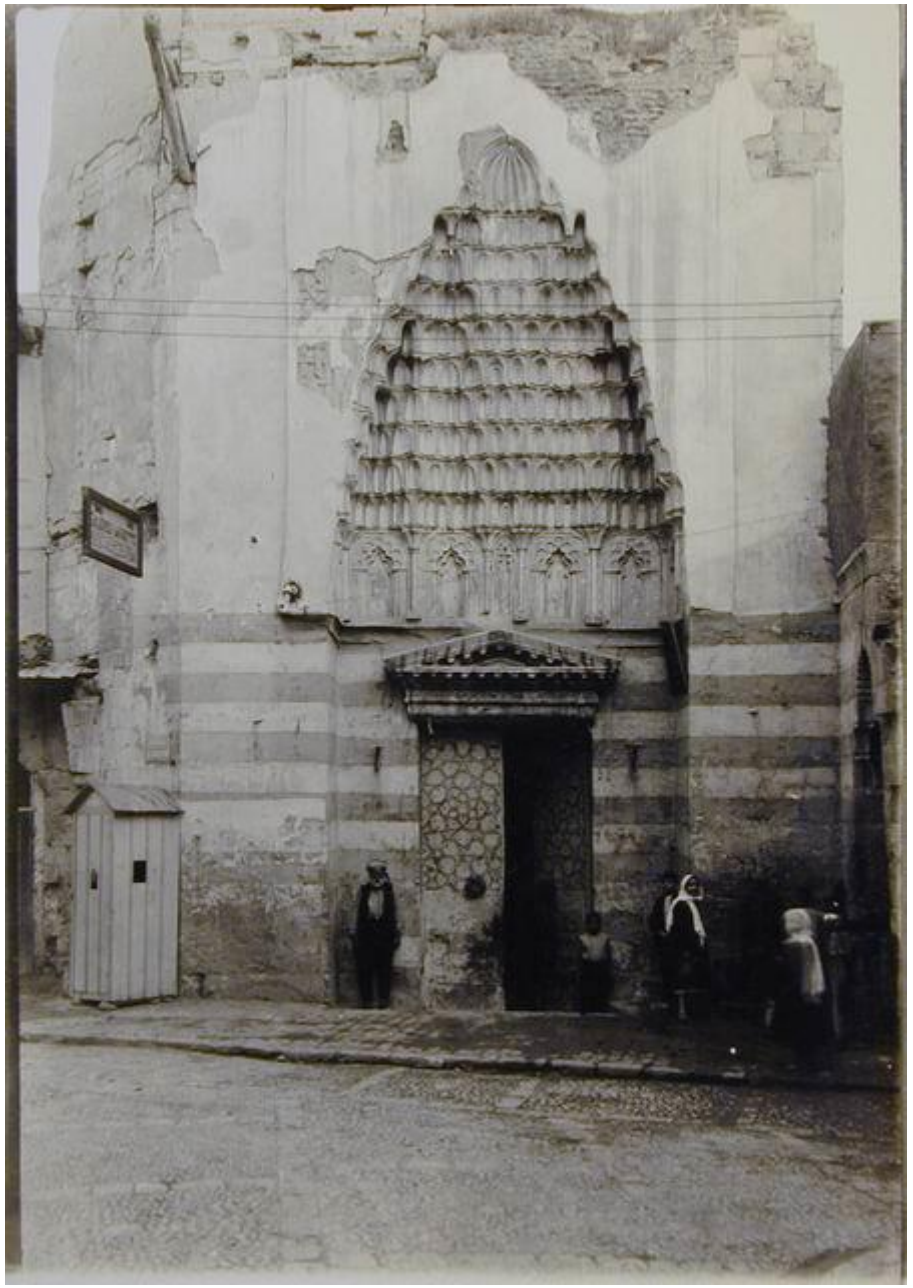
Allen, 1999



Allen, 1999

The Māristān of Nūr al-Dīn, Damascus





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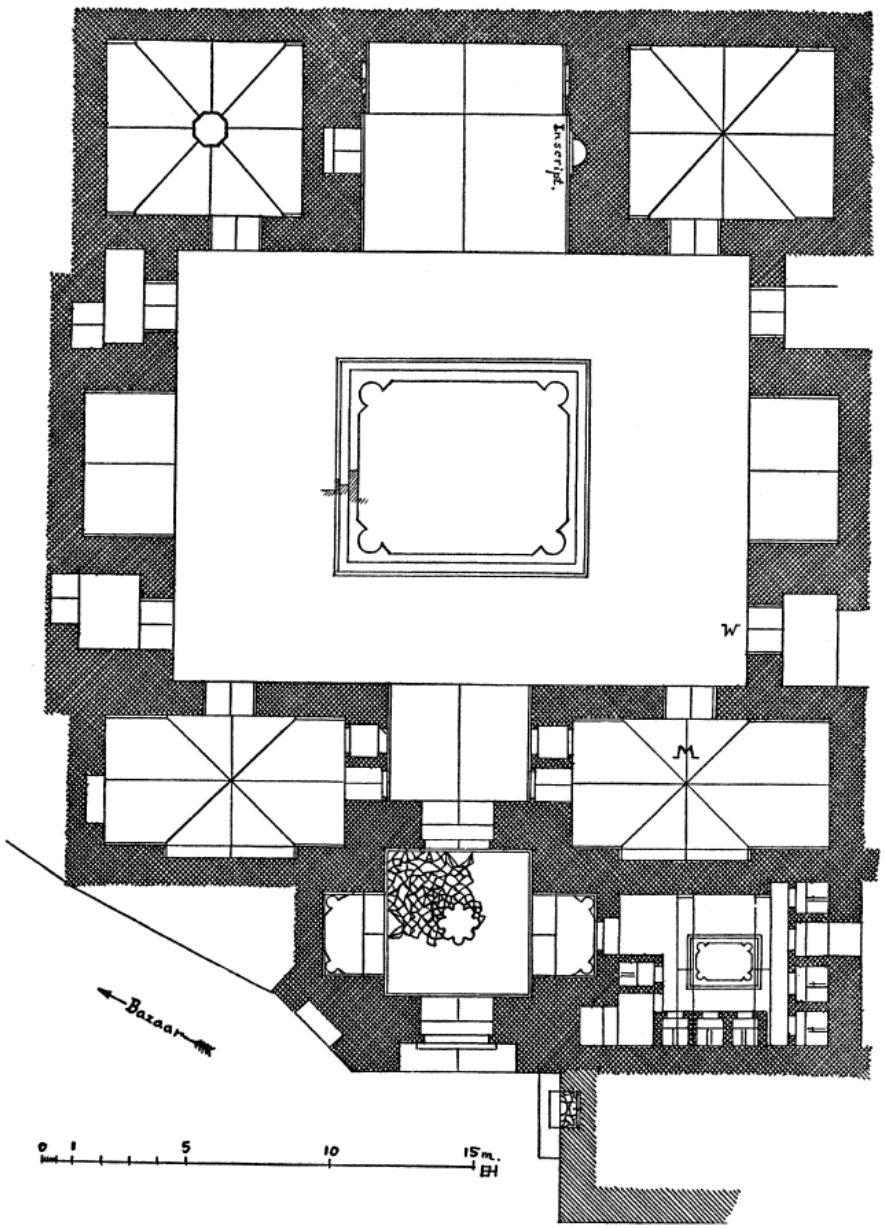
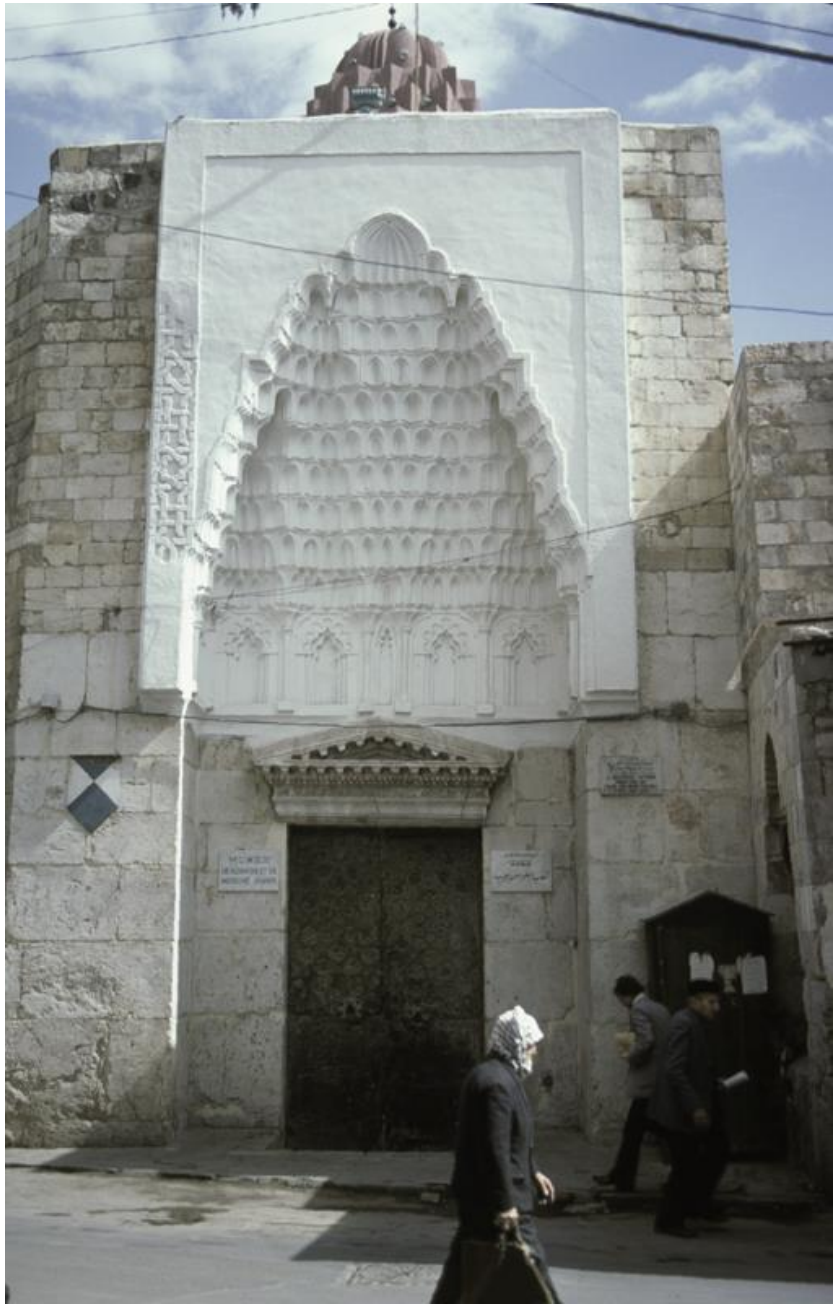
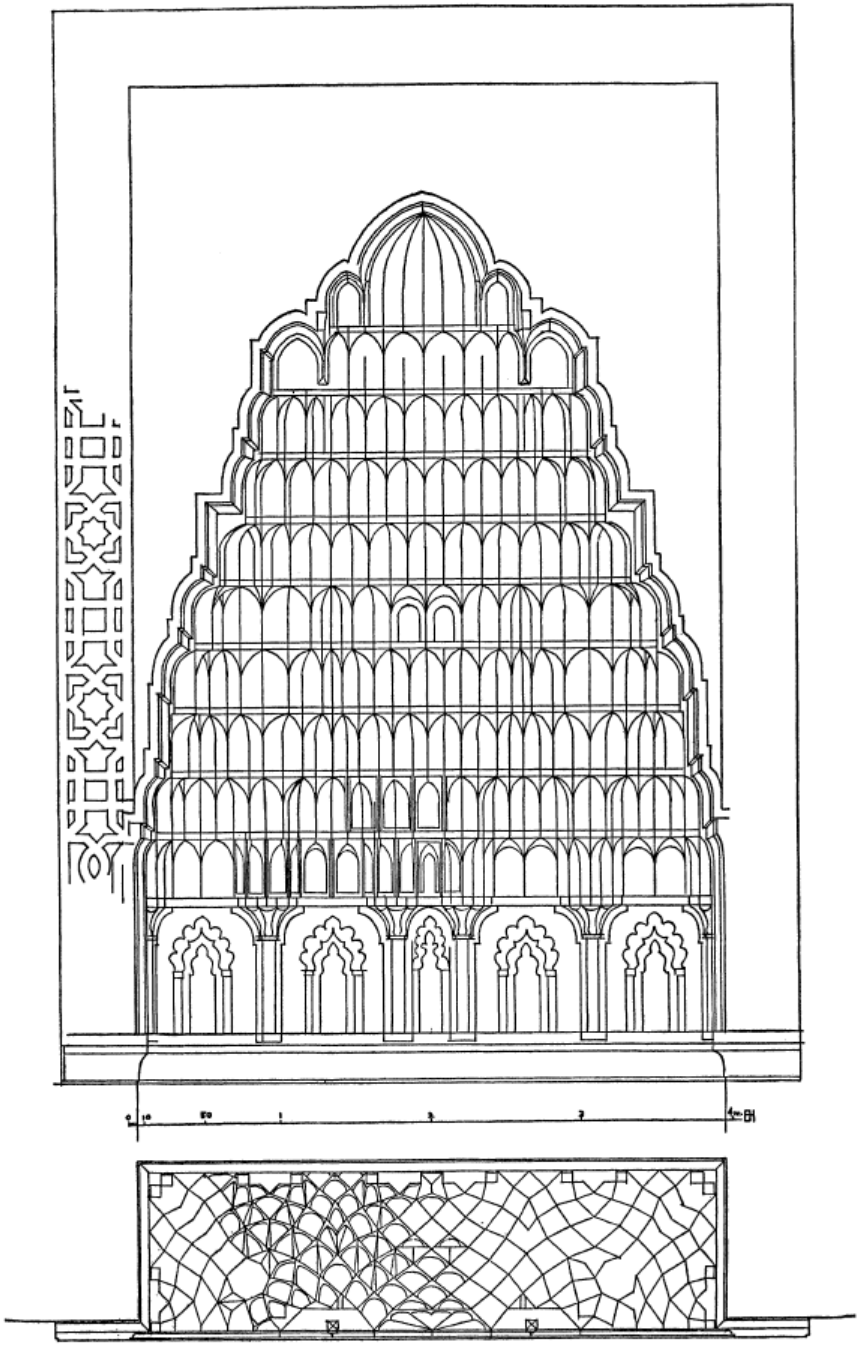


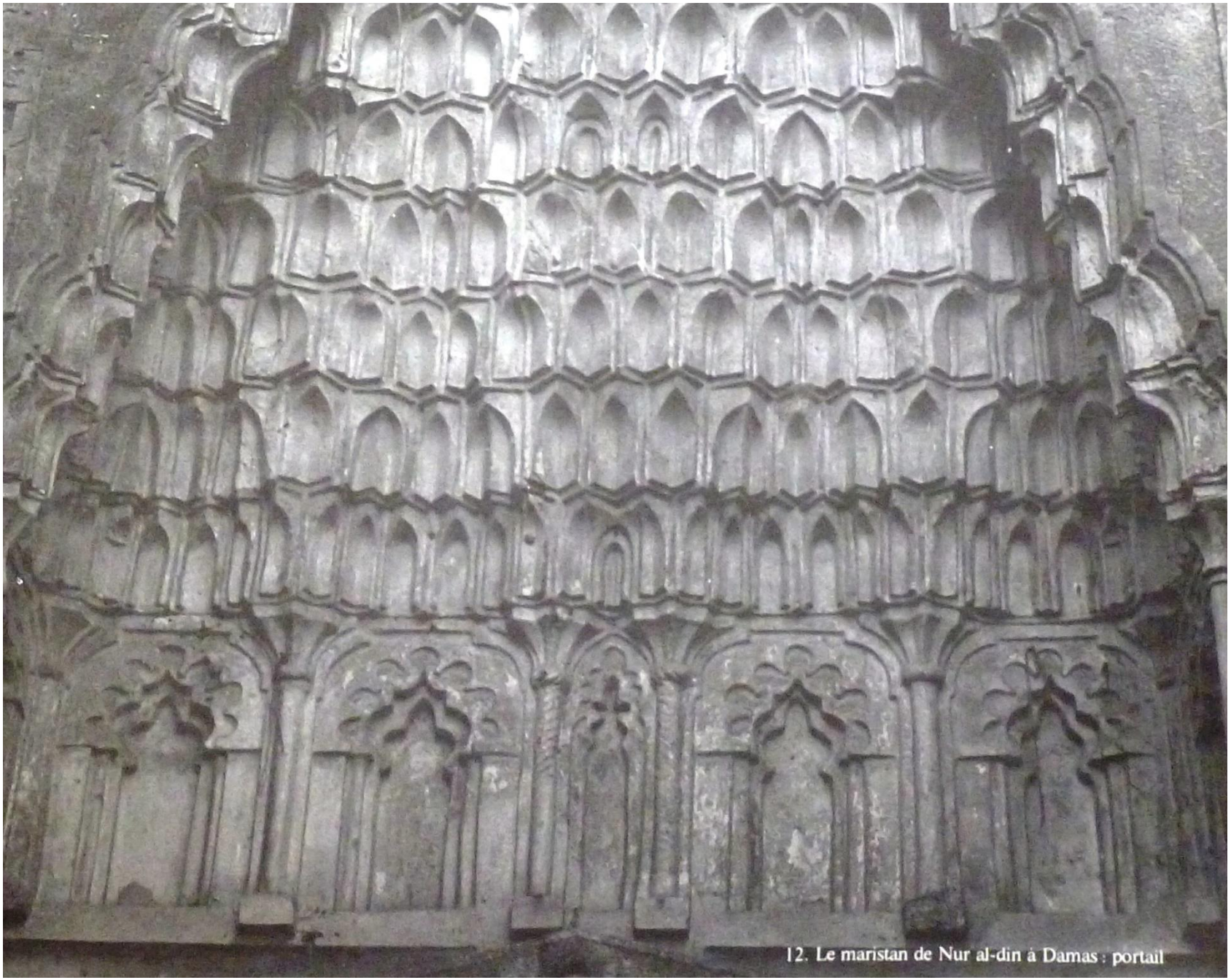
Herzfeld, 1942



Allen, 1999

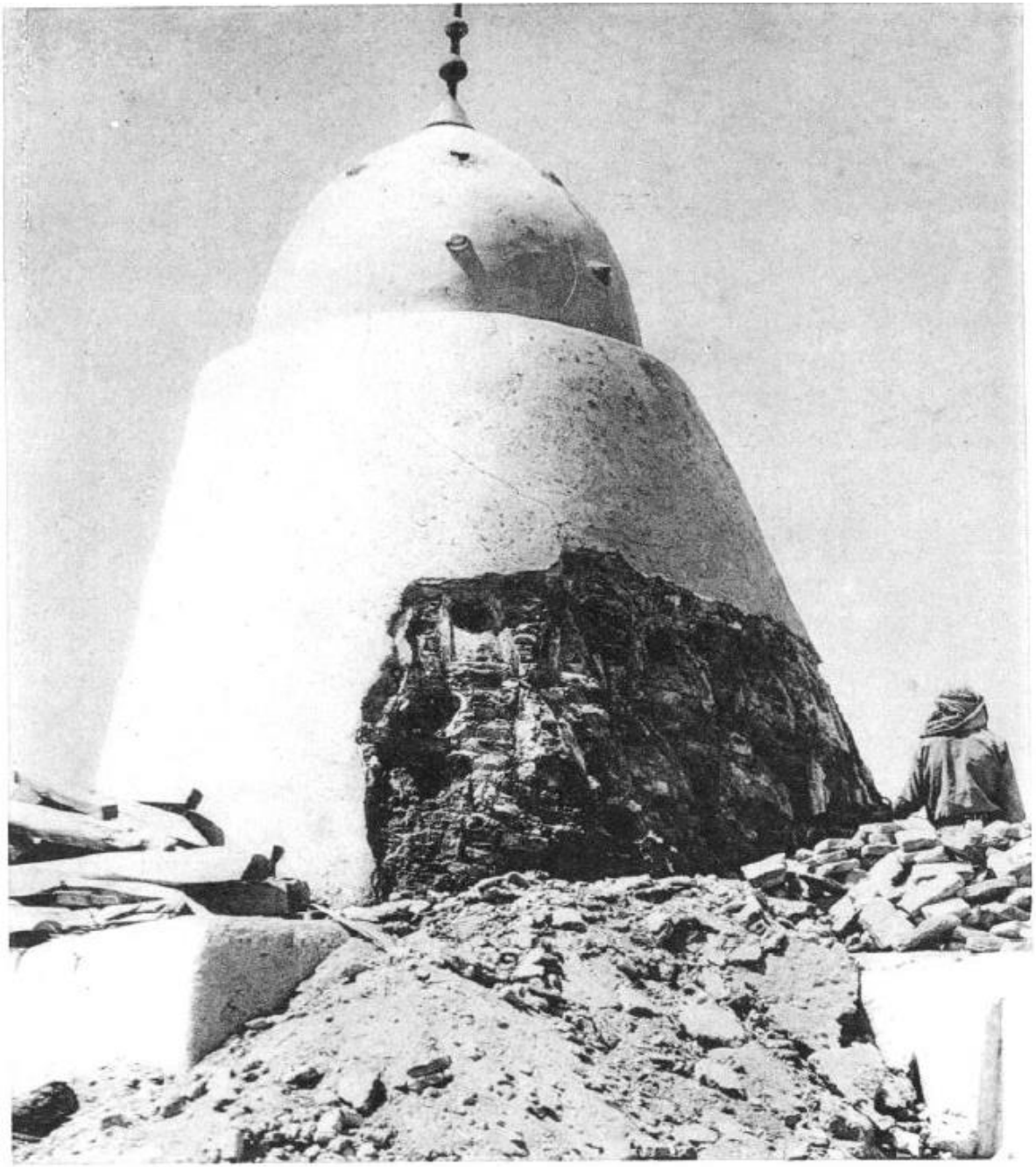


Herzfeld, 1942

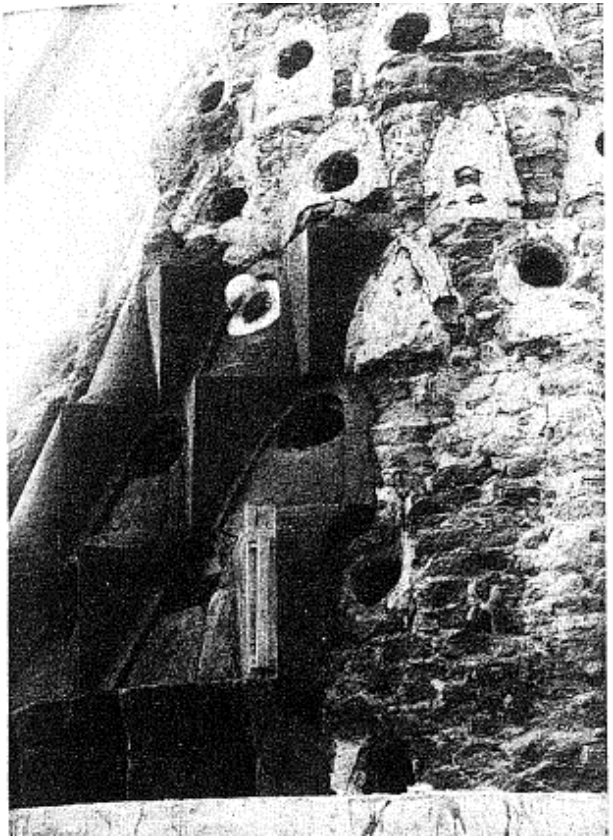


12. Le maristan de Nur al-din à Damas : portail

Ecochard , 1977 (adapted from)



Sauvaget, 1944



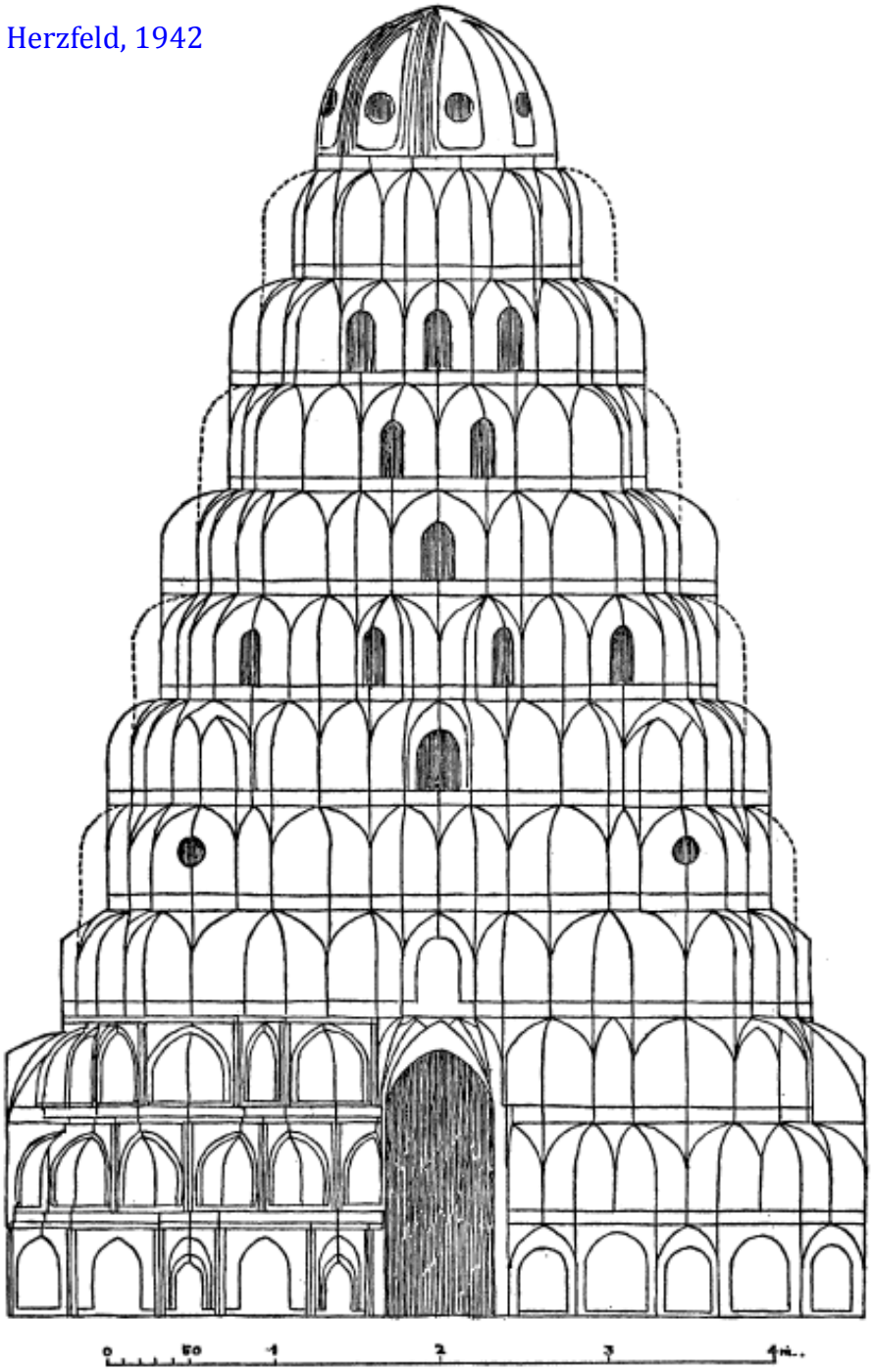
Ecochard, 1985

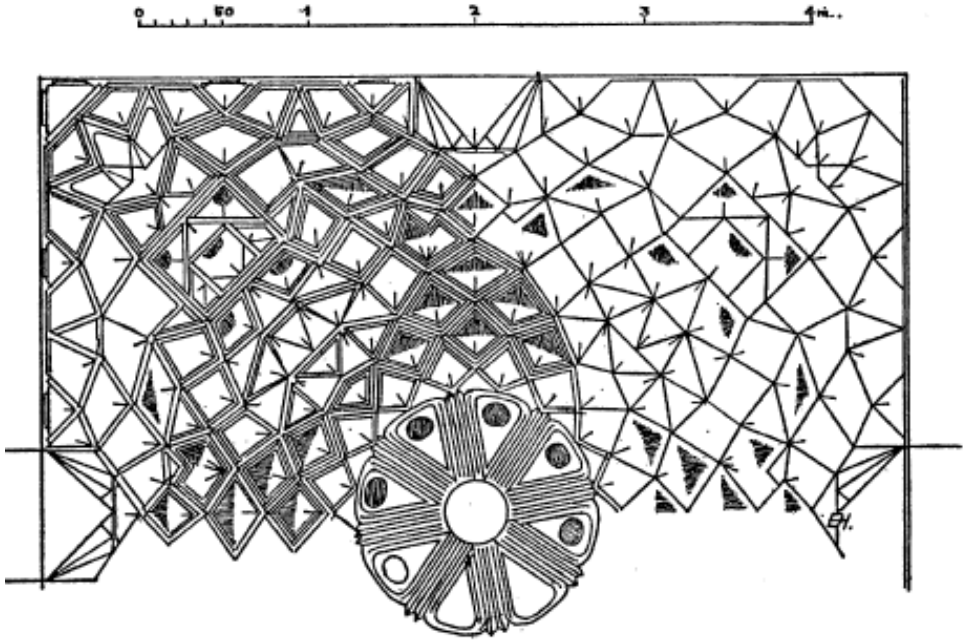
13. Maristan de Nur al-din à Damas : couverture primitive restaurée

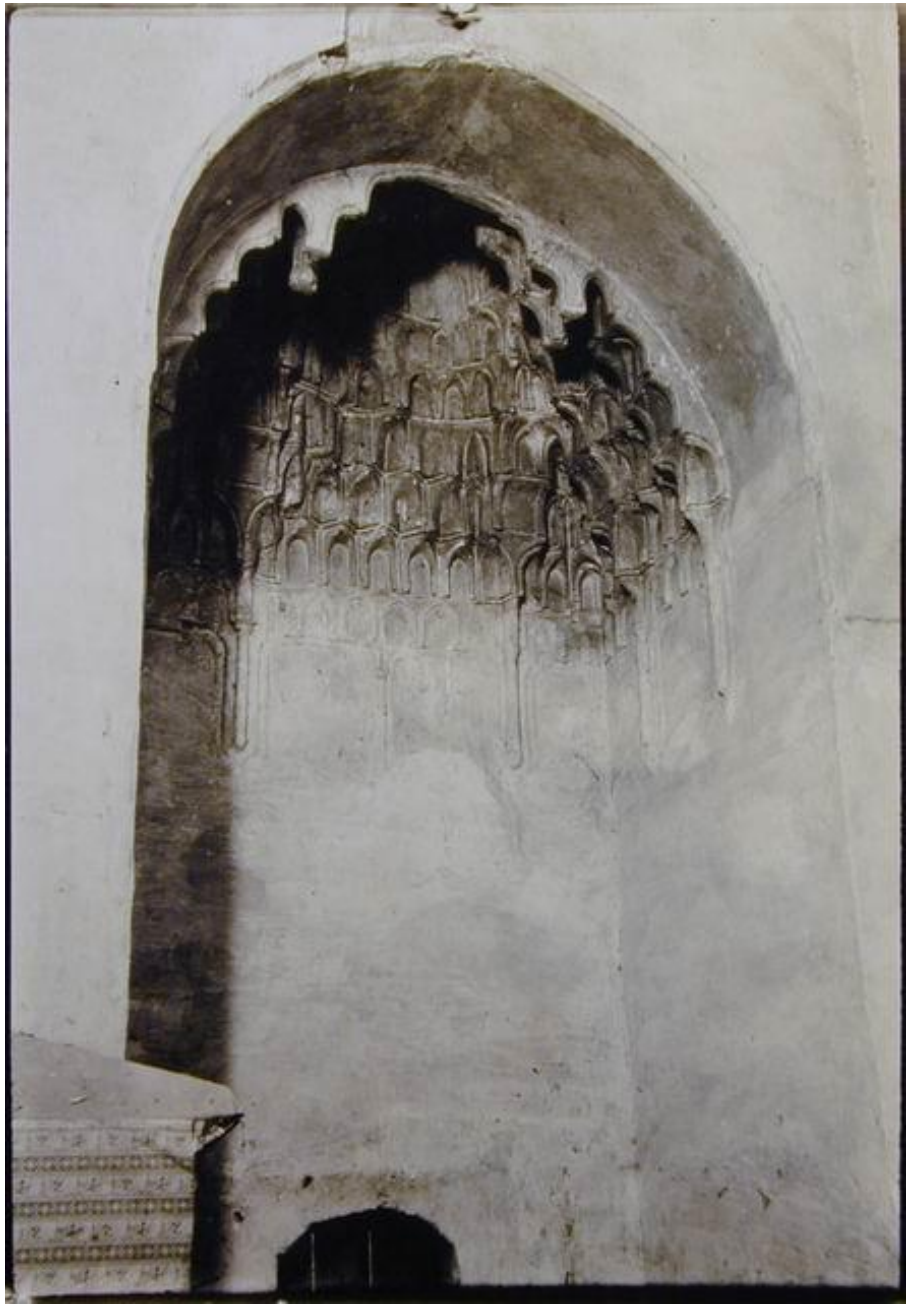
Ecochard , 1977

Allen, 1999

Herzfeld, 1942







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Stierling, 2002

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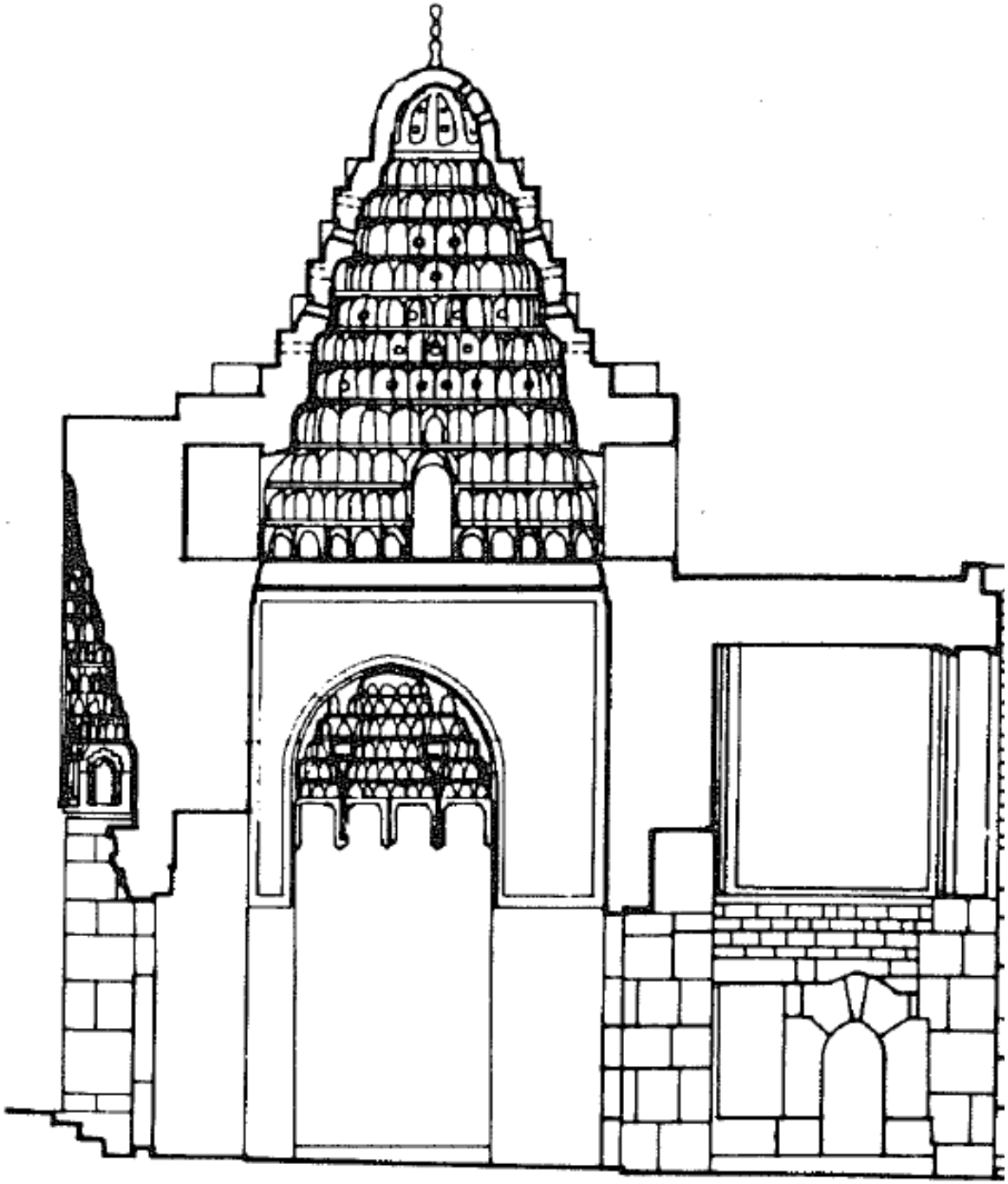
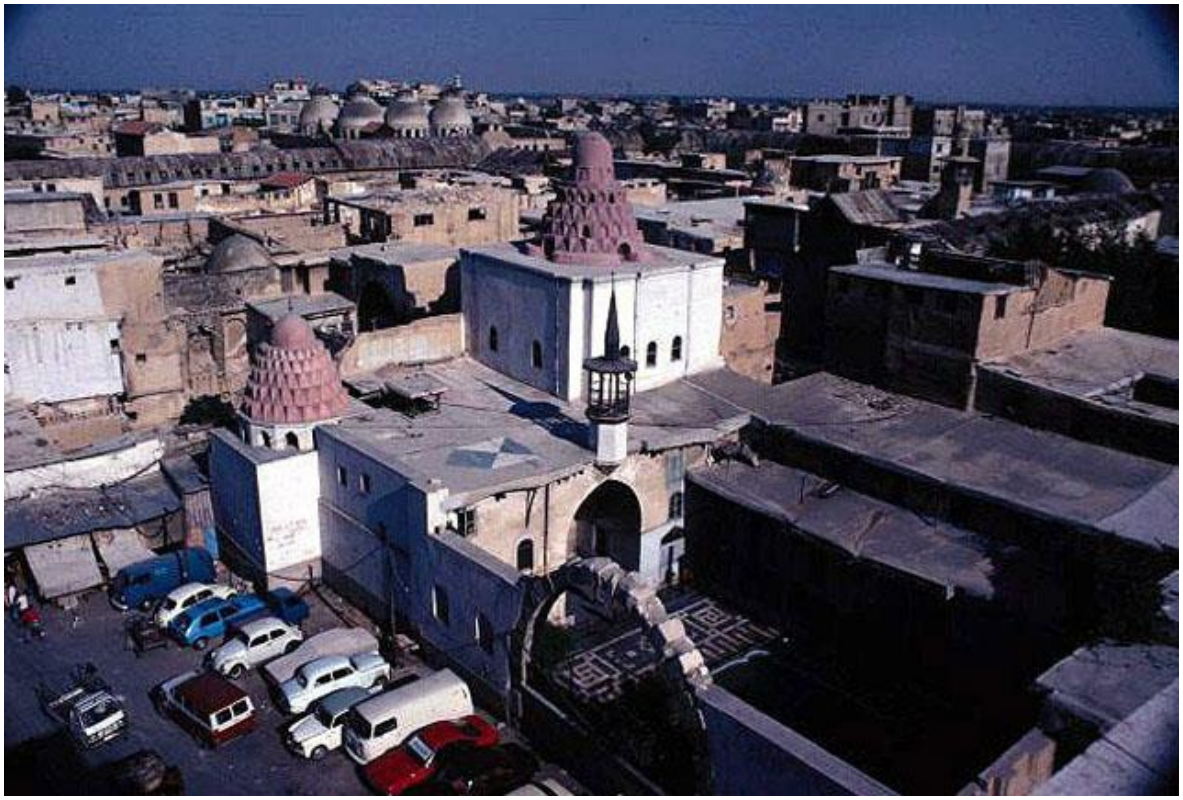
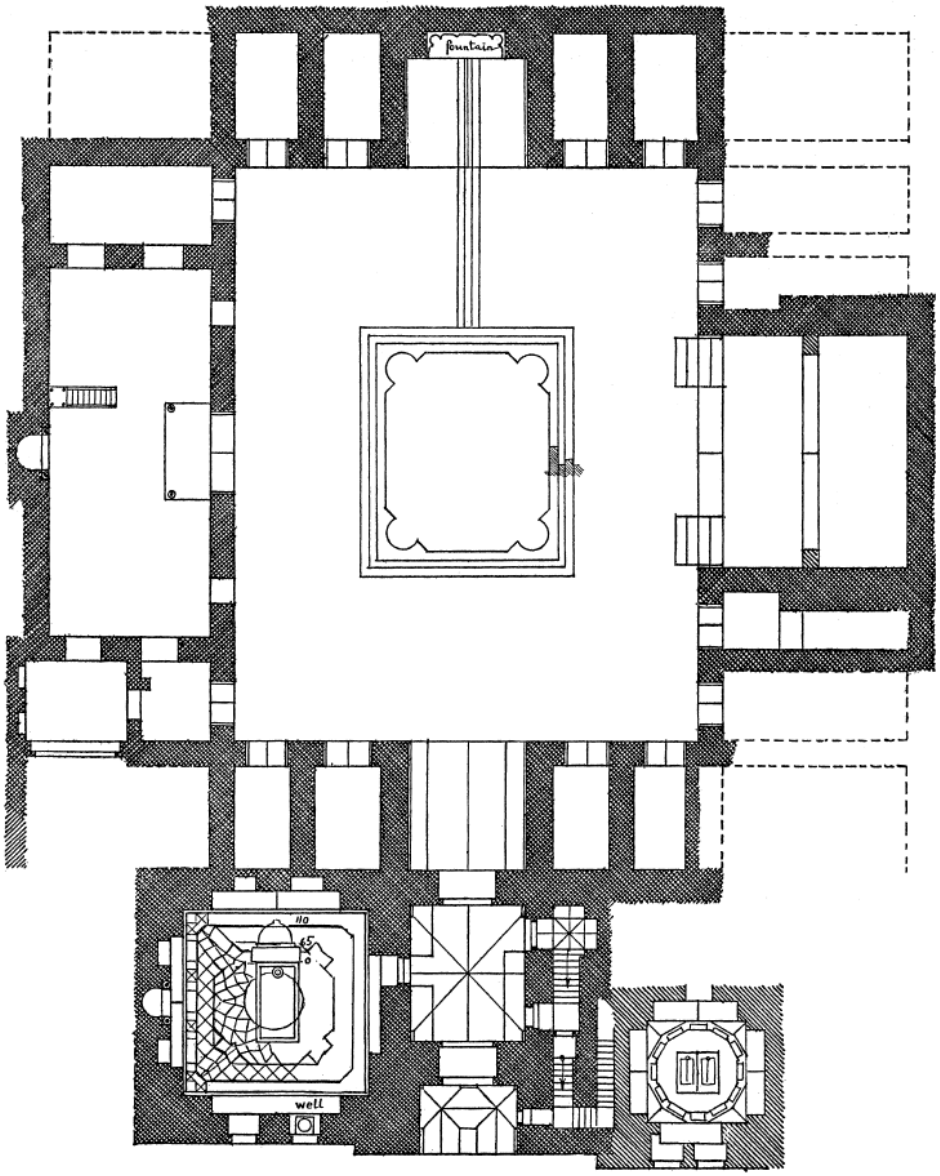


Ecochard , 1985

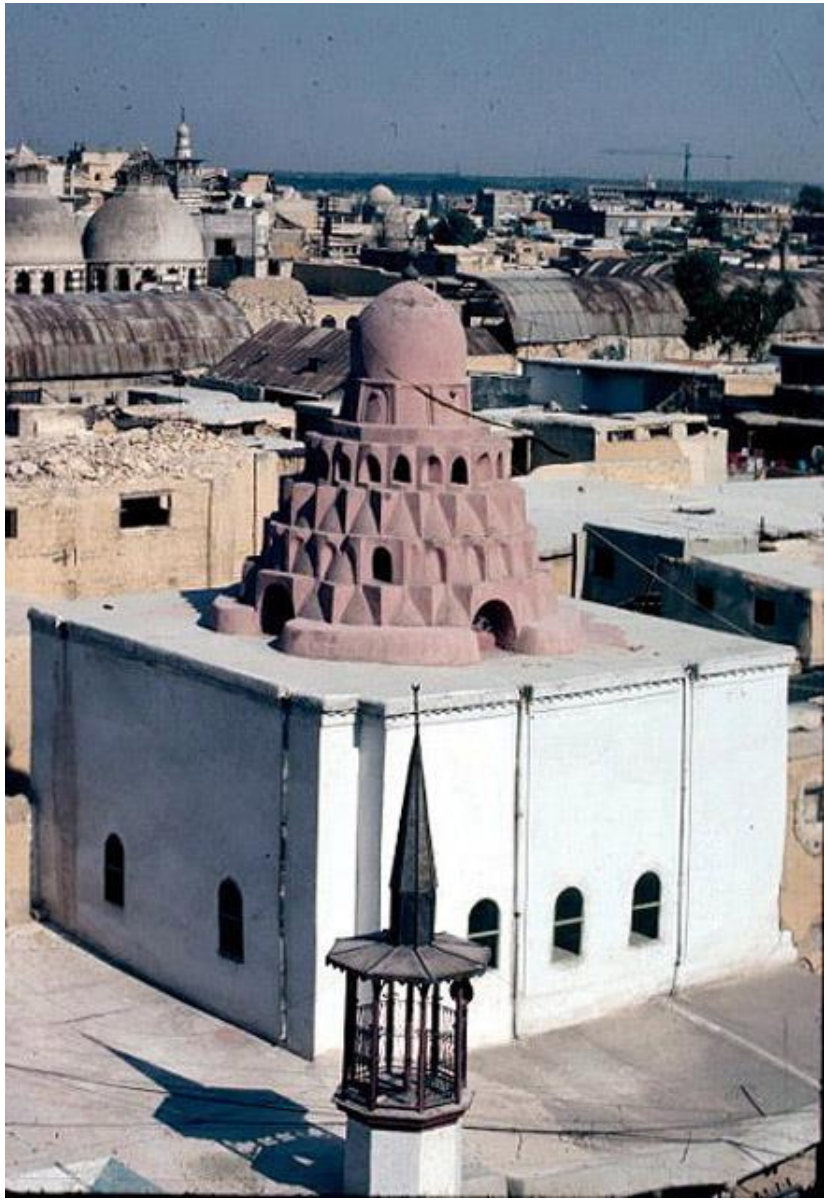
Copyright: Y. Tabbaa, Source Archnet.org



Madrasa Nūriyya, Damascus



Herzfeld, 1942



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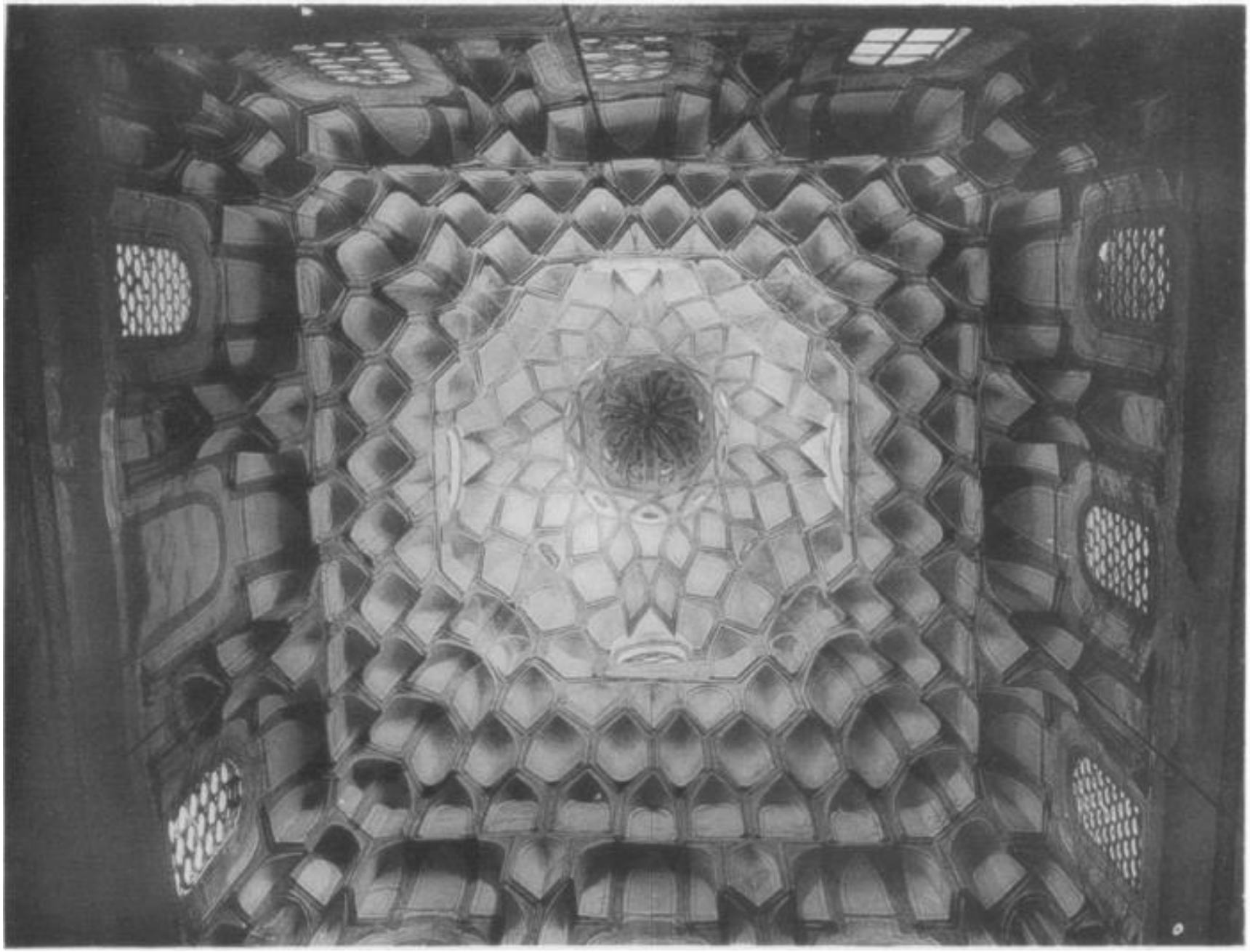
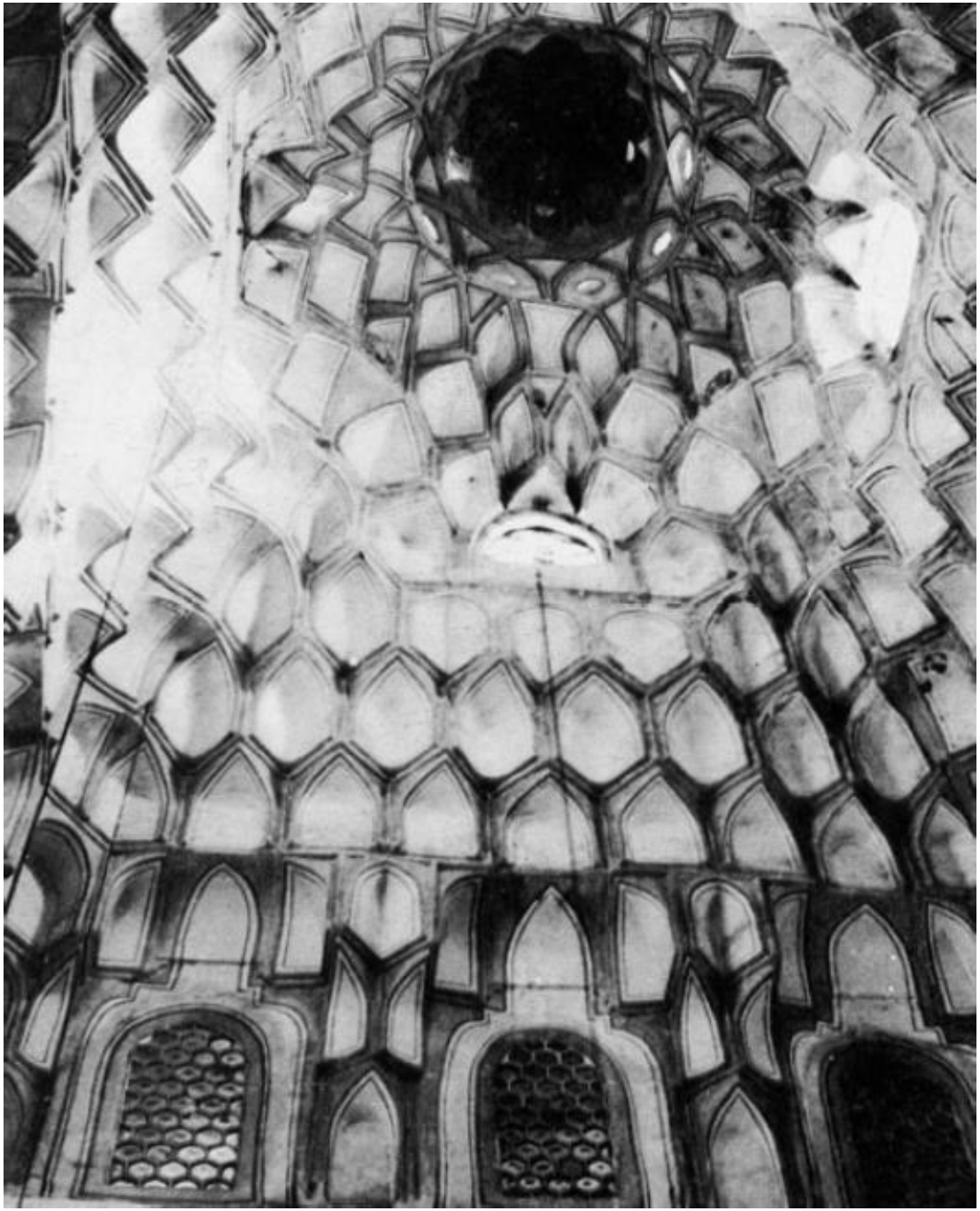


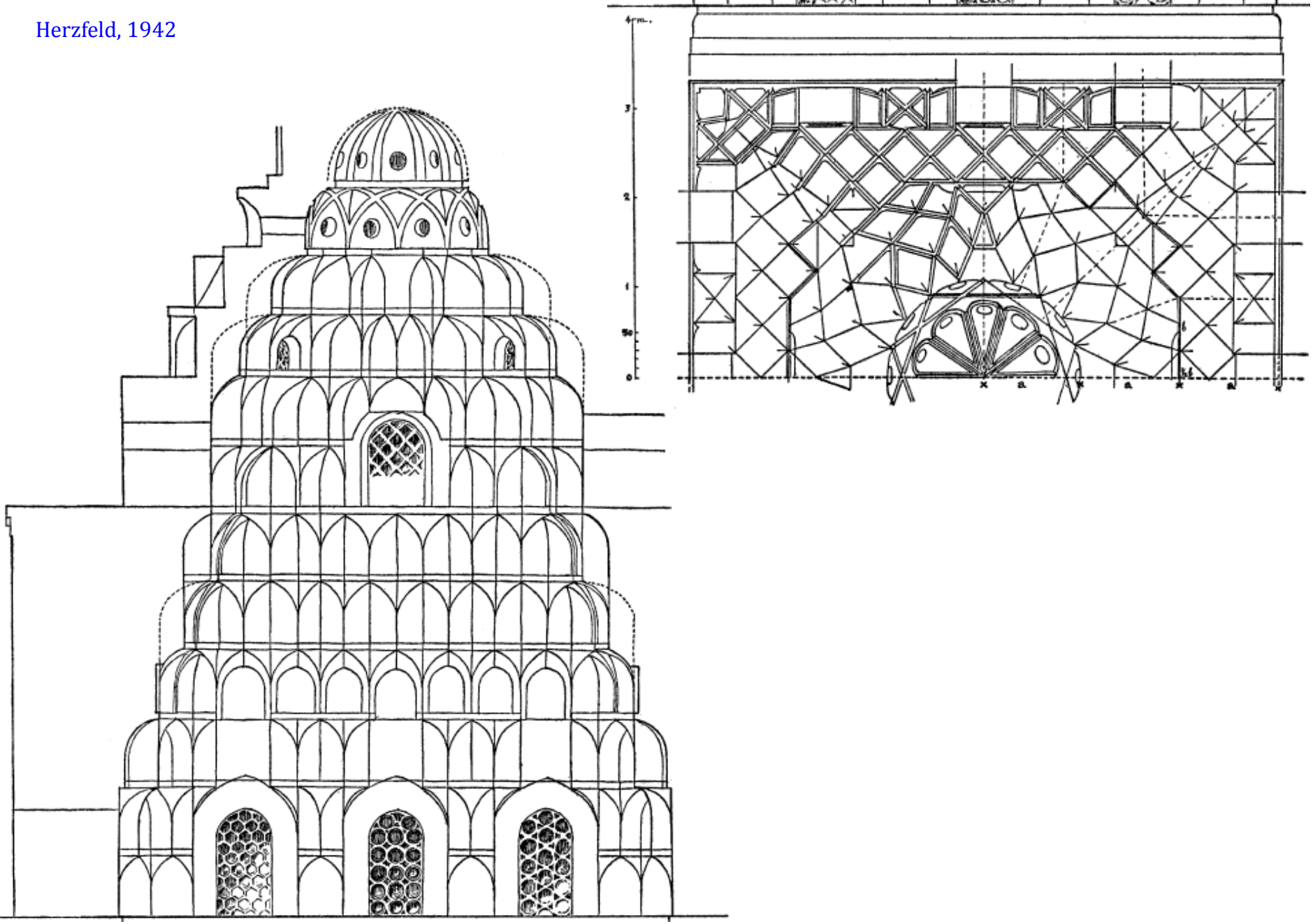
Herzfeld, 1942

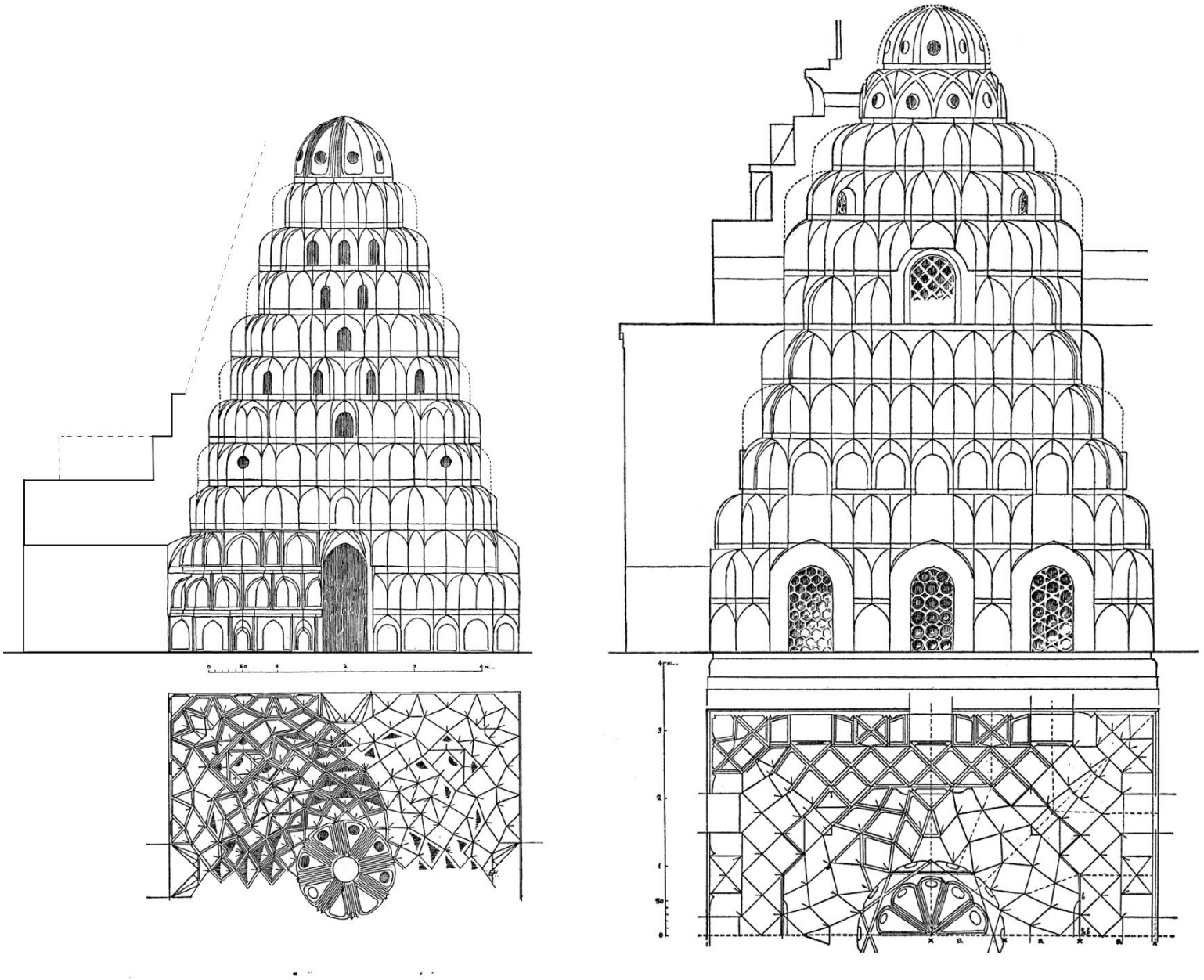
Copyright: Y. Tabbaa, Source Archnet.org



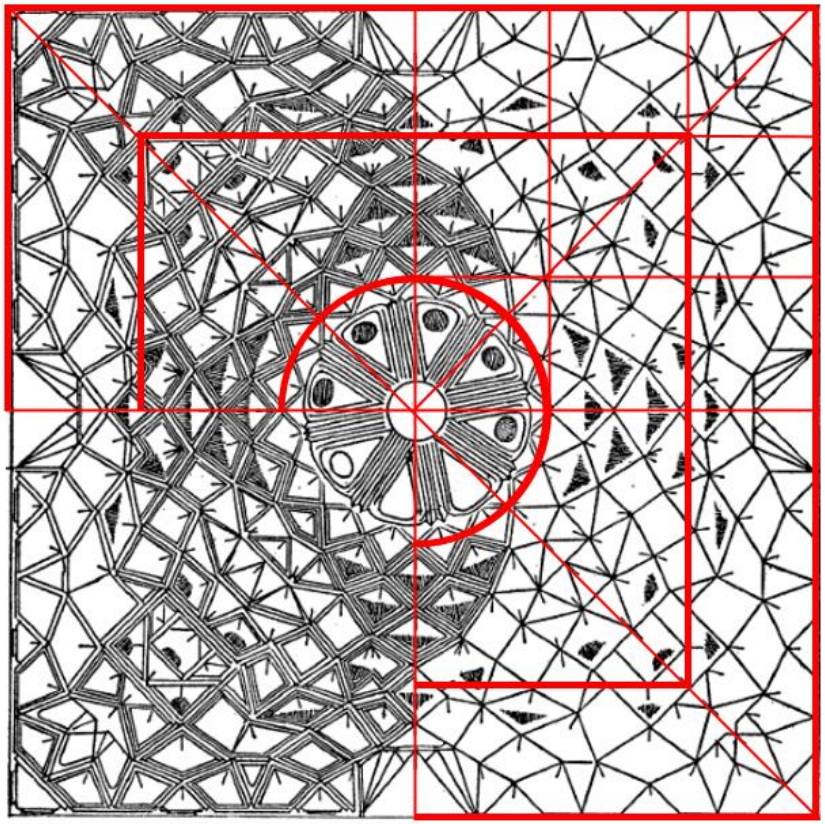
Hoag, 1975

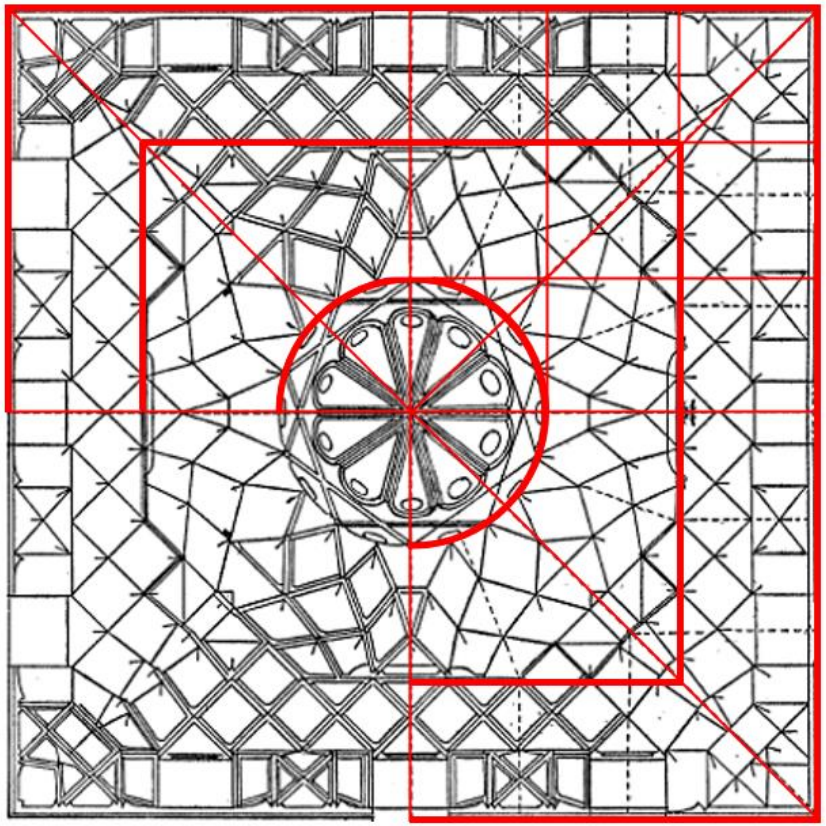
Herzfeld, 1942





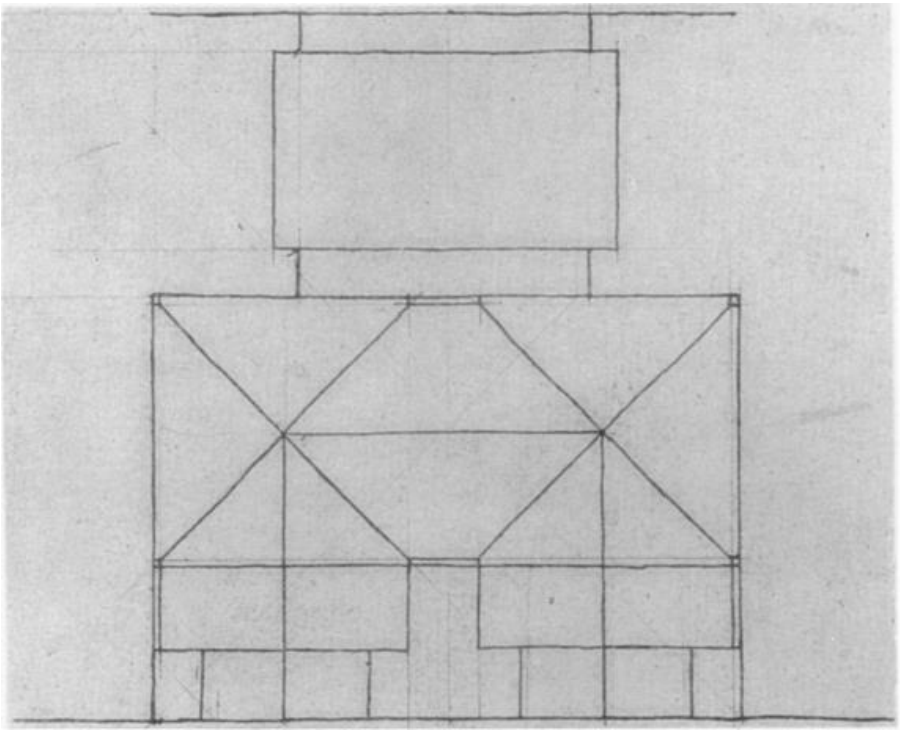
Herzfeld, 1942 (Adapted from)





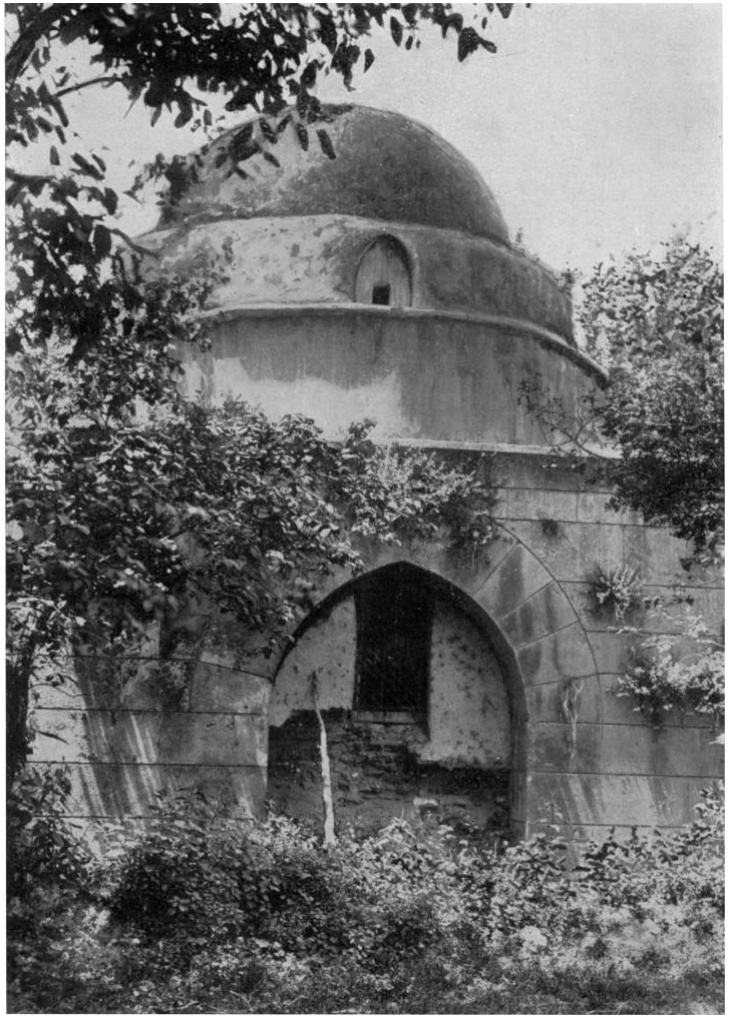
Herzfeld, 1942 (Adapted from)

Allen, 1999

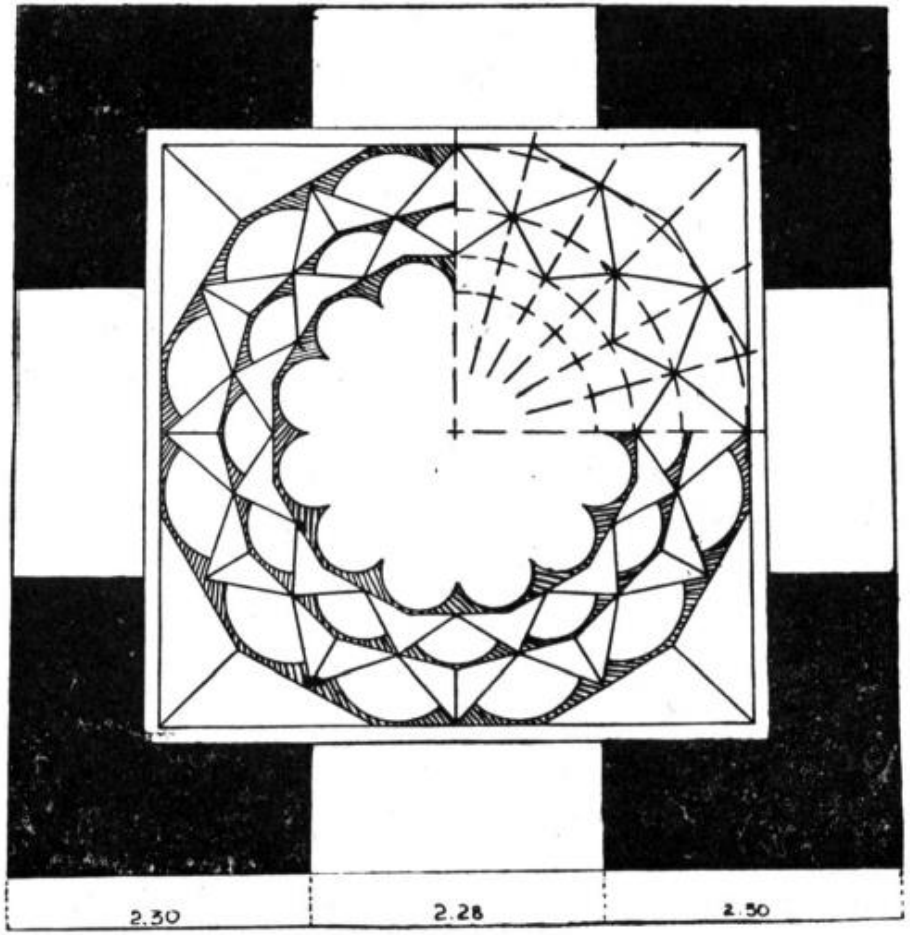


Herzfeld, 1942

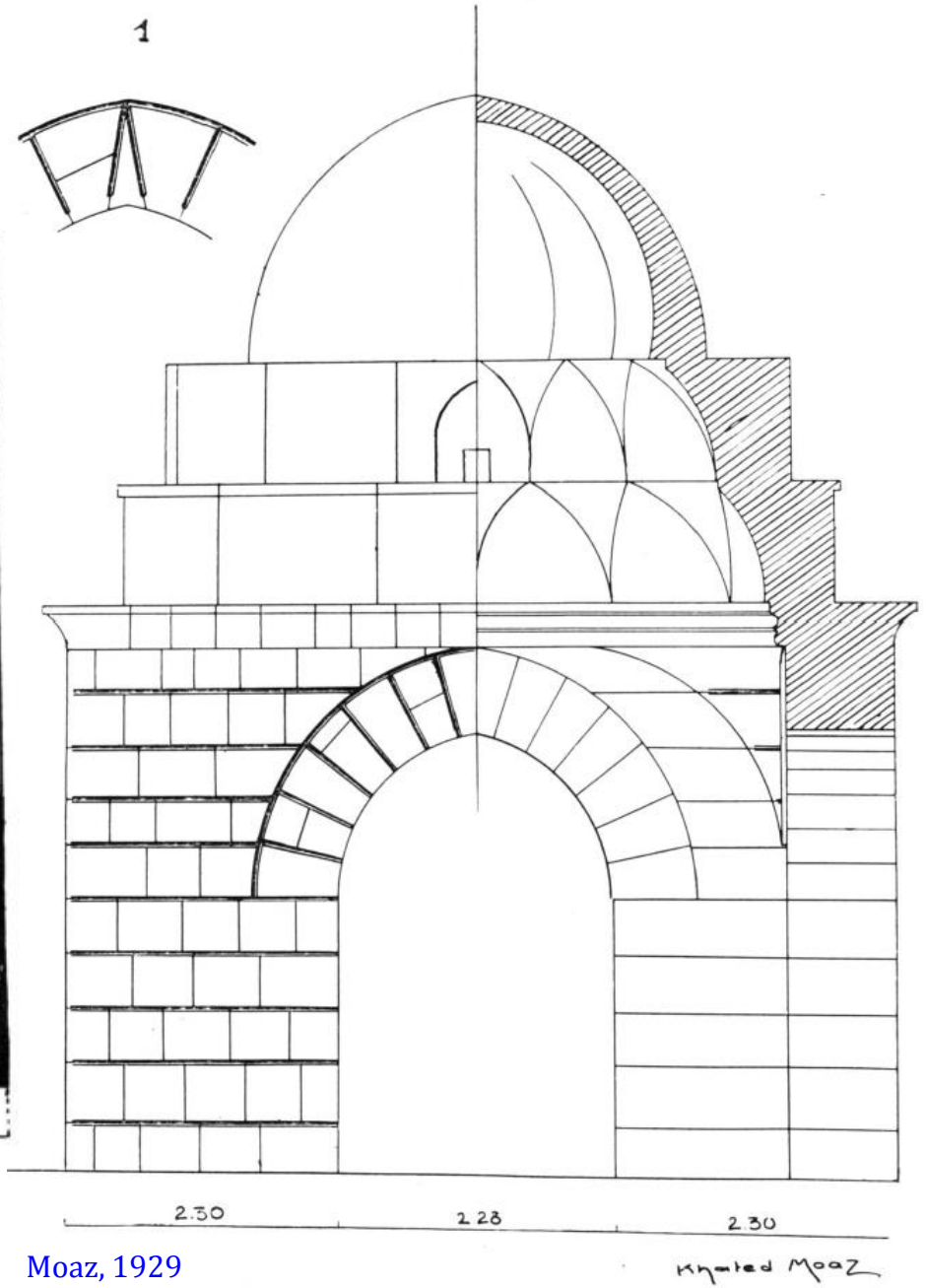
Moaz, 1929



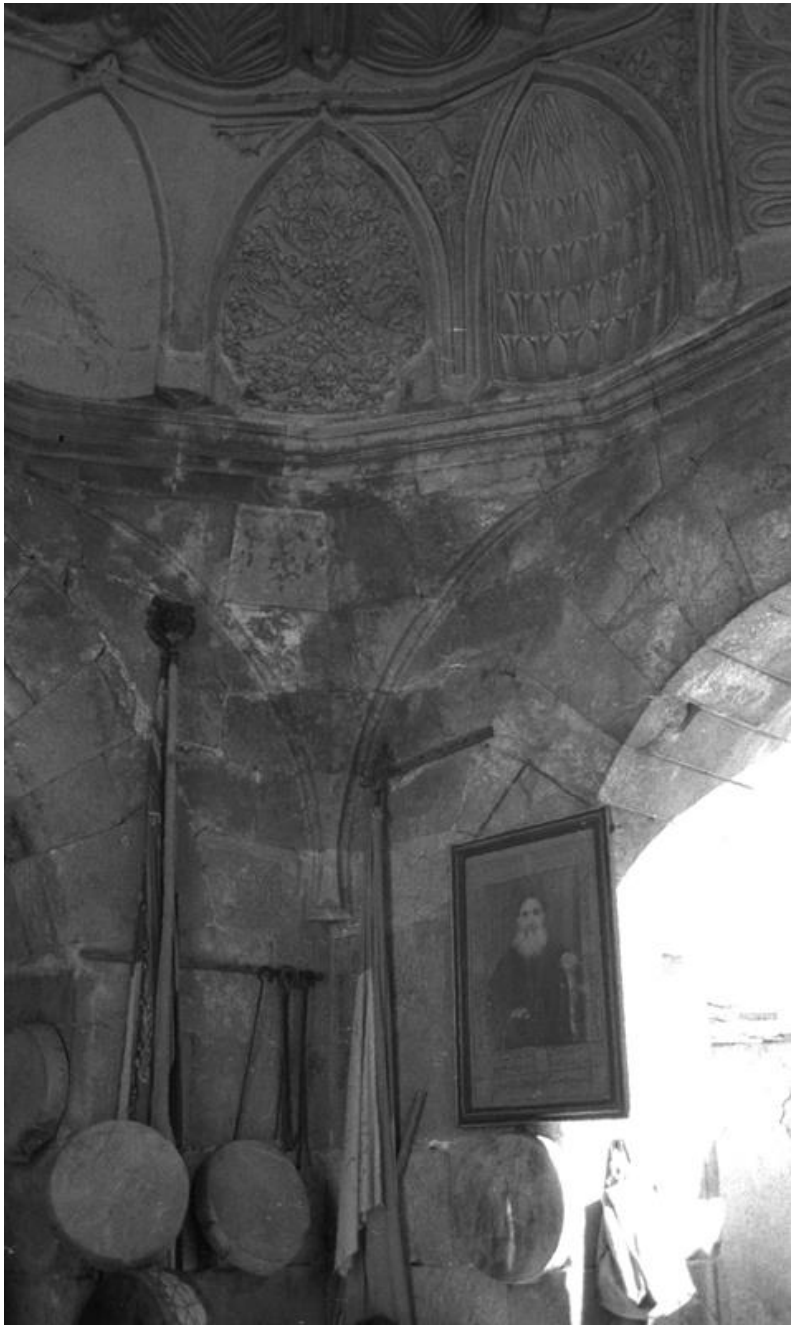
Mausoleum of Ibn al-Muqaddam, Damascus



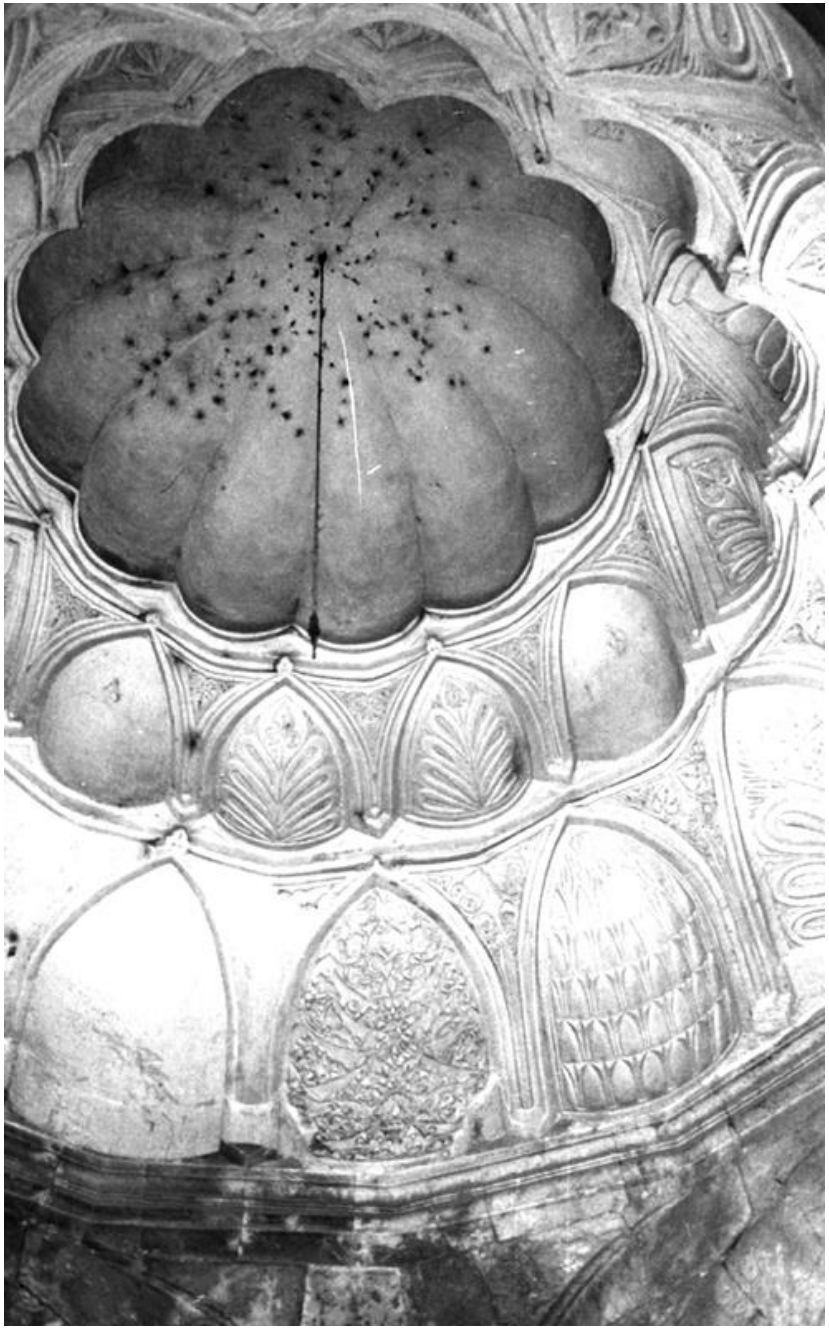
Moaz, 1929



Moaz, 1929



Allen, 1999

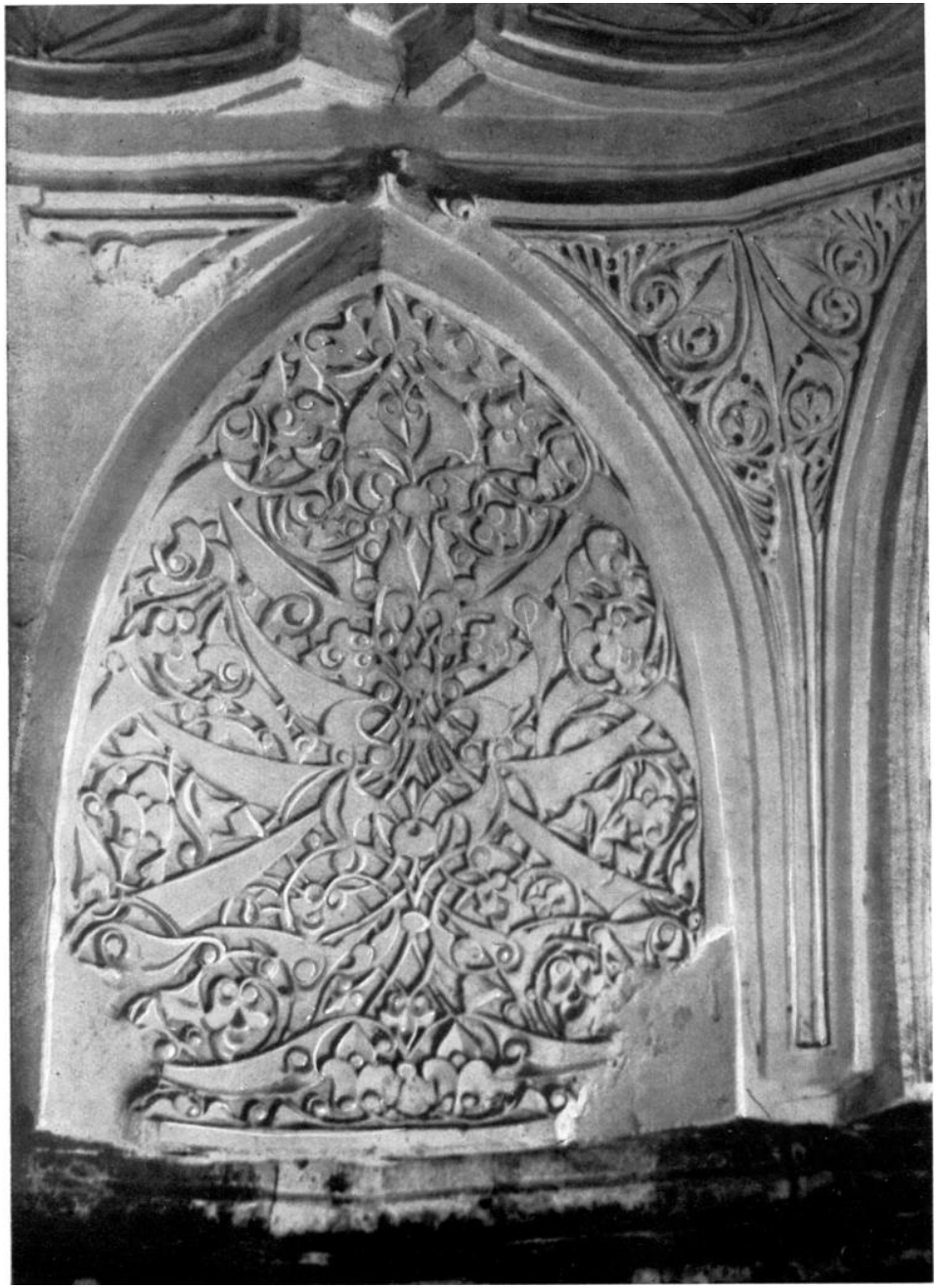


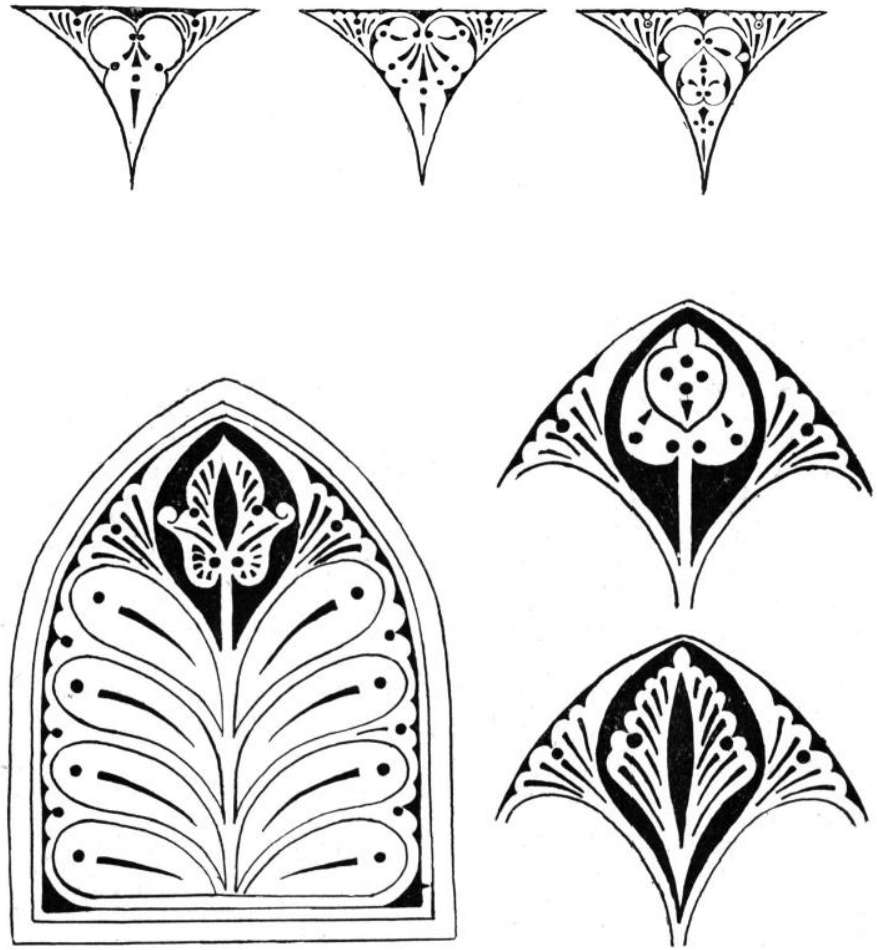
Allen, 1999

Moaz, 1929

Moaz, 1929

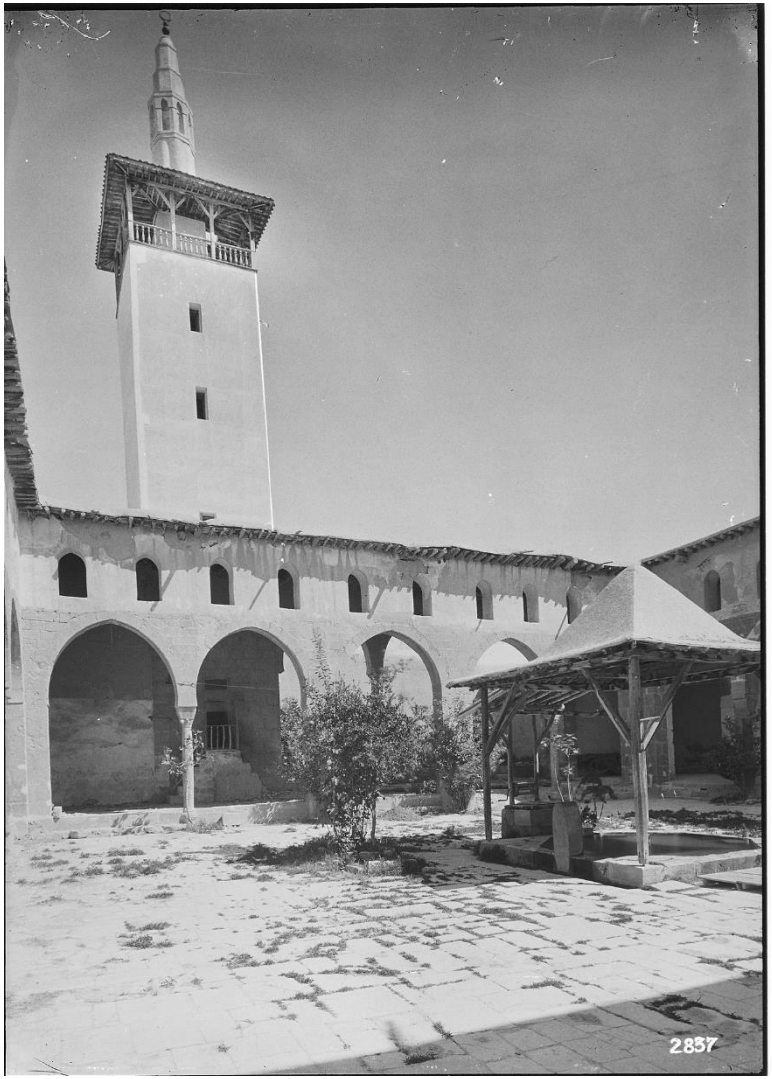
Moaz, 1929



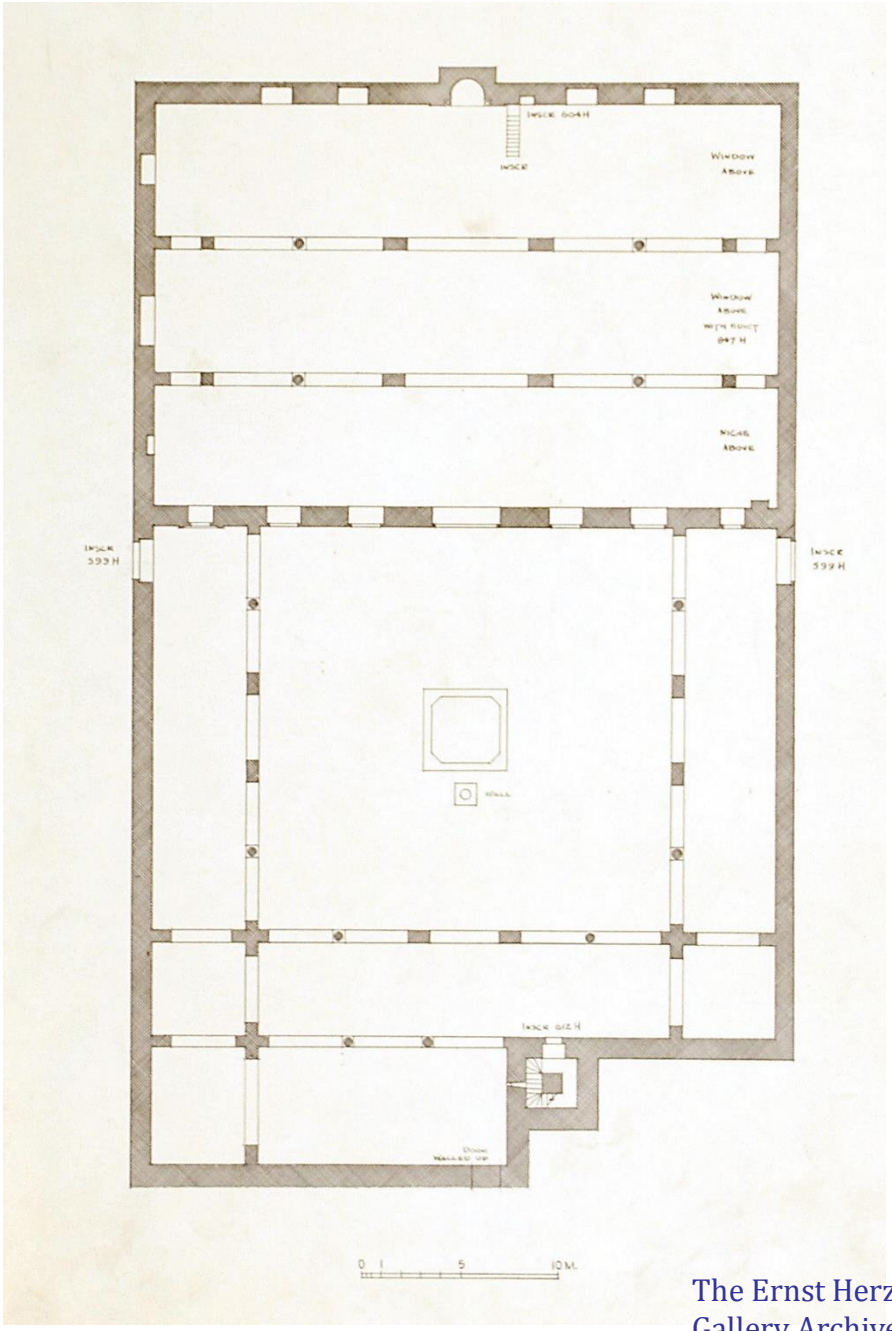


Moaz, 1929

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



The Mosque of the Ḥanbalīs or Muẓaffarī Mosque, Damascus



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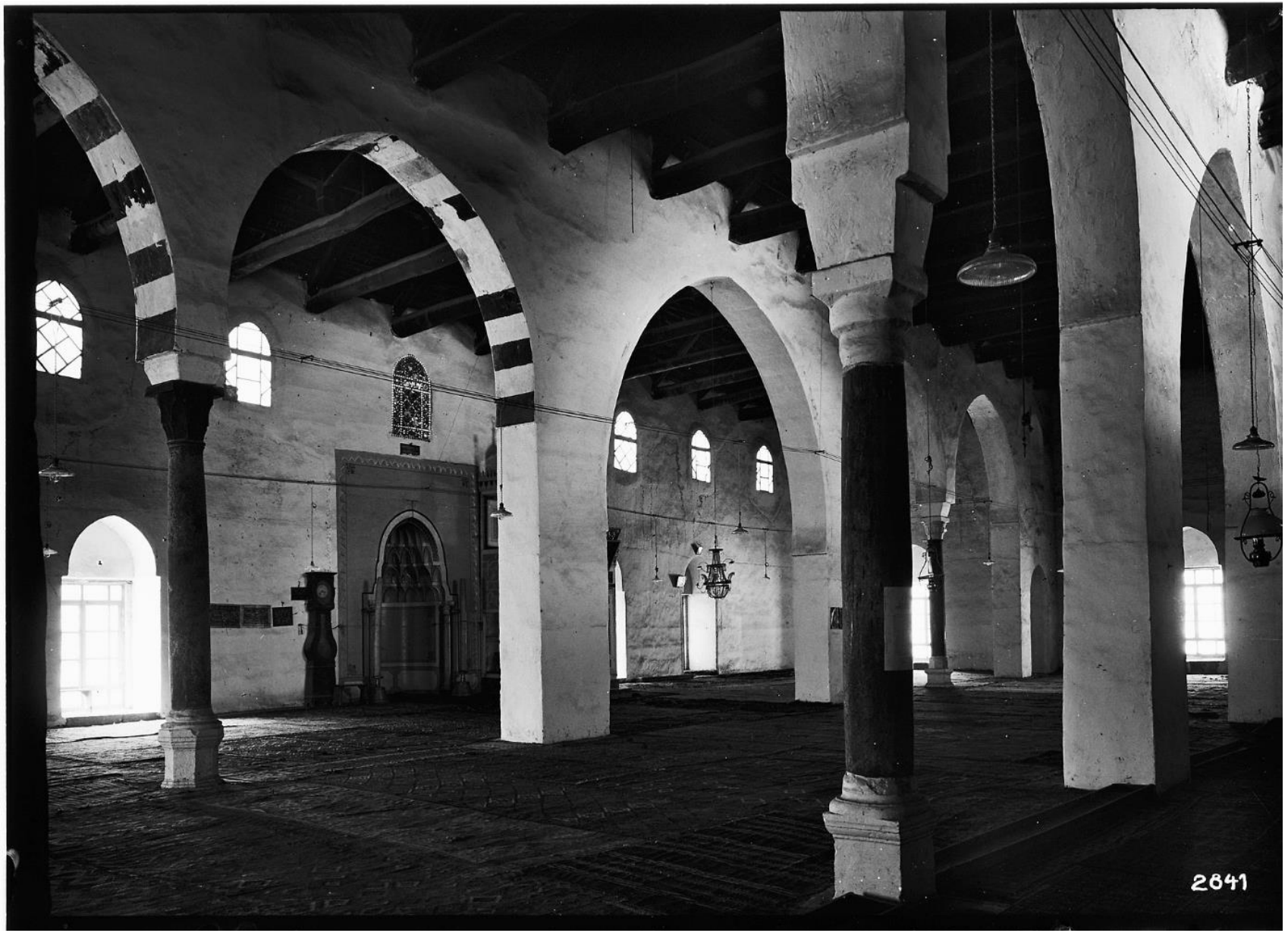

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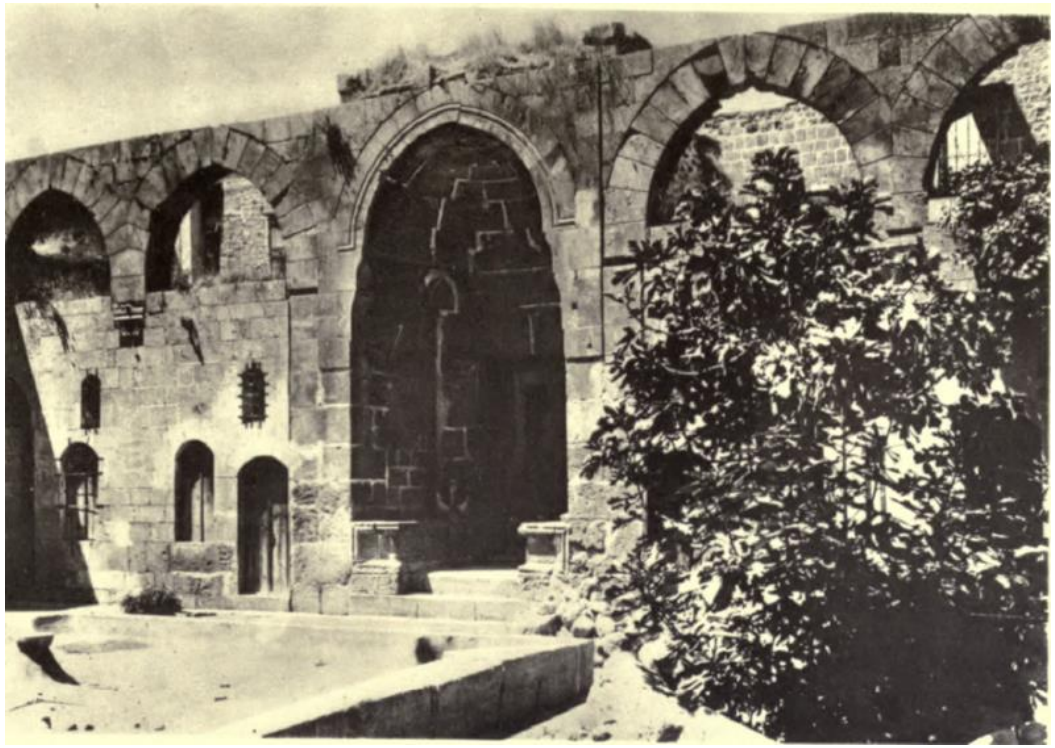
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

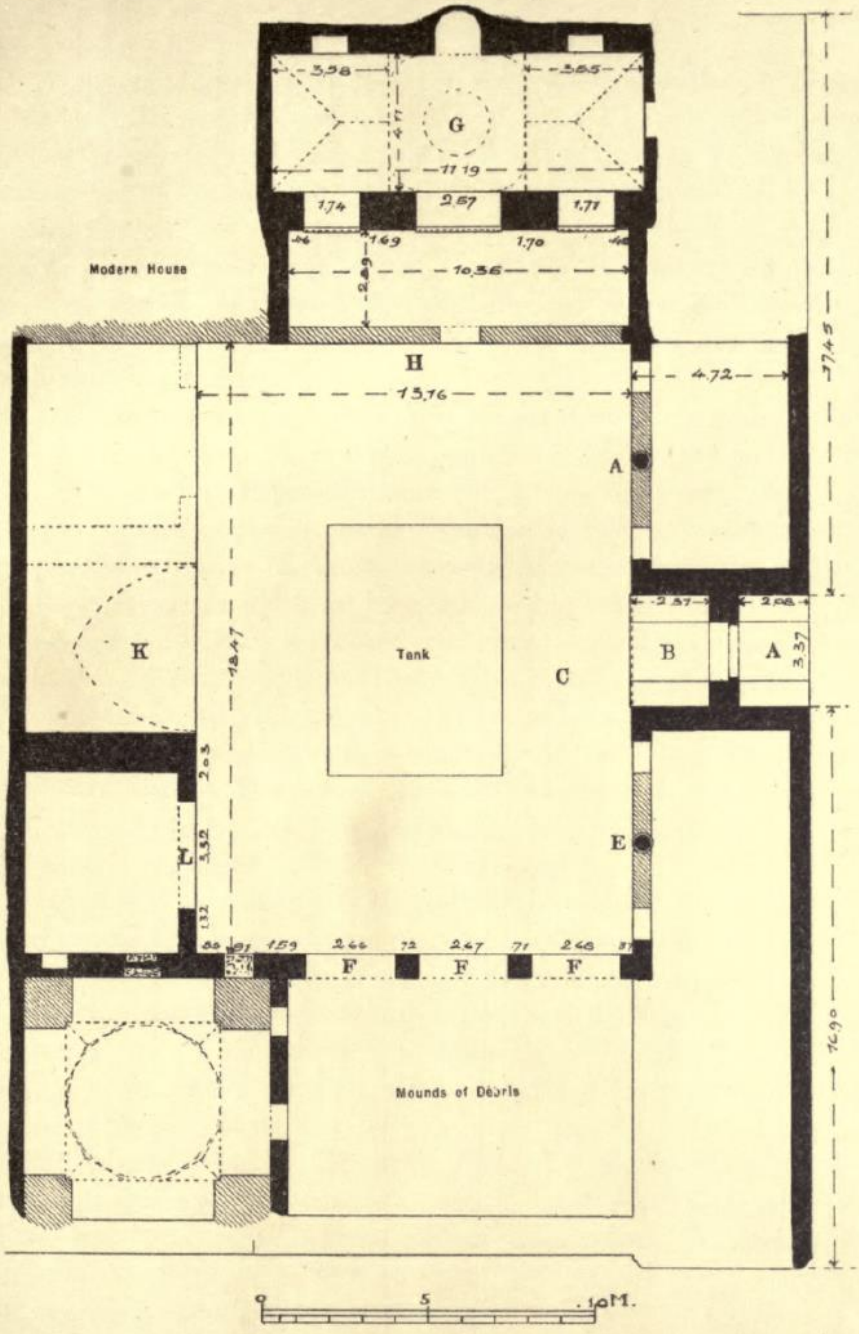
Herzfeld, 1948

Allen, 1999

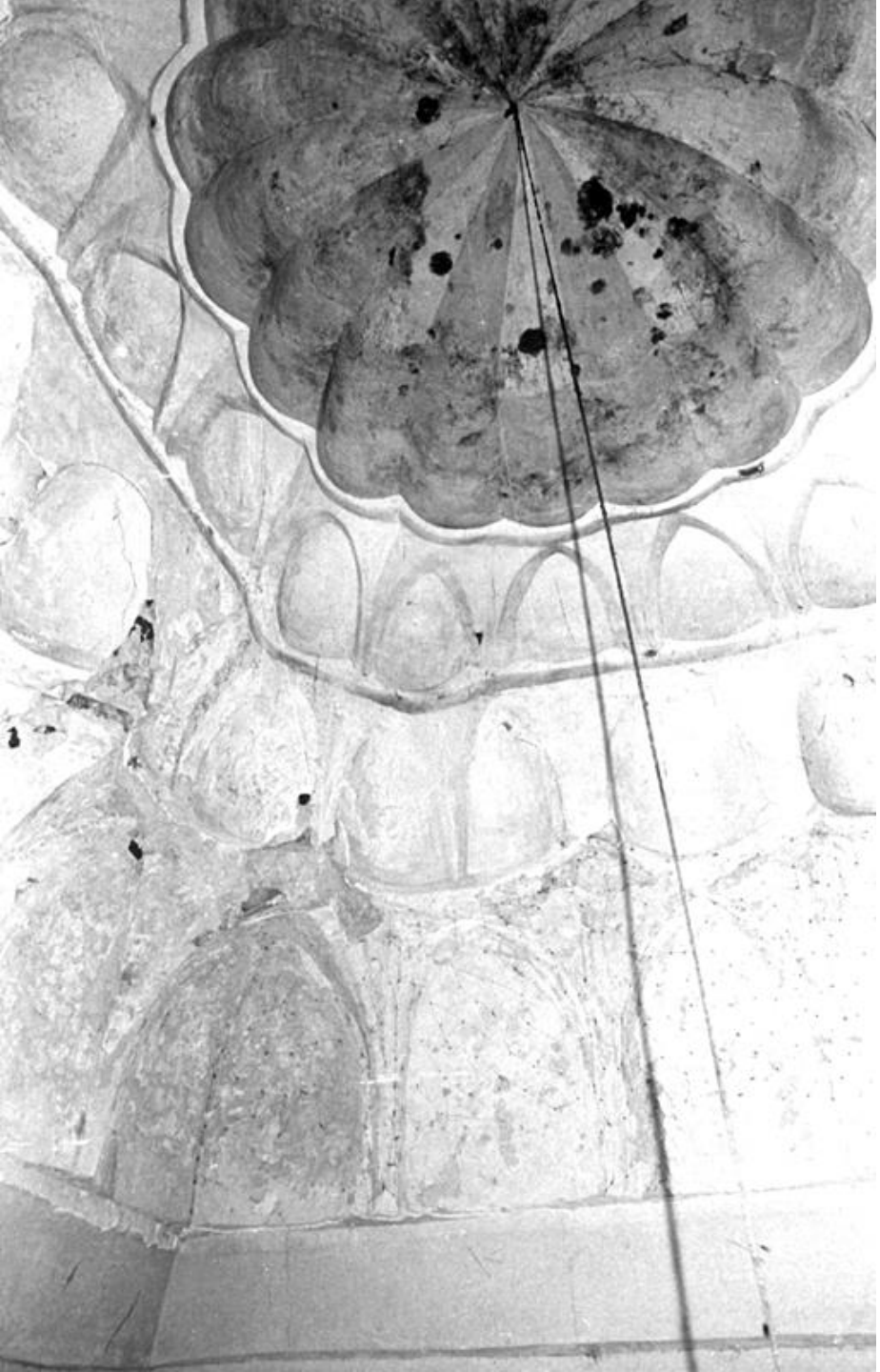
Creswell, 1922



The dome of the mosque in the Madrasa Sharafiyya, Aleppo



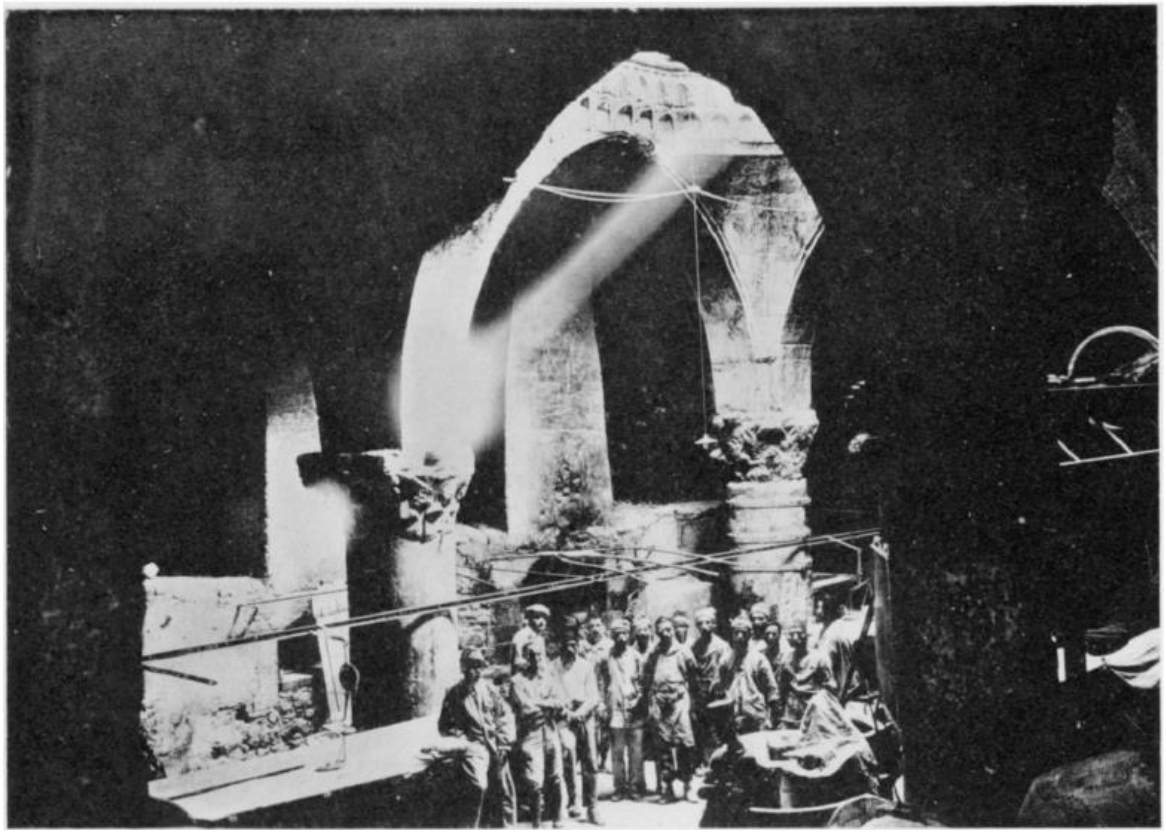
Creswell, 1922



Allen 1999

Allen 1999

Sauvaget, 1930



The Damascus Citadel

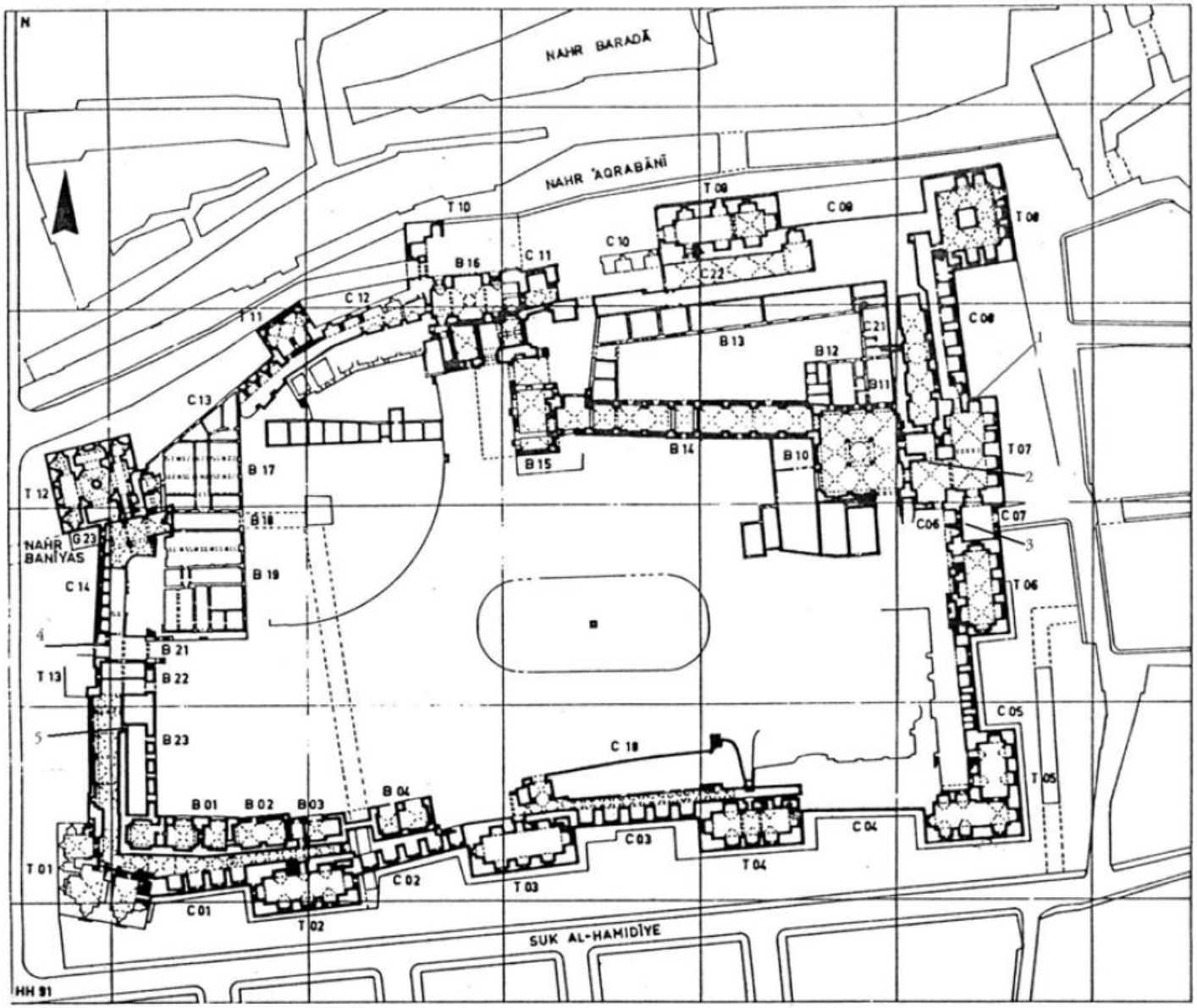
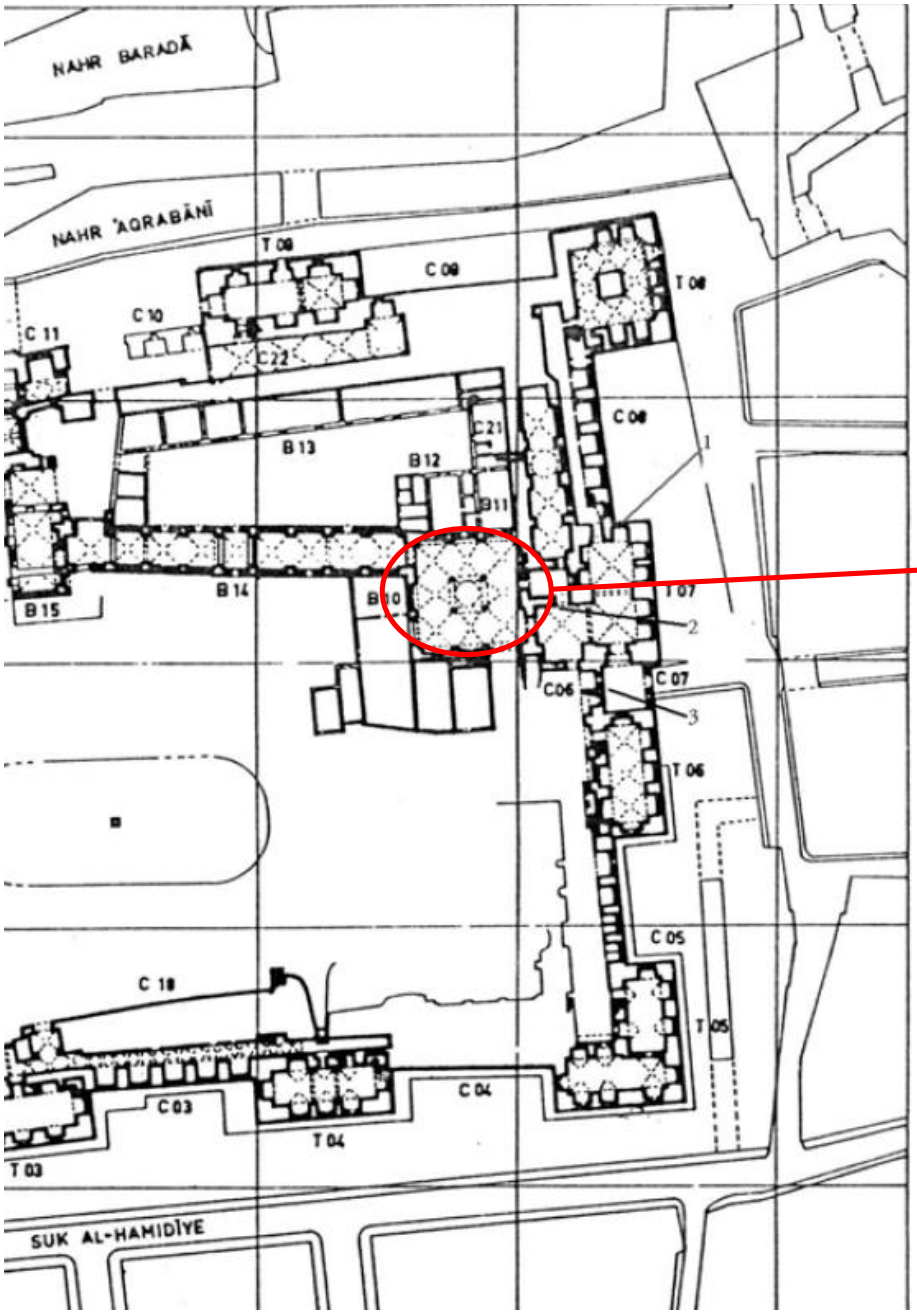
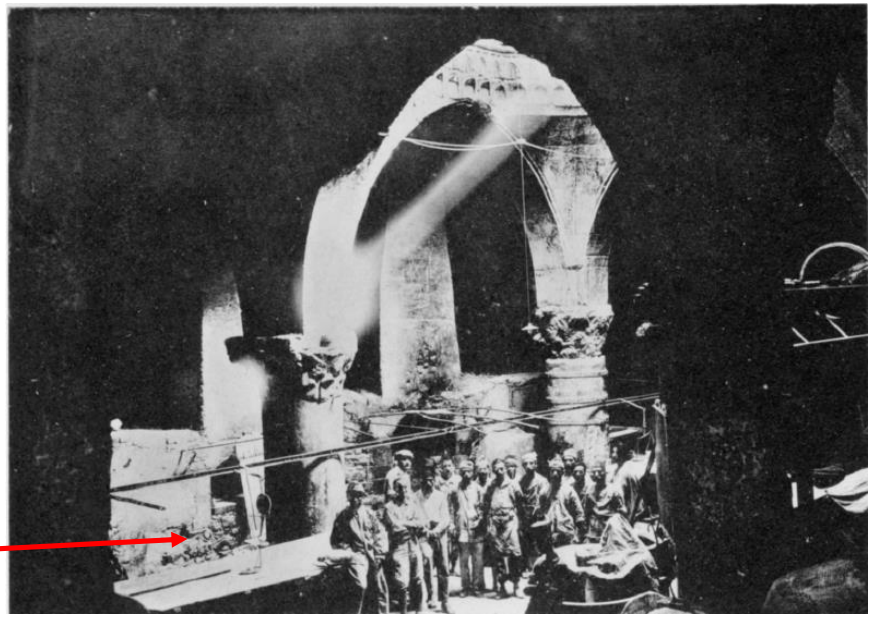


Abb. 1: Damaskus, Zitadelle, Lageplan M. 1:2000

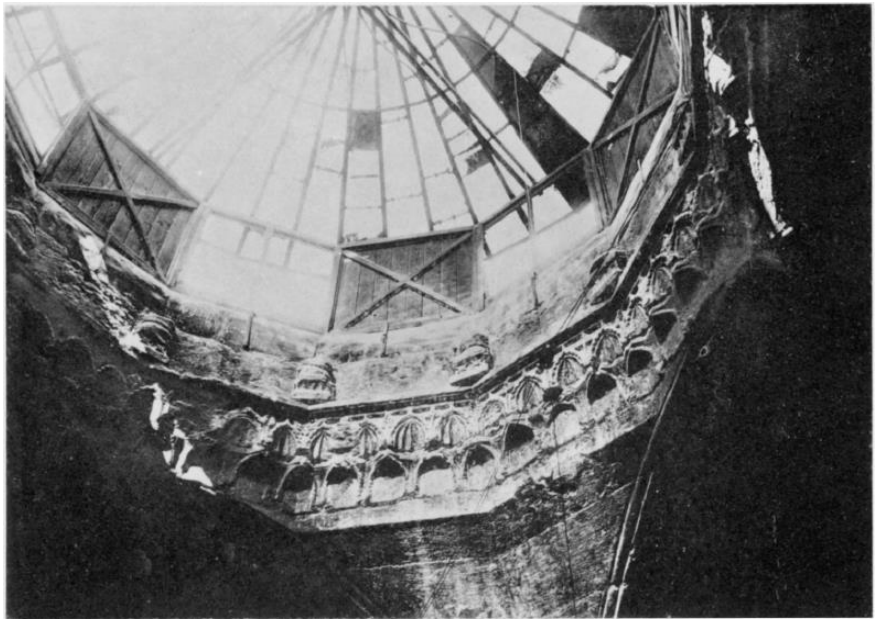
Hanisch, 1996



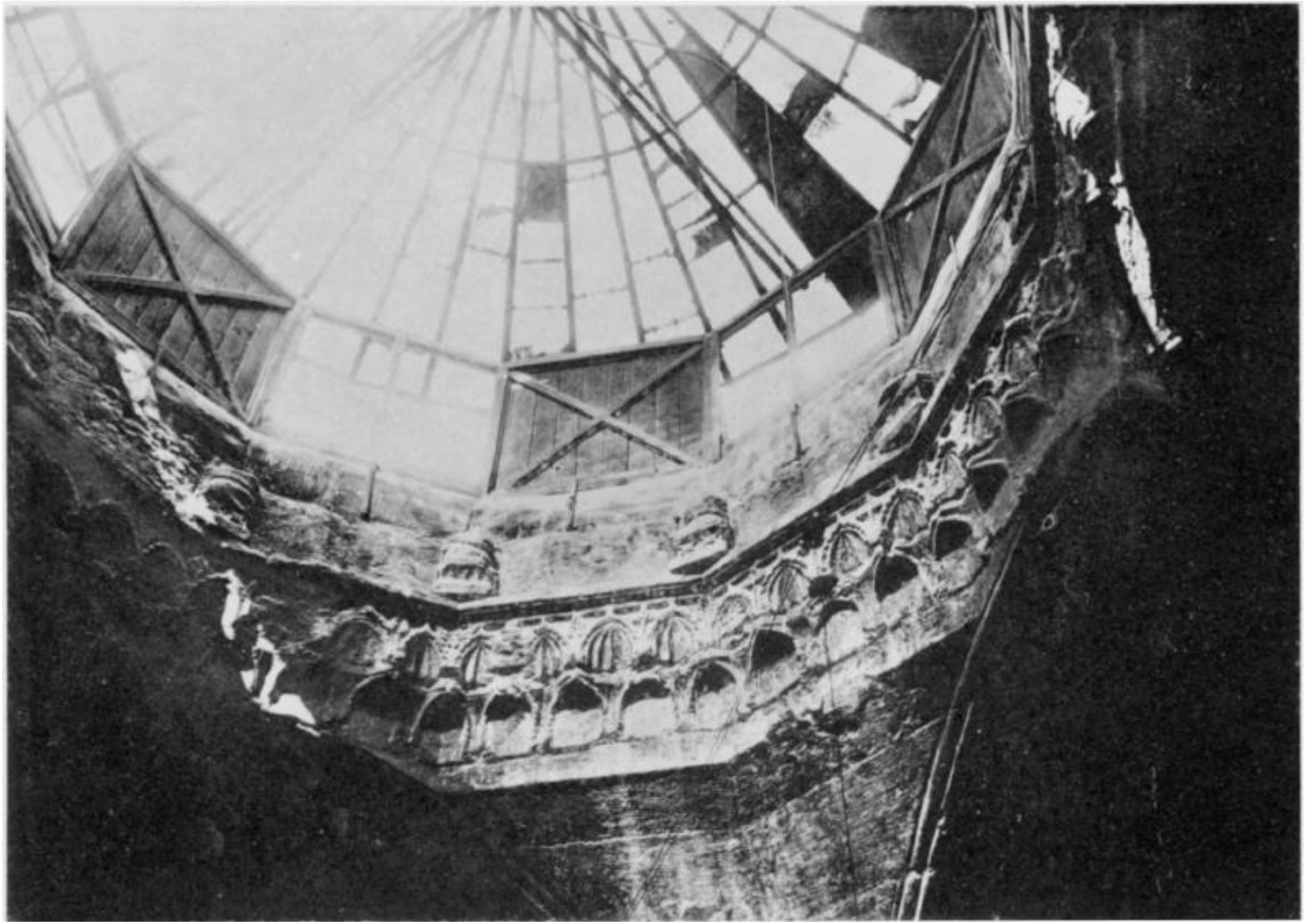
Adapted from Hanisch, 1996



Sauvaget, 1930



Sauvaget, 1930



Sauvaget, 1930

Boqvist, 2002

Allen, 1999

A capital in the Lower Maqām Ibrāhīm, Aleppo

Allen, 1999

Allen, 1999

Two corbels or consoles in the Upper Maqām Ibrāhīm, Aleppo

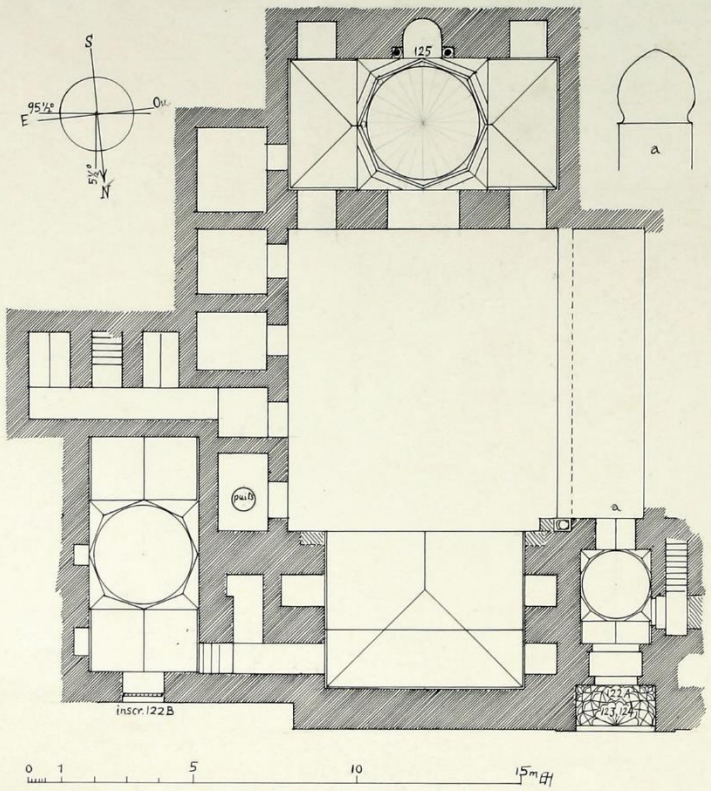
Allen, 1999

Allen, 1999

5. *Muqarnas* in Syria
The Stone Muqarnas Pendentive

Creswell, 1978

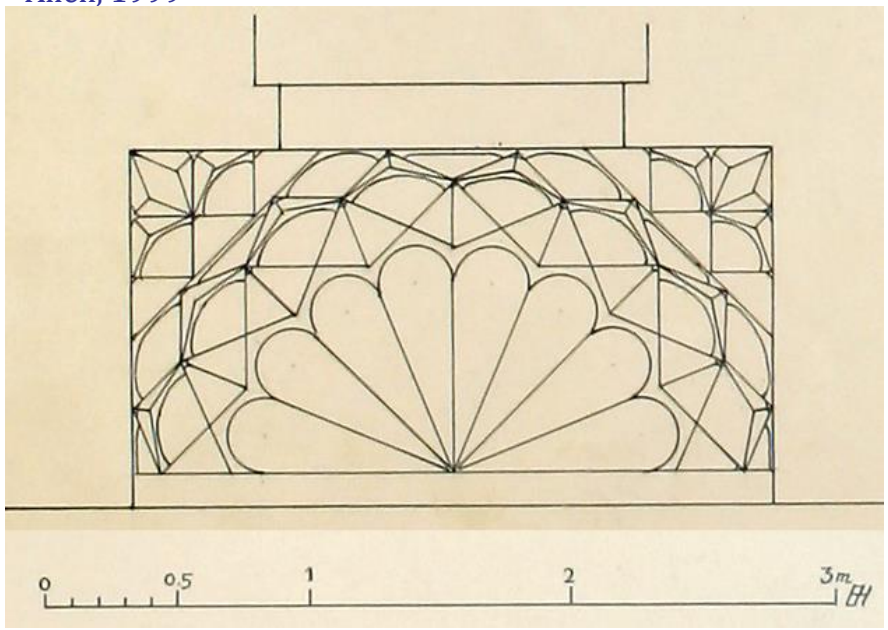
Pendentives in the portal of the Madrasa Shāḏbakhtiyya, Aleppo



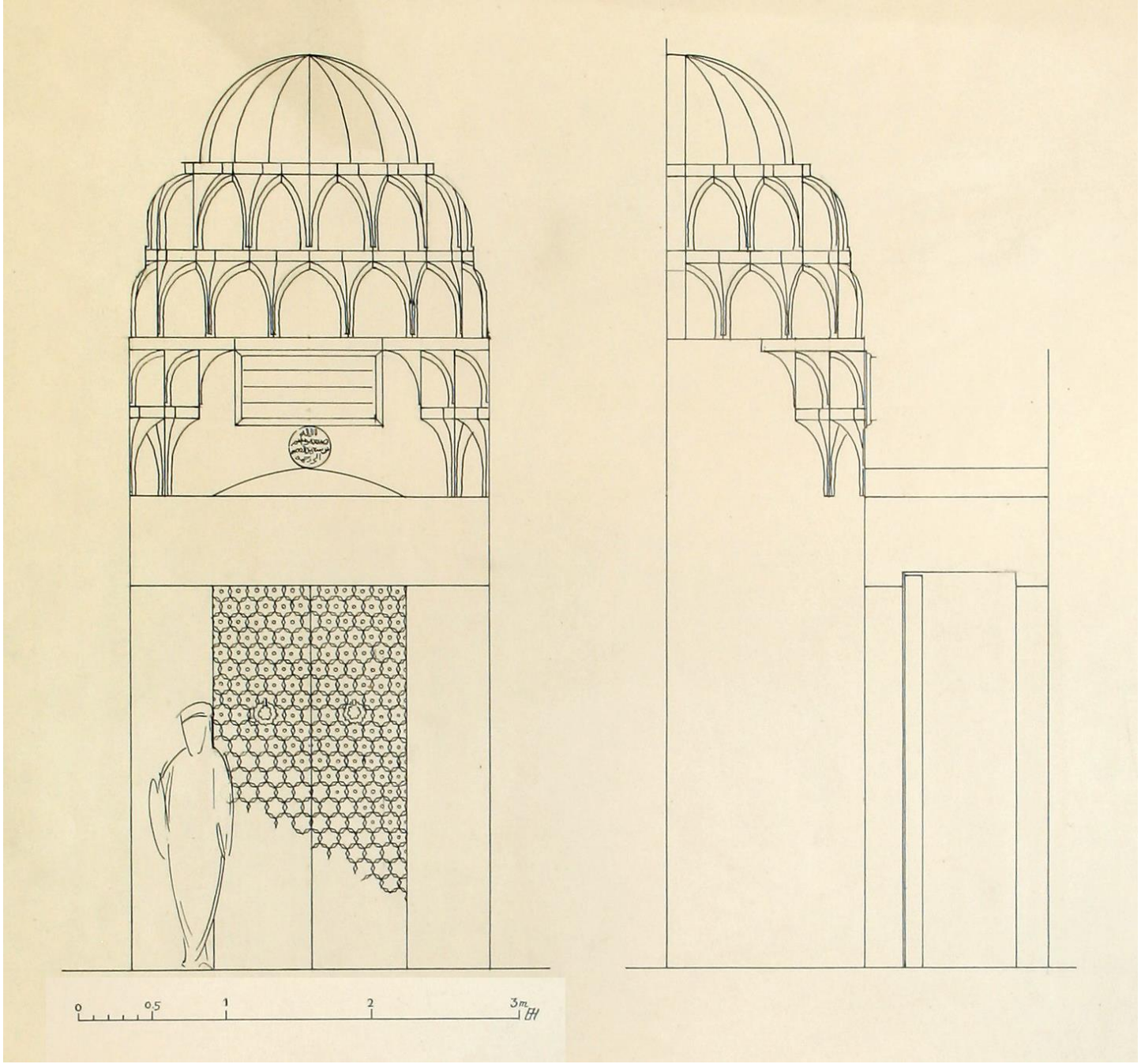
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

Allen, 1999

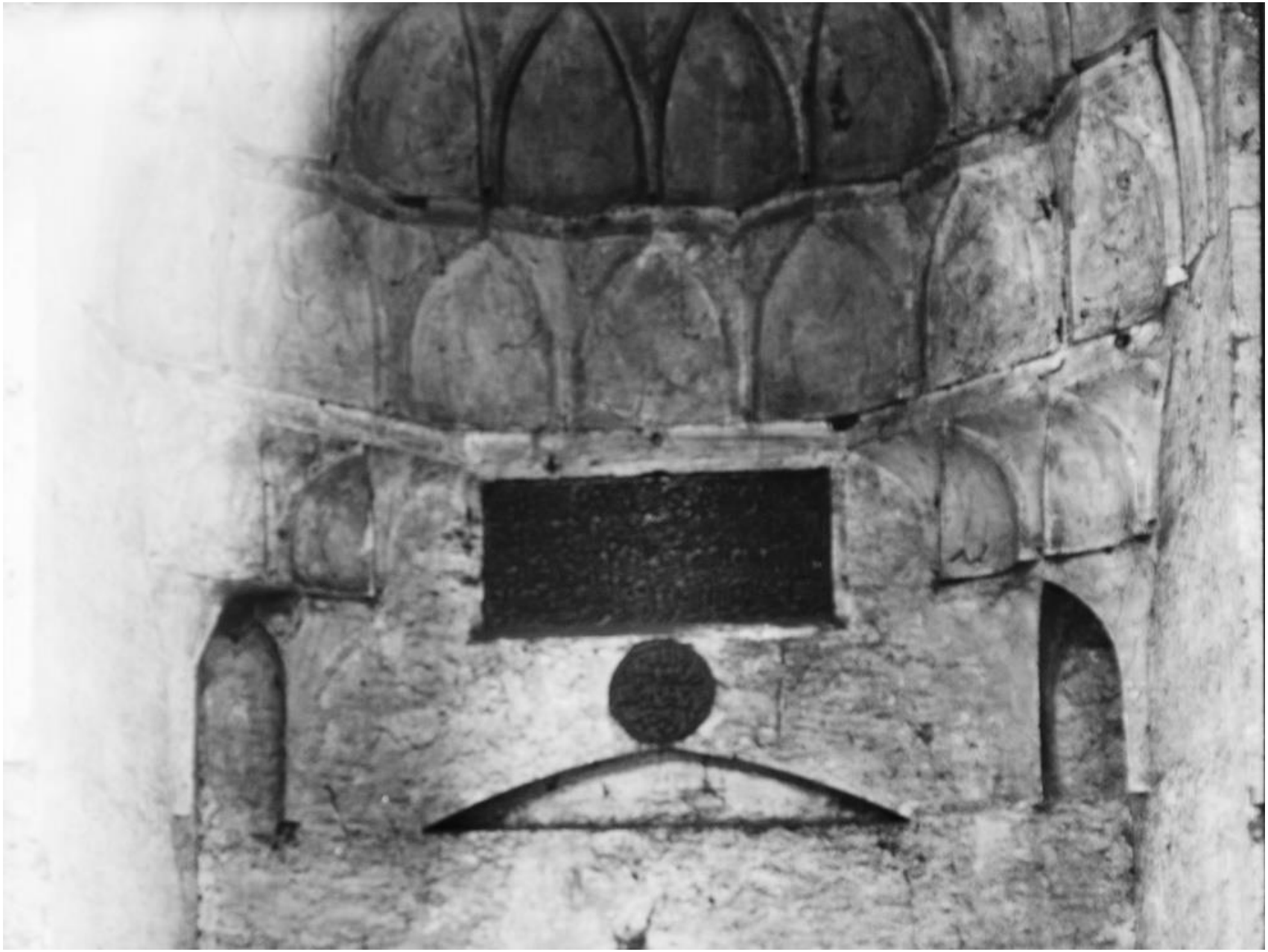
Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



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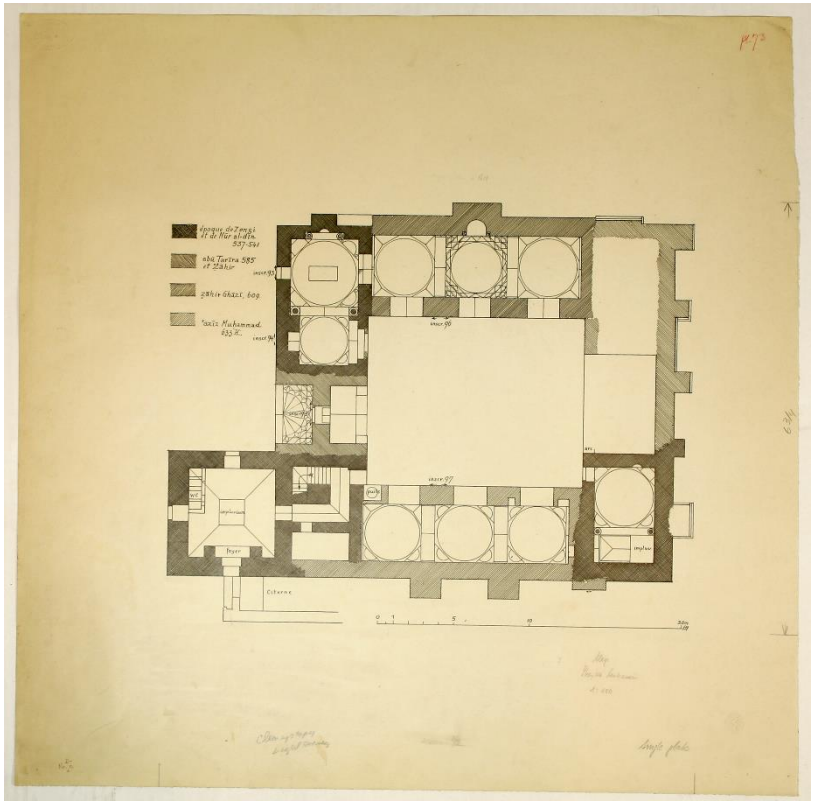
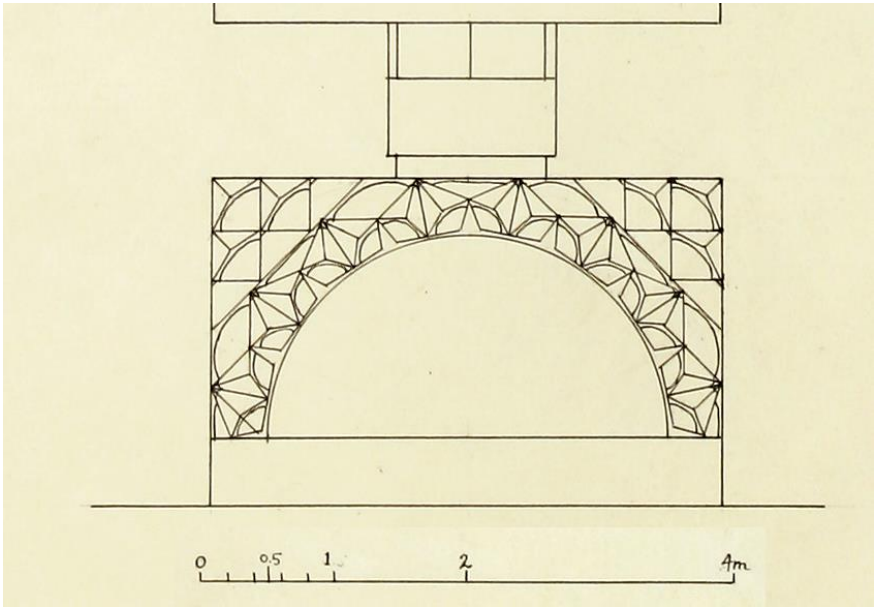


The Mashhad al-Muḥassin, Aleppo

Allen, 1999

Allen, 1999



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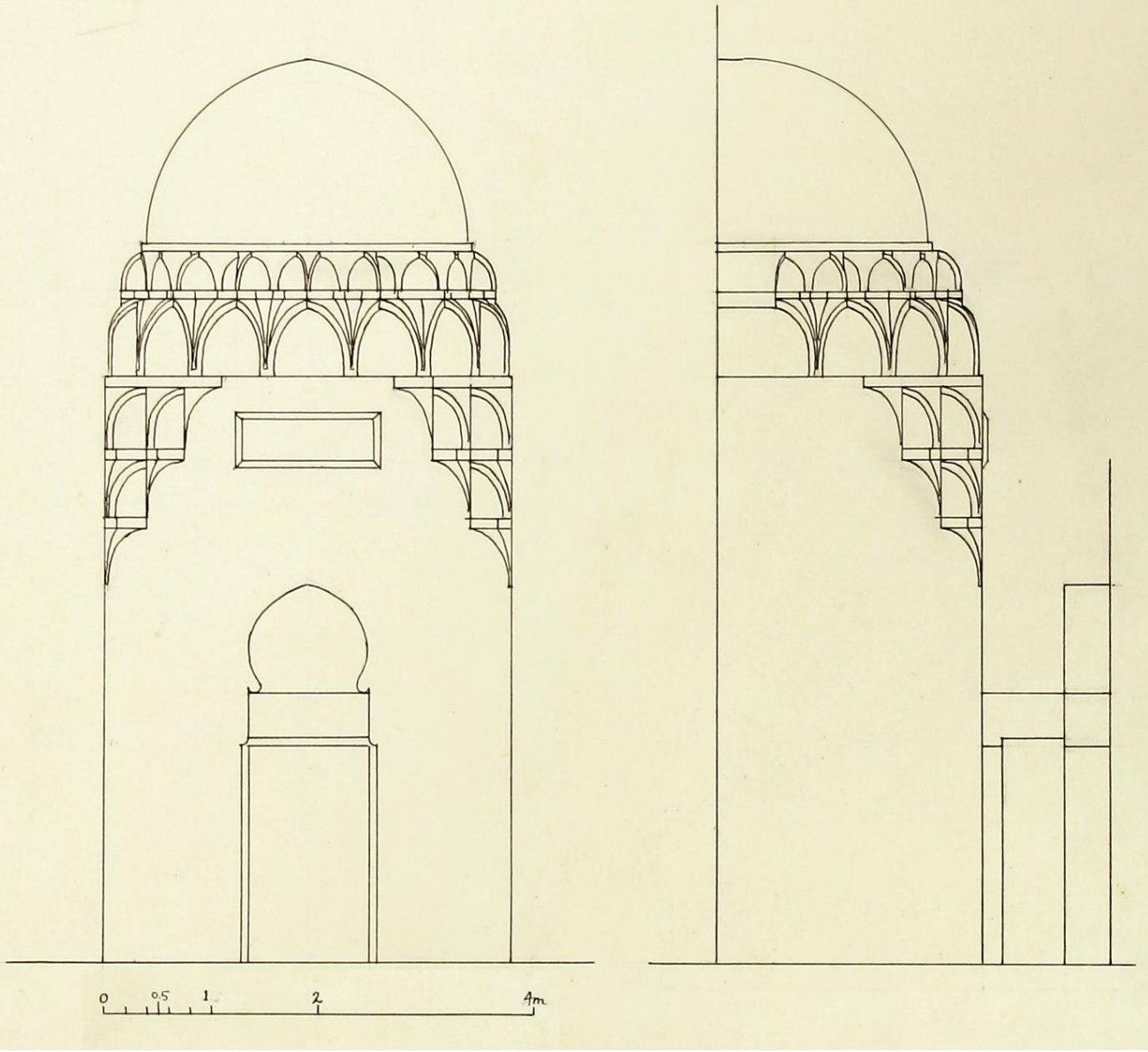
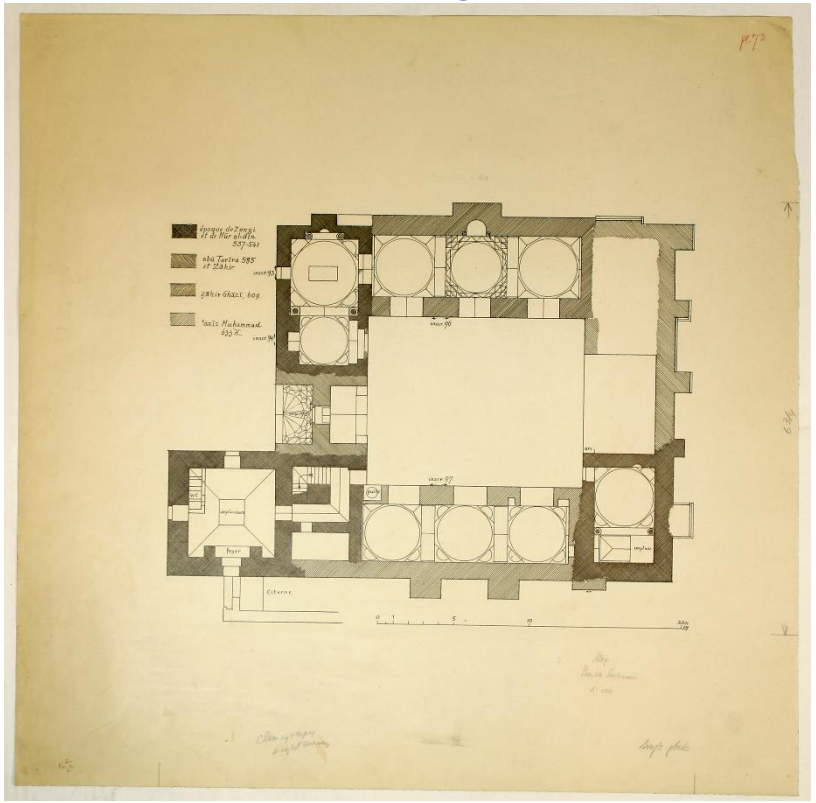


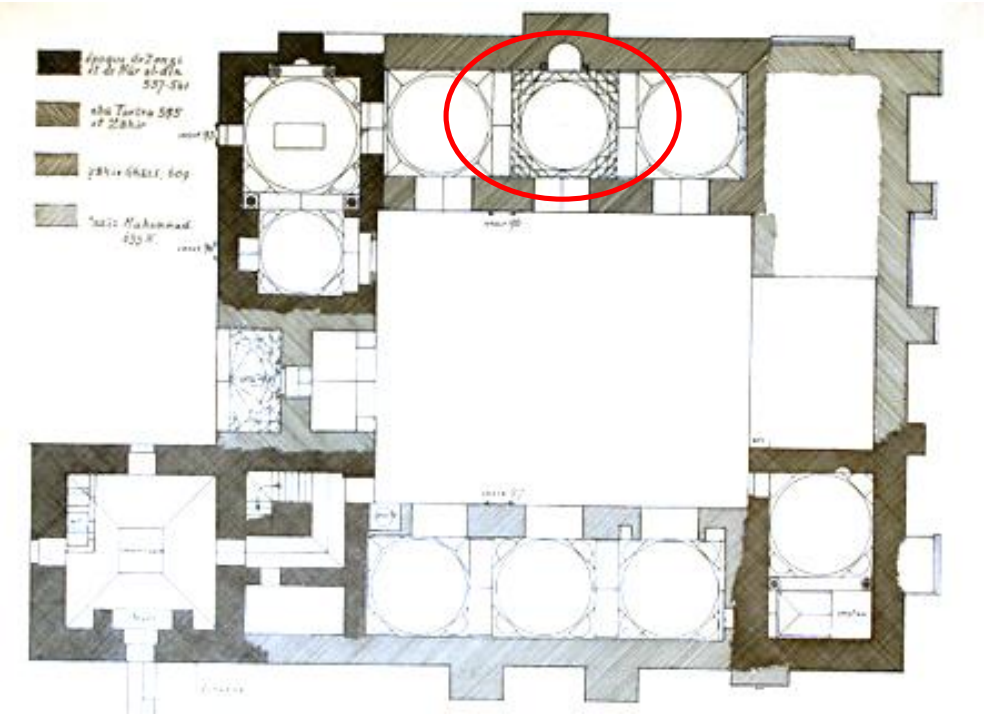
Allen, 1999

Allen, 1999

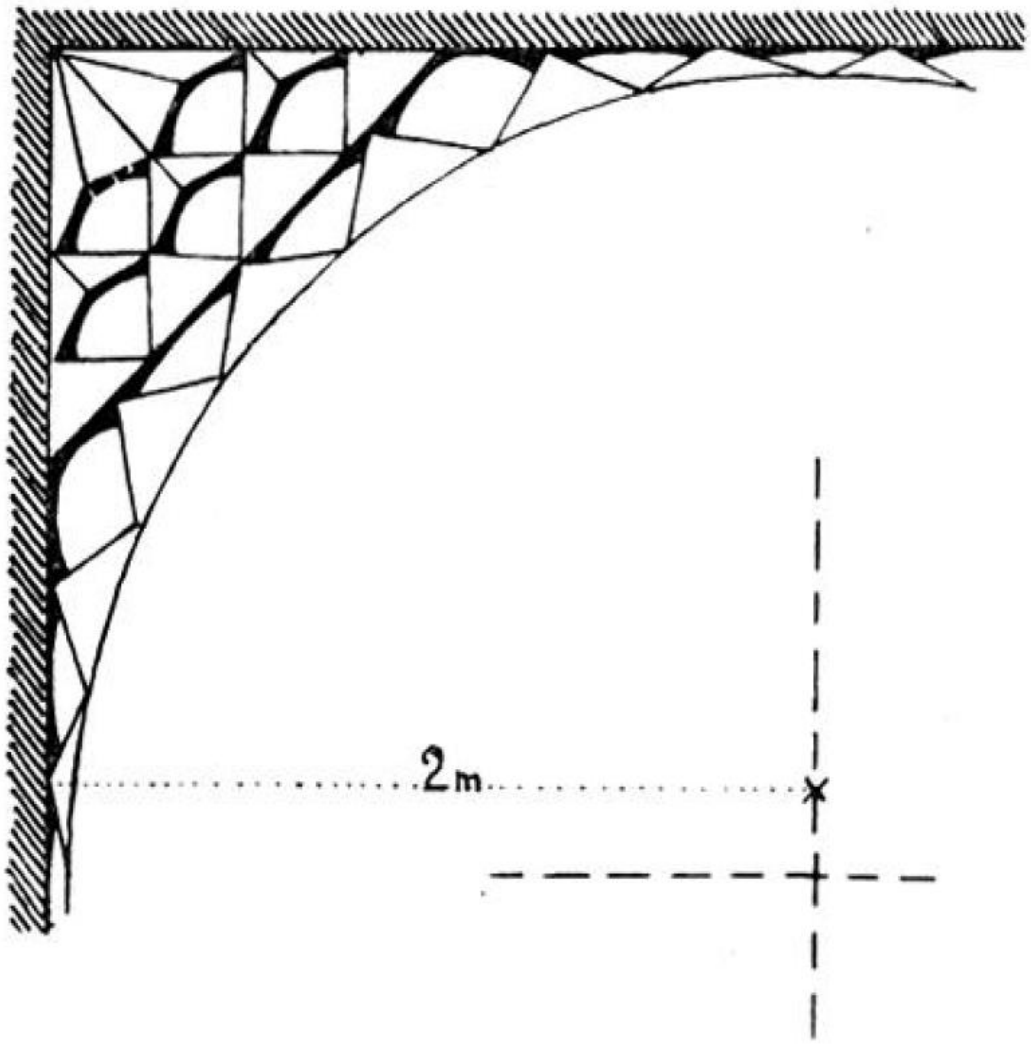
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives.
Smithsonian Institution, Washington, D.C

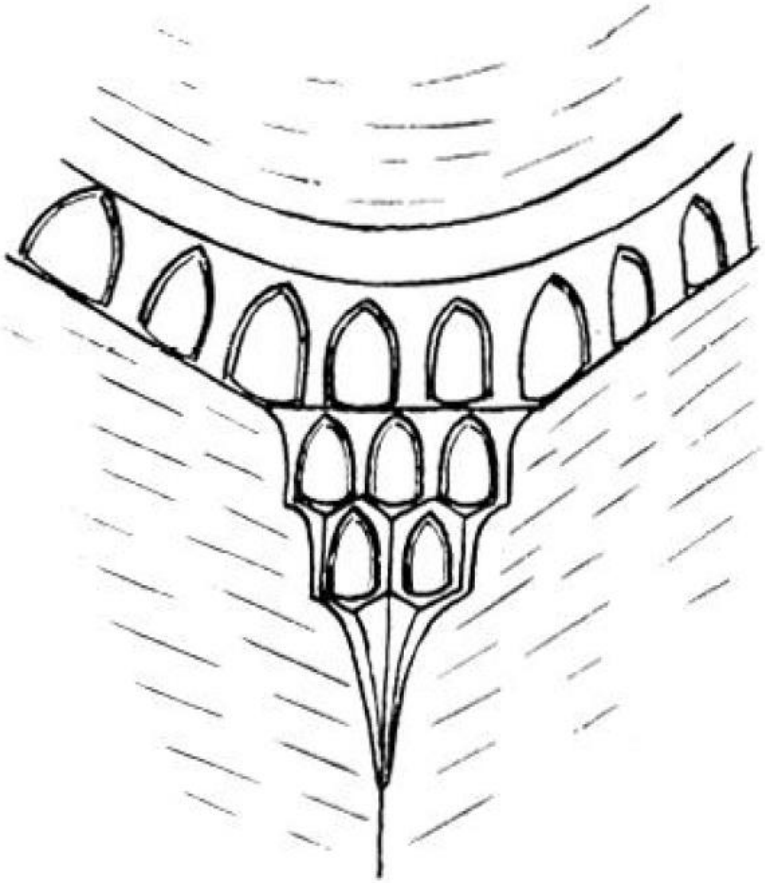


The dome in front of the miḥrāb in the Mashhad al-Muḥassin



Allen, 1999



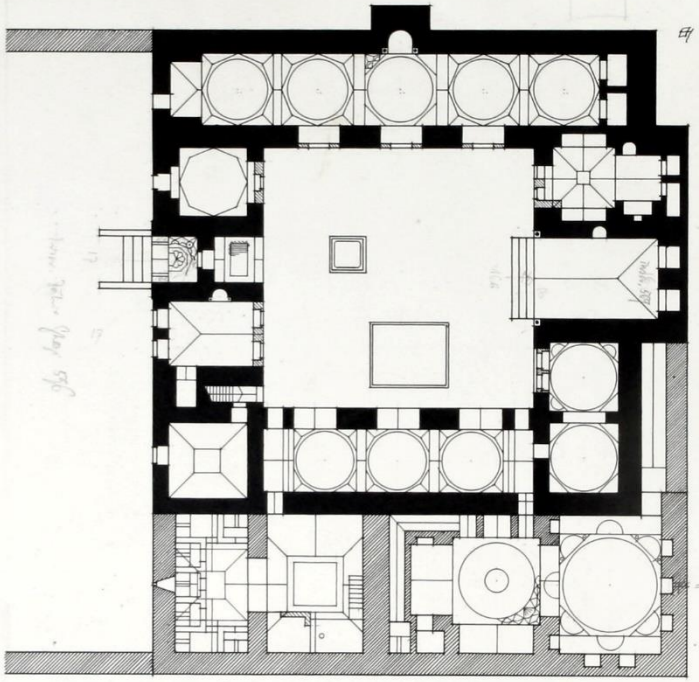


Sauvaget, 1928

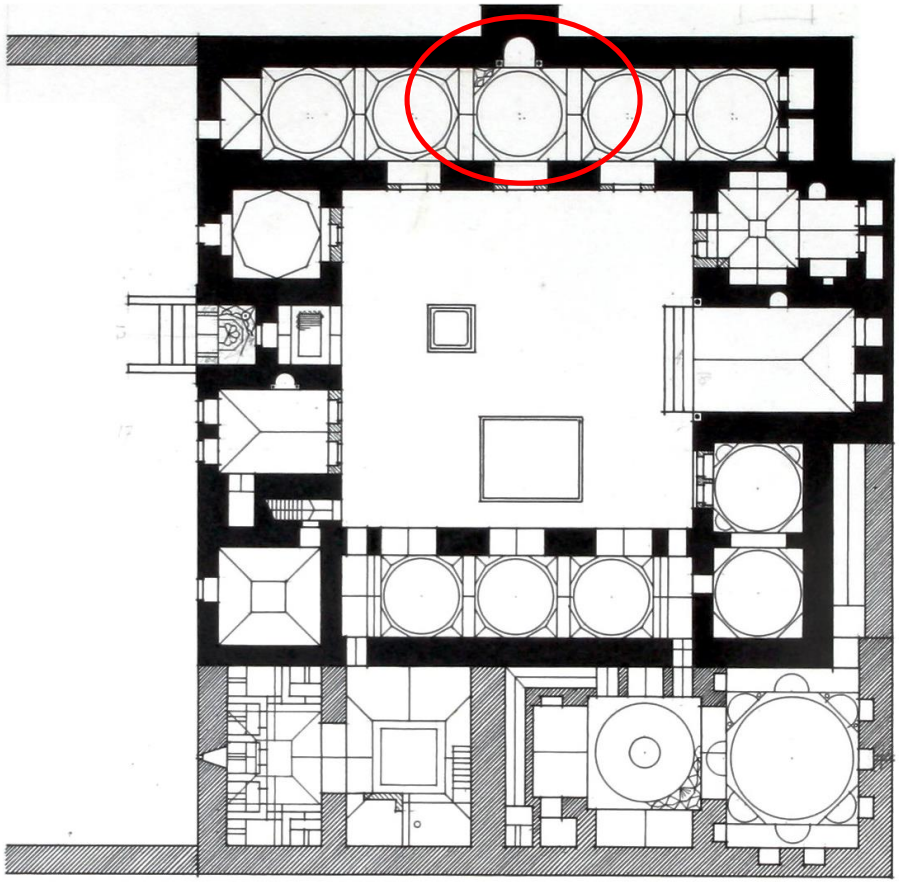
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

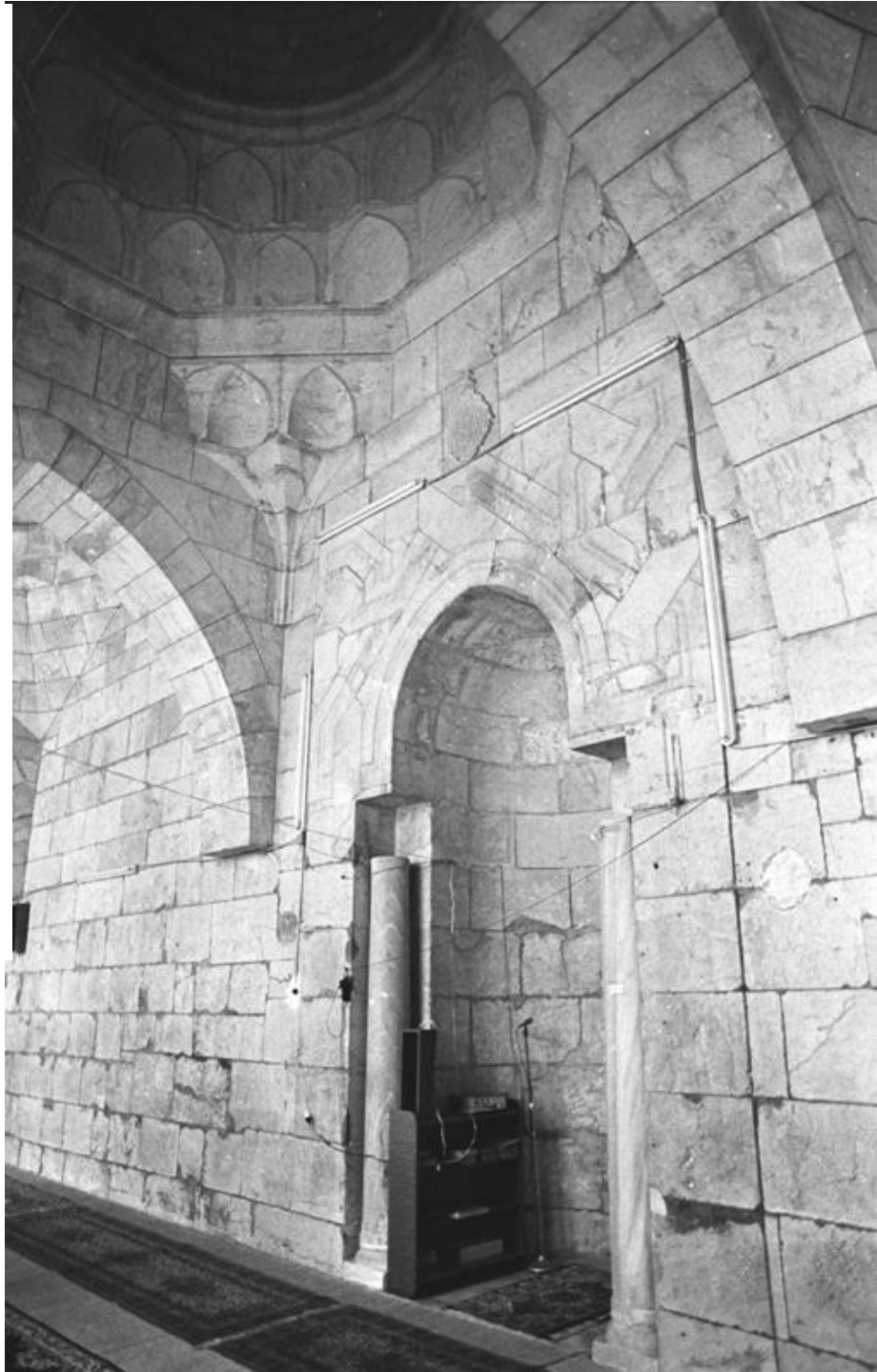
The Mashhad of al-Ḥusayn, Aleppo

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



Malik al Sâlih Ismaïl 569-77 H. bis Zâhir al-Ghâzî 596 Malik al-'Azîz 613-34





Allen, 1999

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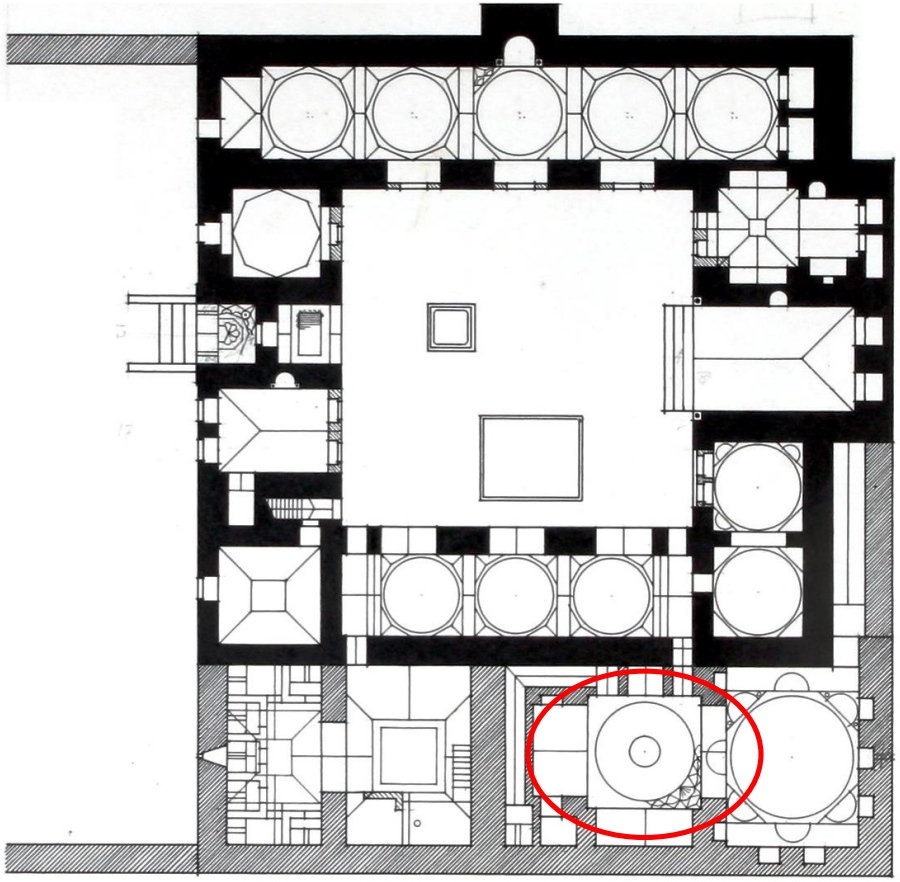

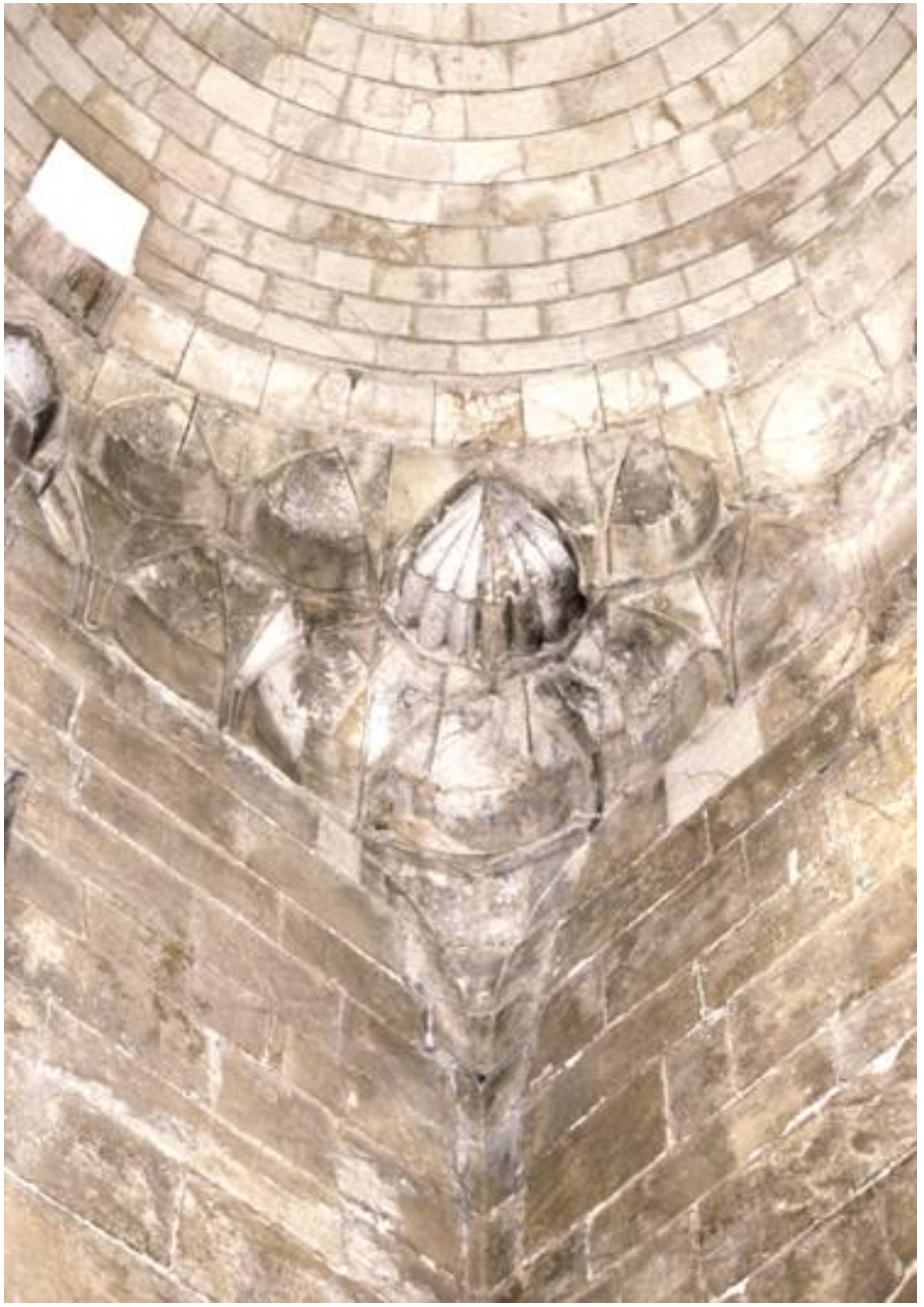

Allen, 1999

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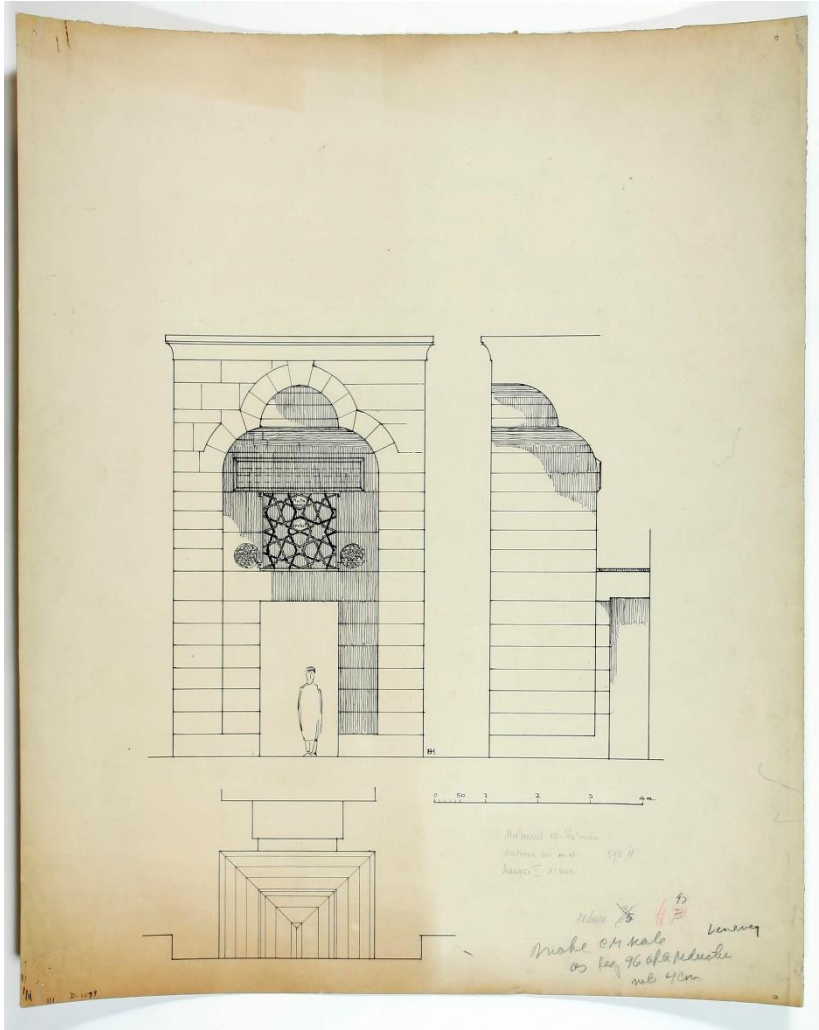
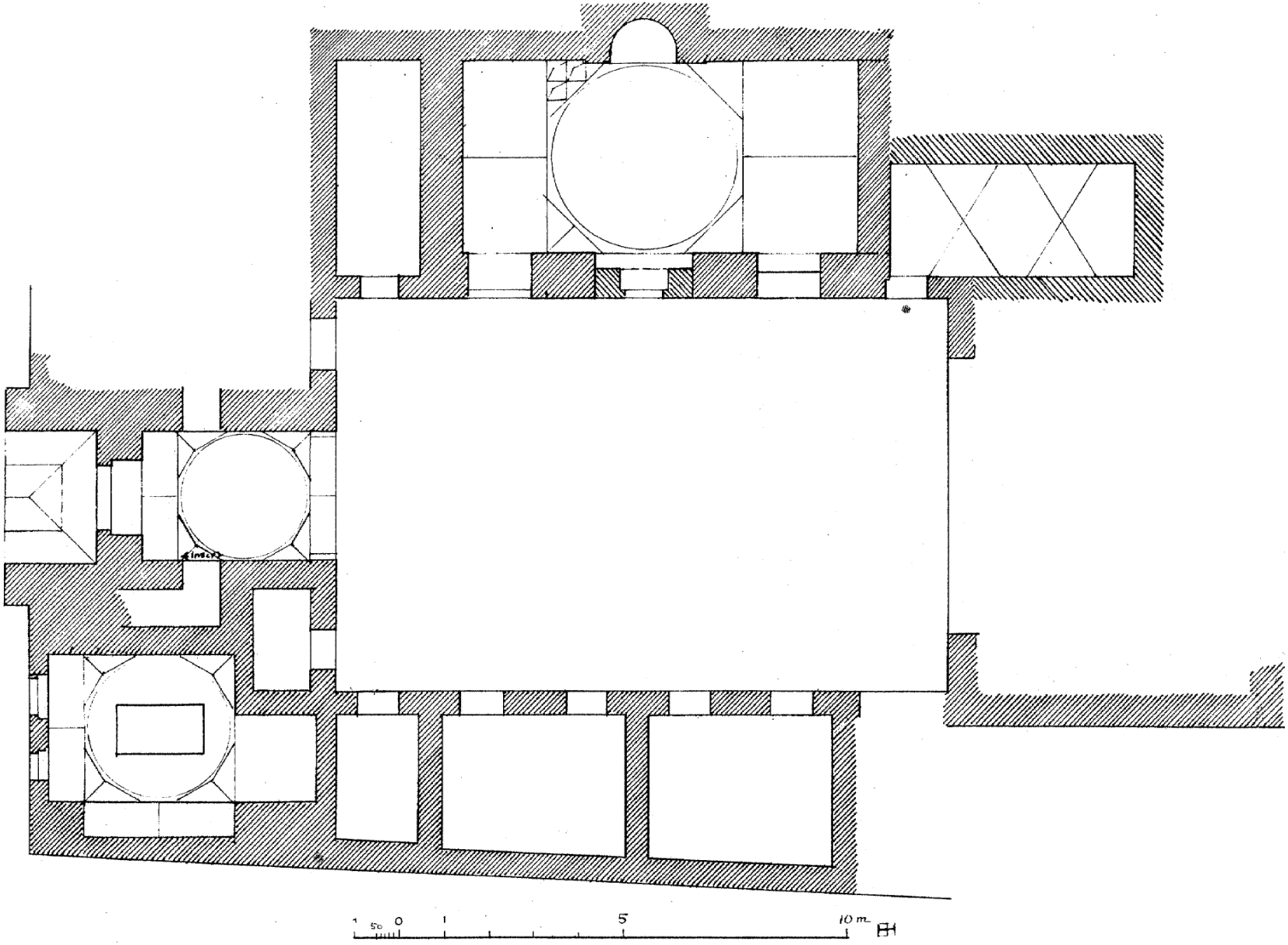
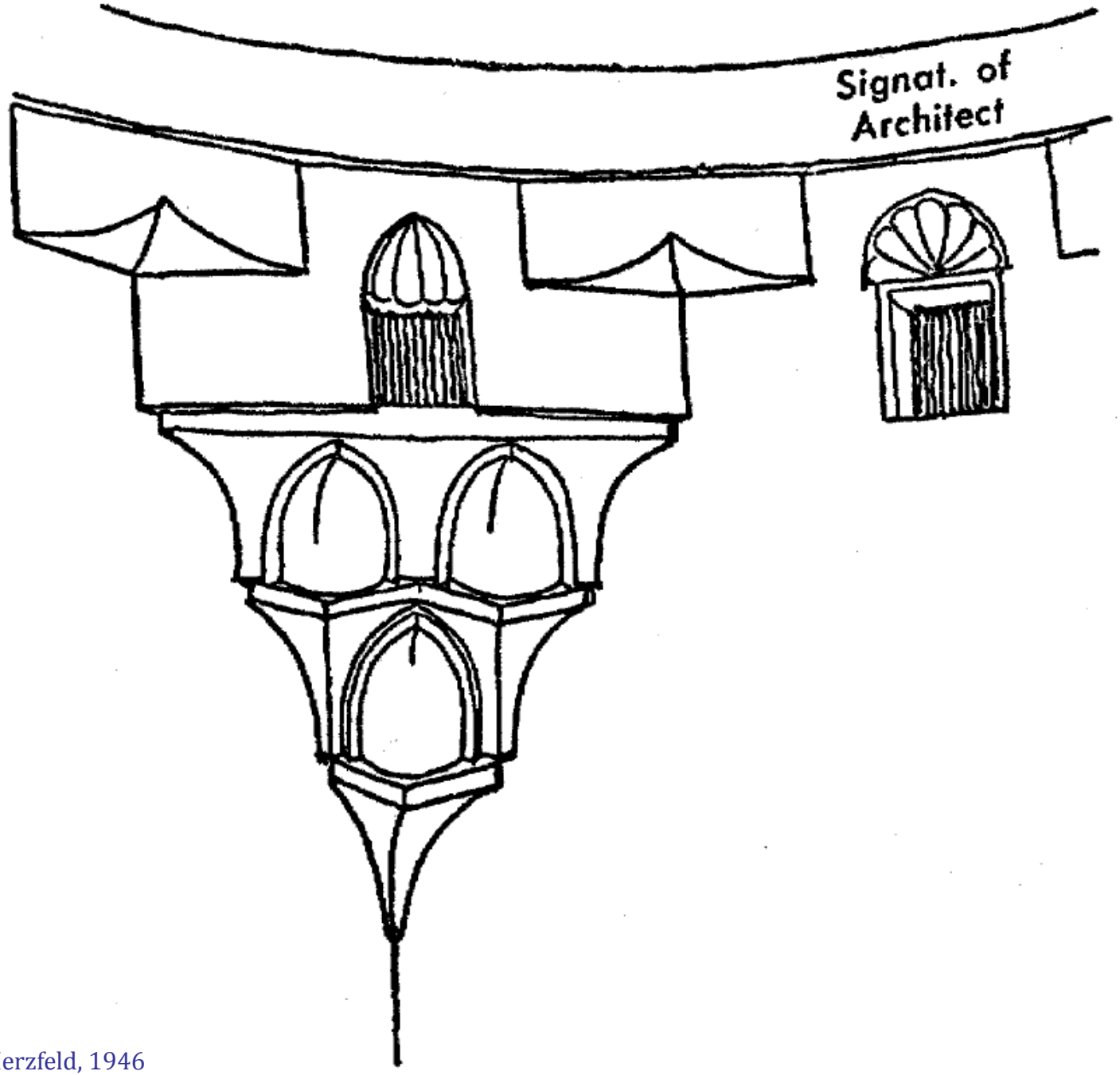
Smithsonian Institution, Washington, D.C



The Madrasat Abī l-Fawāris, Maʿarrat al-Nuʿmān



Herzfeld, 1946



Herzfeld, 1946

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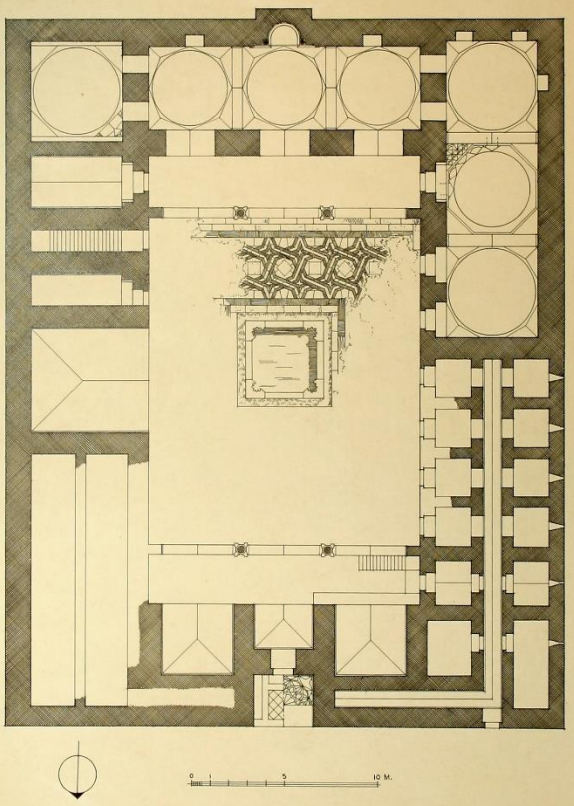
Madrasa Ẓāhiriyya, Aleppo



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Allen, 1999

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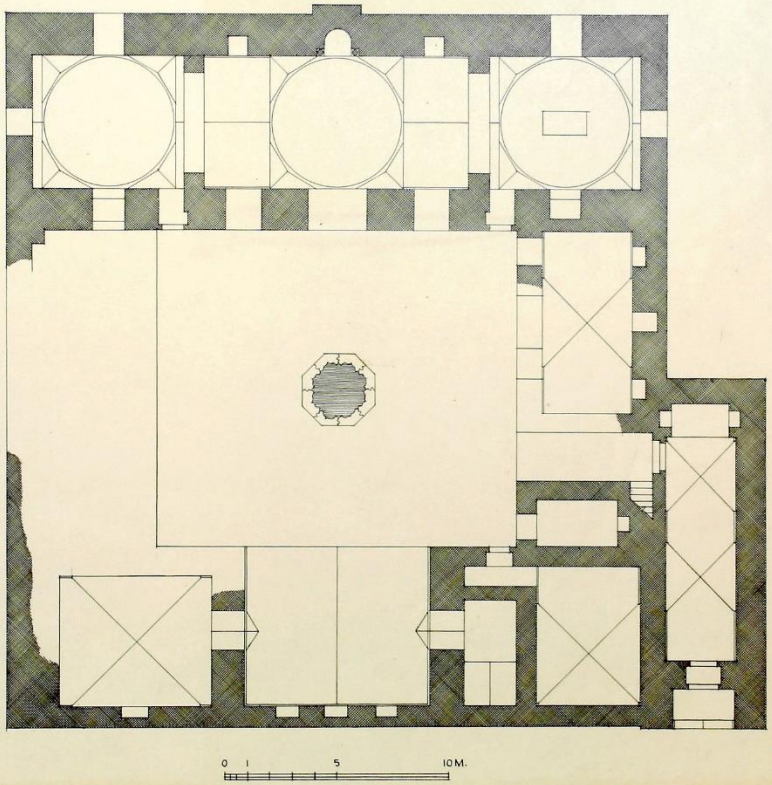
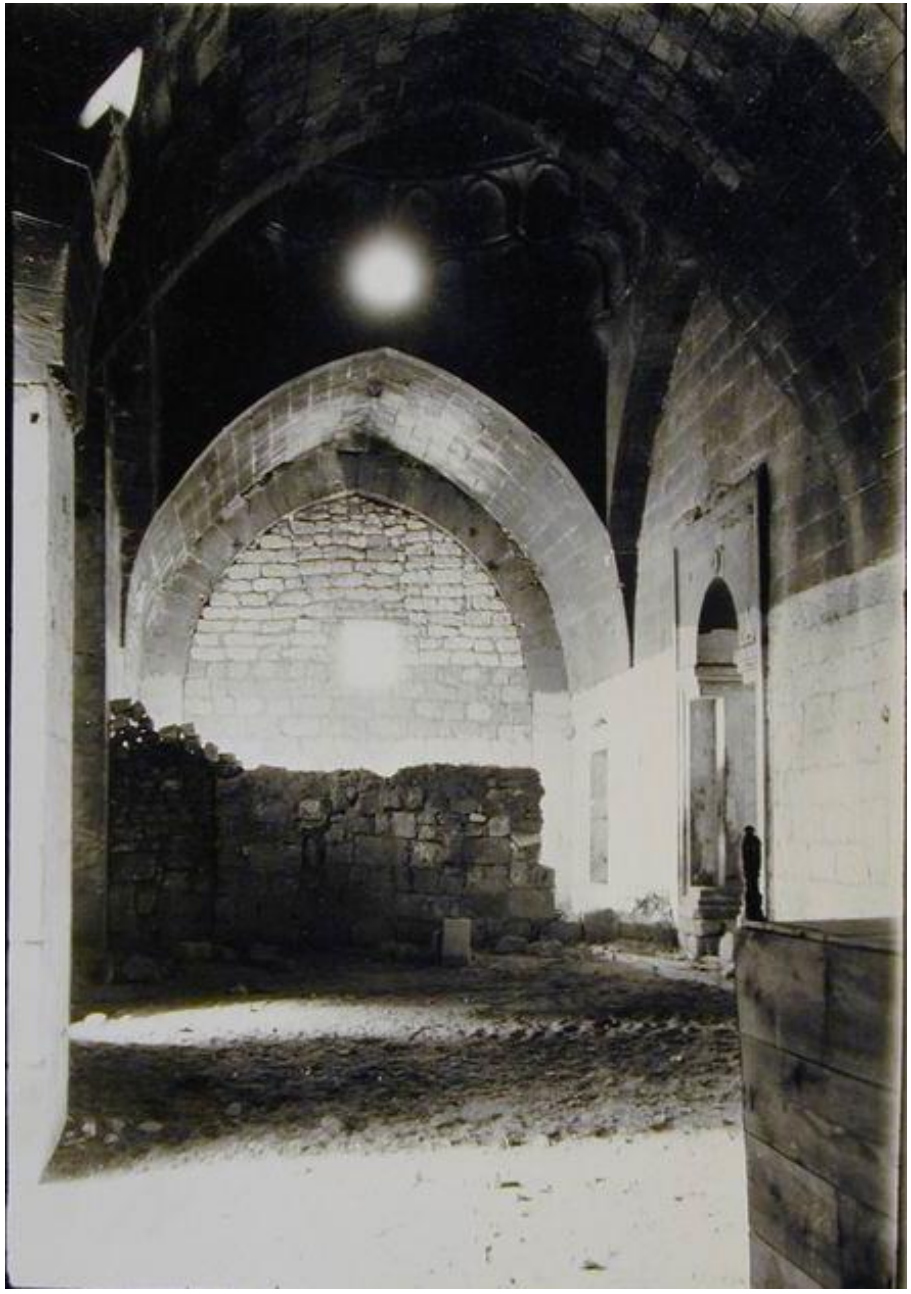
Madrasa Kāmiliyya, Firdaws, Aleppo



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



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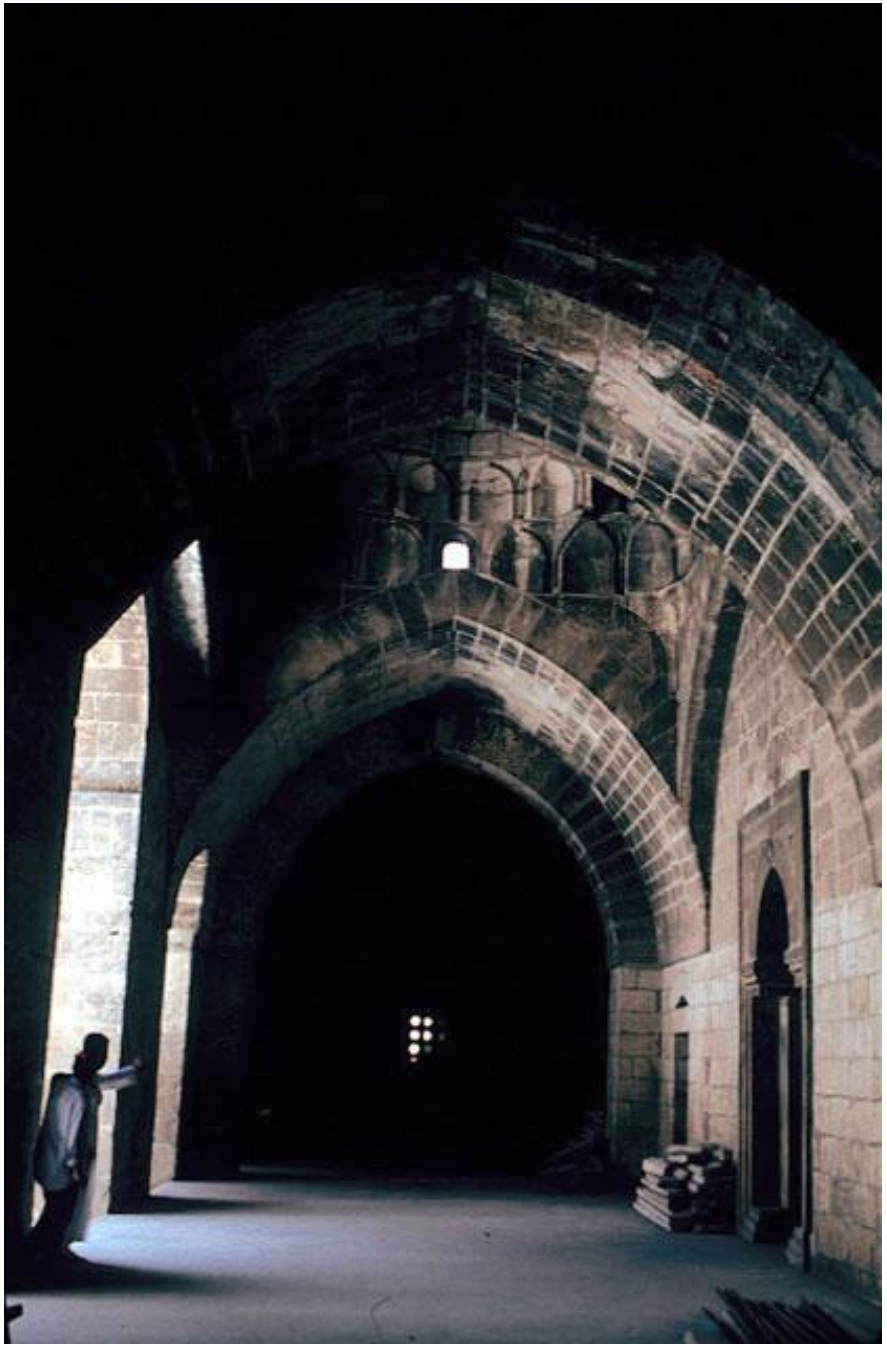

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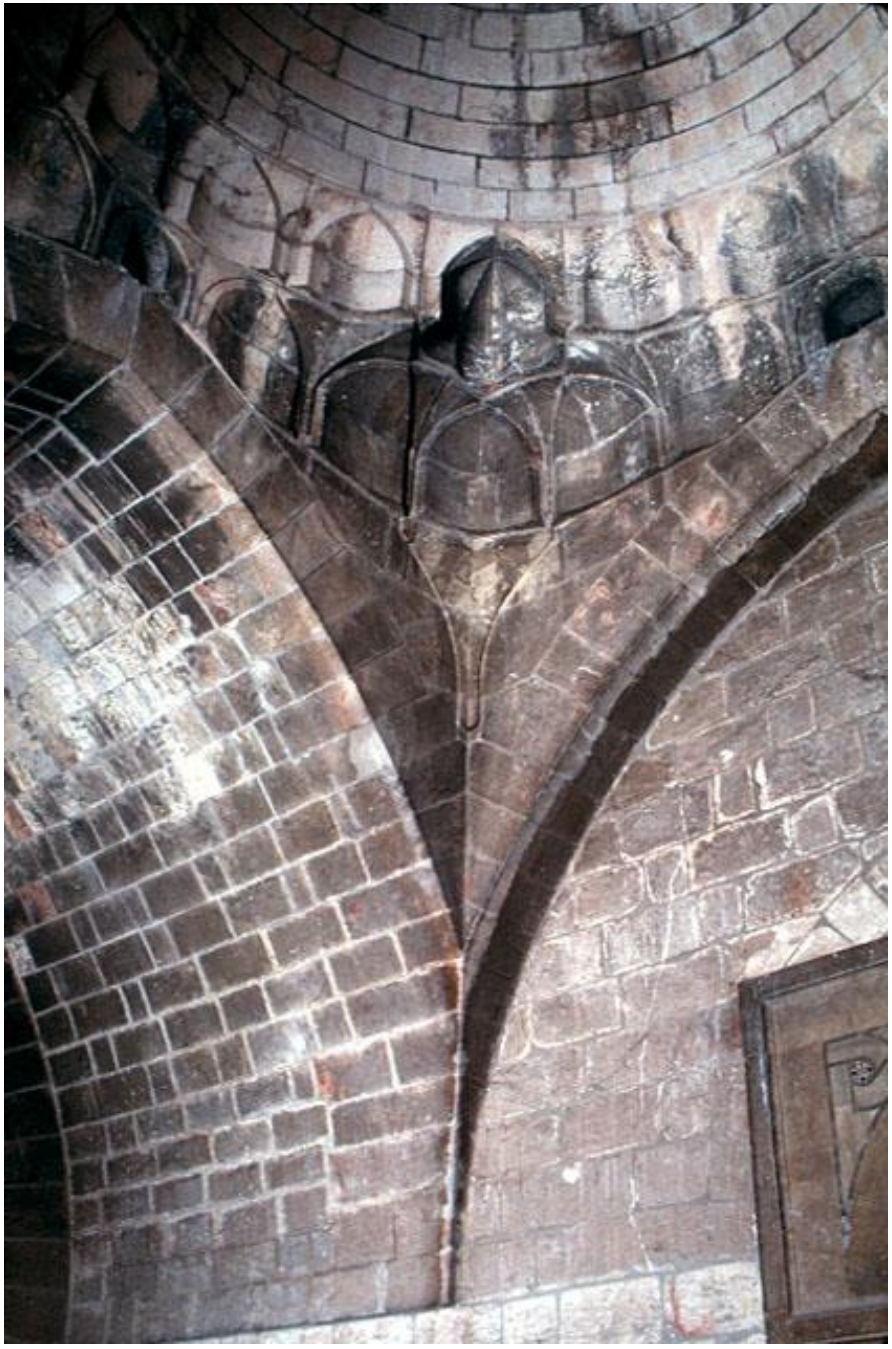

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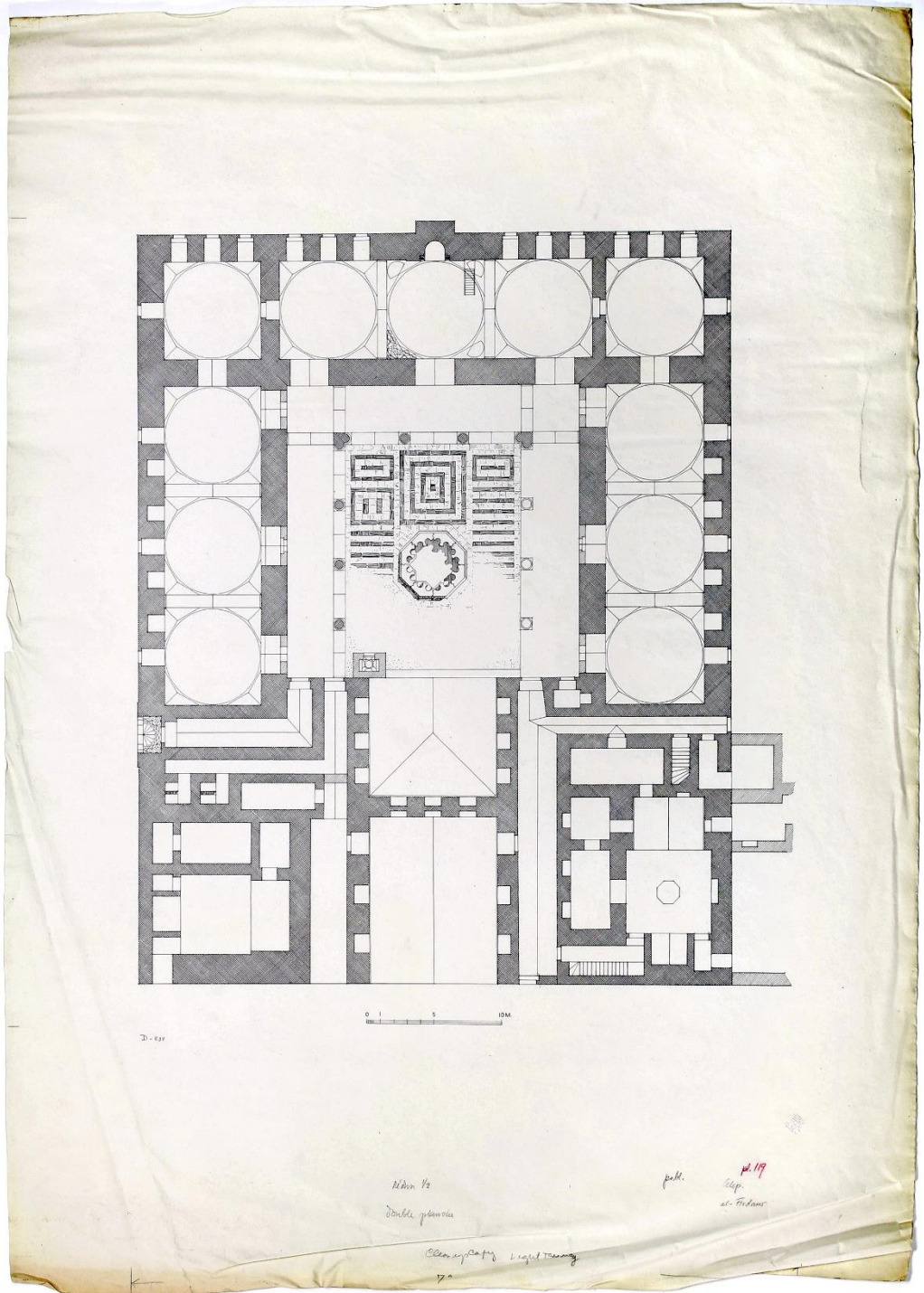
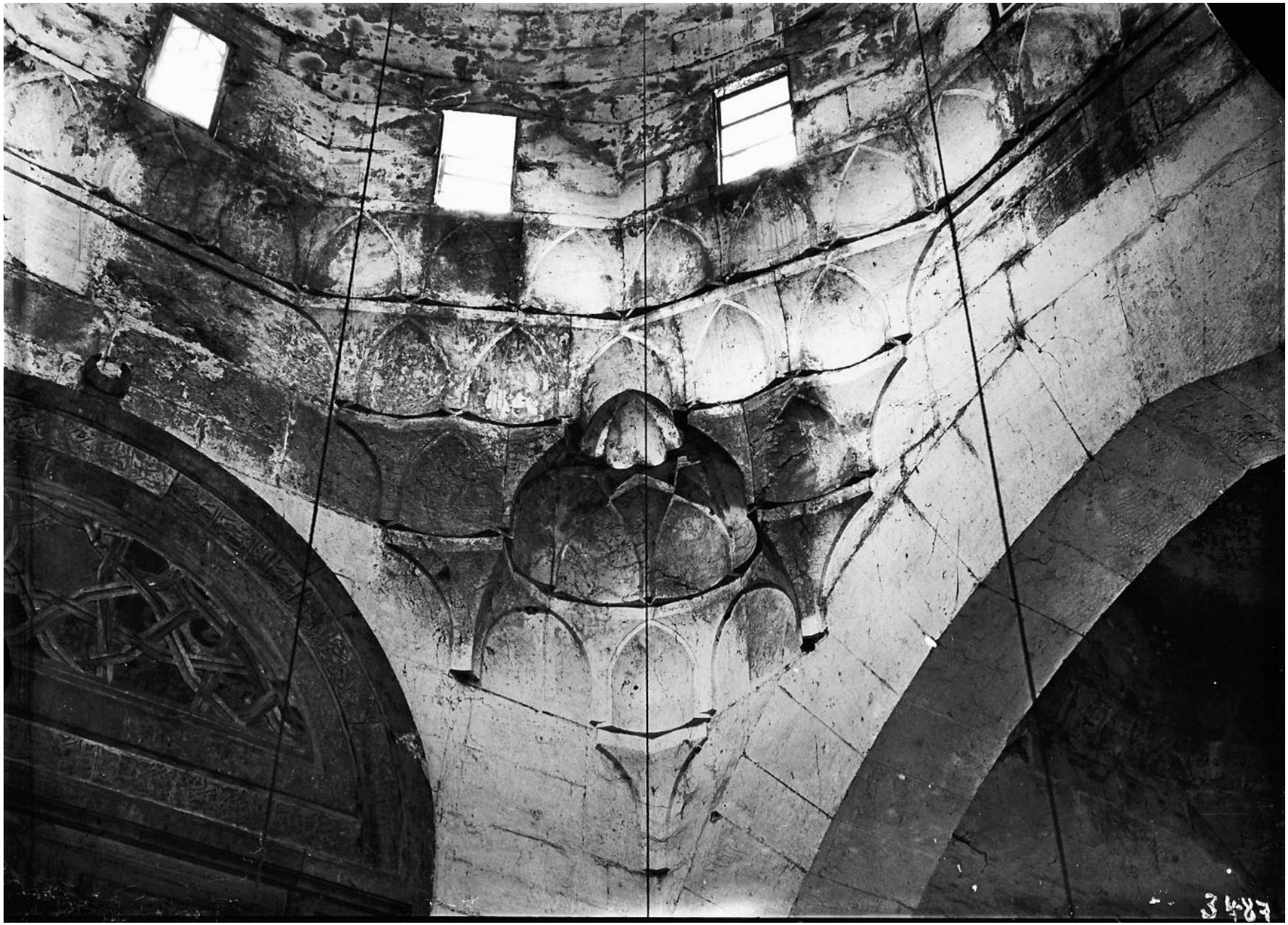
Madrasat al-Firdaws, Aleppo



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

Allen, 1999

Allen, 1999

Copyright: Aga Khan Trust for Culture
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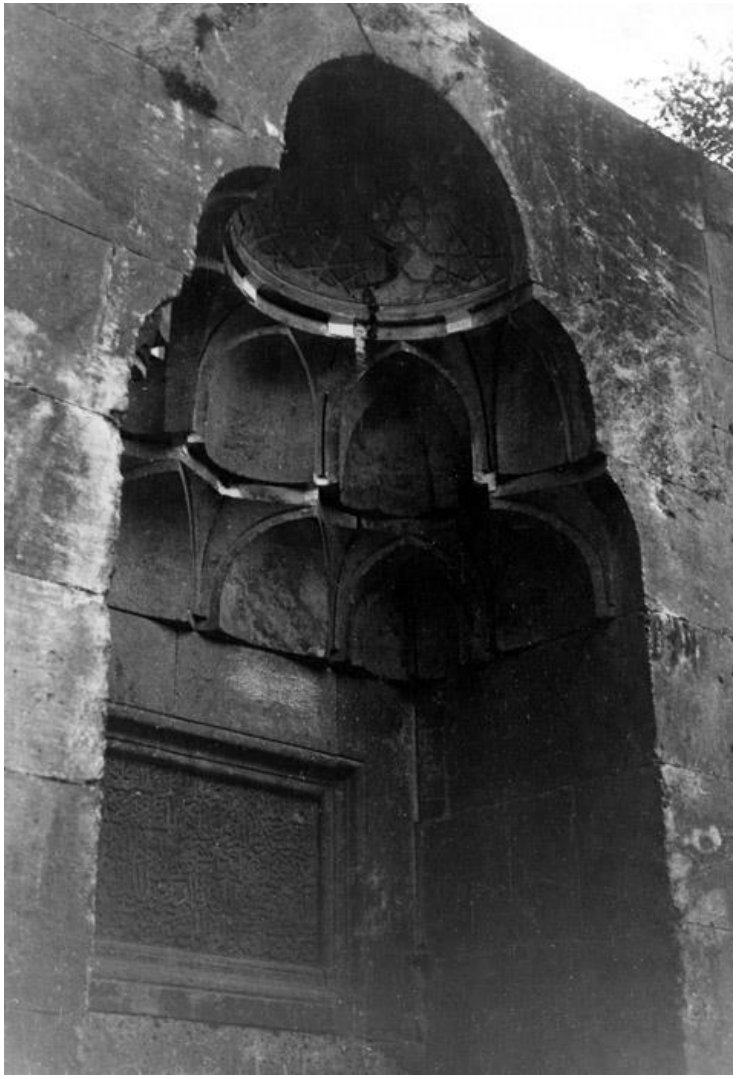
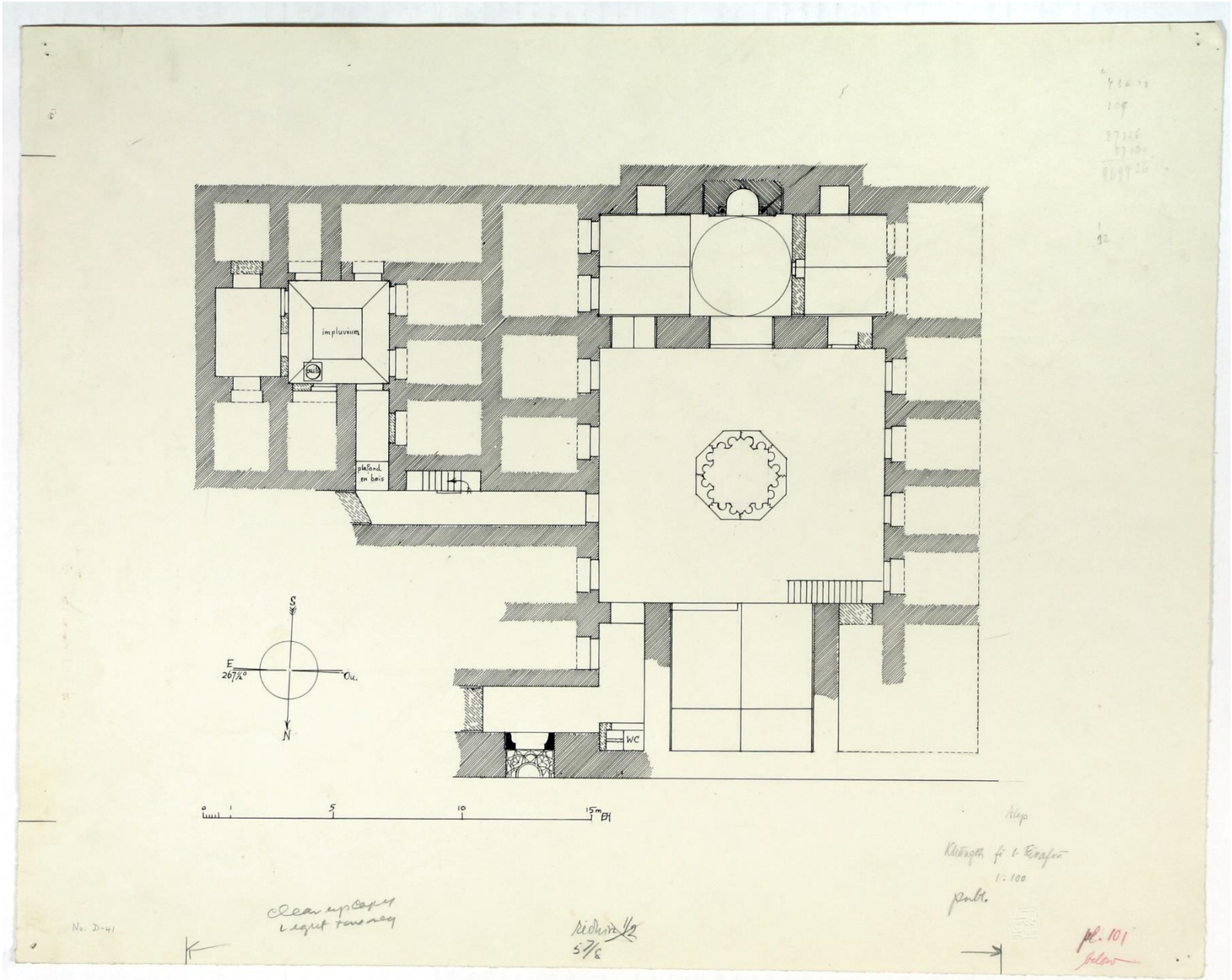


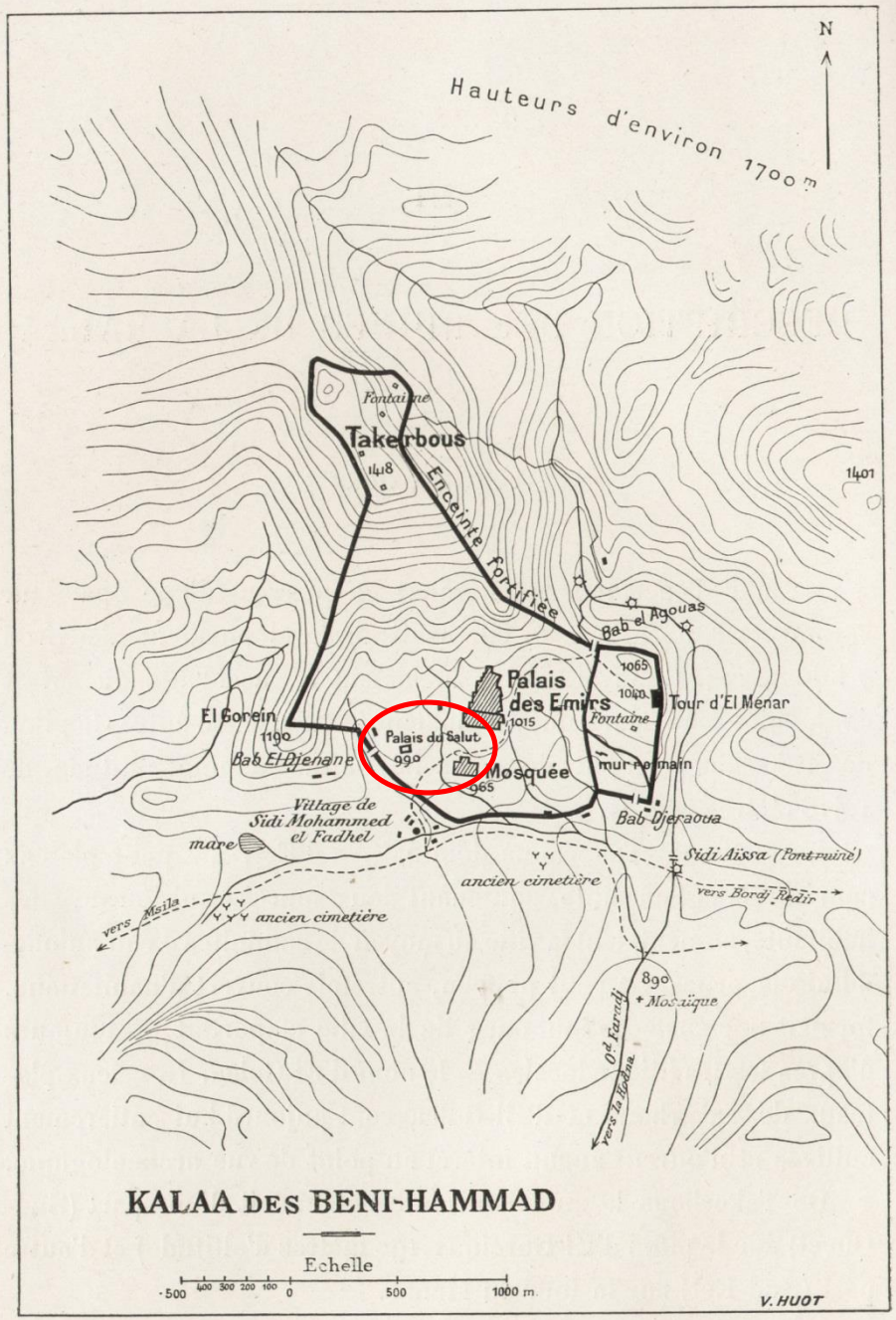
Khānaqā of Dayfa Khātūn, Aleppo



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

Allen, 1999

6. The use of *muqarnas* in the Islamic West



De Beylié, 1909

Fig. 1.

Muqarnas *in Ḥammādid Art*
The Qalʿat Banī Ḥammād
Qaṣr al-Salām

Qalʿat Banī Ḥammād, Qaṣr al-Salām

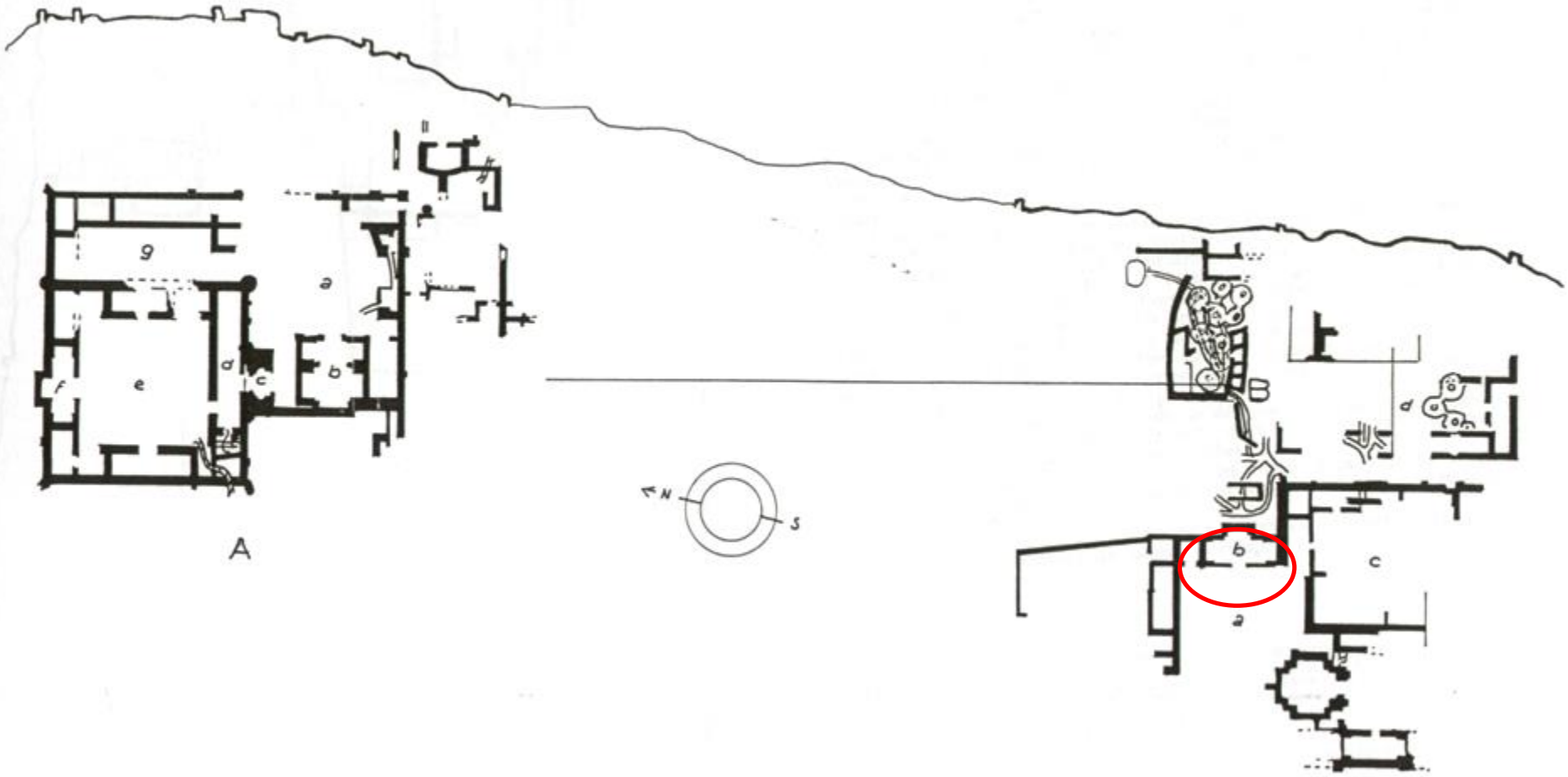
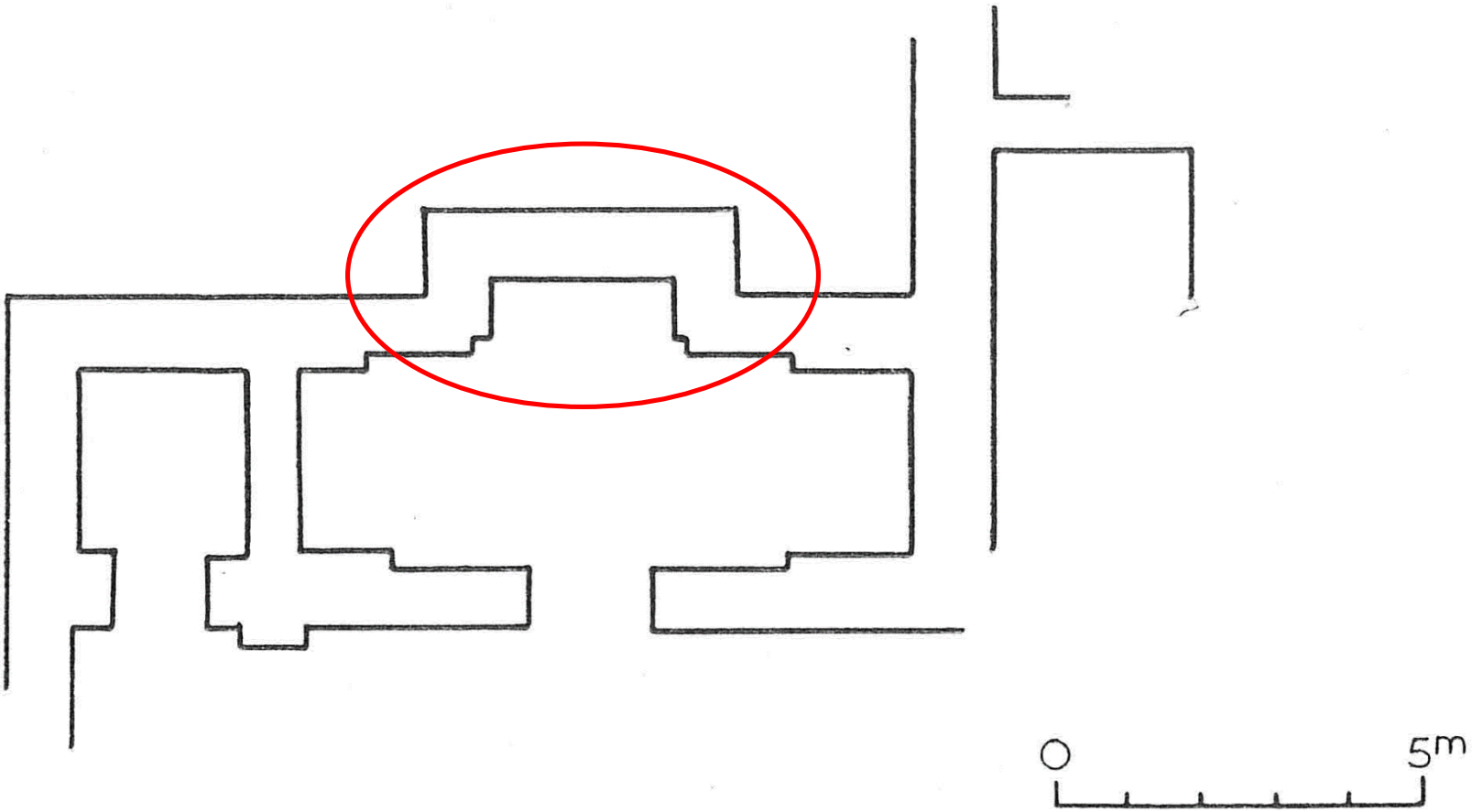
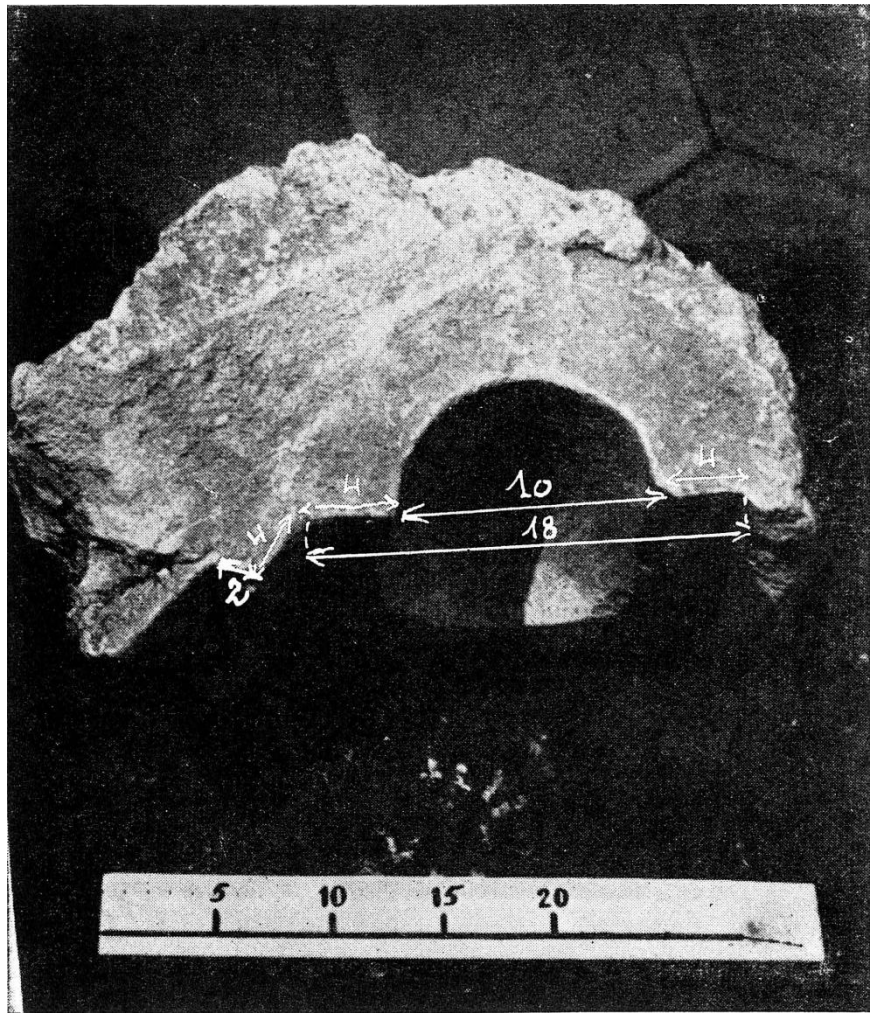


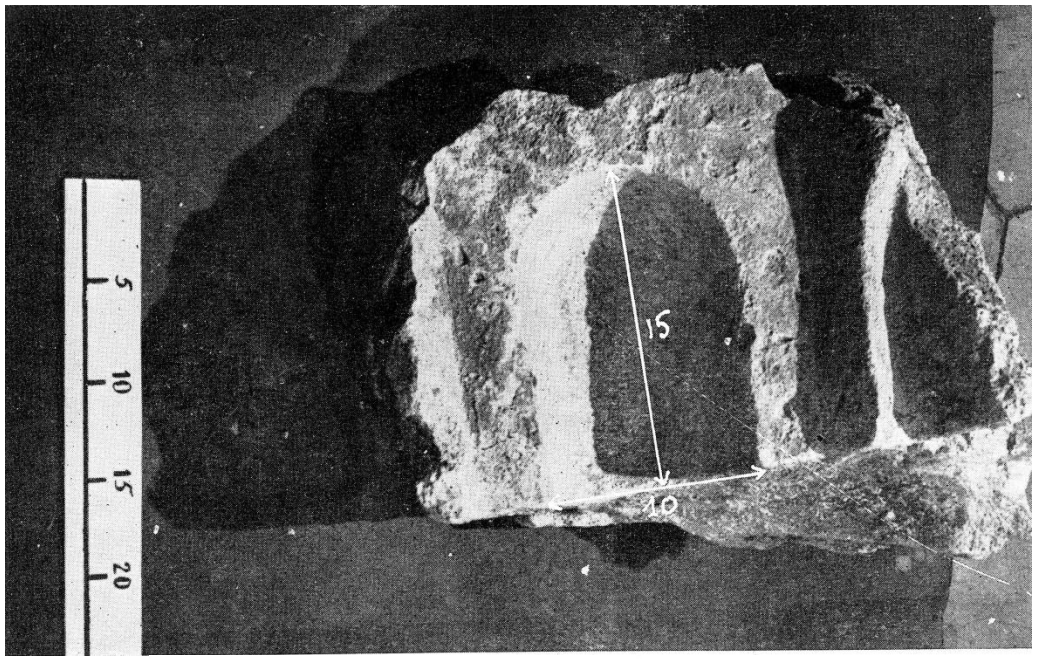
Fig. 16. — Plan général des travaux au Qasr al-Salâm.

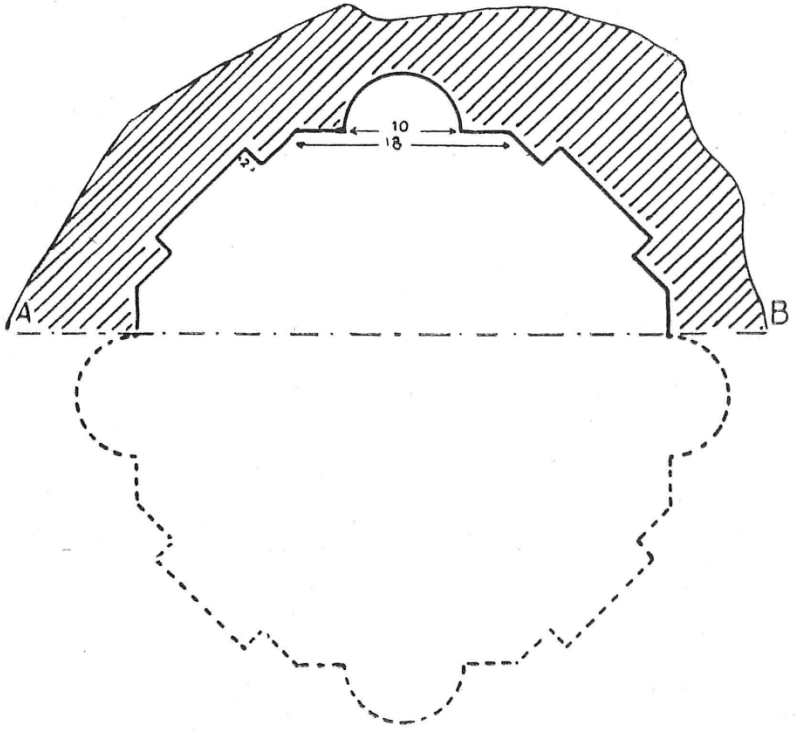
Golvin, 1965



Golvin, 1965

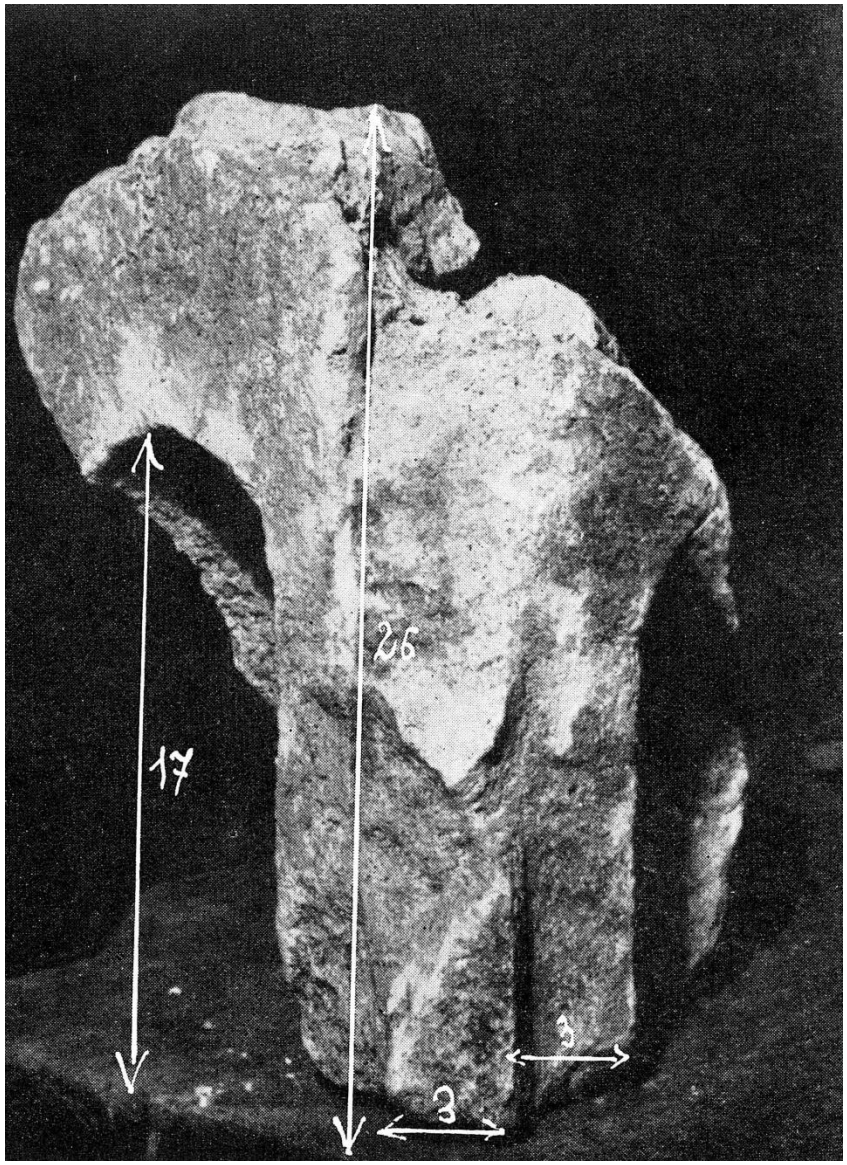


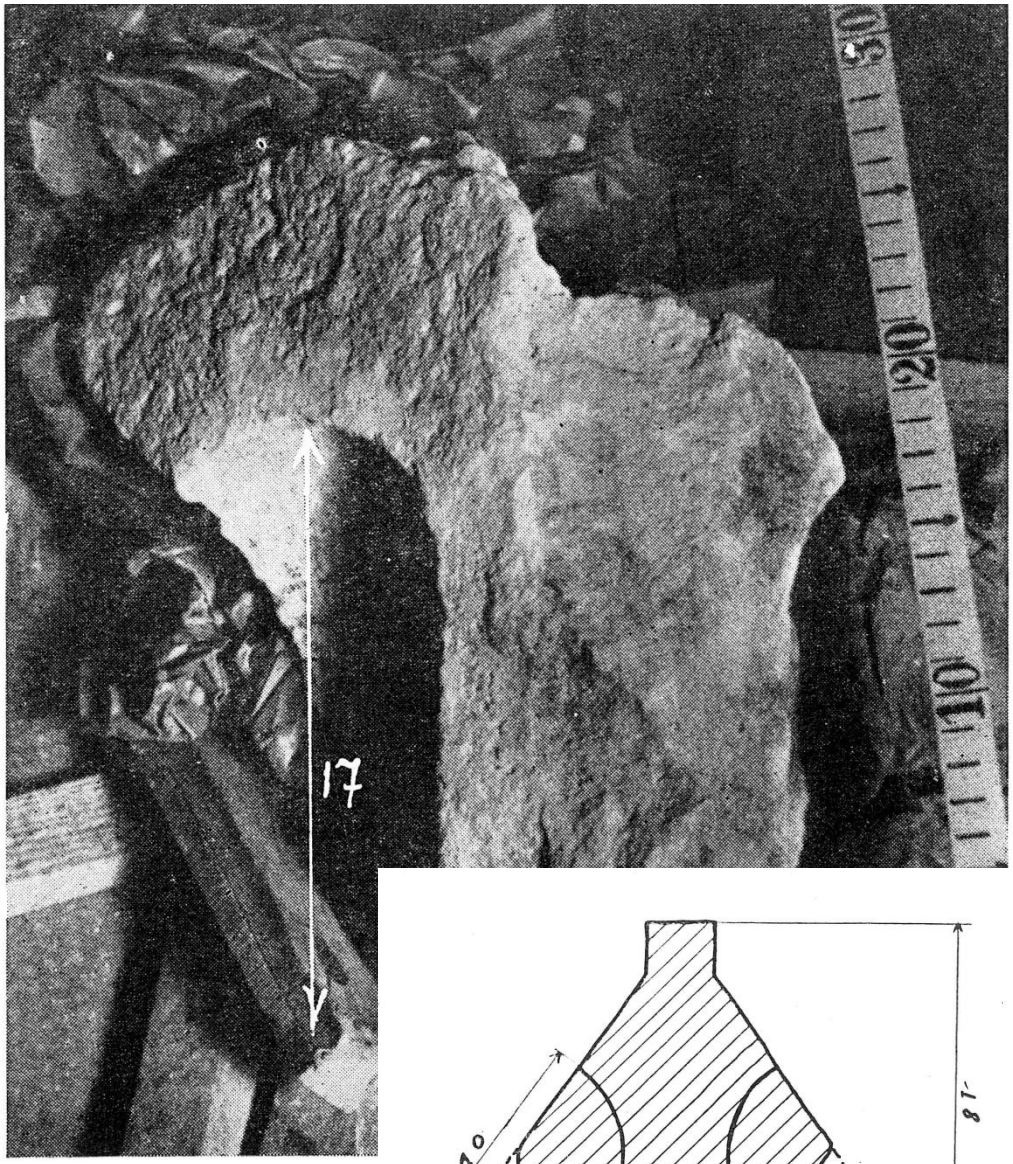




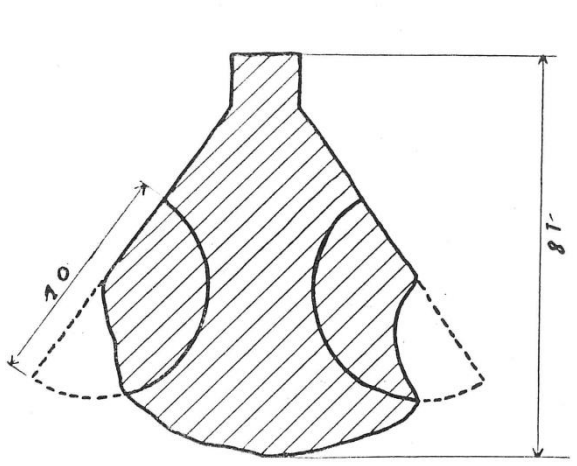
Qalʿat Banī Ḥammād, Qaṣr al-Salām, first block

Golvin, 1965



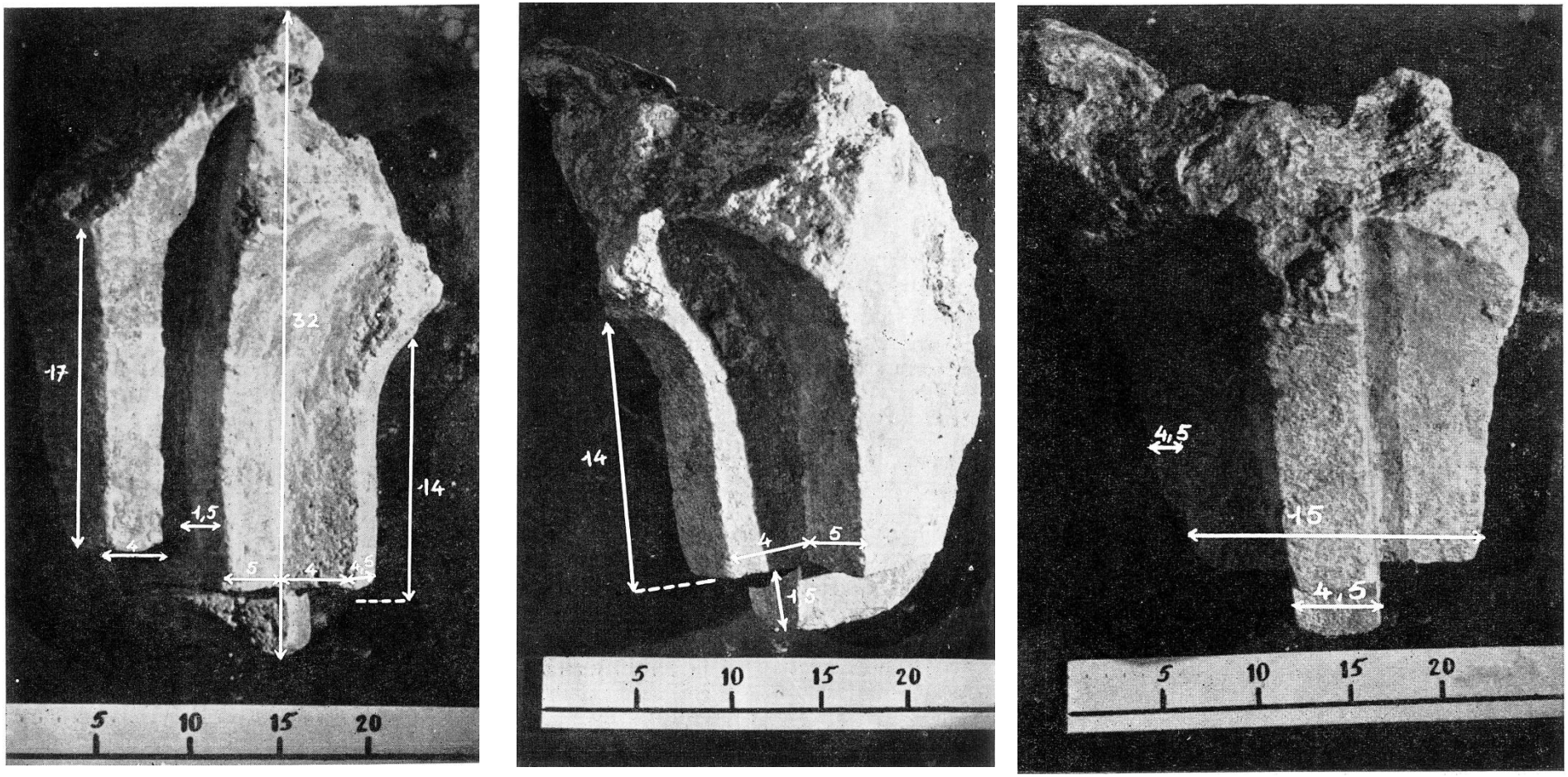


Qalʿat Banī Ḥammād, Qaṣr al-Salām, second block



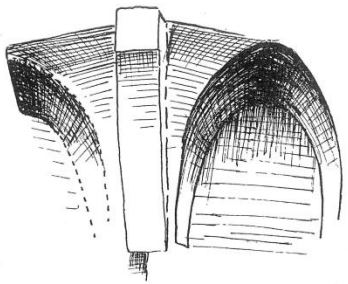
Croquis b

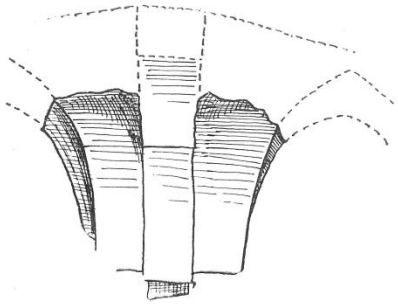
Golvin, 1965

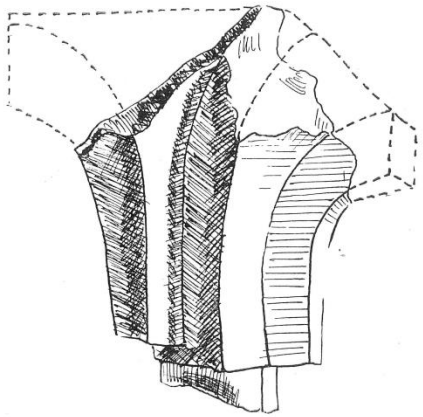


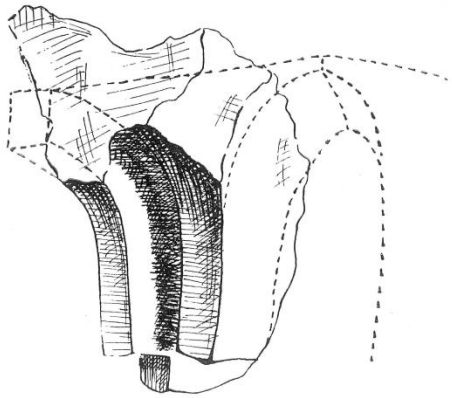
Qalʿat Banī Ḥammād, Qaṣr al-Salām, third block

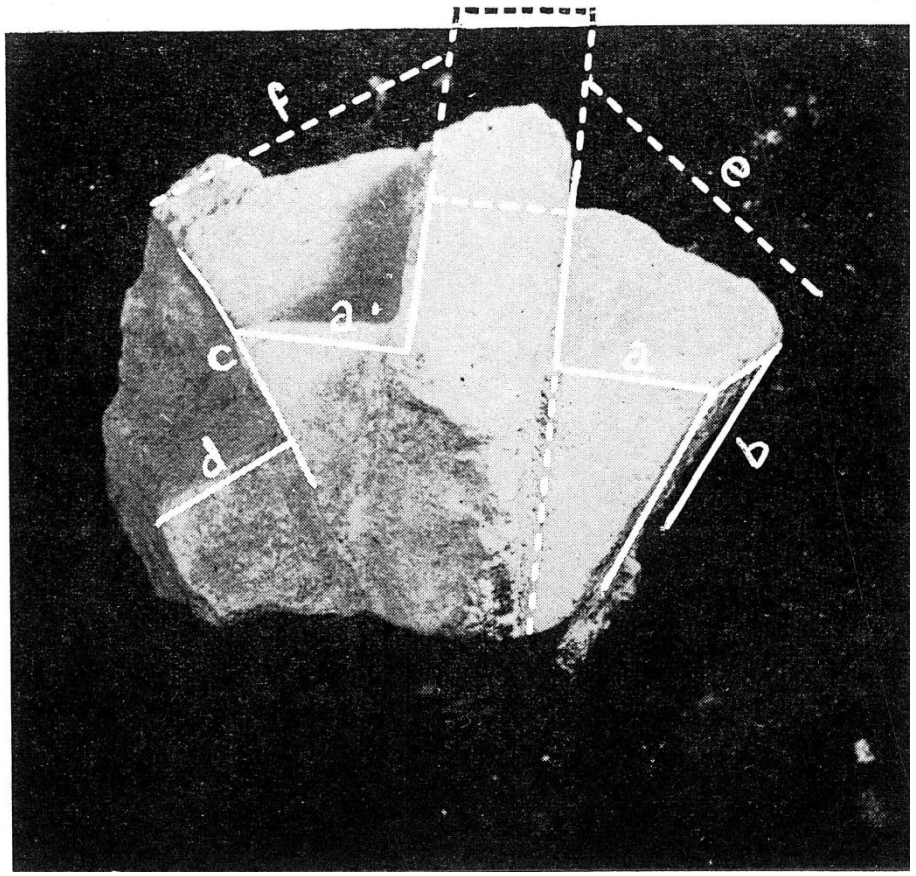
Golvin, 1965





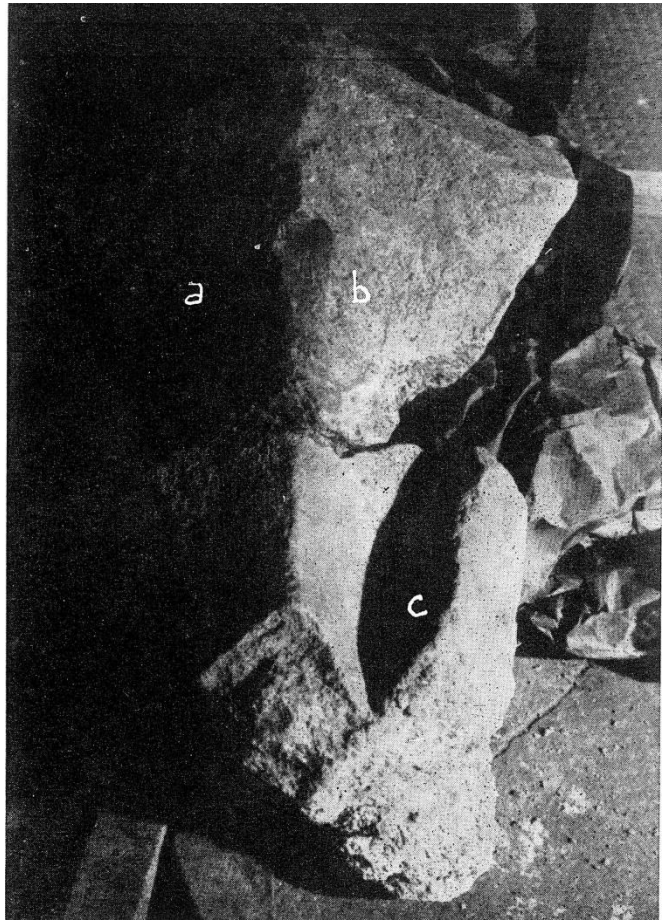


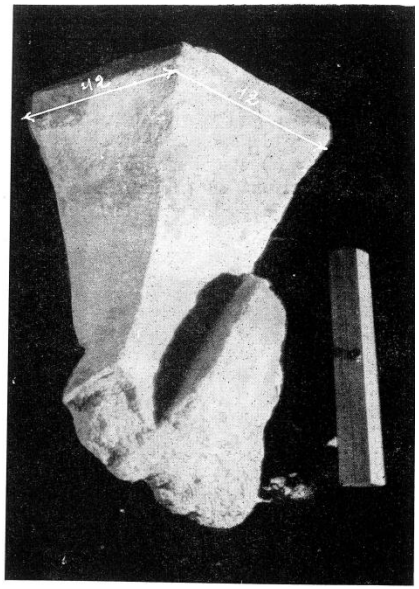


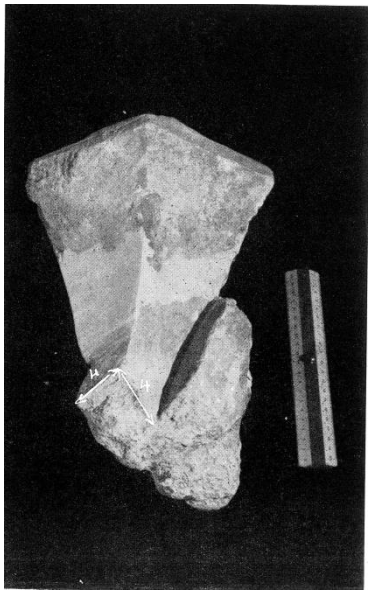


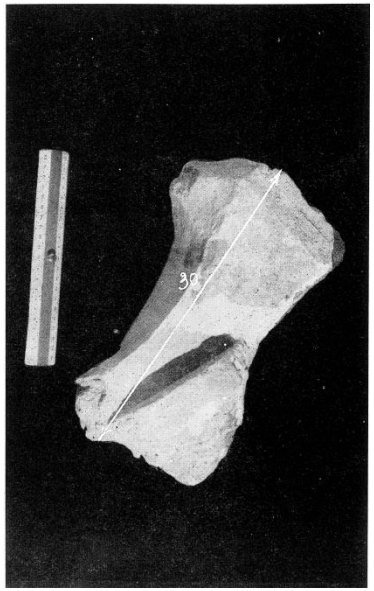
Qalʿat Banī Ḥammād, Qaṣr al-Salām, third block

Golvin, 1965



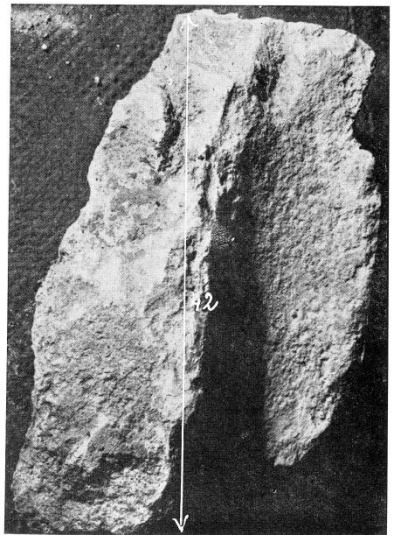


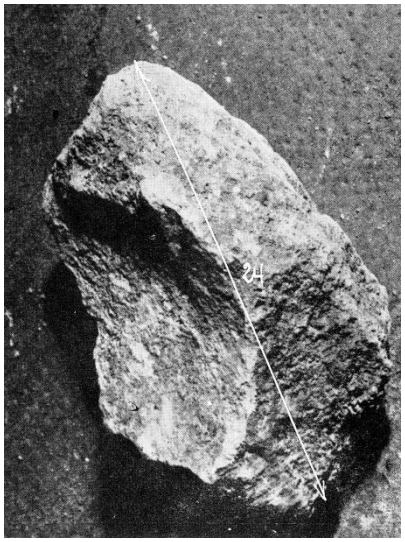


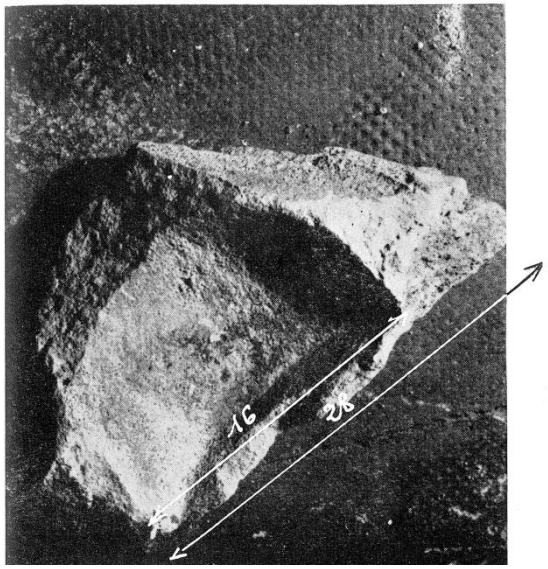


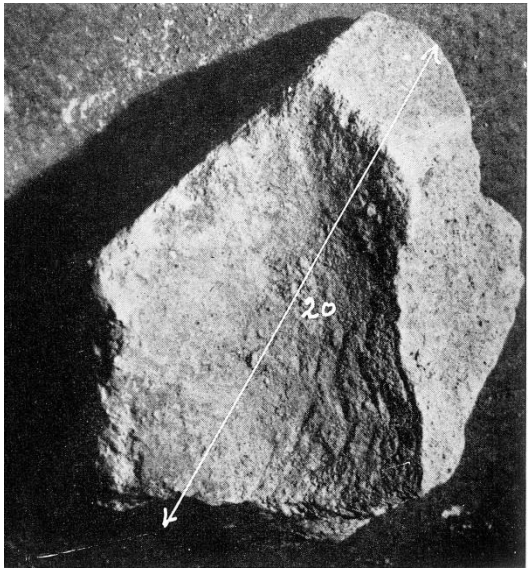
Qalʿat Banī Ḥammād, Qaṣr al-Salām, fourth block

Golvin, 1965



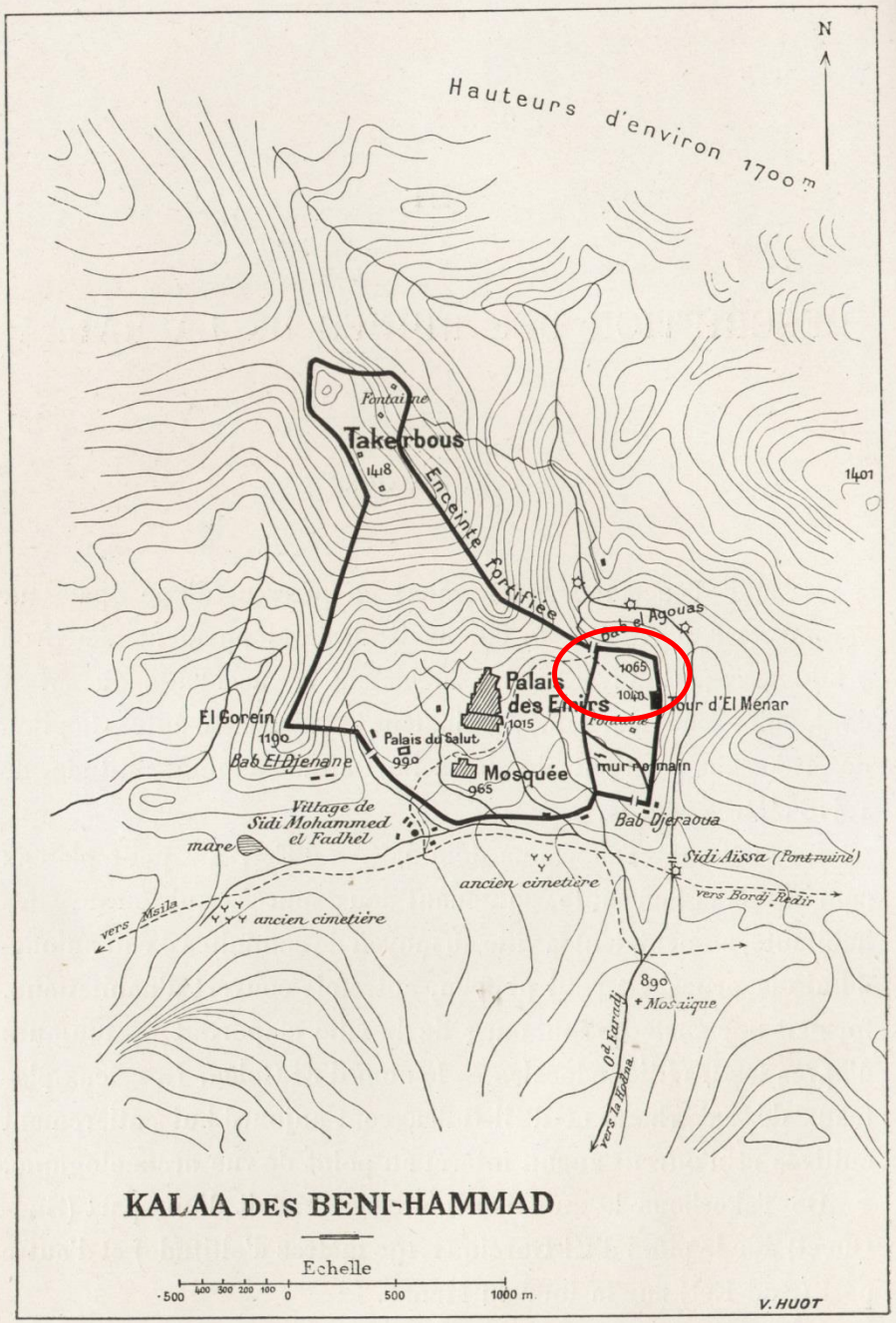






Qalʿat Banī Ḥammād, Qaṣr al-Salām, other fragments

Golvin, 1965



De Beylié, 1909

Fig. 1.

Muqarnas *in Ḥammādid Art*

The Qalʿat Banī Ḥammād Qaṣr al-Manār

The Qalʿat Banī Ḥammād, Qaṣr al-Manār

© Google Earth

4. The keep of Ḳaṣr al-Manār.

Golvin, 1965

The Qal'at Banī Ḥammād, Qaṣr al-Manār

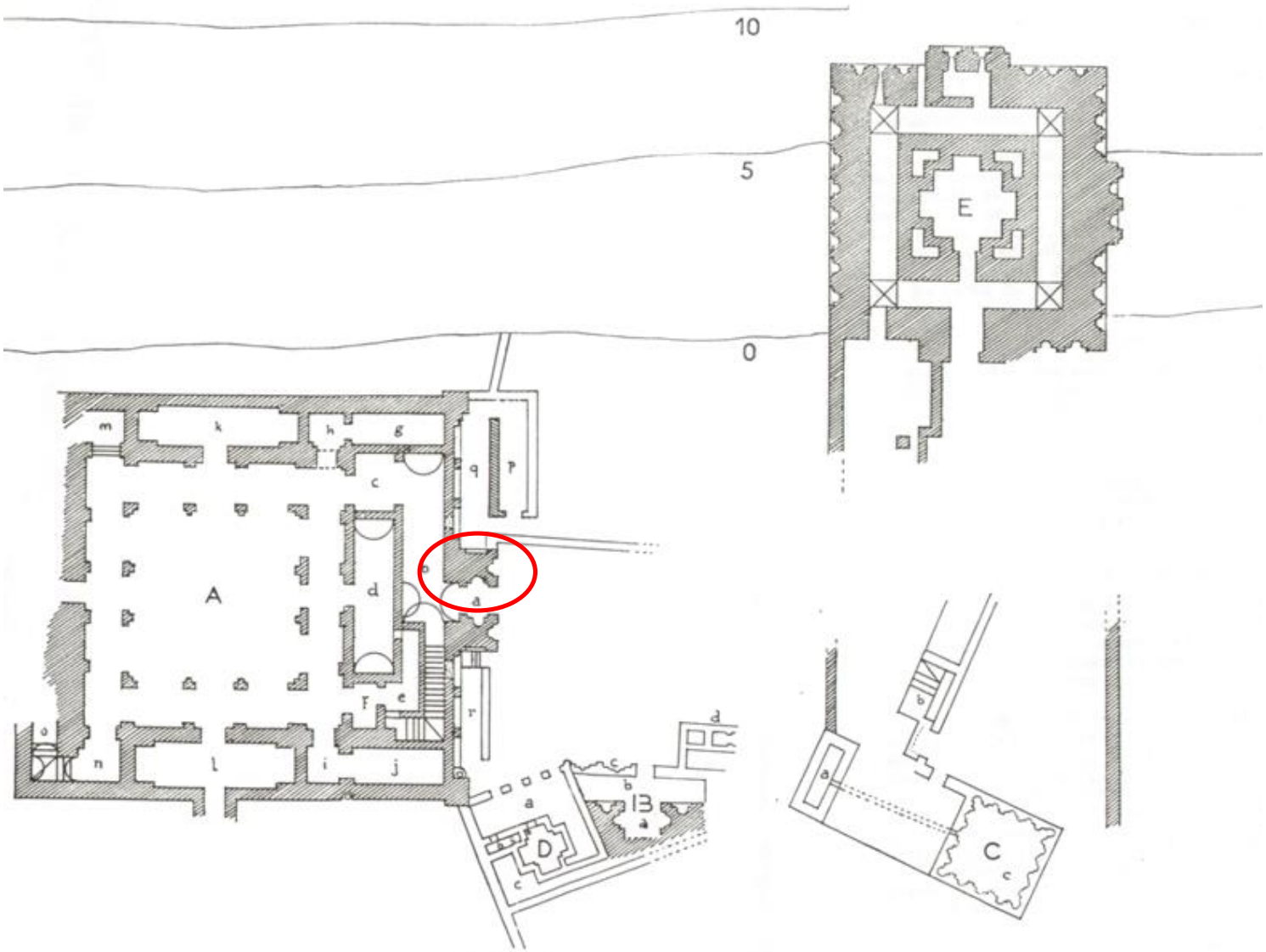
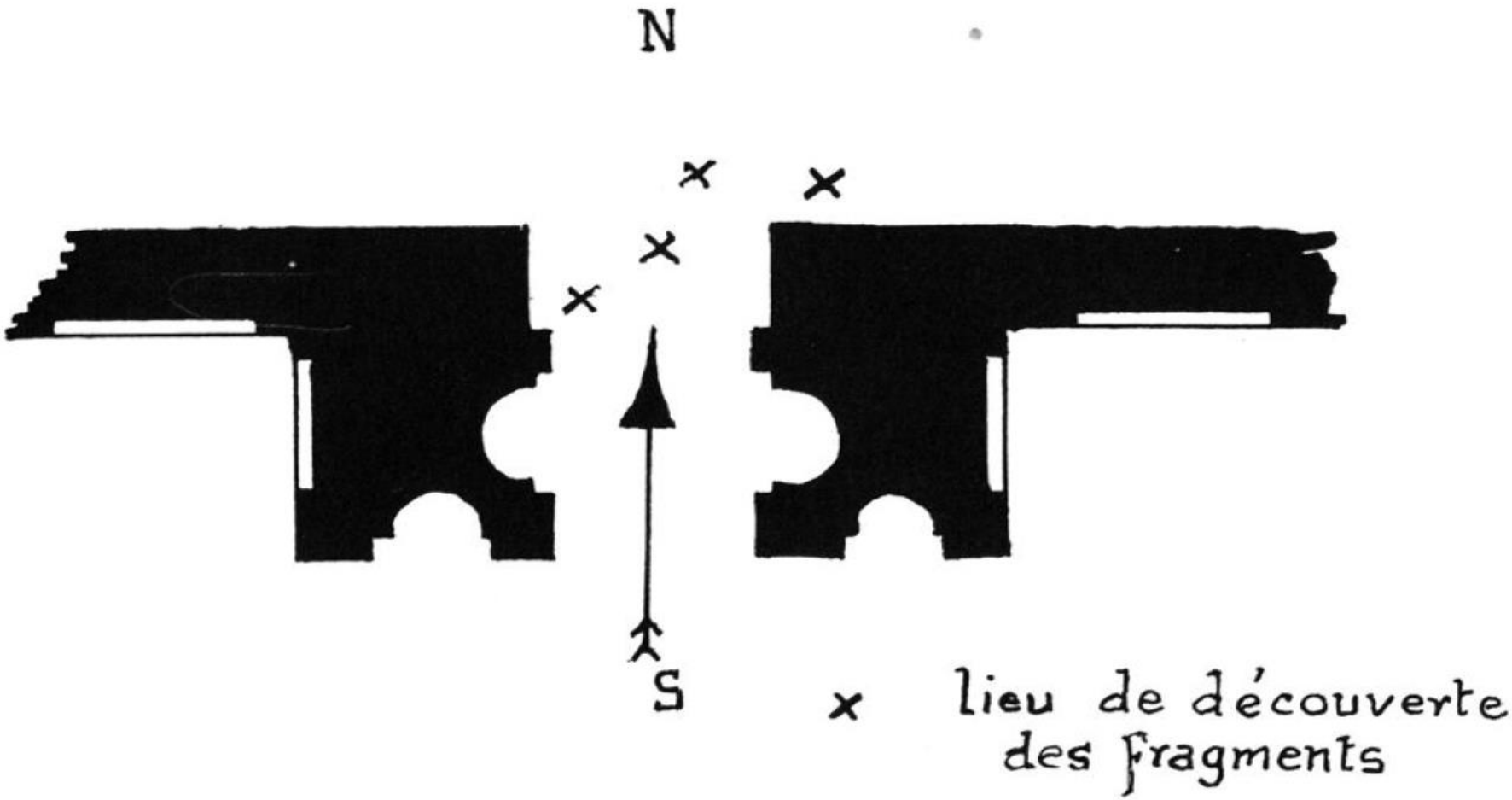
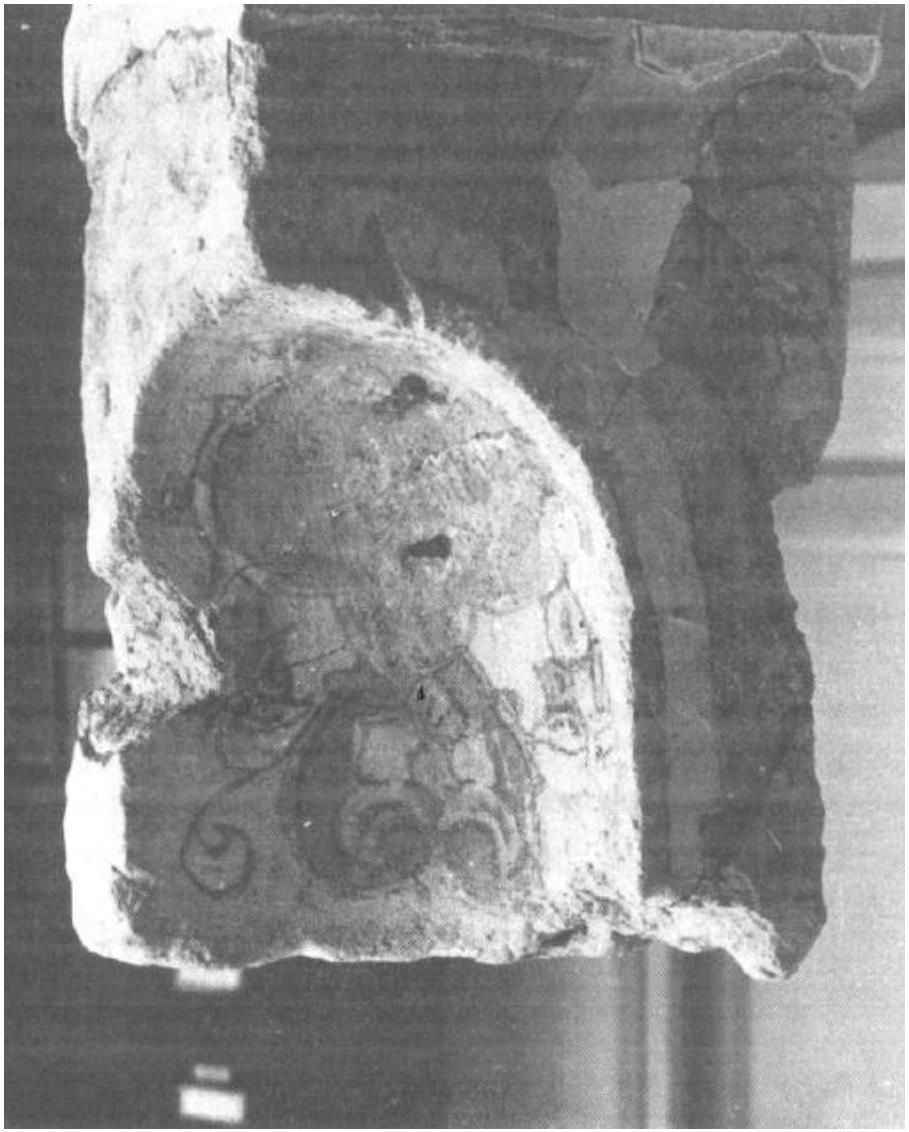


Fig. 22. — Plan général des fouilles du palais du Manâr.

Golvin, 1965



Golvin, 1965



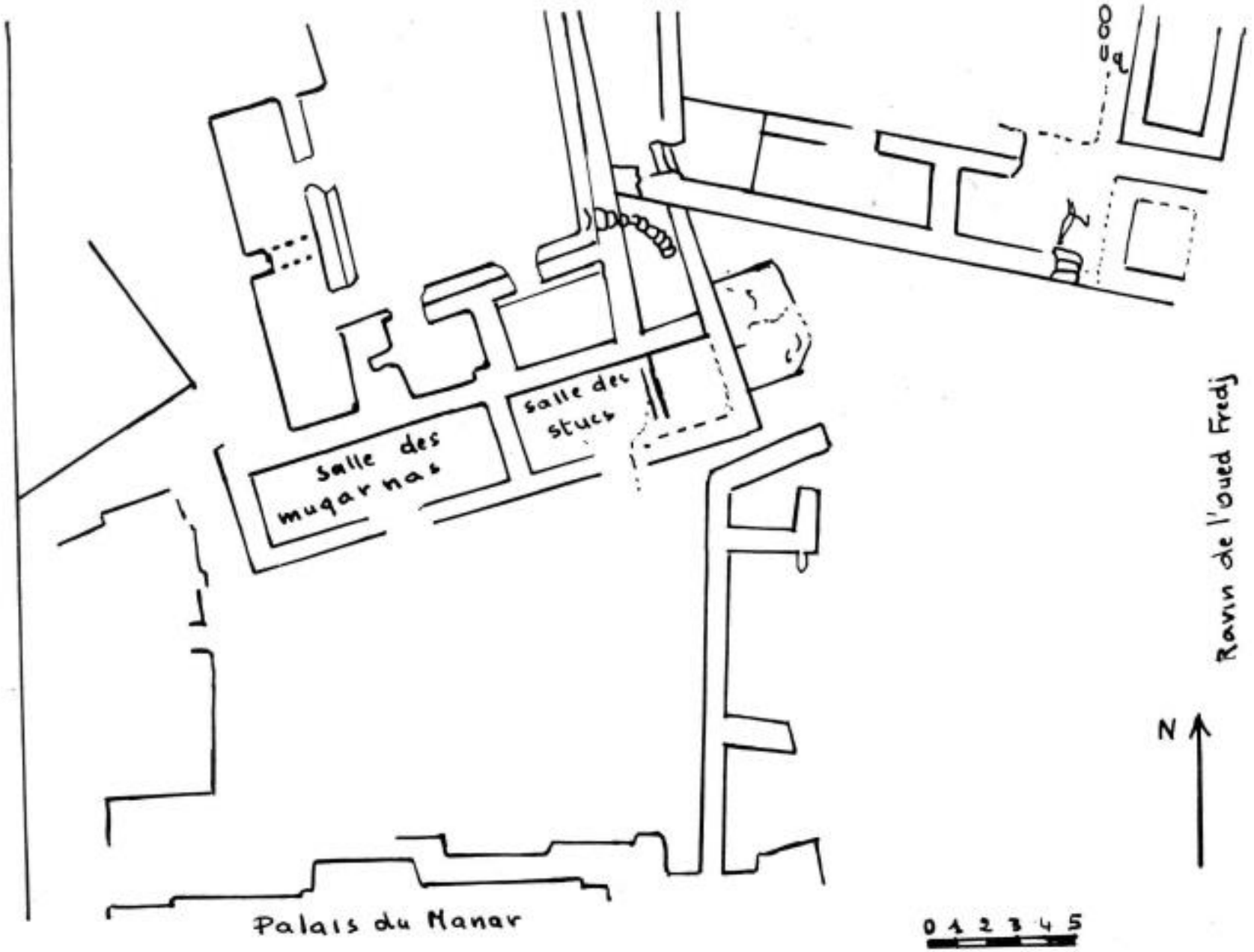
The Qalʿat Banī Ḥammād, Qaṣr al-Manār

Golvin, 1965

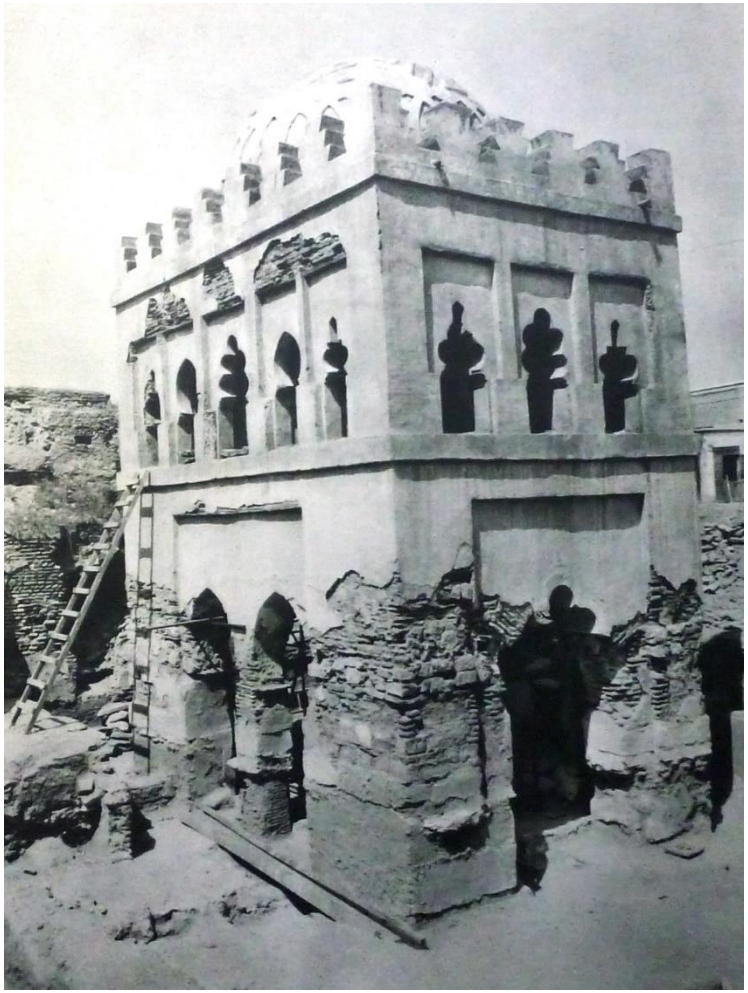
The Qalʿat Banī Ḥammād, Qaṣr al-Manār

Golvin, 1965

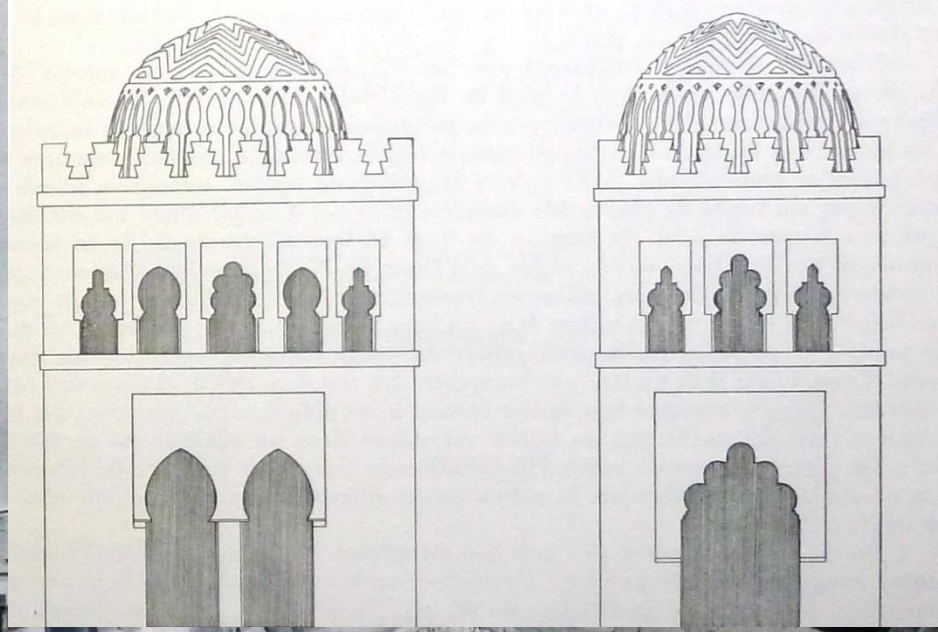
The Qalʿat Banī Ḥammād, sketch of the hall where a third group of fragments was found



Bourouiba, 1984



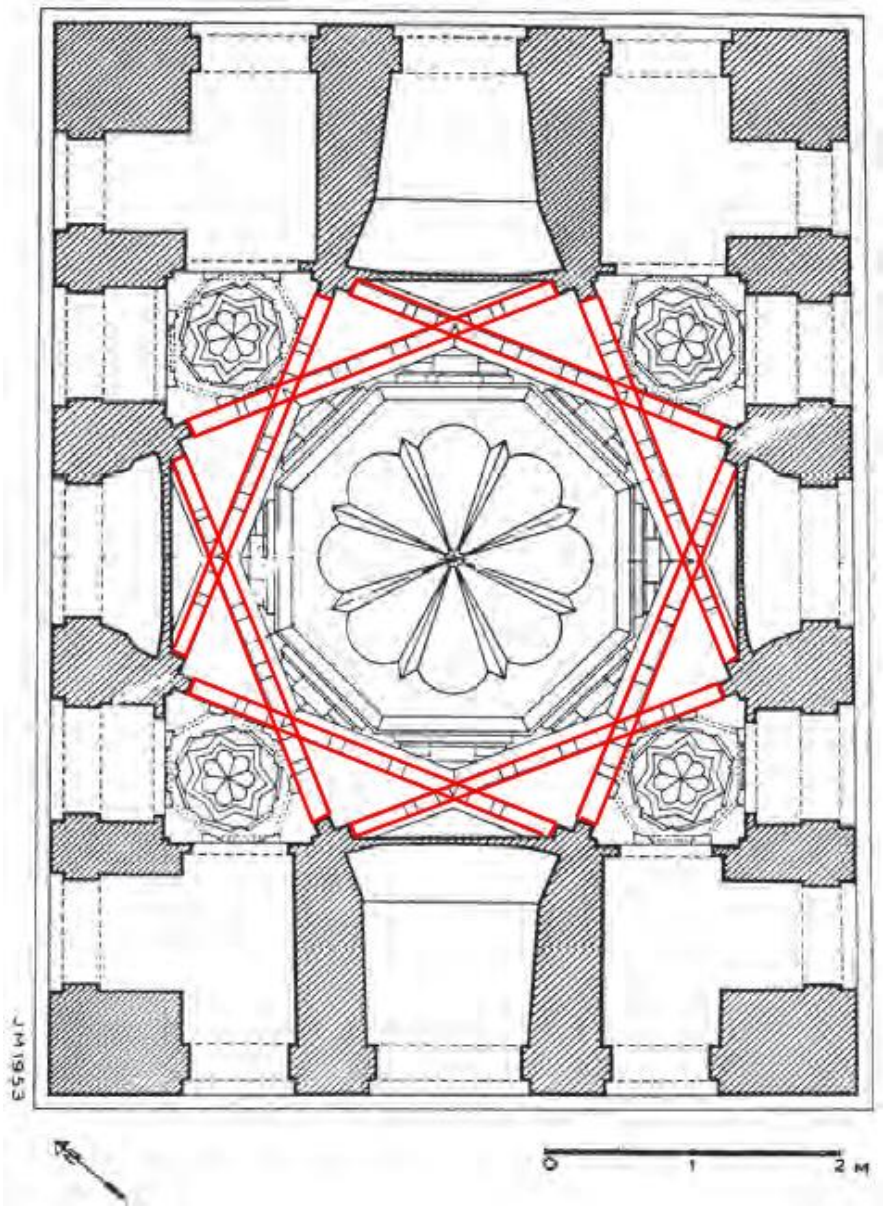
Muqarnas *in Almoravid Art*
The Qubbat al-Bārūdiyyīn

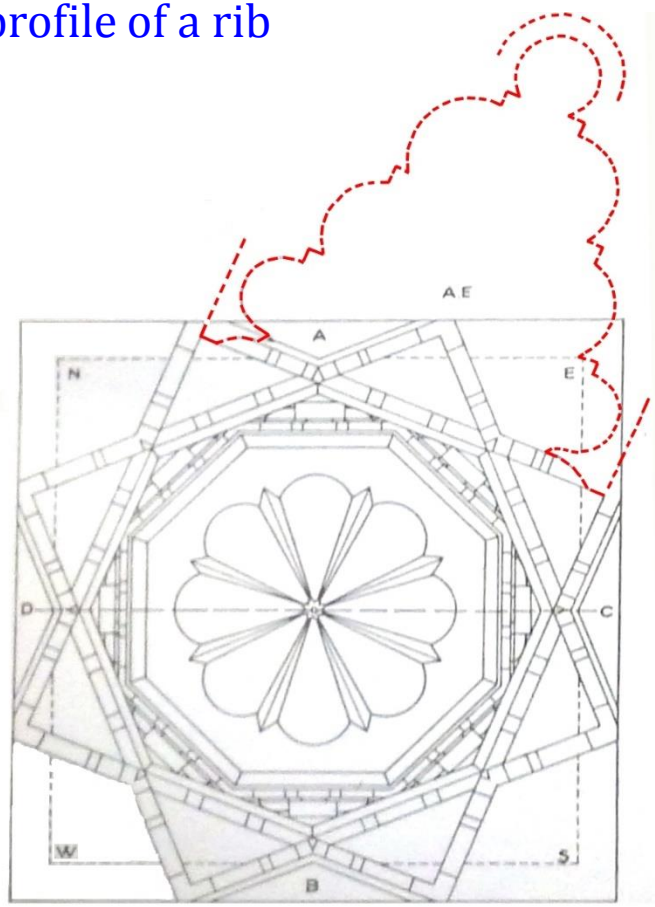


Meunié and Terrasse, 1957

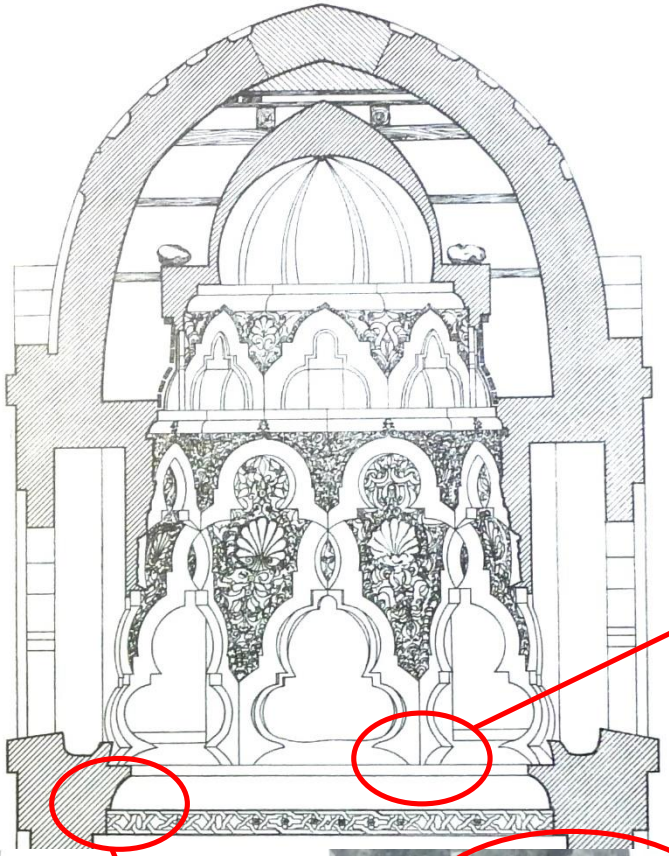
Detail of the stone and brick work

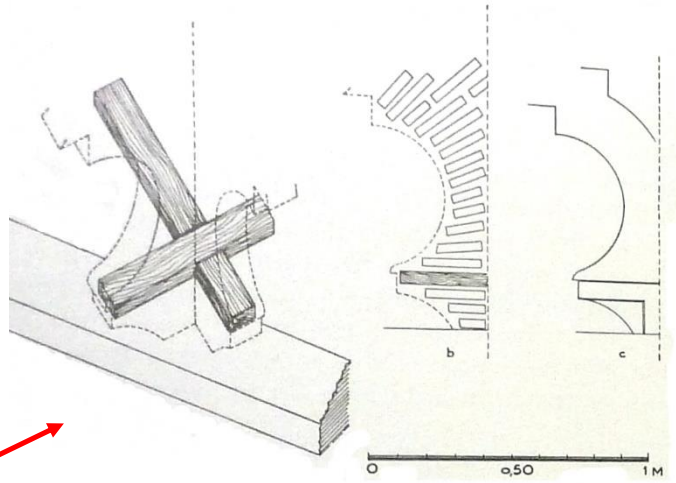
Ribs intersection and profile of a rib



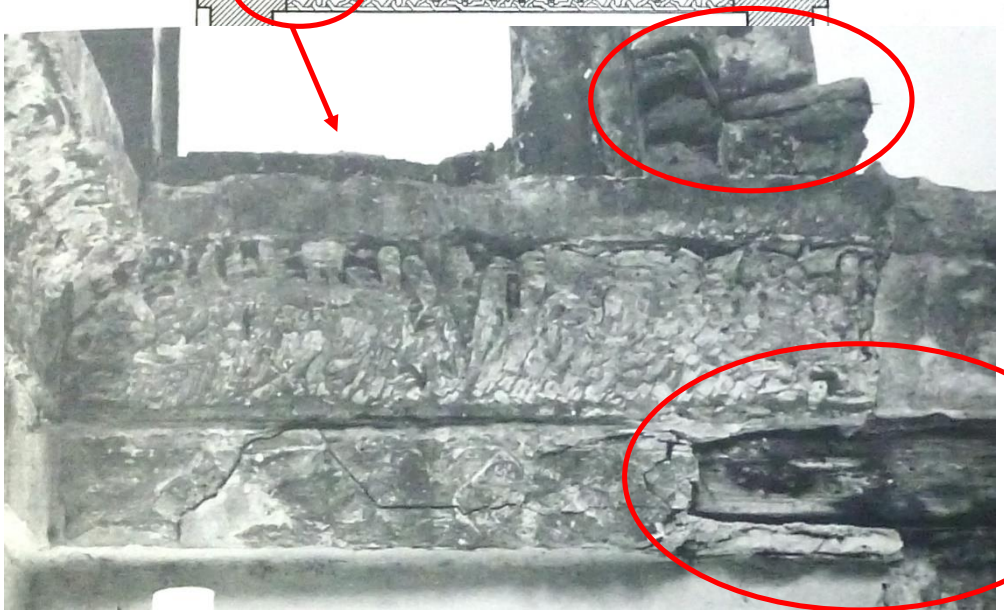


Adapted from Meunié and Terrasse, 1957

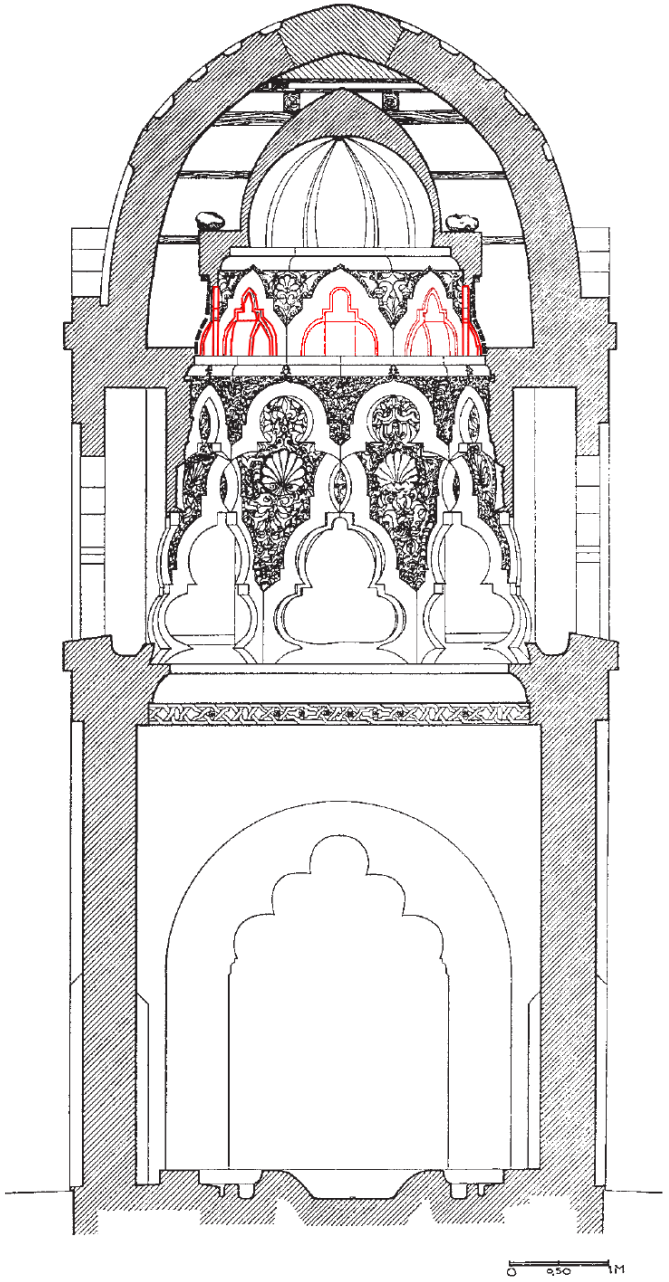




Some examples of the wooden supports



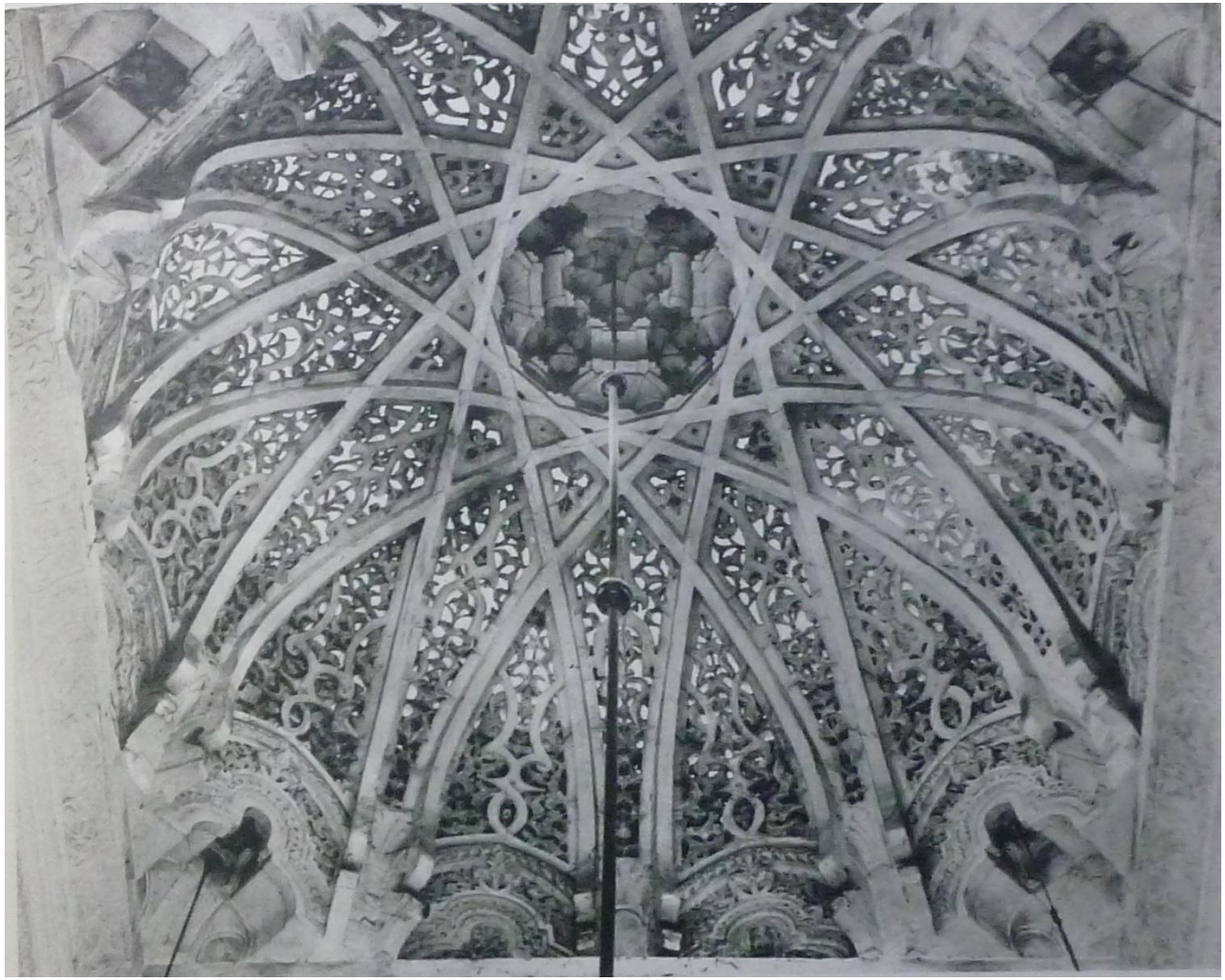
Adapted from Meunié and Terrasse, 1957



Adapted from Meunié and Terrasse, 1957

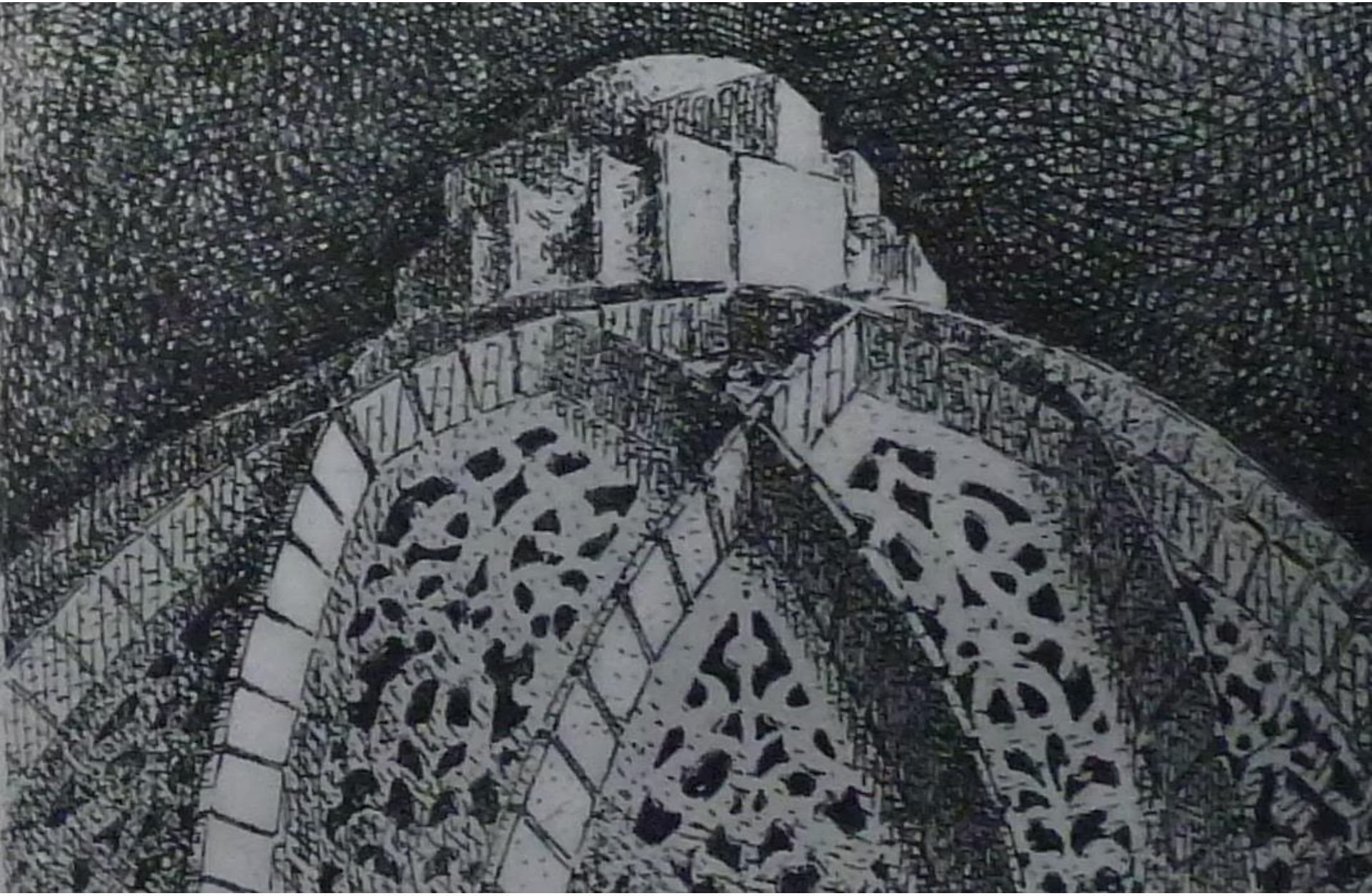
Meunié and Terrasse, 1957; Tabbaa, 2008

Remains of the inscription, deliberately desfigured by the Almohads

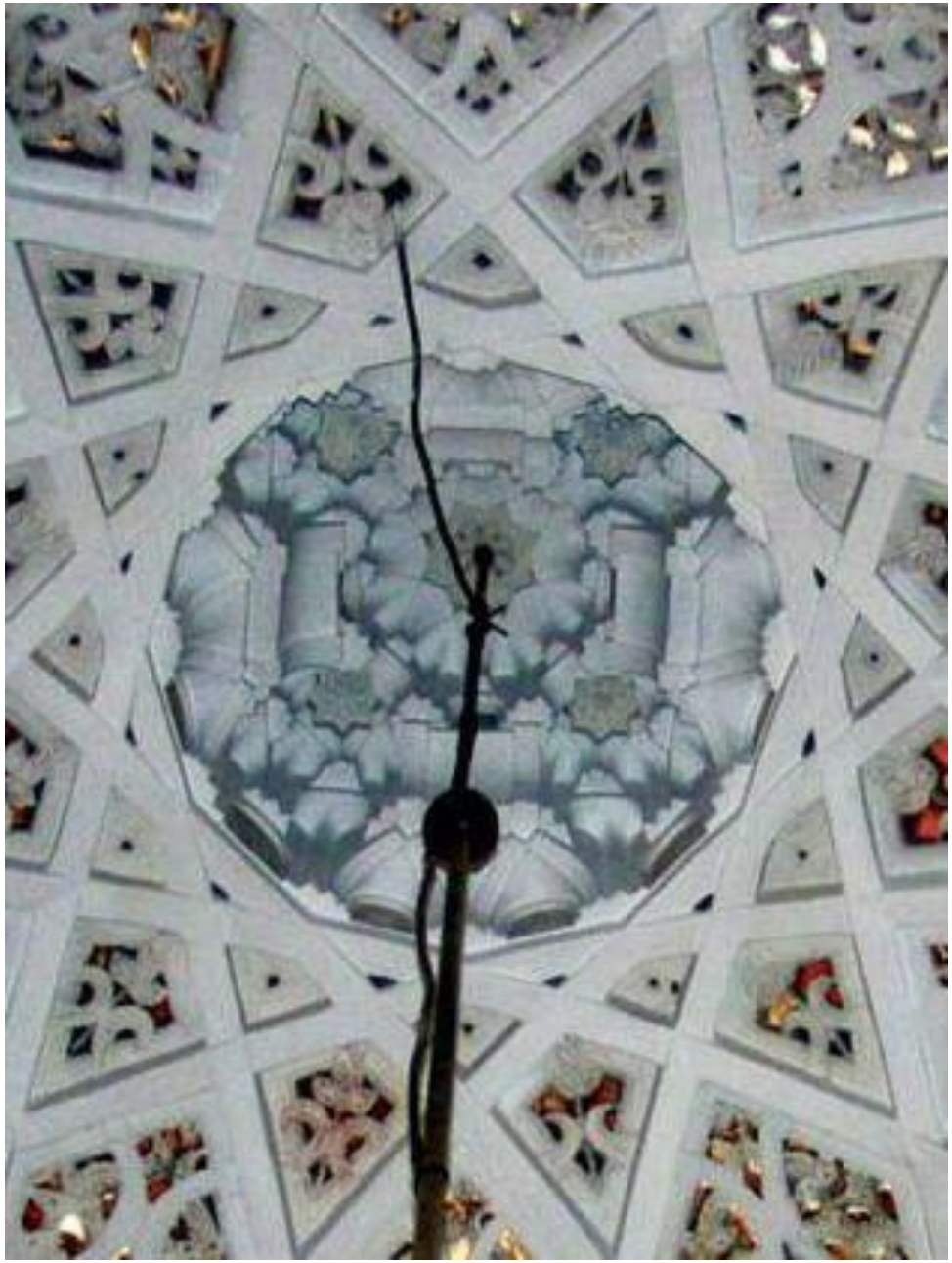


Meunié and Terrasse, 1957

The Great Mosque of Tlemcen



Marçais, 1954

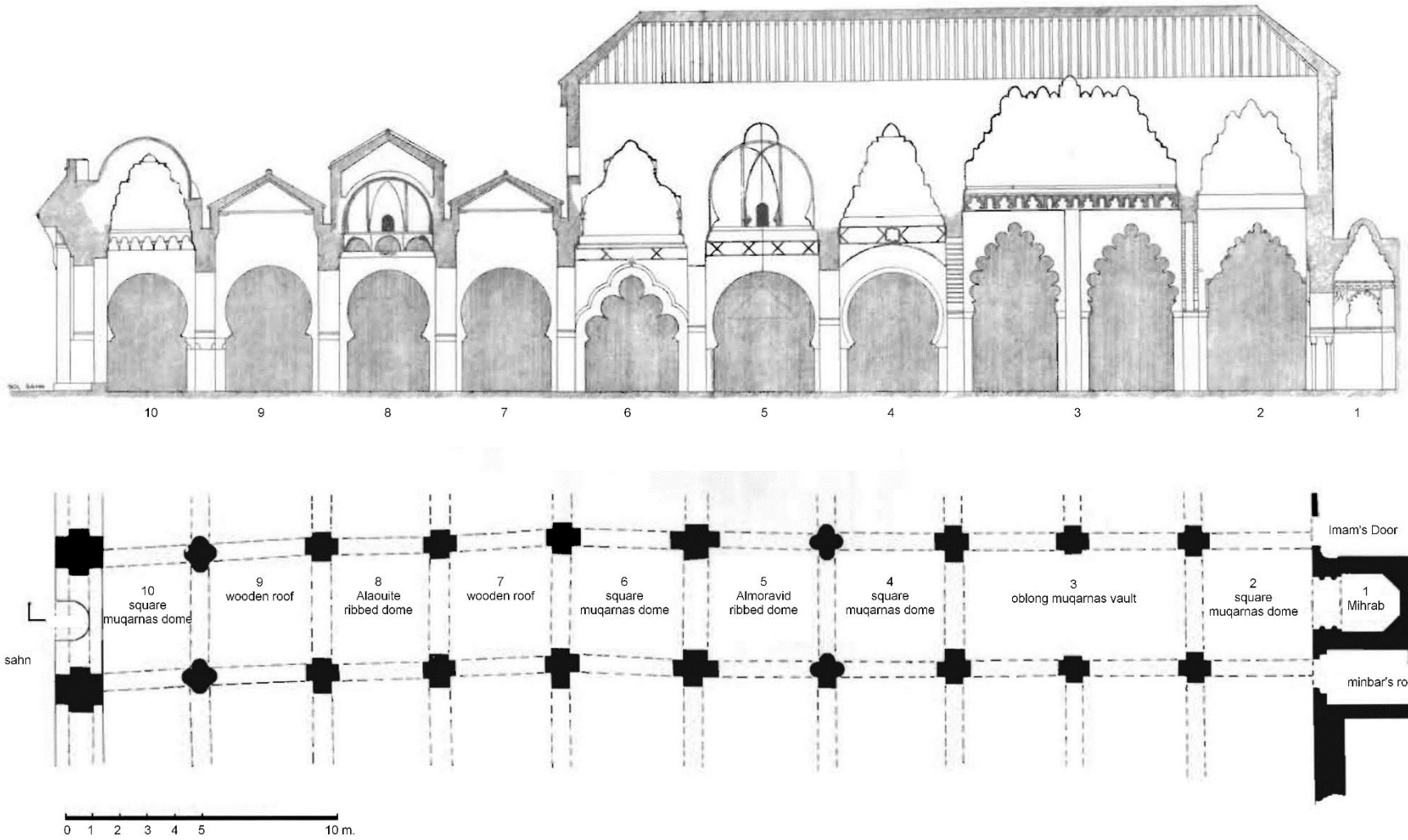


The Mosque of al-Qarawiyyīn

Mosque of al-Qarawiyyīn – Almoravid works

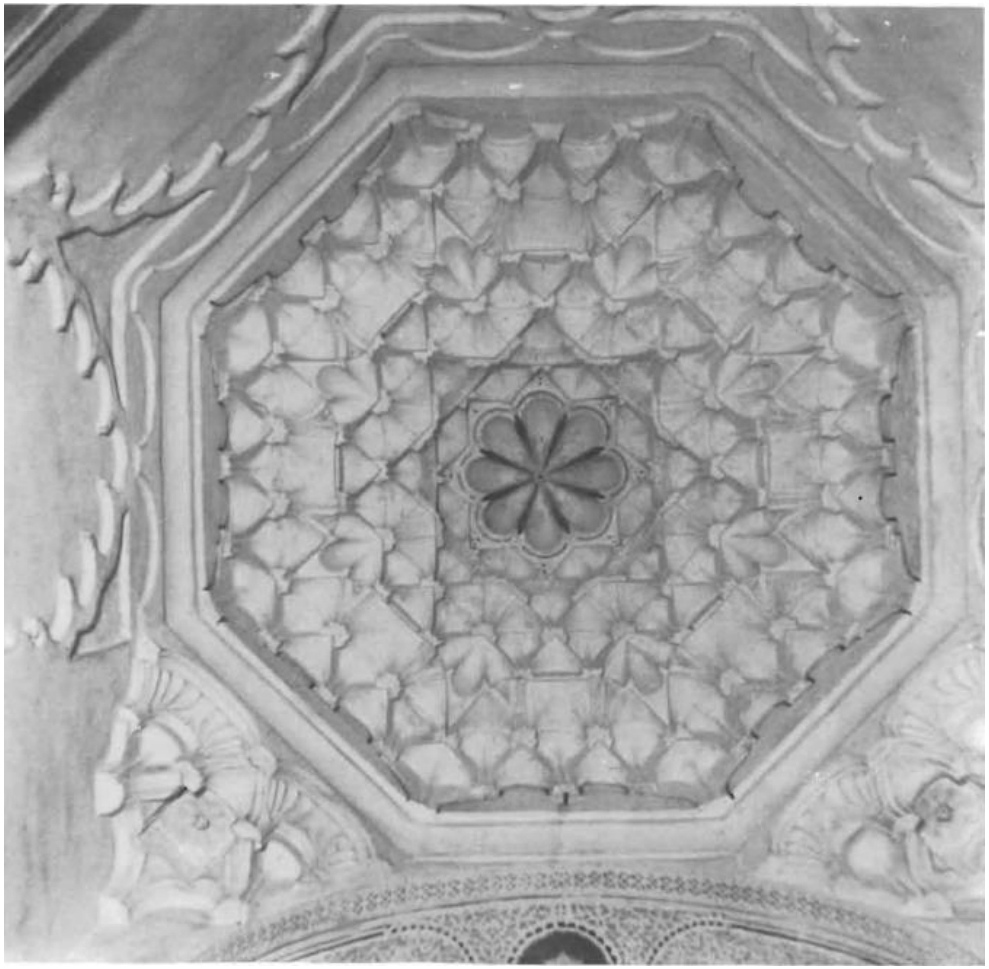
Adapted from R. López Guzman, 1995

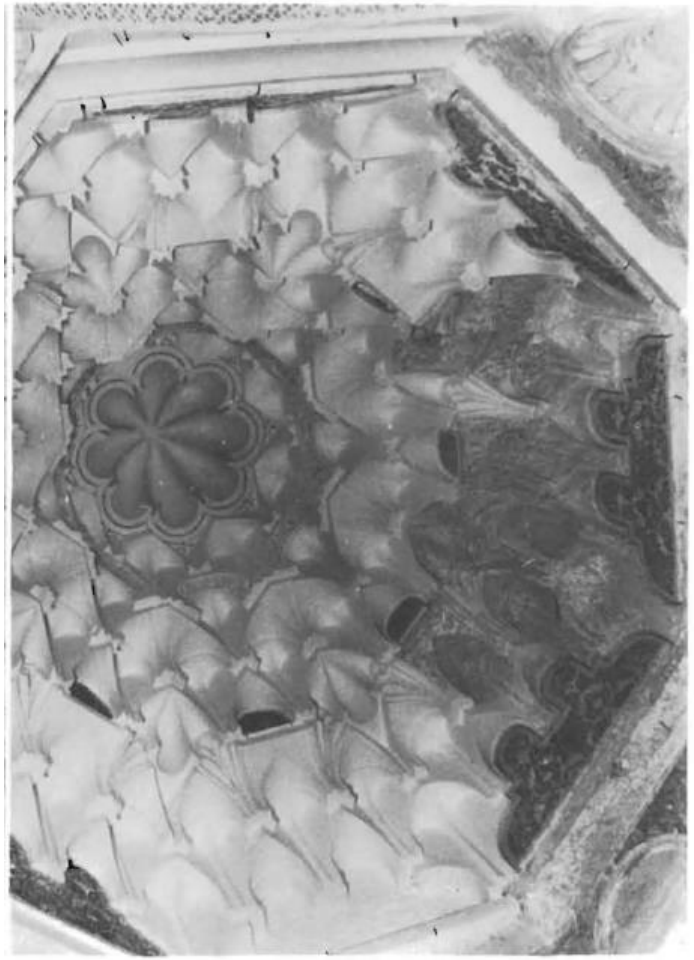
Mosque of al-Qarawiyyīn – The raised nave, plan and section

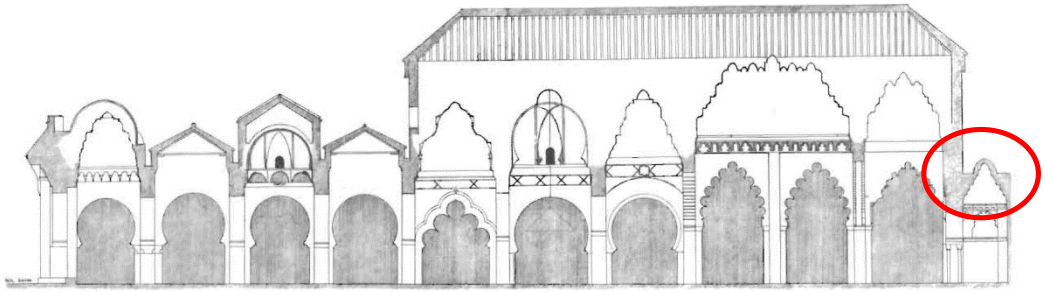


Adapted from Terrasse, 1968

Mosque of al-Qarawiyyīn – Mihrab dome, before and during the restoration

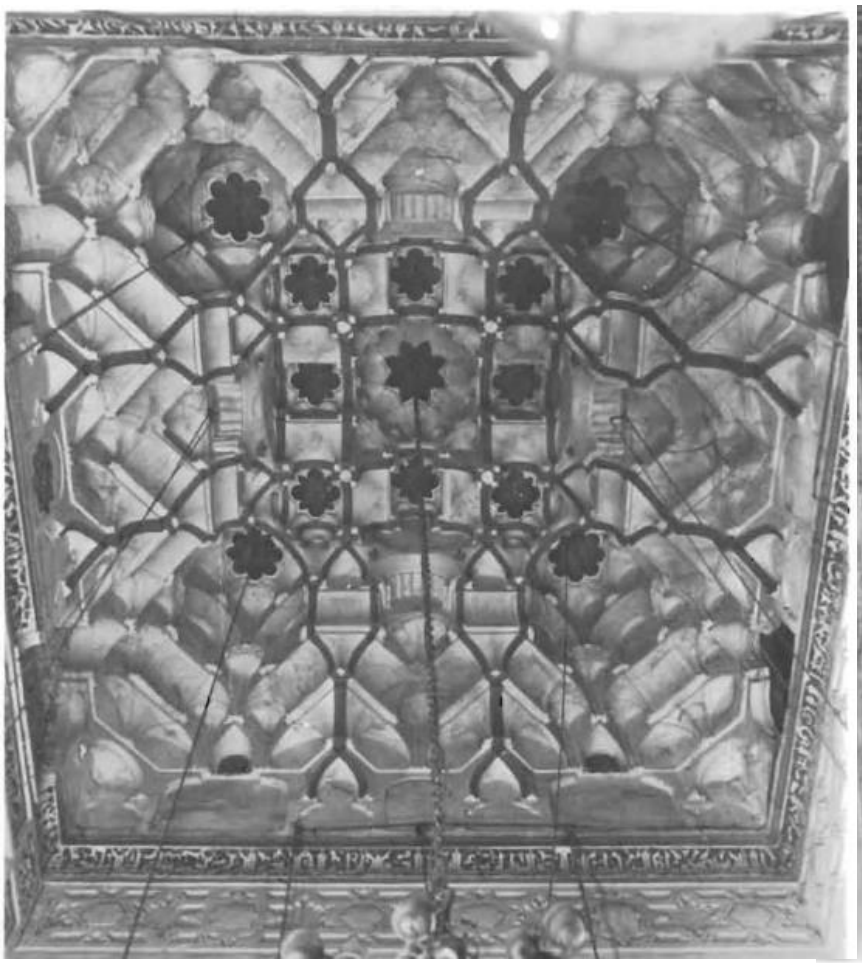


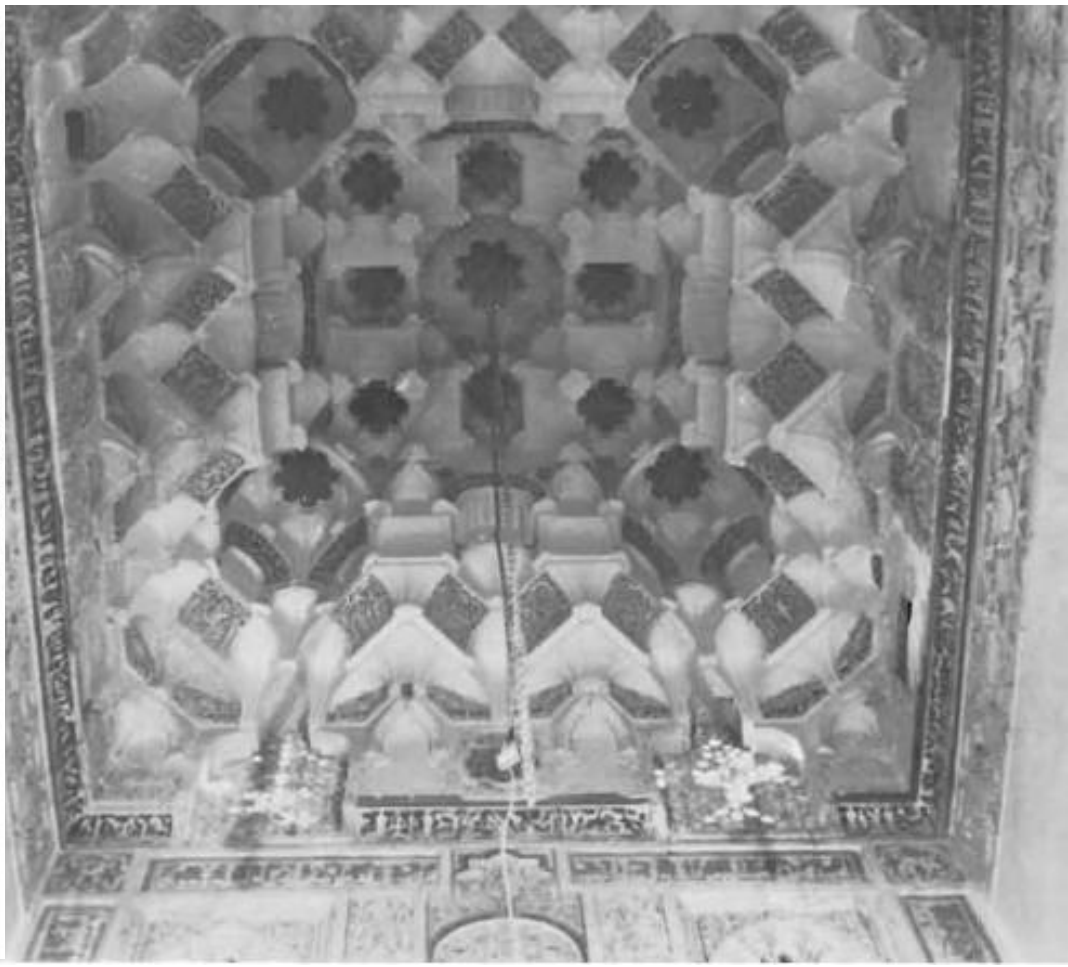


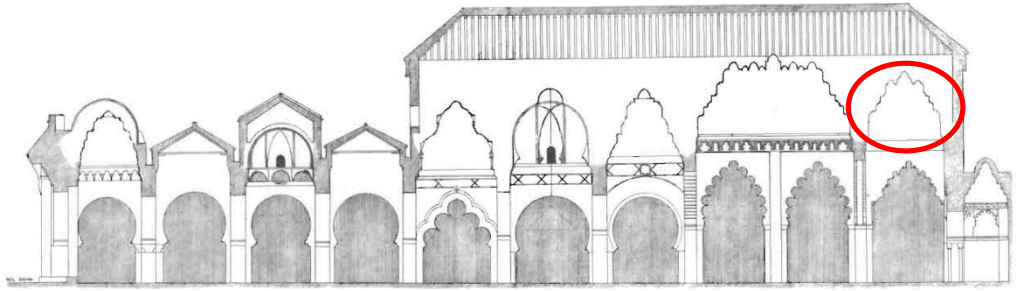


Terrasse, 1968 (adapted from)

Mosque of al-Qarawiyyīn – Square *muqarnas* dome, before and after the restoration

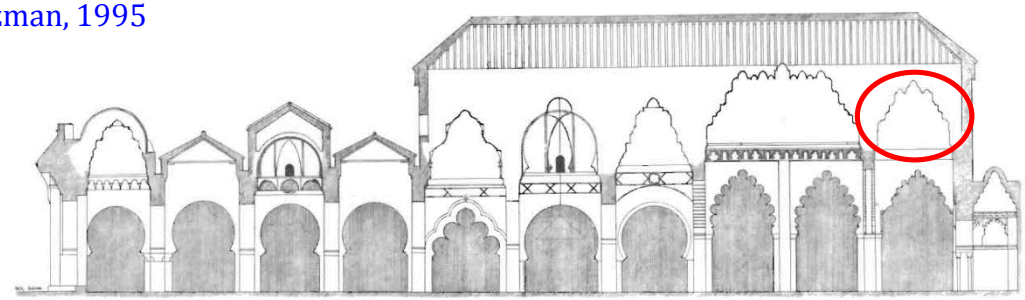




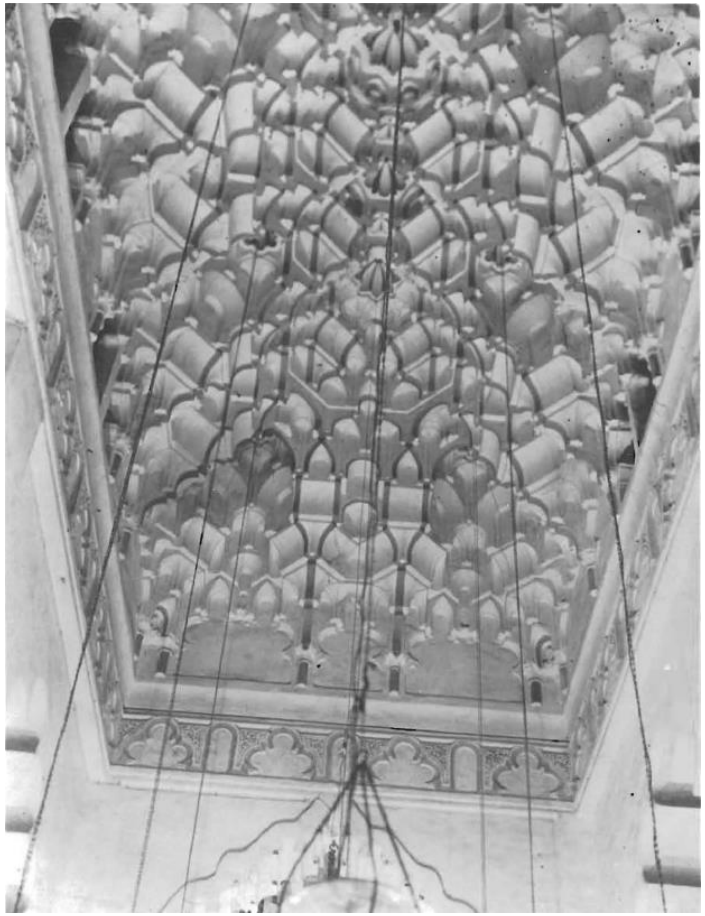


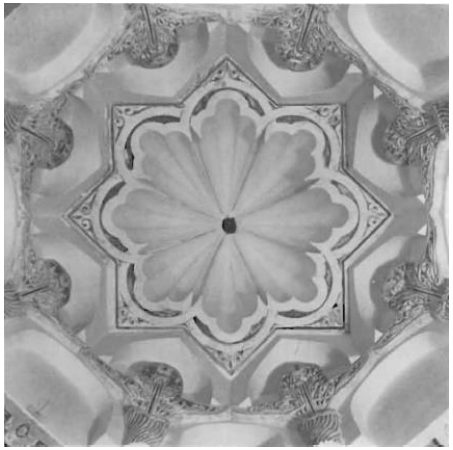
Terrasse, 1968 (adapted from)

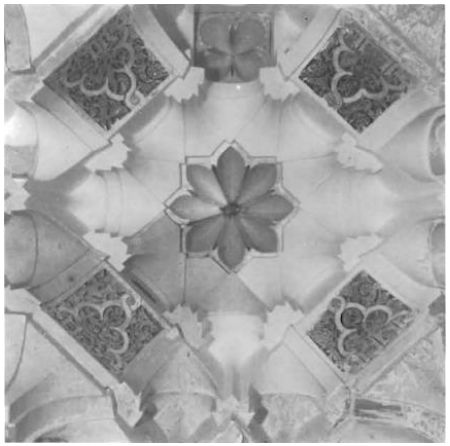
López Guzman, 1995

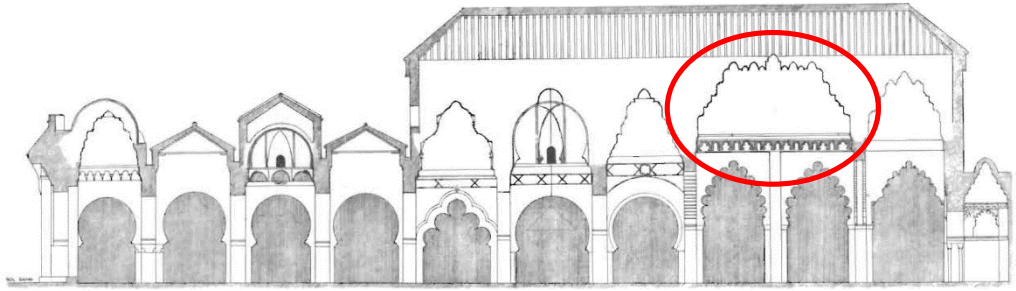


Mosque of al-Qarawiyyīn – Oblong *muqarnas* vault



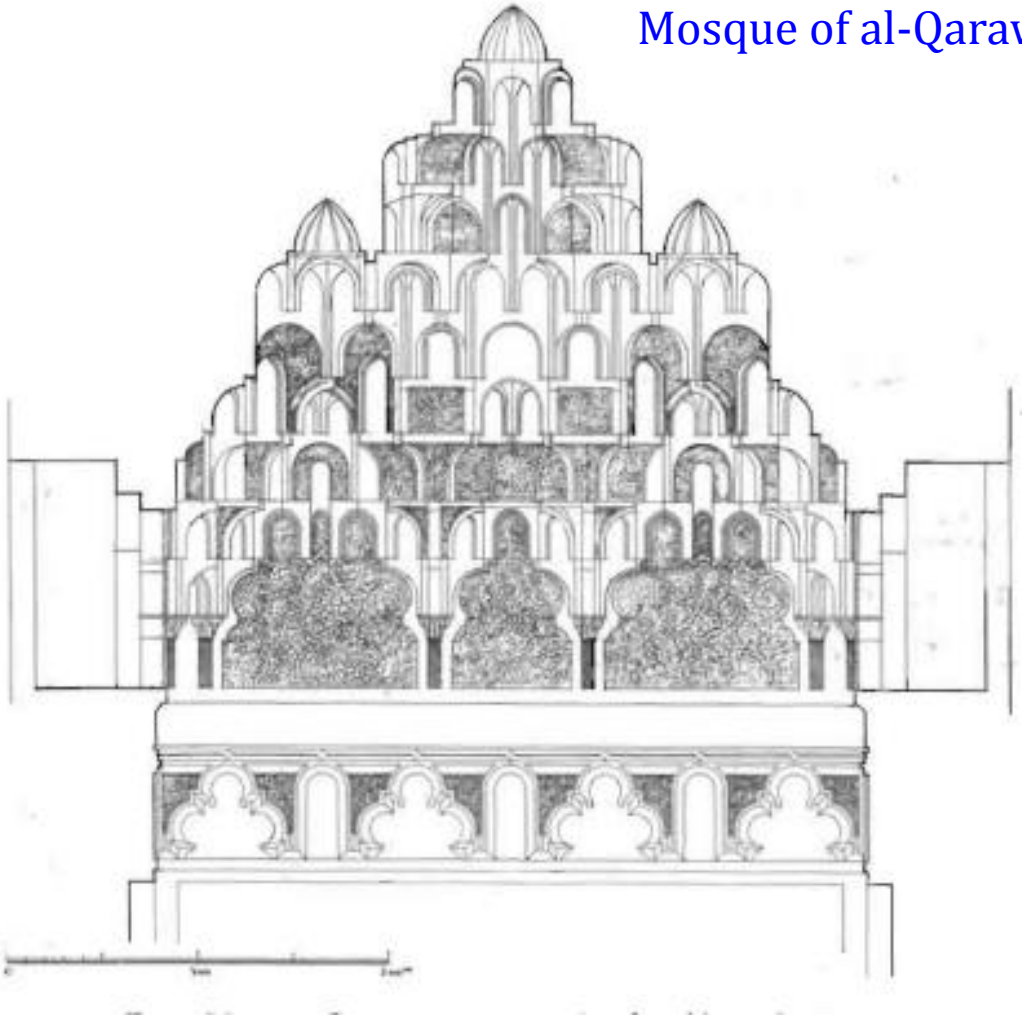


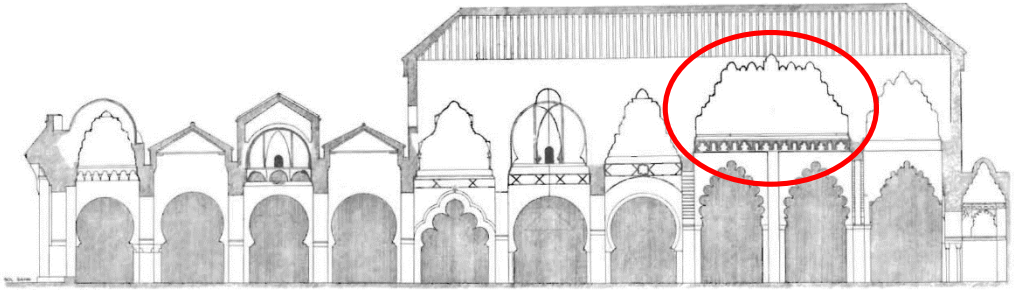


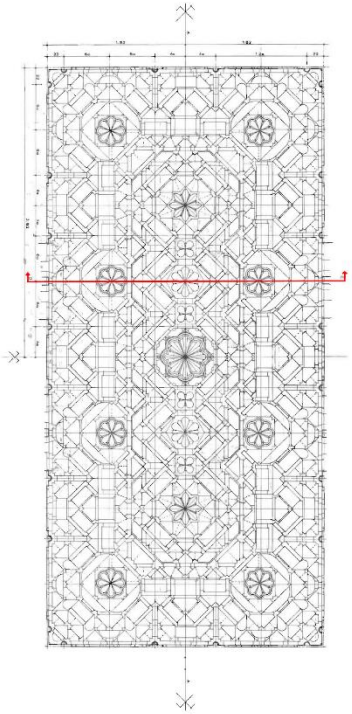


López Guzman, 1995

Mosque of al-Qarawiyyīn – Oblong *muqarnas* vault

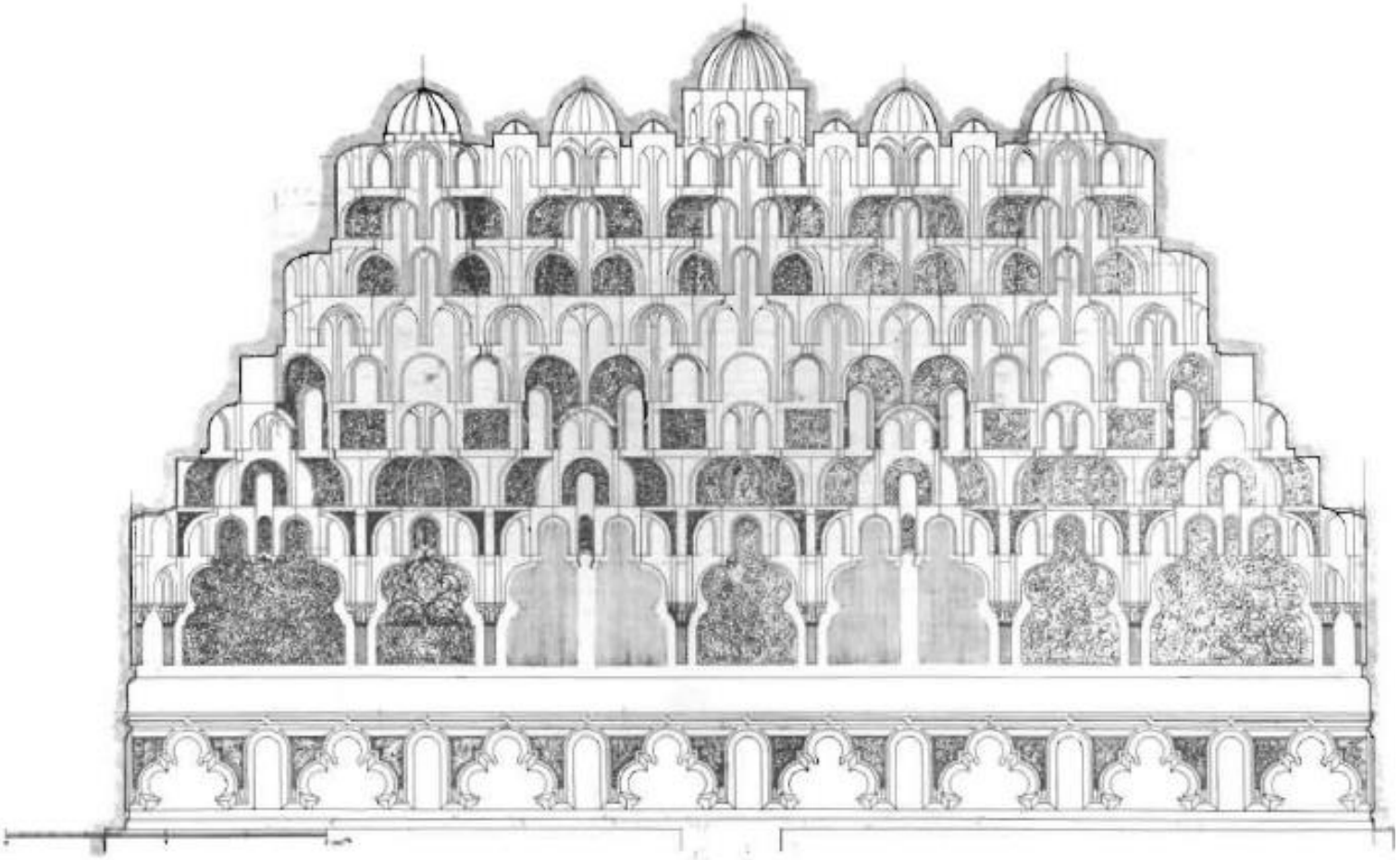


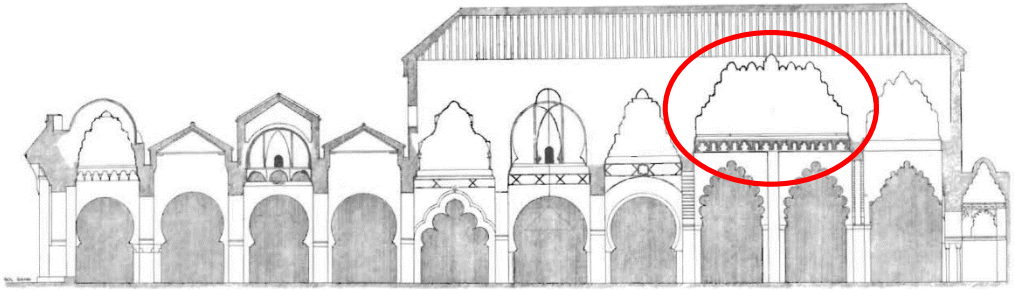


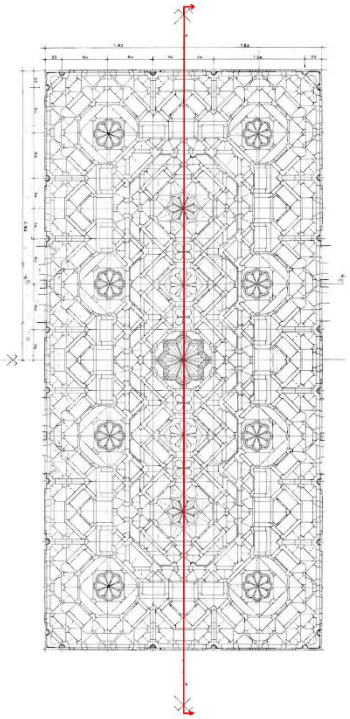


Terrasse, 1968 (adapted from)

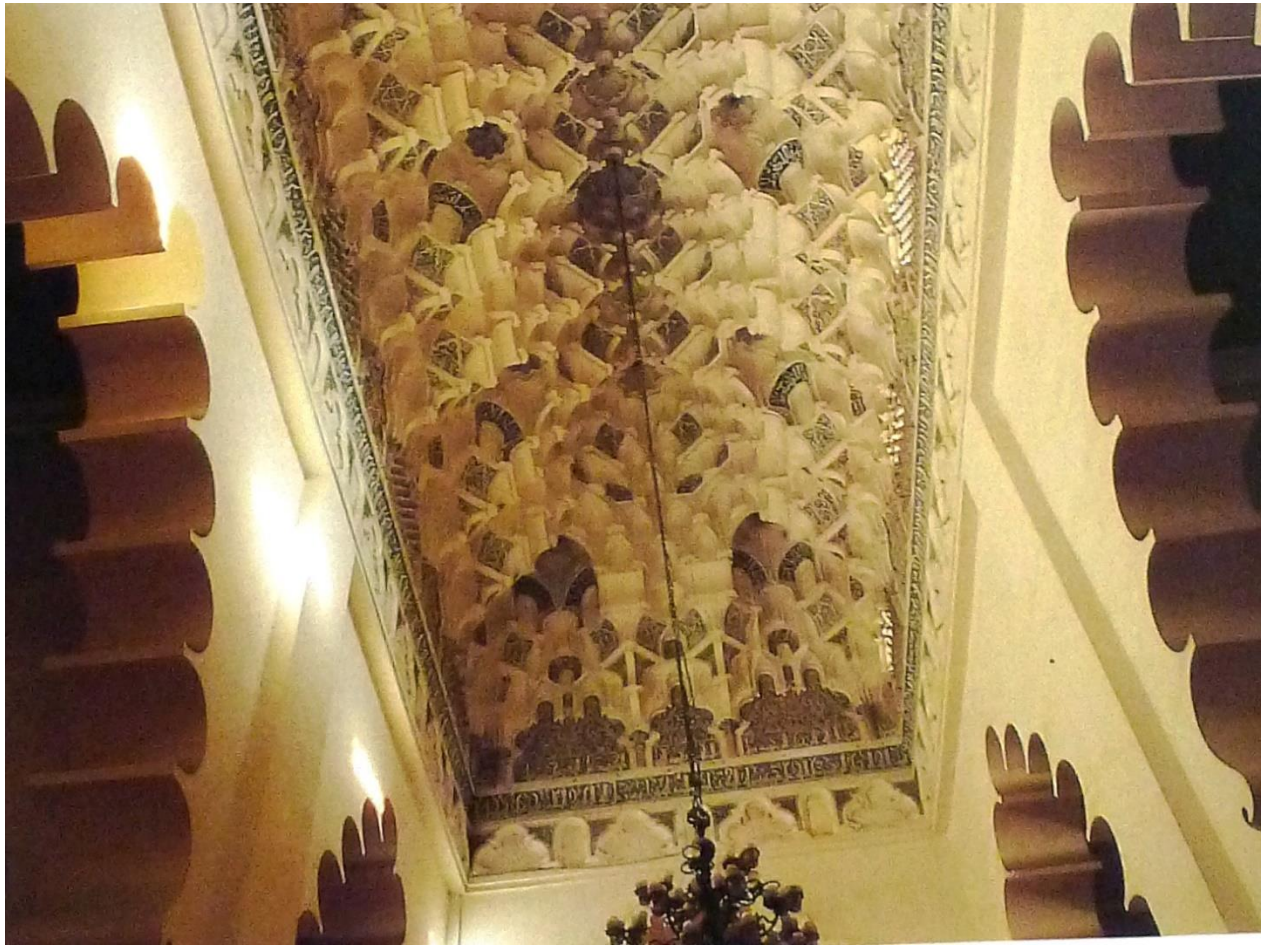
Mosque of al-Qarawiyyīn – Oblong *muqarnas* vault



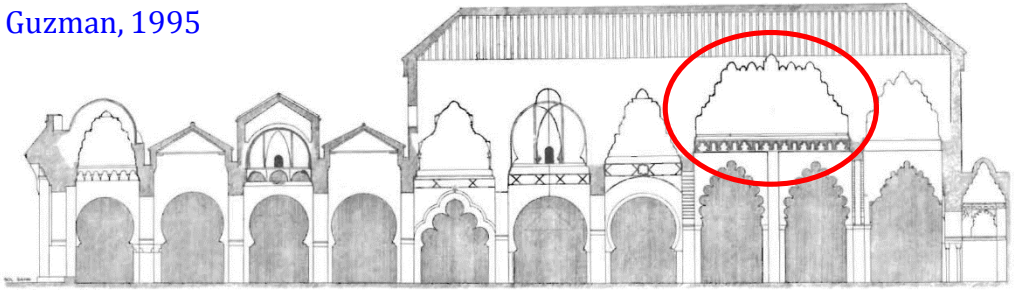


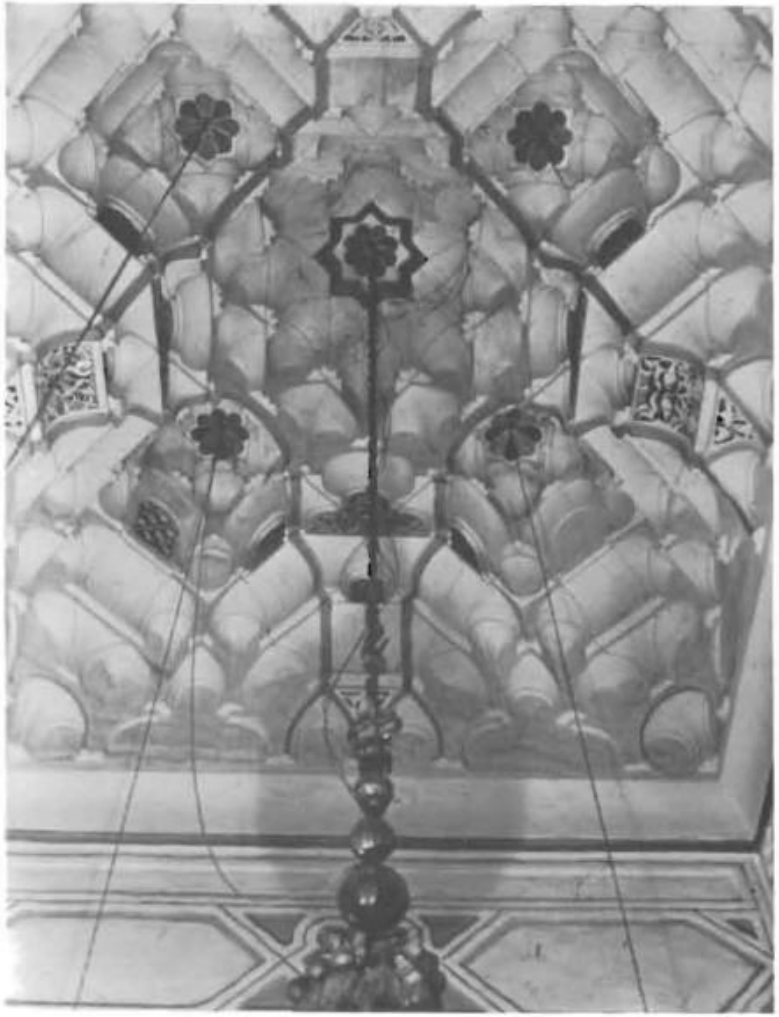


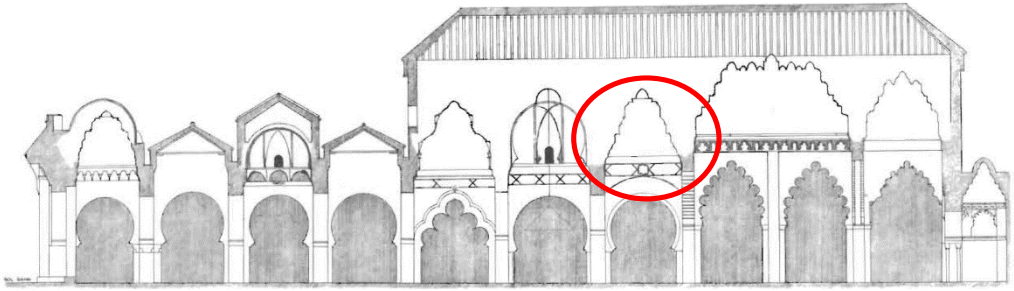
Terrasse, 1968 (adapted from)



López Guzman, 1995

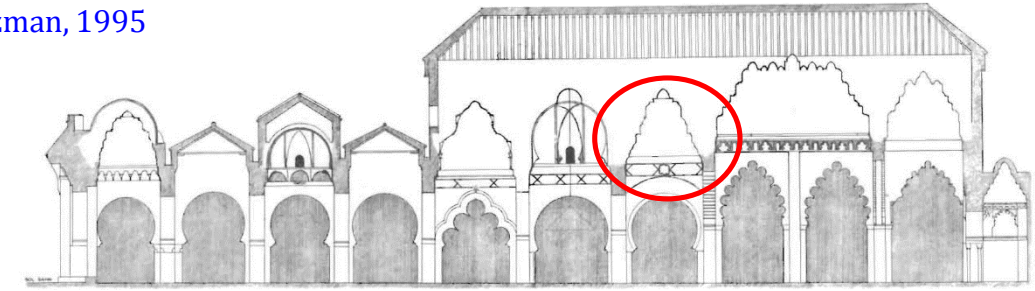




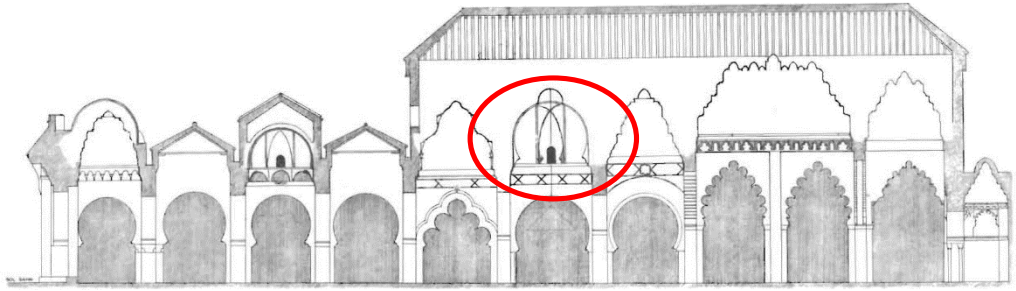


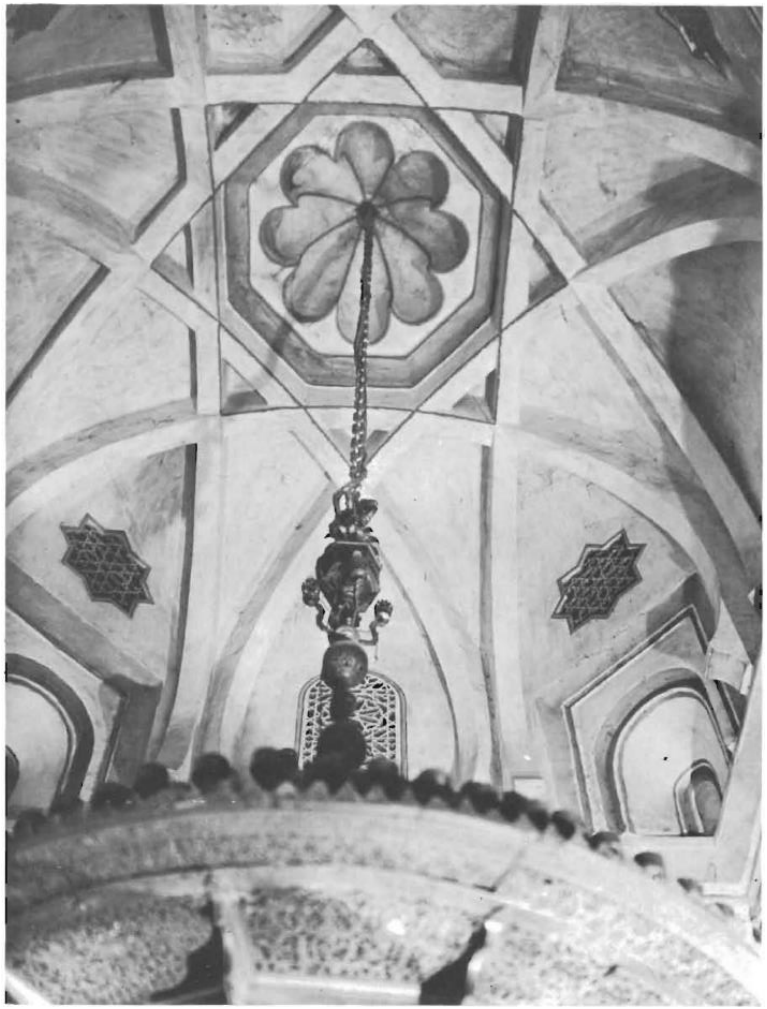
Terrasse, 1968 (adapted from)

López Guzman, 1995

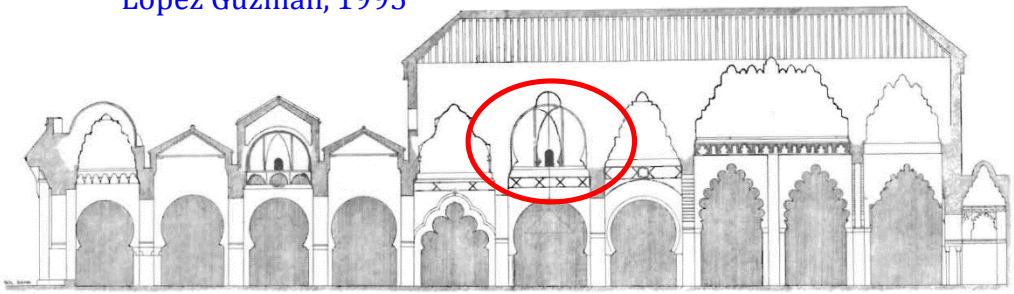


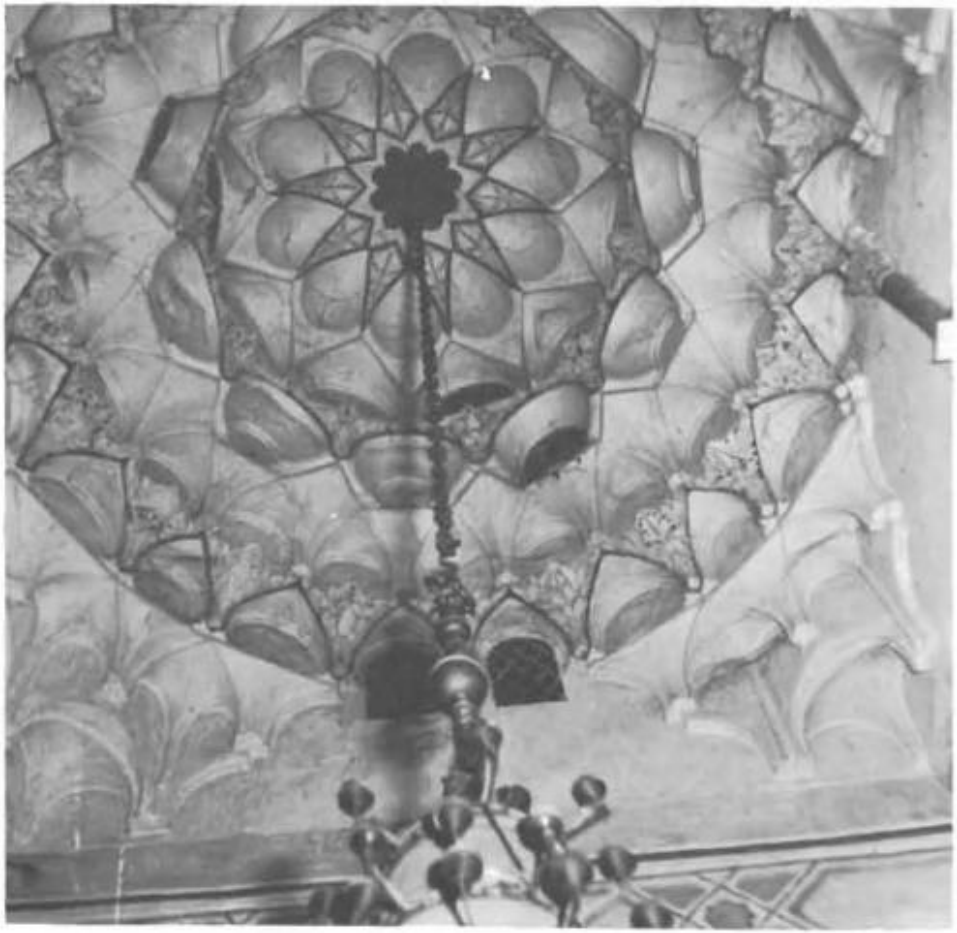
López Guzman, 1995

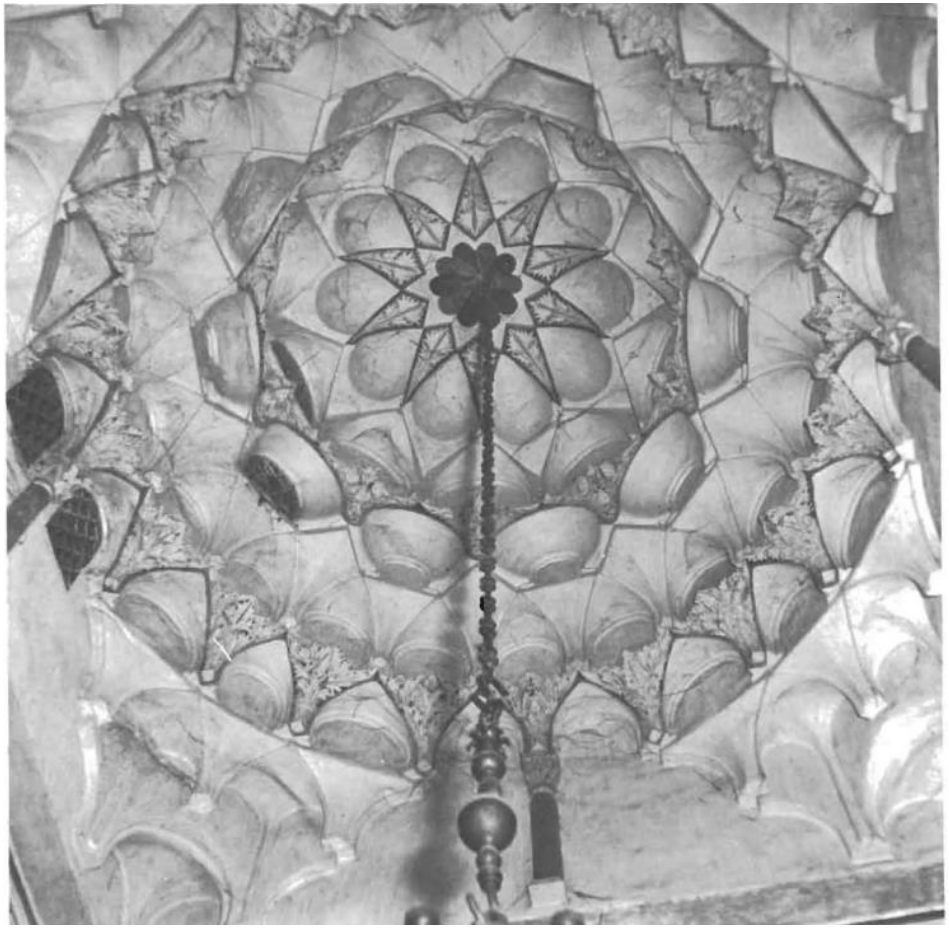


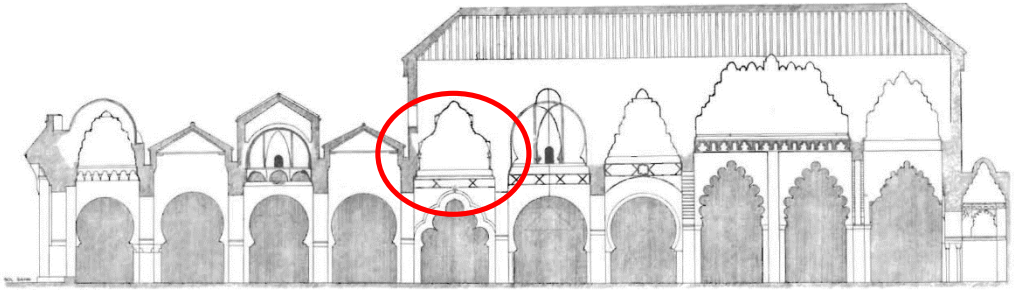


López Guzman, 1995



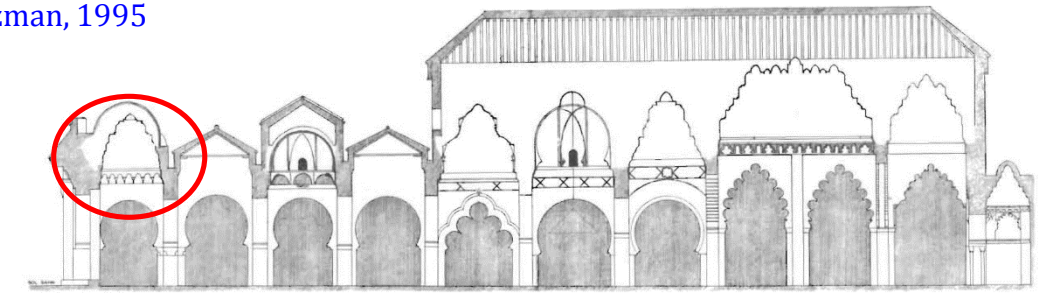




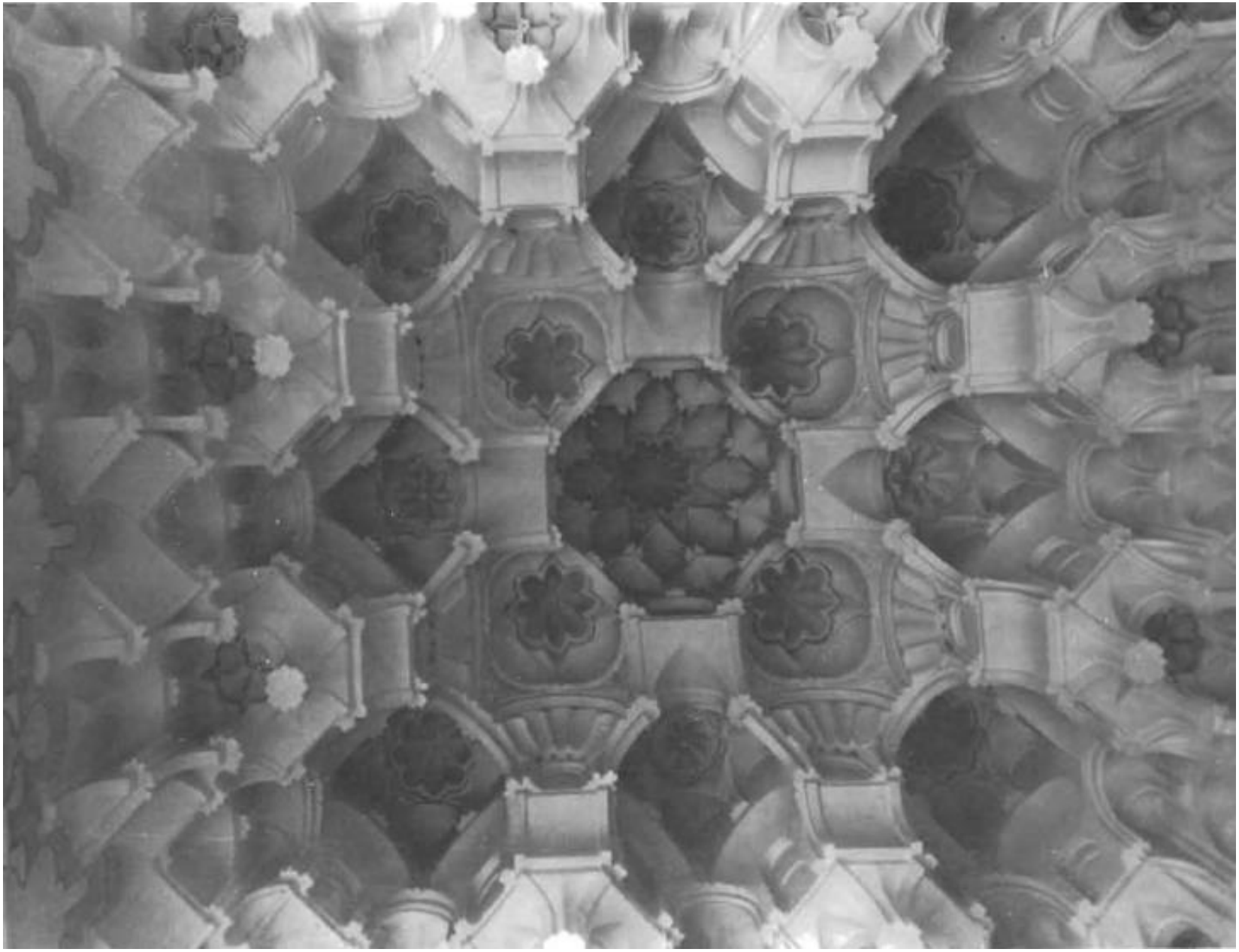


Terrasse, 1968

López Guzman, 1995



Mosque of al-Qarawiyyīn – *muqarnas* vault in the Mosque of the Dead

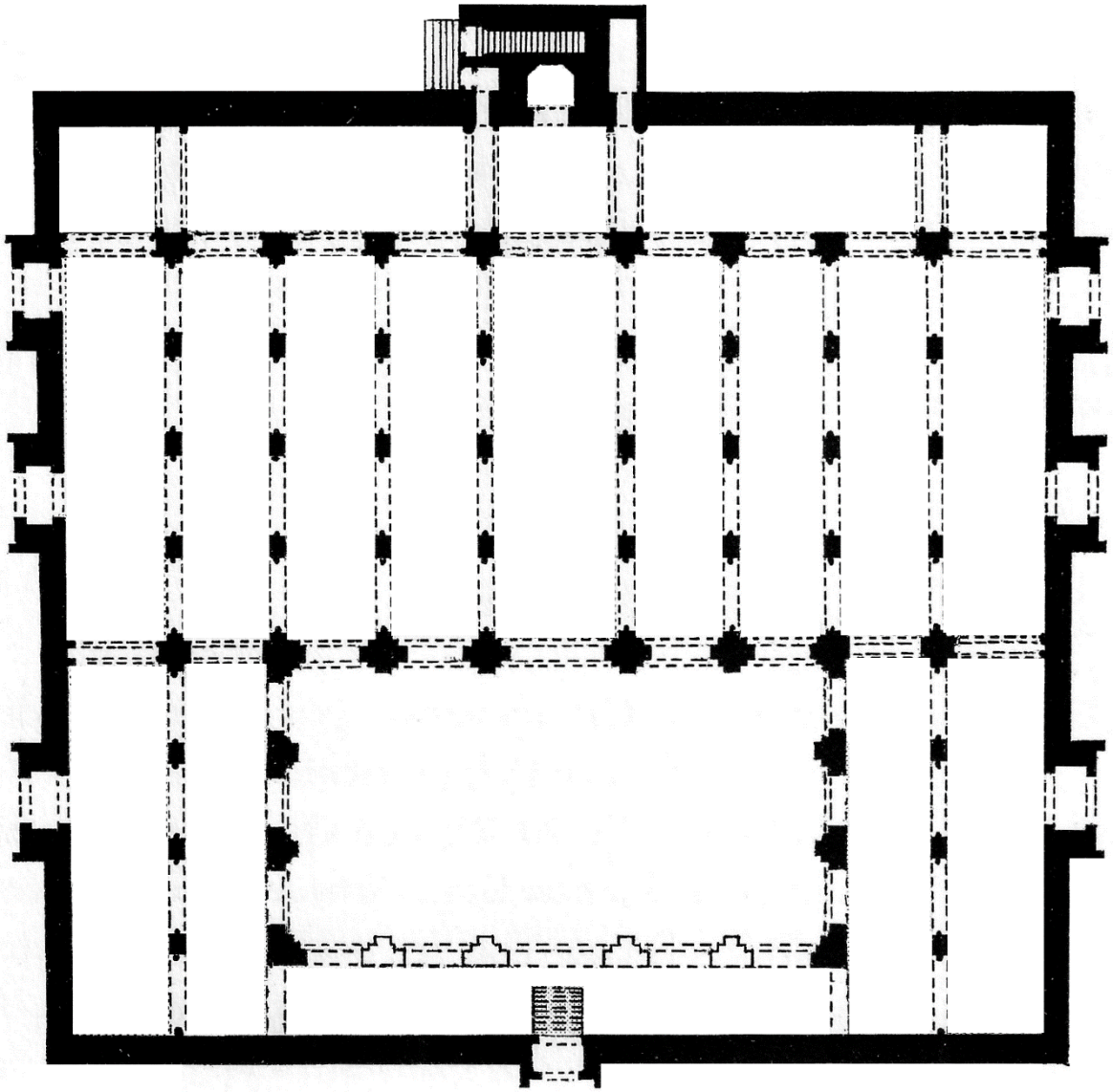


Terrasse, 1968

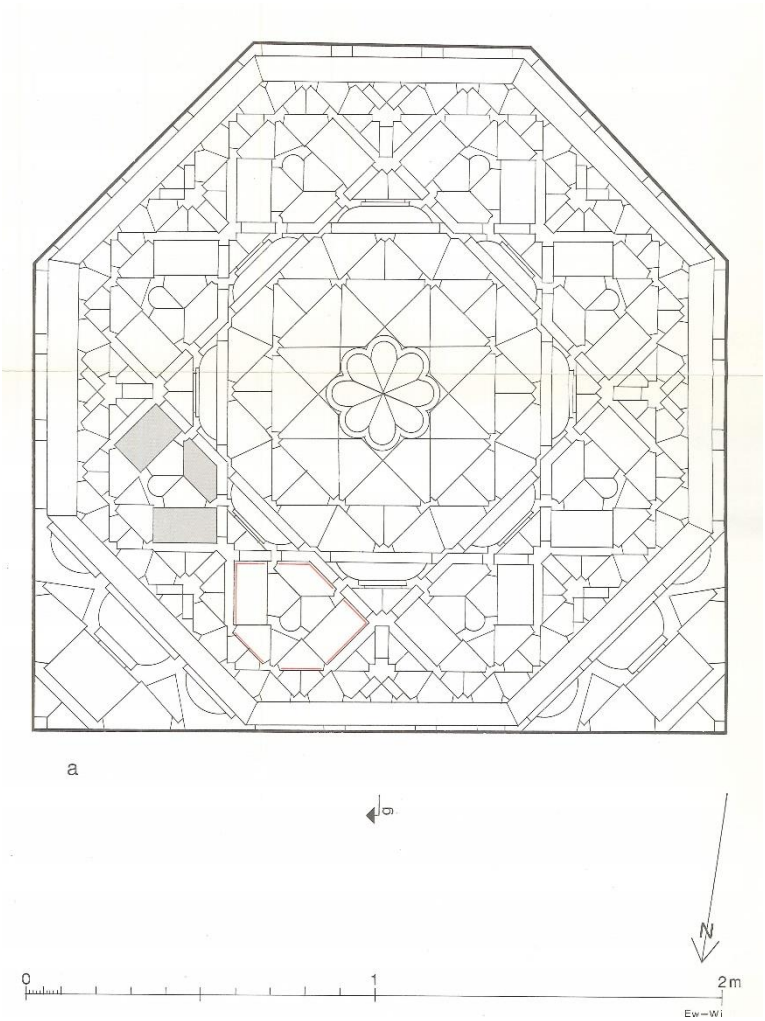
Almohad art

Mosque of Tīnmal

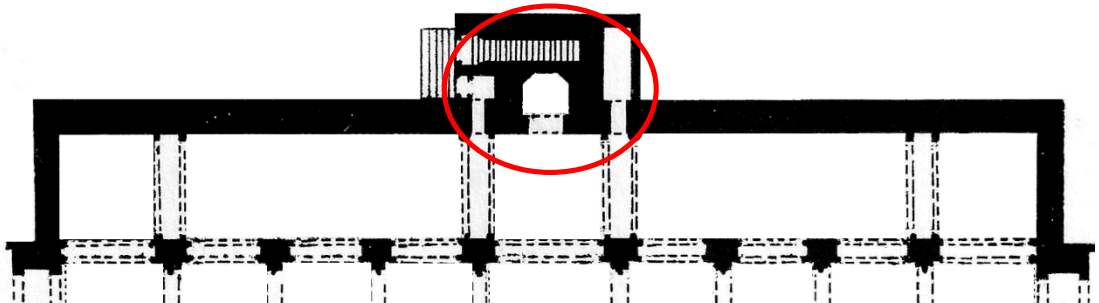
Mosque of Tinmal, Plan

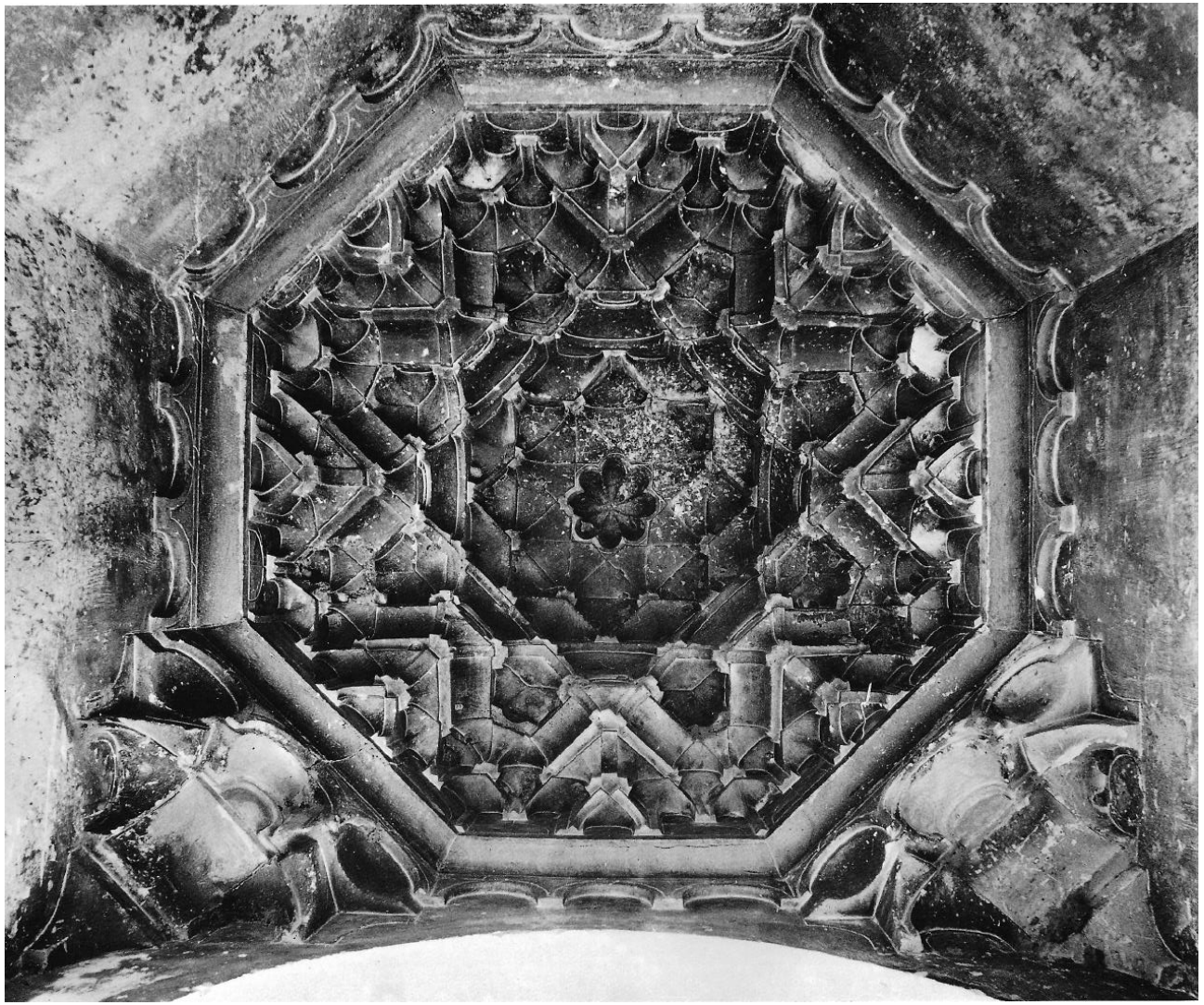


Adapted from Ewert and Wisshak, 1985

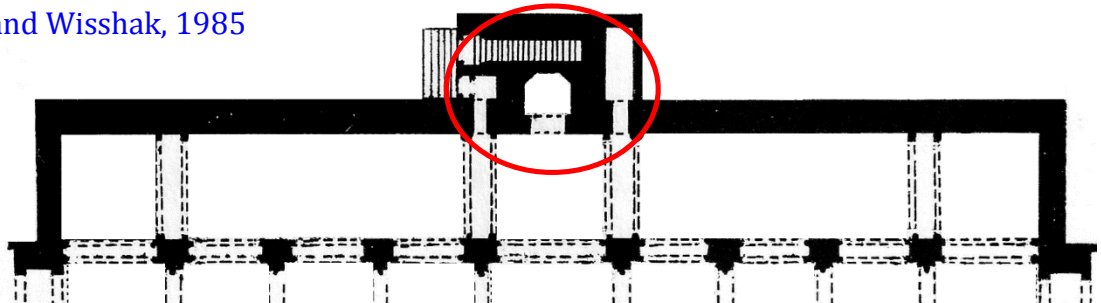


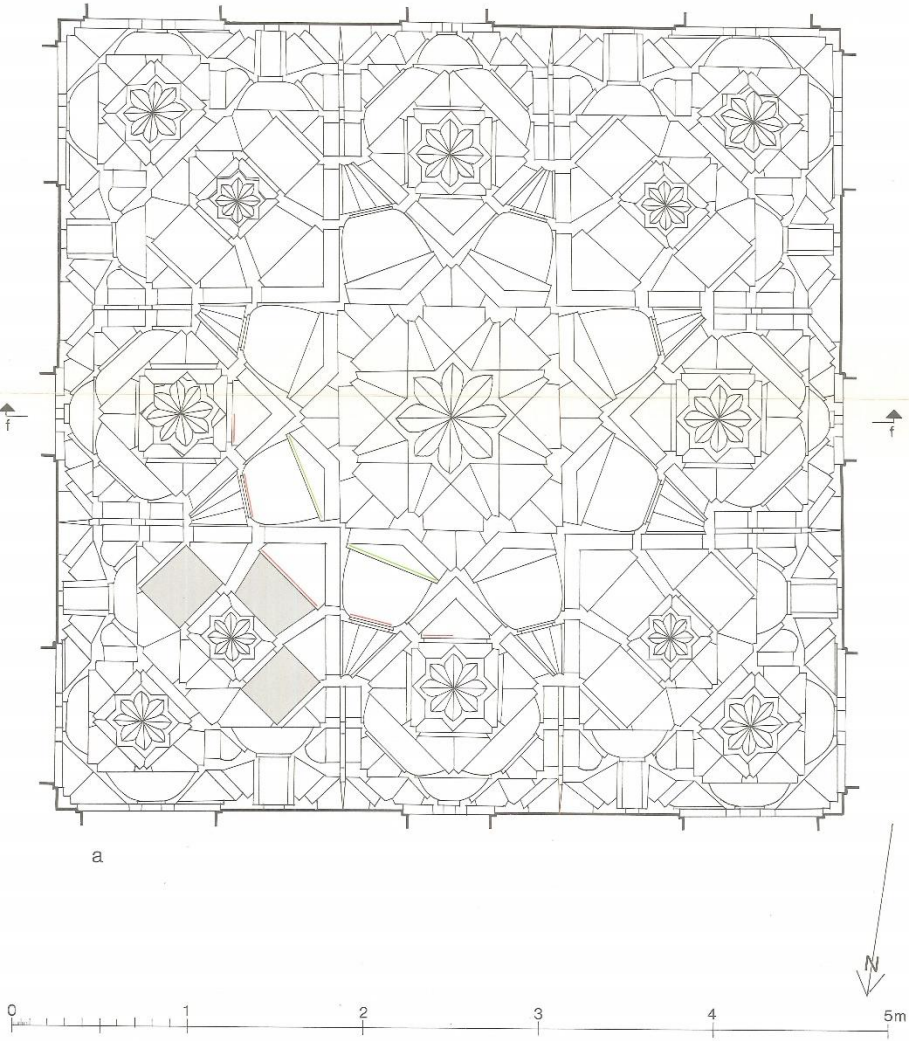
Ewert and Wisshak, 1985

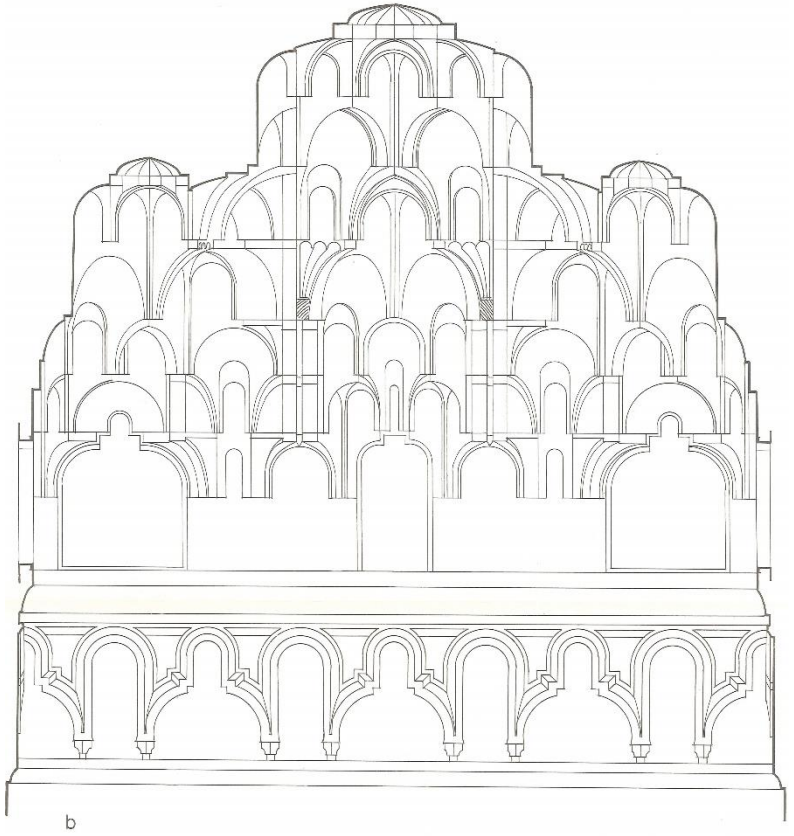




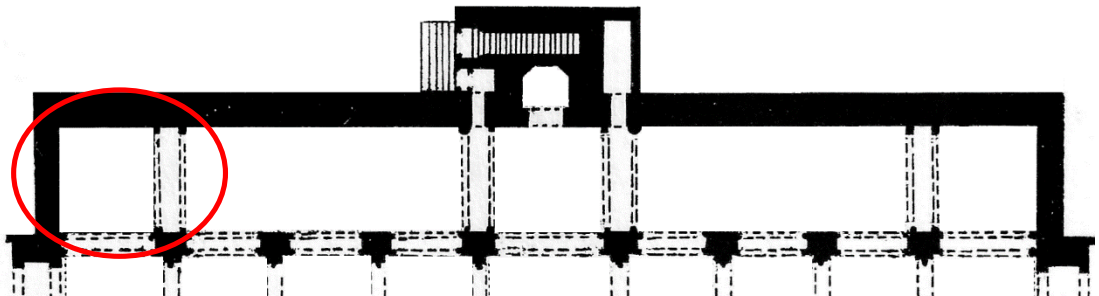
Ewert and Wisshak, 1985

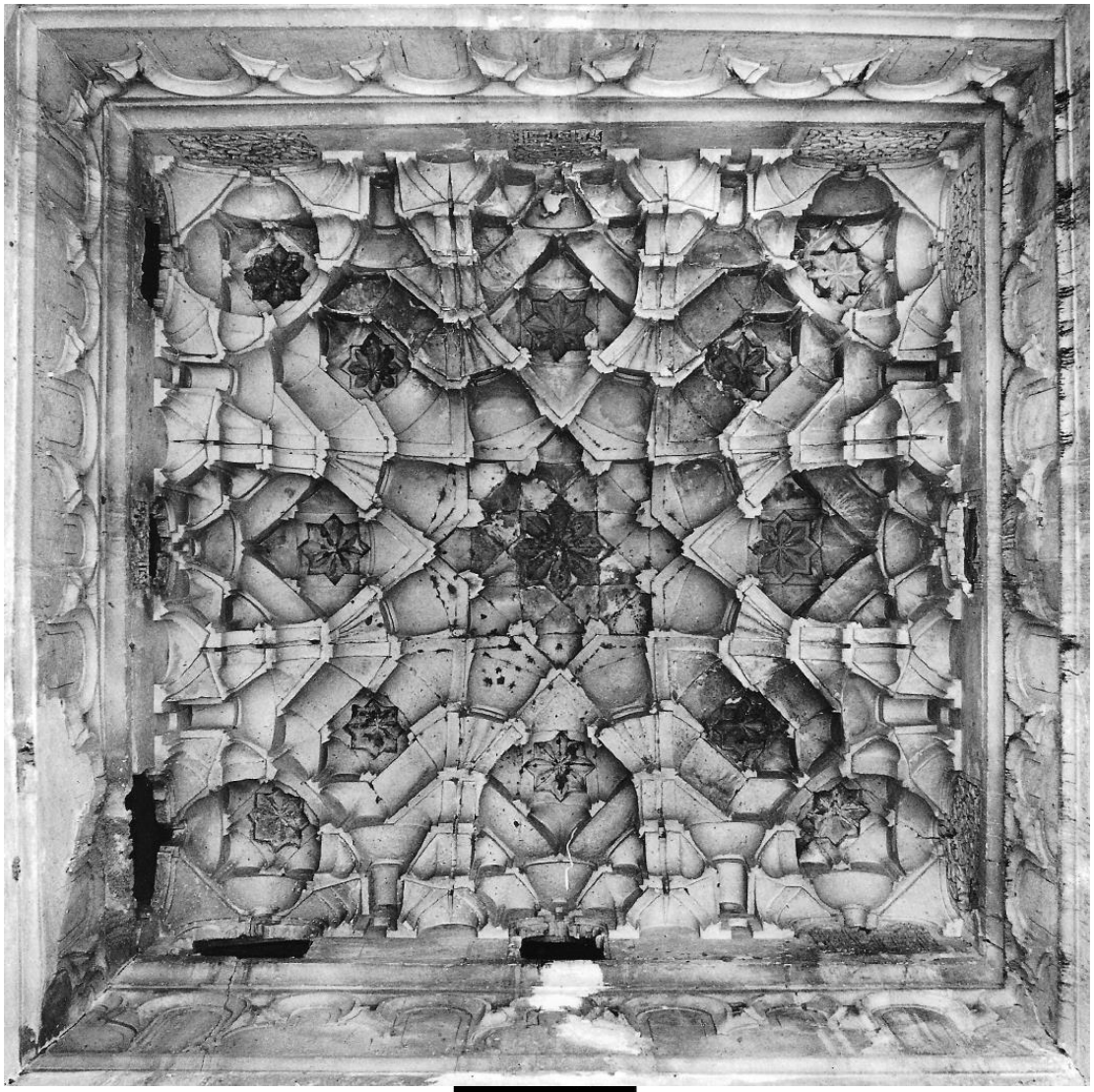




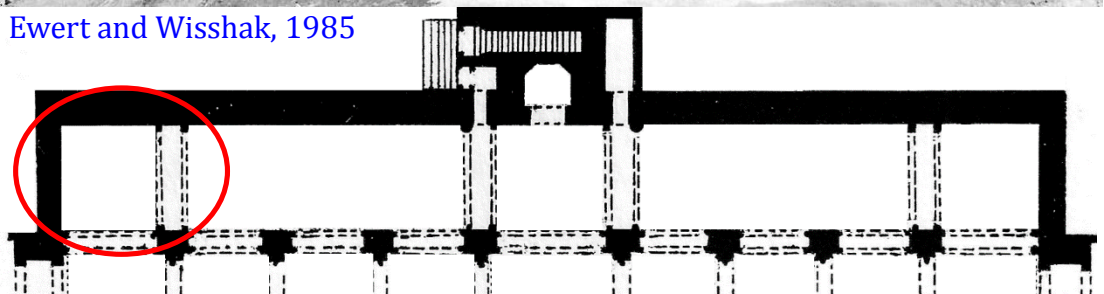


Ewert and Wisshak, 1985

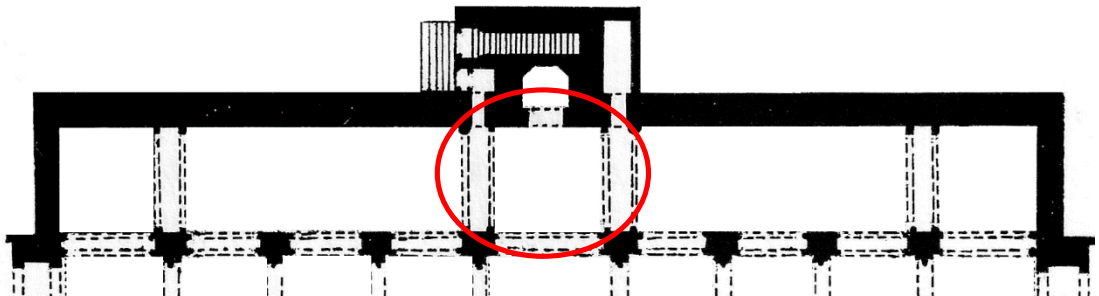


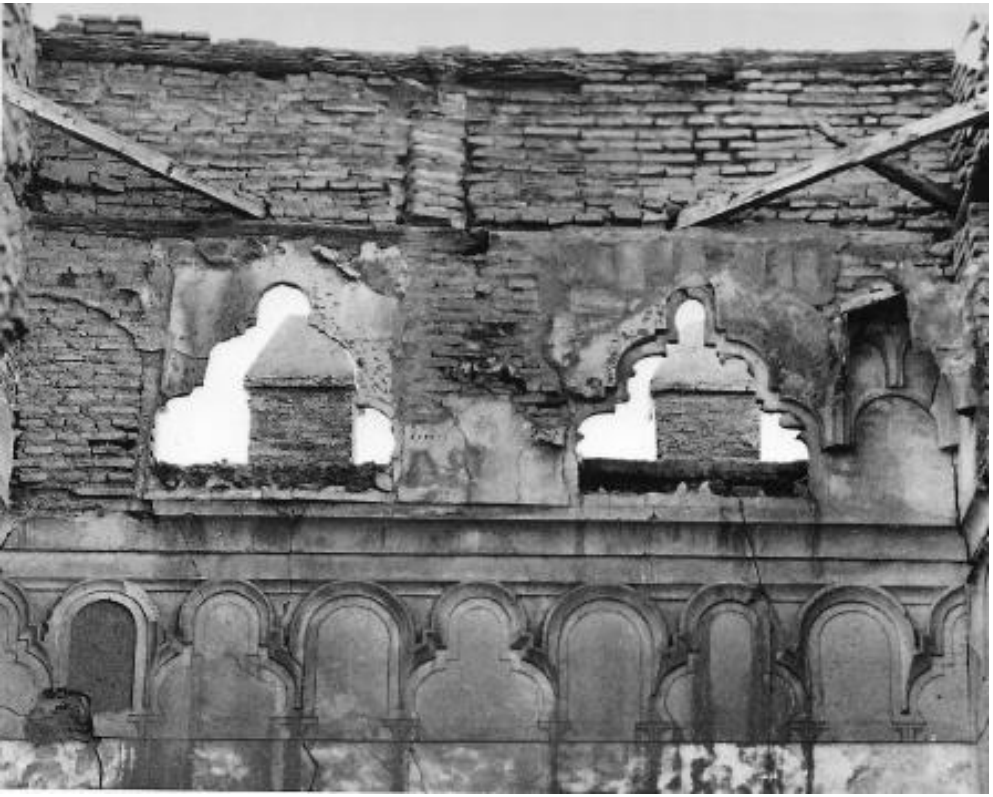


Ewert and Wisshak, 1985

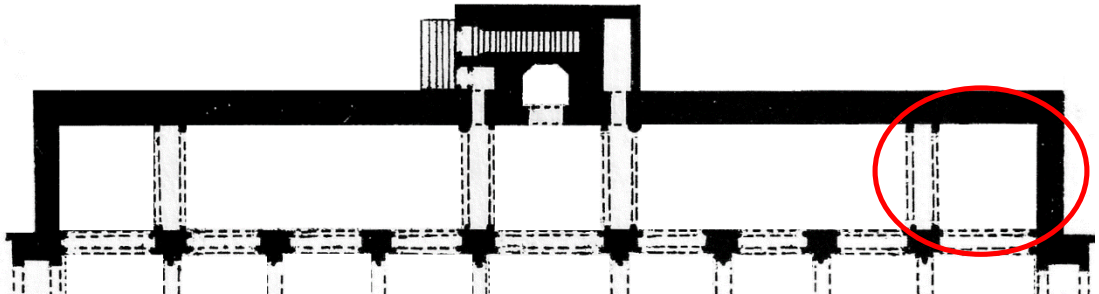


Ewert and Wisshak, 1985





Ewert and Wisshak, 1985

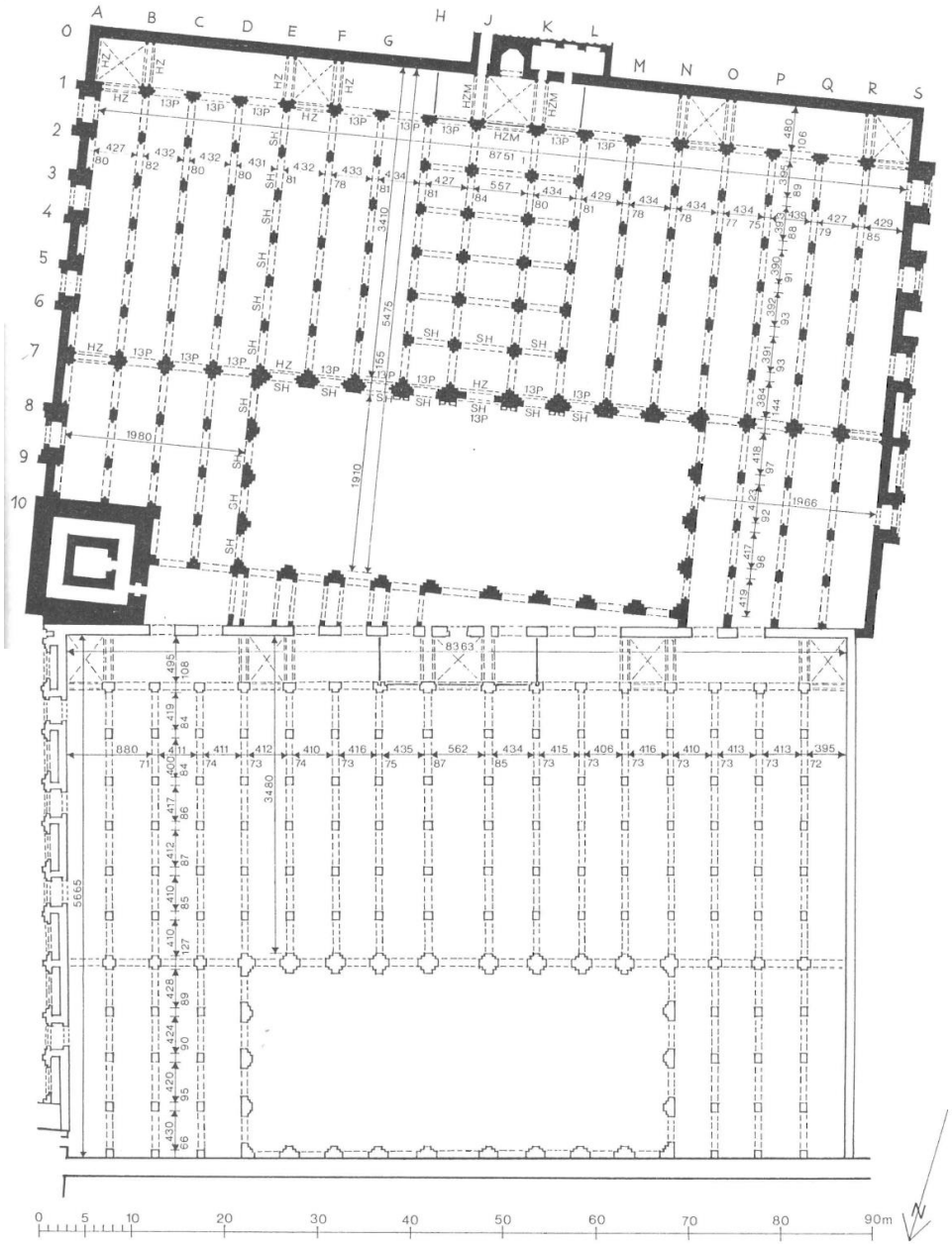


Terrasse, 1933

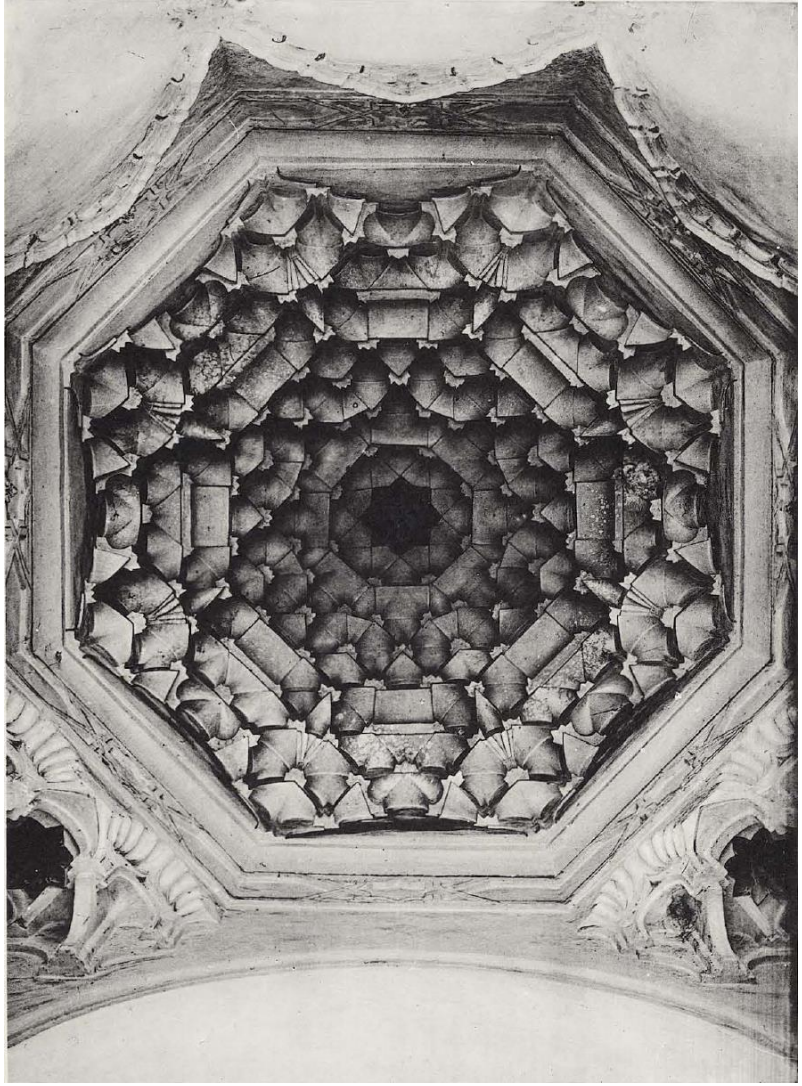
Almohad art

The Kutubiyya Mosque

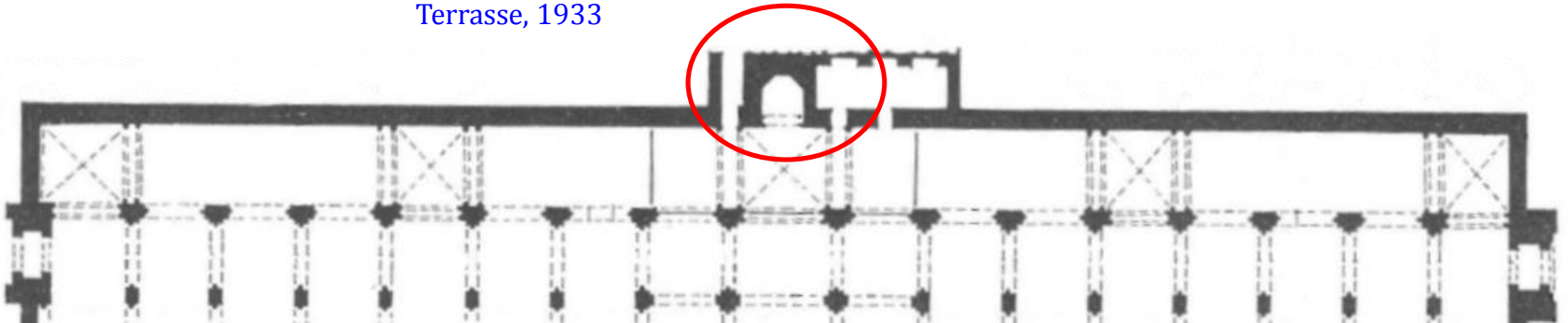
Kutubiyya Mosque – Plan of the actual mosque and the first Kutubiyya below

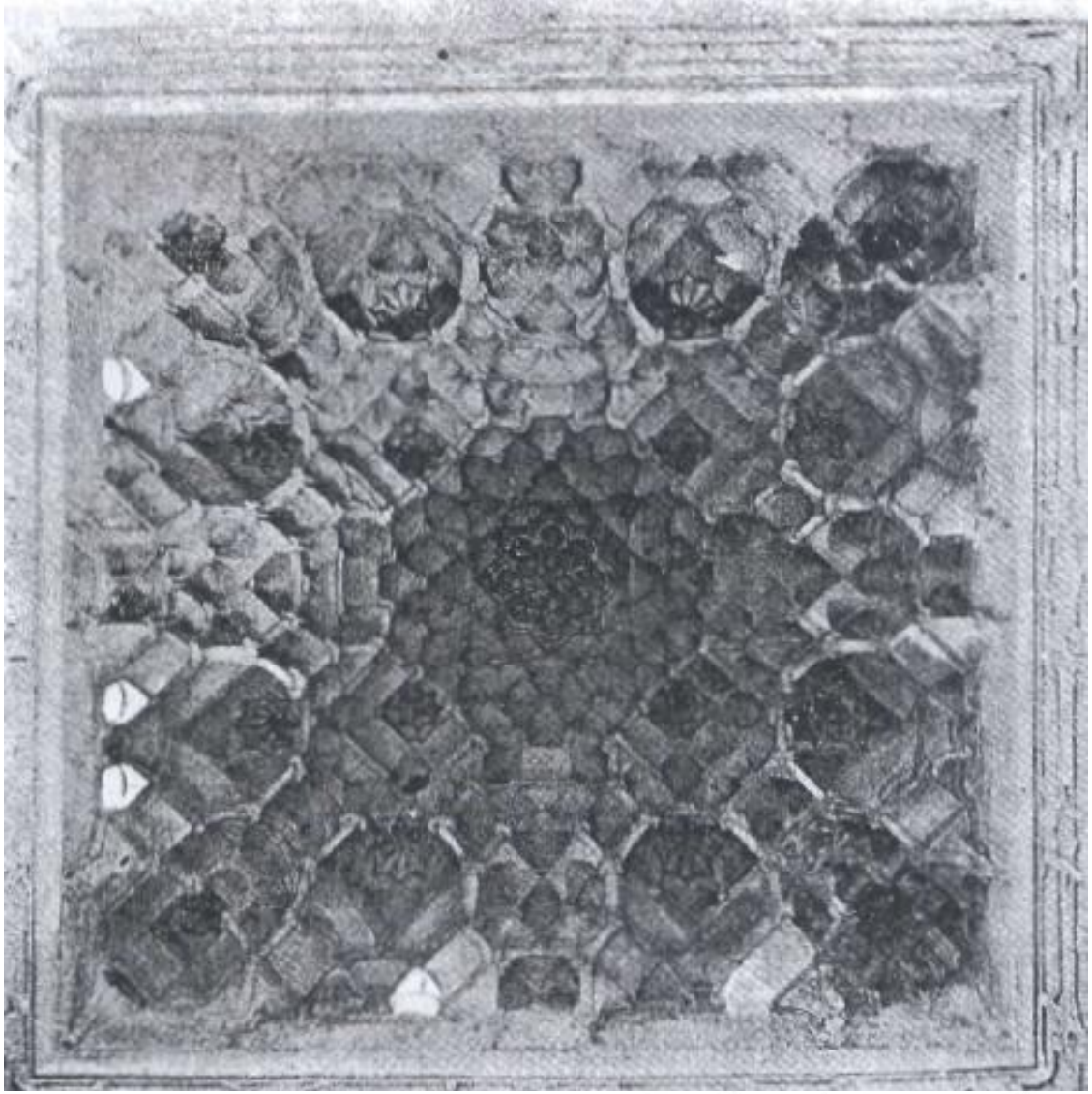


Ewert et al, 1997

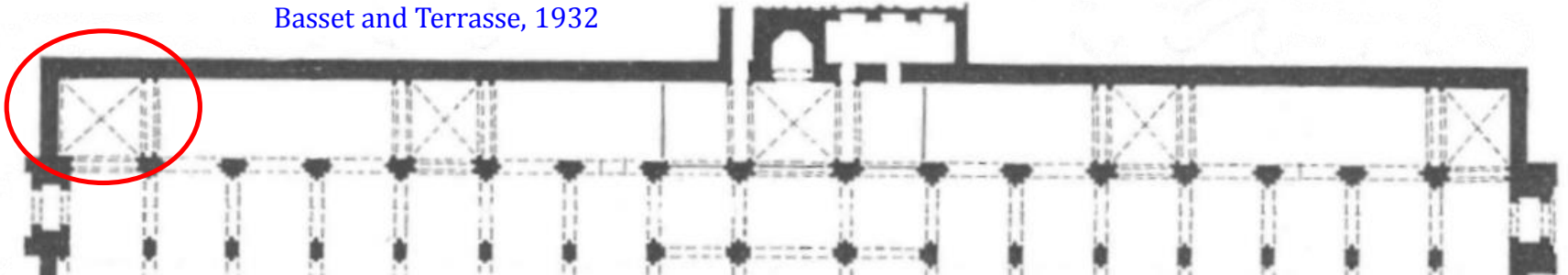


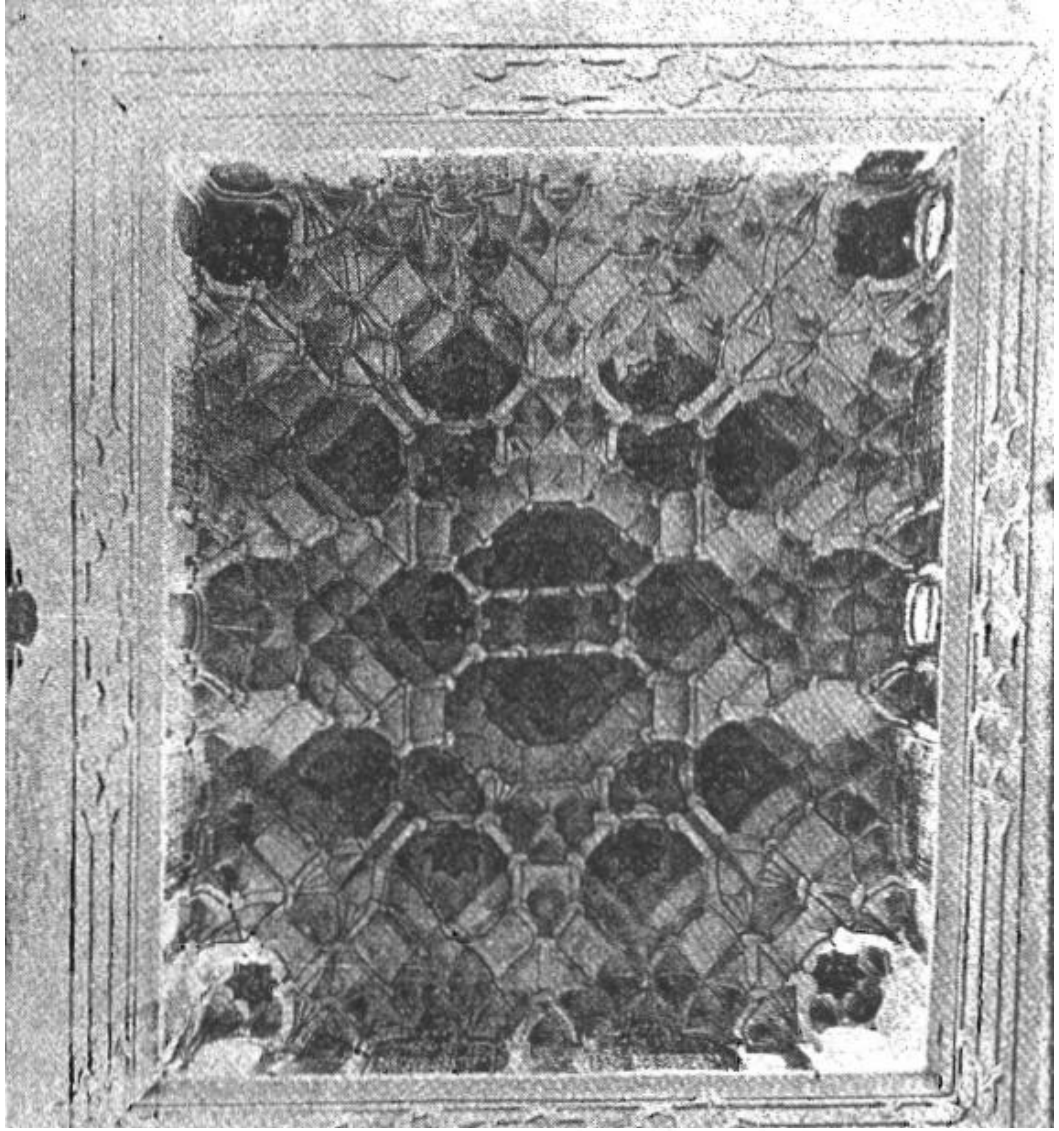
Terrasse, 1933



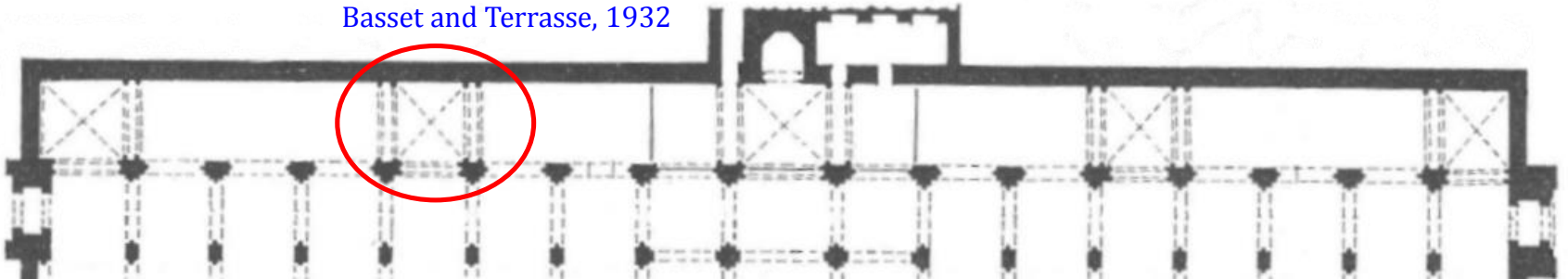


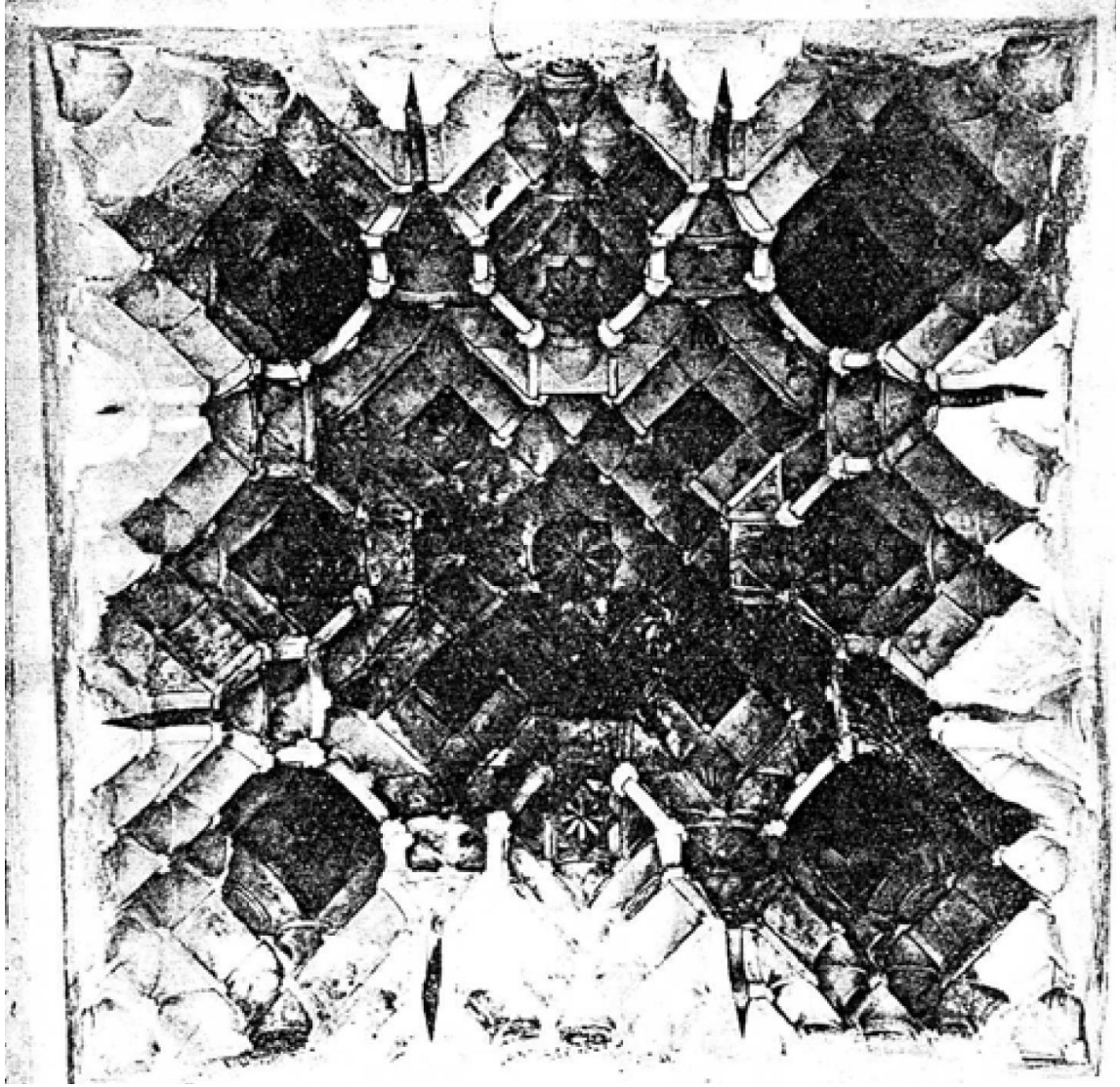
Basset and Terrasse, 1932



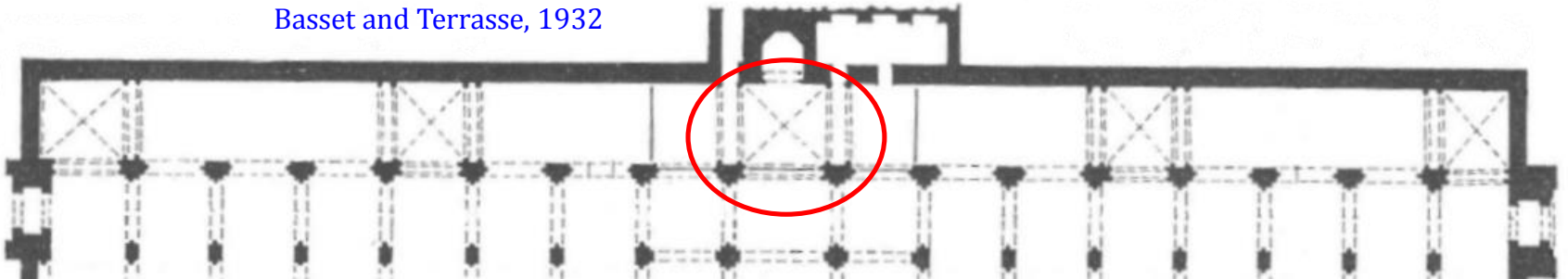


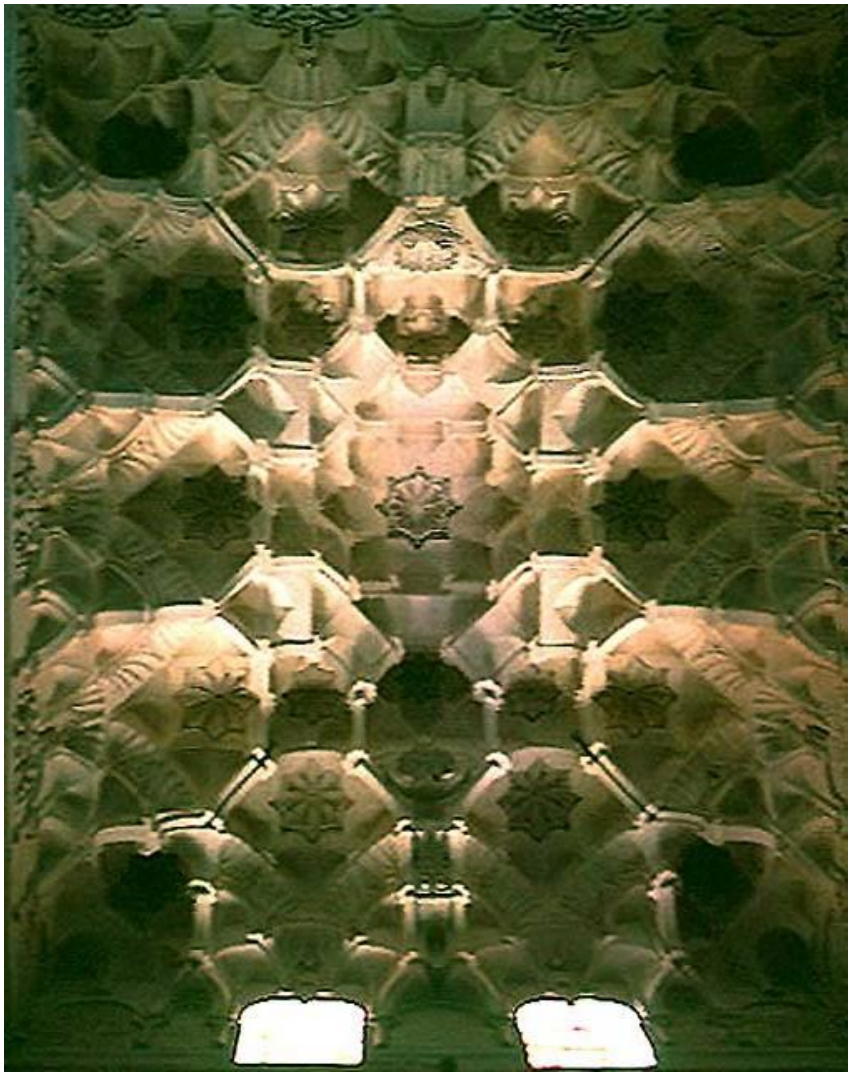
Basset and Terrasse, 1932



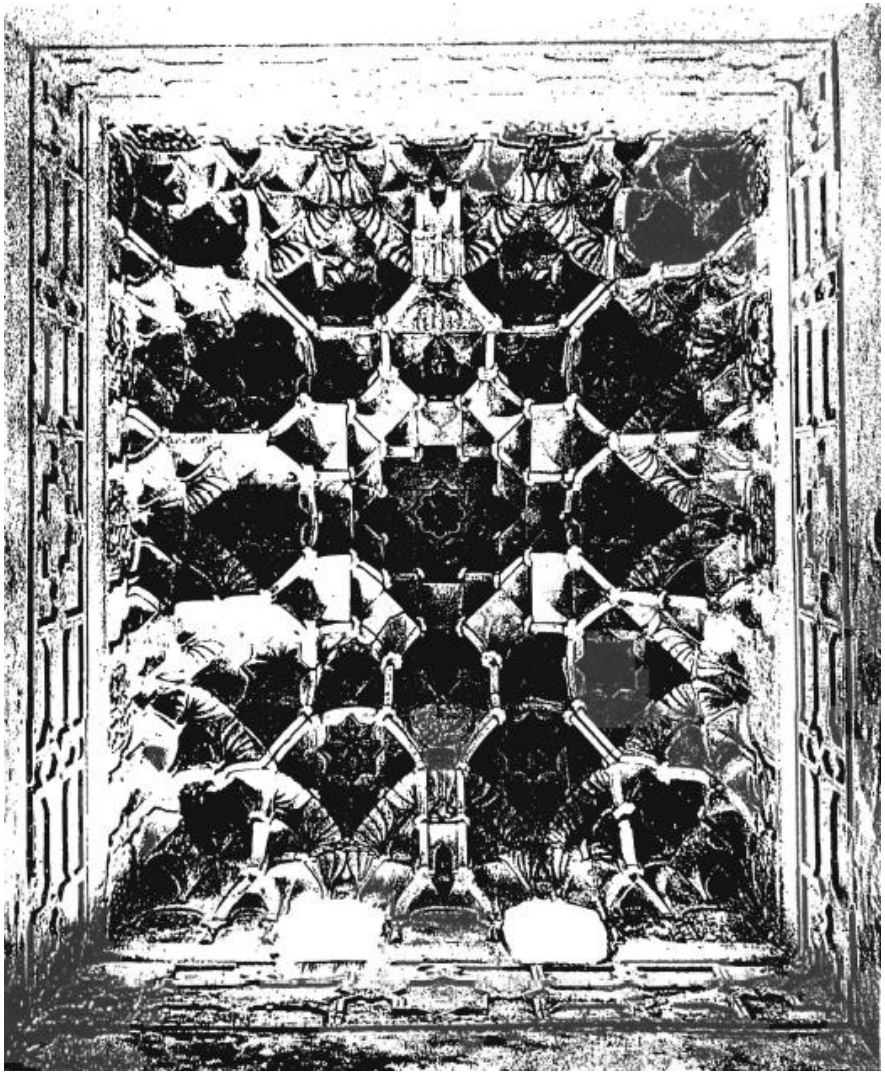


Basset and Terrasse, 1932

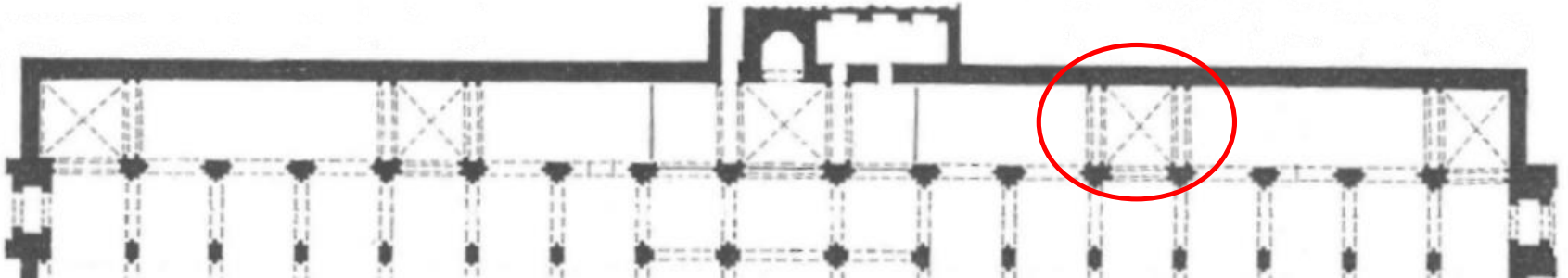


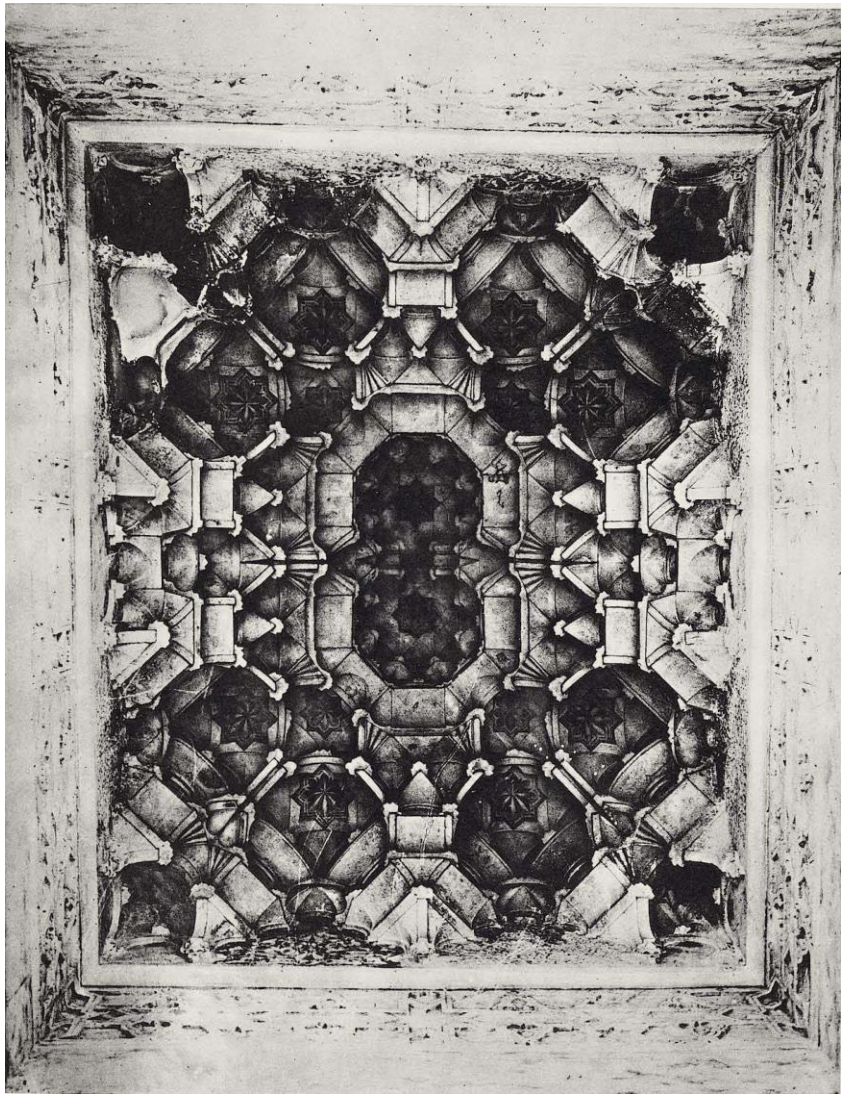


Archnet.org/Hazem Ismael Sayed / Aga Khan Visual Archive

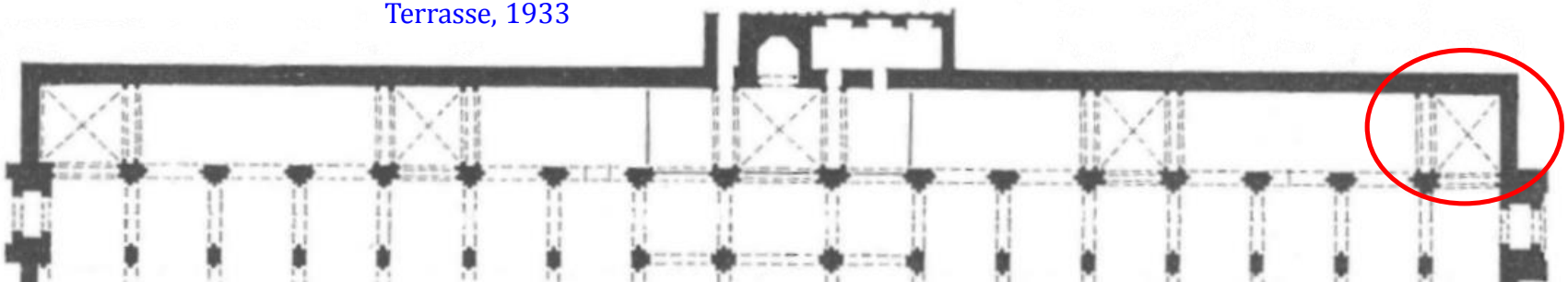


Basset and Terrasse, 1932

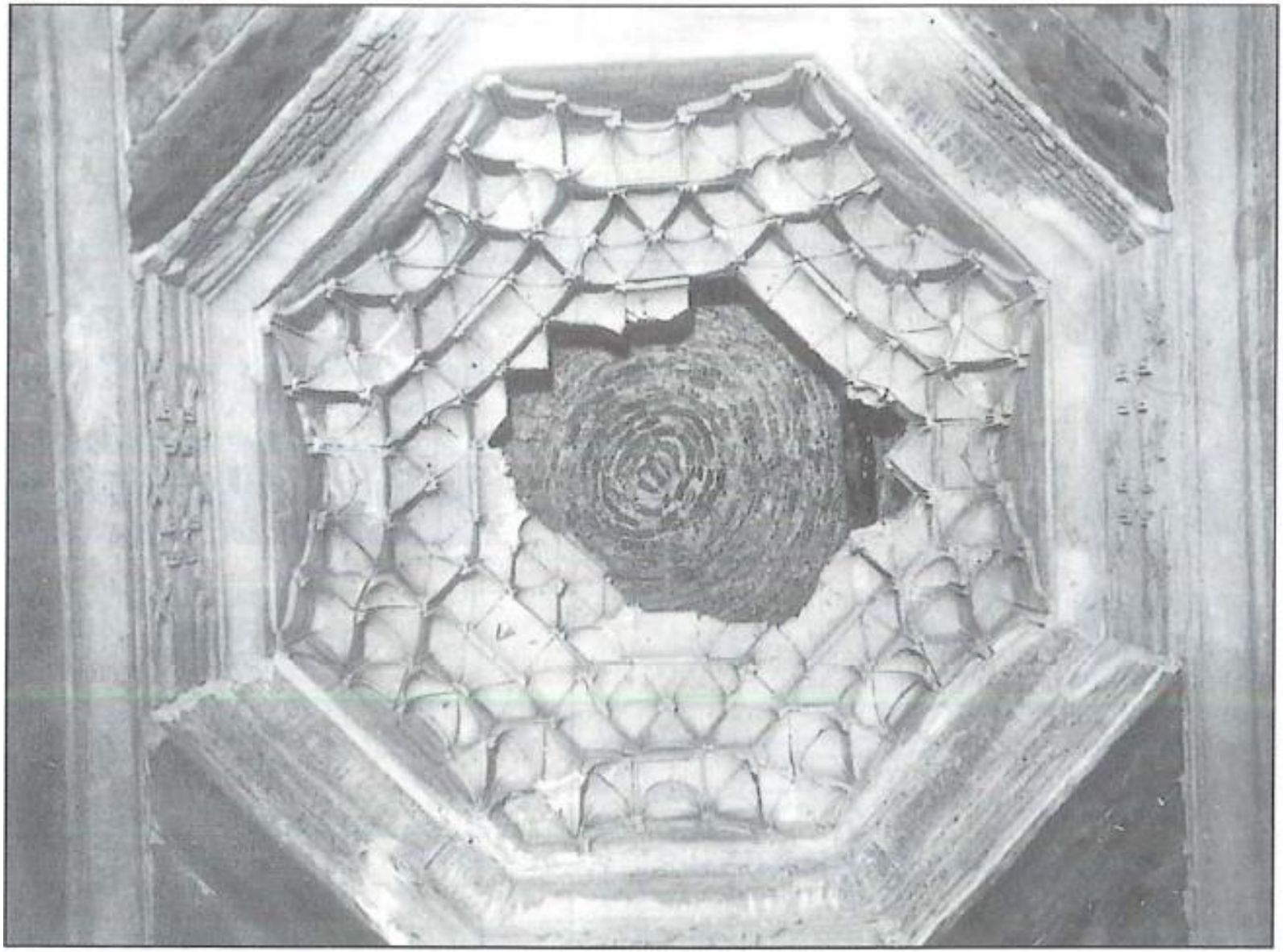




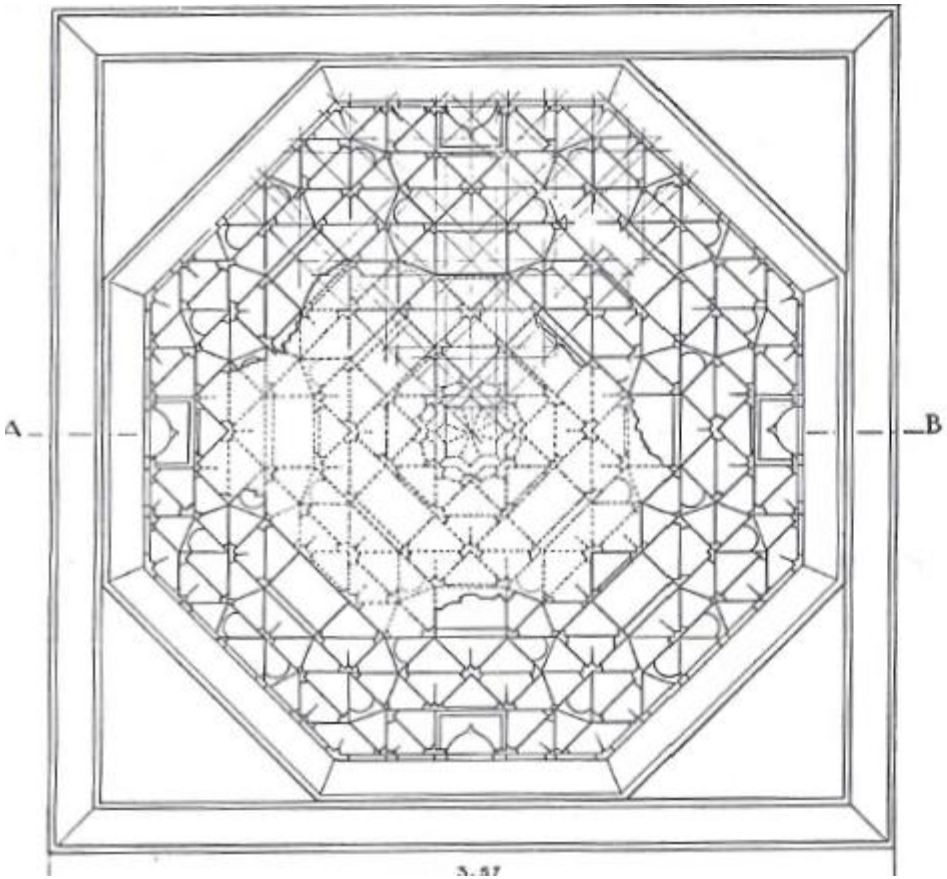
Terrasse, 1933

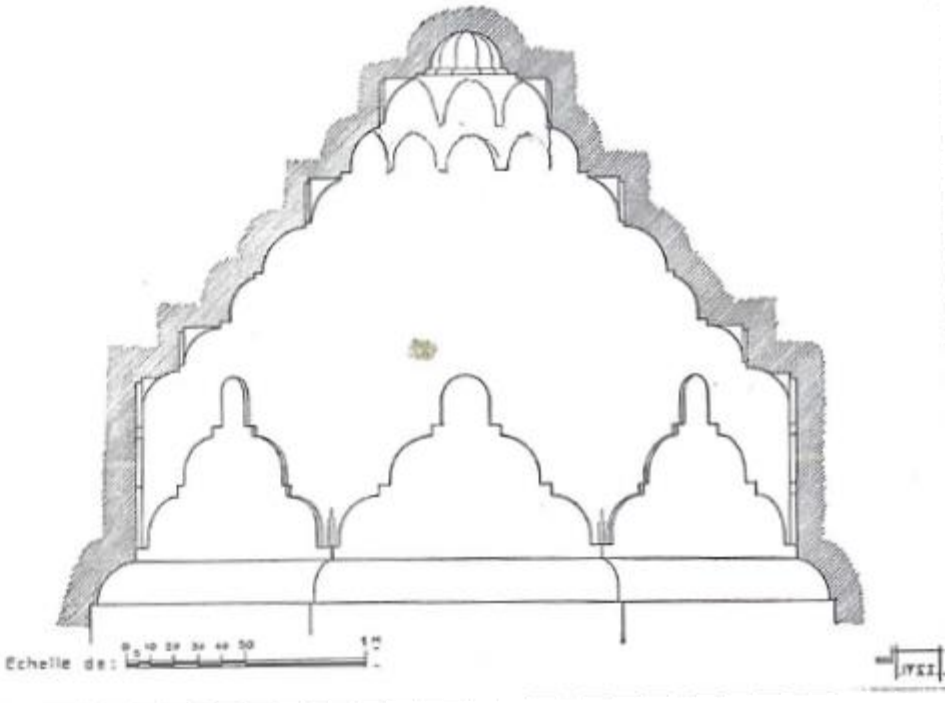


The Ḥassan Tower



Basset and Terrasse, 1932



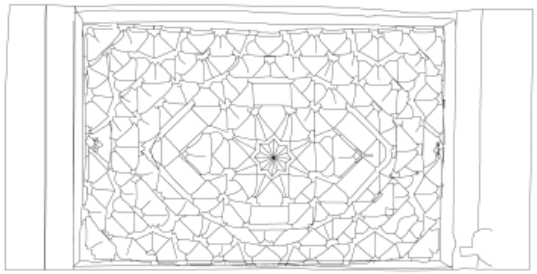


Caillé, 1954

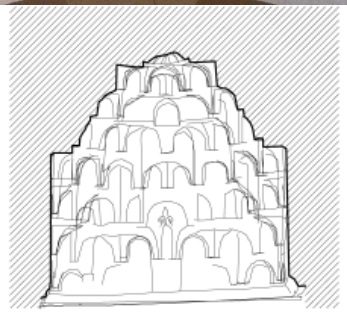
Islamic palace in Murcia
Actual site of the Monastery of Santa Clara

Carrillo Calderero, 2009

The mosque of Seville



PLANTA DE BÓVEDAS



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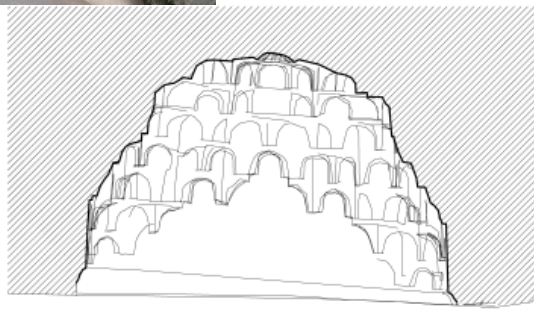


SECCIÓN LONGITUDINAL

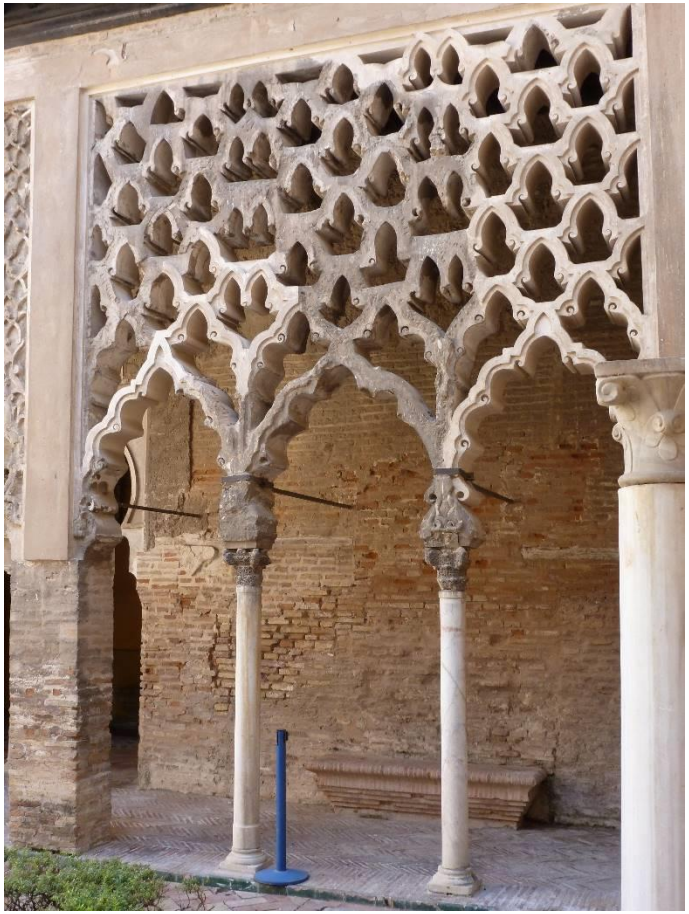
0 2 m

BOVEDA DE LA PUERTA DEL LAGARTO EN FACHADA ESTE

CATEDRAL METROPOLITANA DE SEVILLA. PUERTA DE LA MEZQUITA Y BÓVEDA DE LA PUERTA DEL LAGARTO.

ESCUELA DE ESTUDIOS ARABES, C.S.I.C. A.ALMAGRO /arq. E.MARTIN /ope.fot.

Carrillo Calderero, 2009

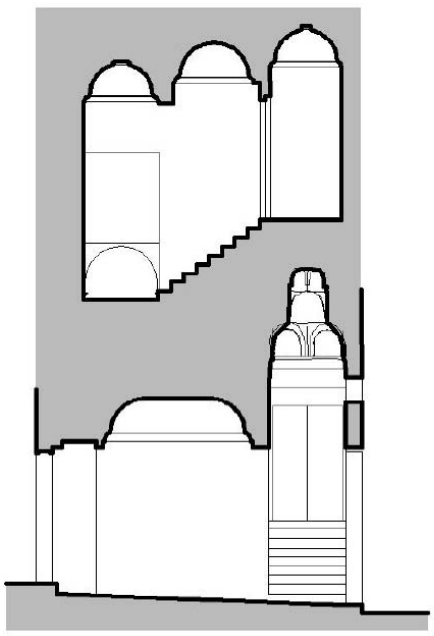


The Almohad Palaces in Seville

House adjacent to the ‘Patio de Banderas’ in the ‘Alcázar’ of Seville

Torres Balbás, 1949

Almohad remains included in the palace of Peter of Castile



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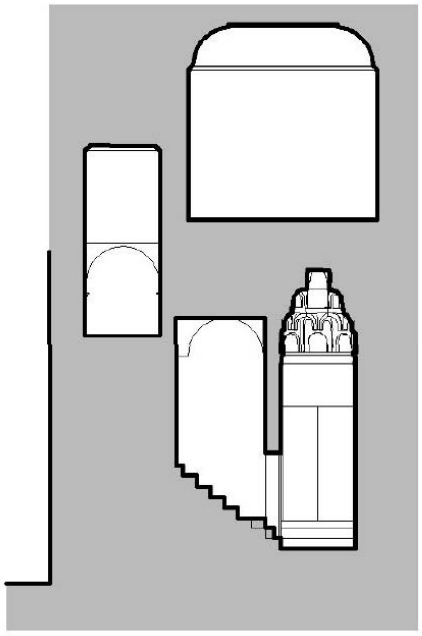

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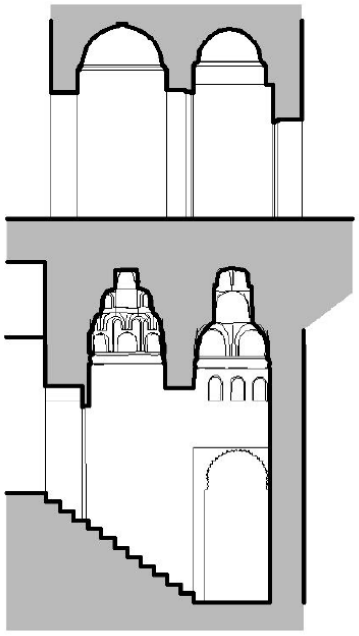
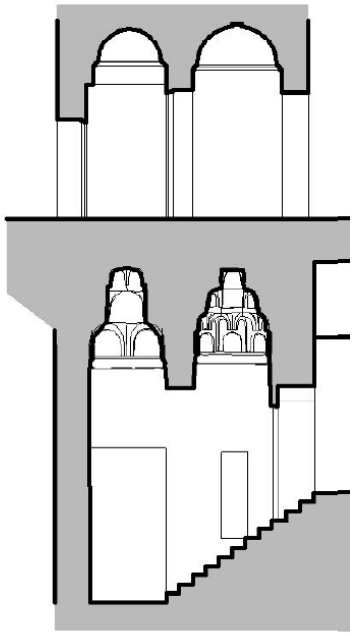


SECCION F



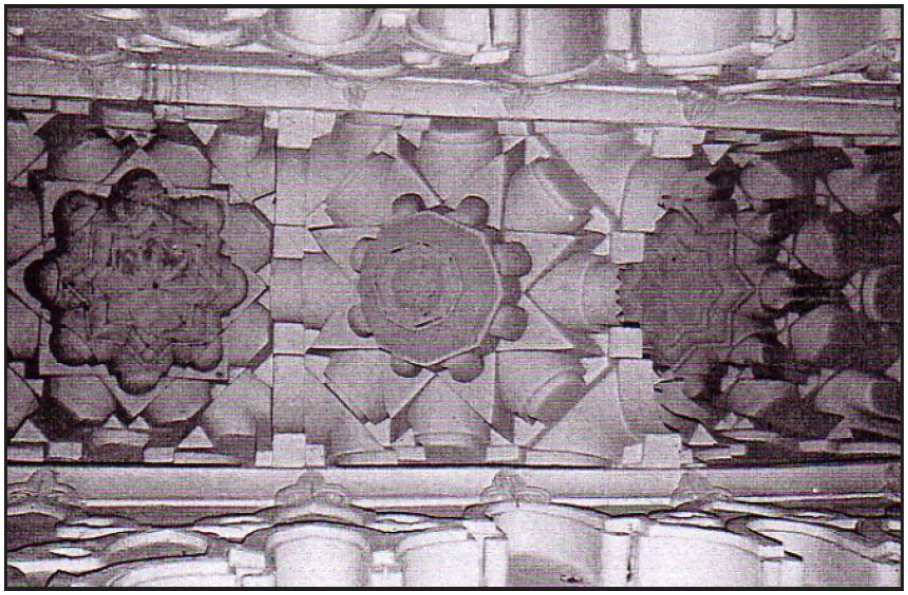
SECCION G

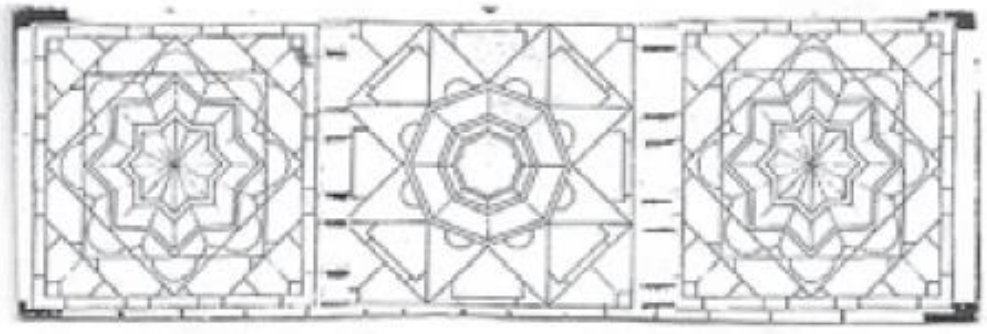
Almagro and Rodriguez, 2011

The Abbey of Santa María la Real de Las Huelgas
(Mudejar art)

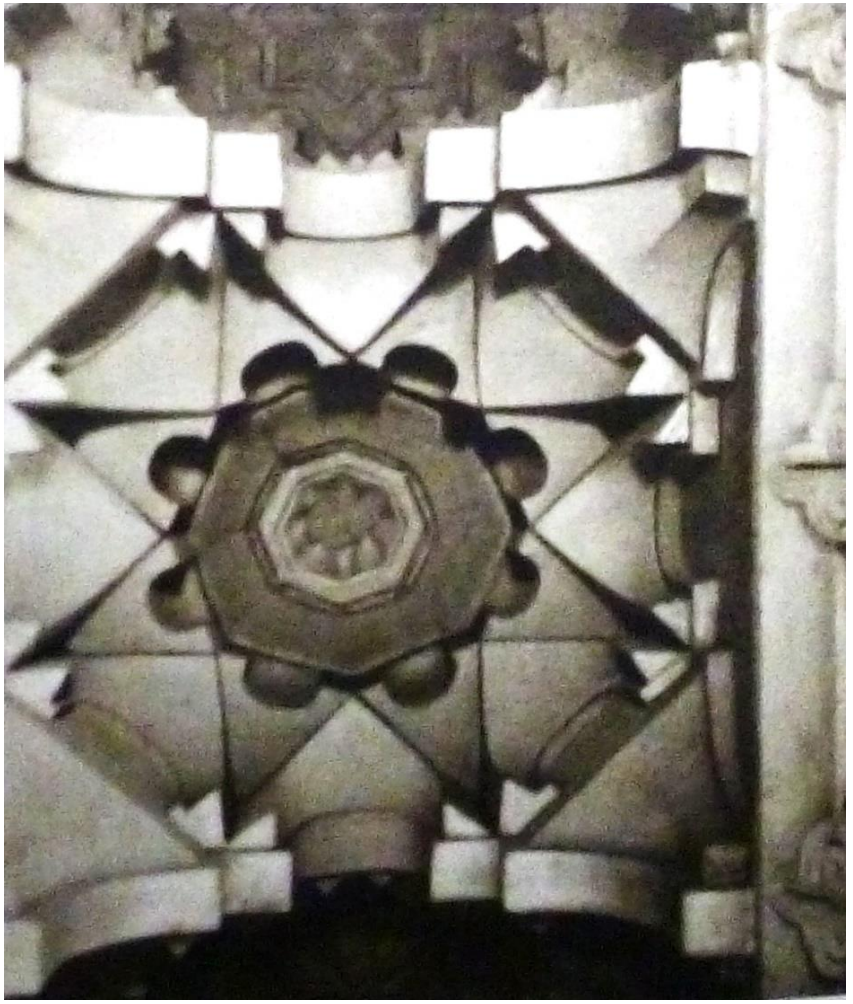
Barrucand, 1992

Barrucand, 1992



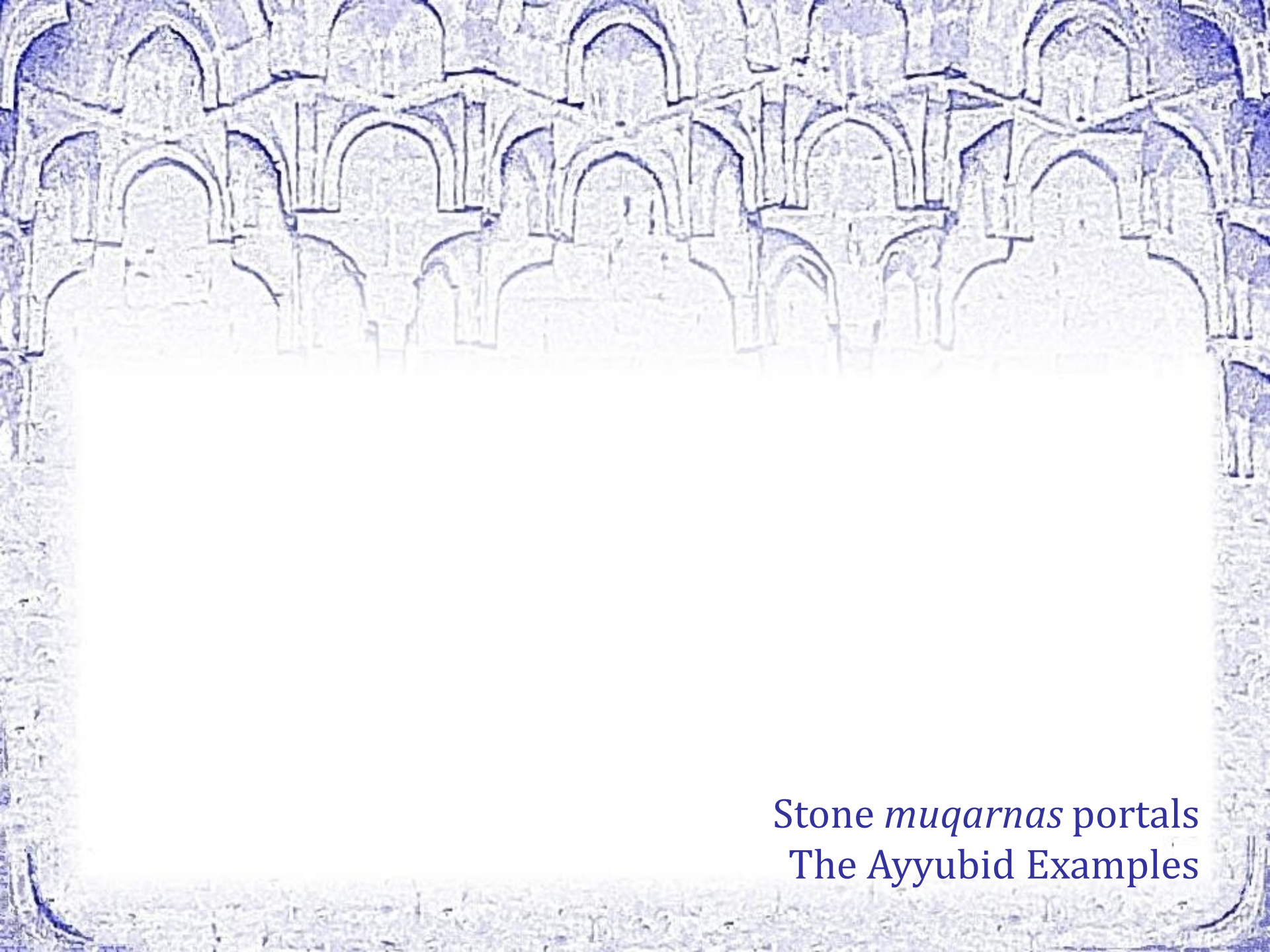


Dokmak, 2009; Pavón, 2004



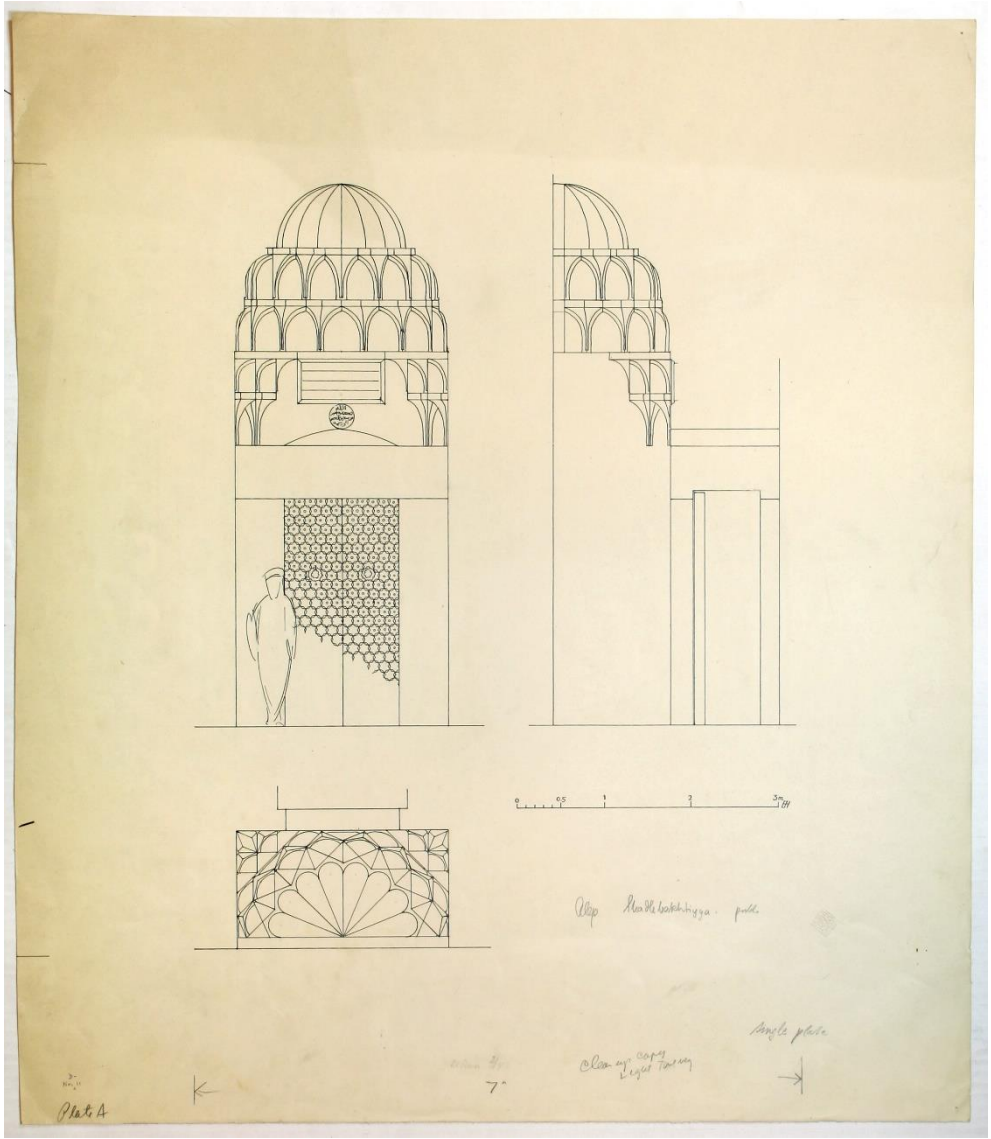
Torres Balbás, 1949

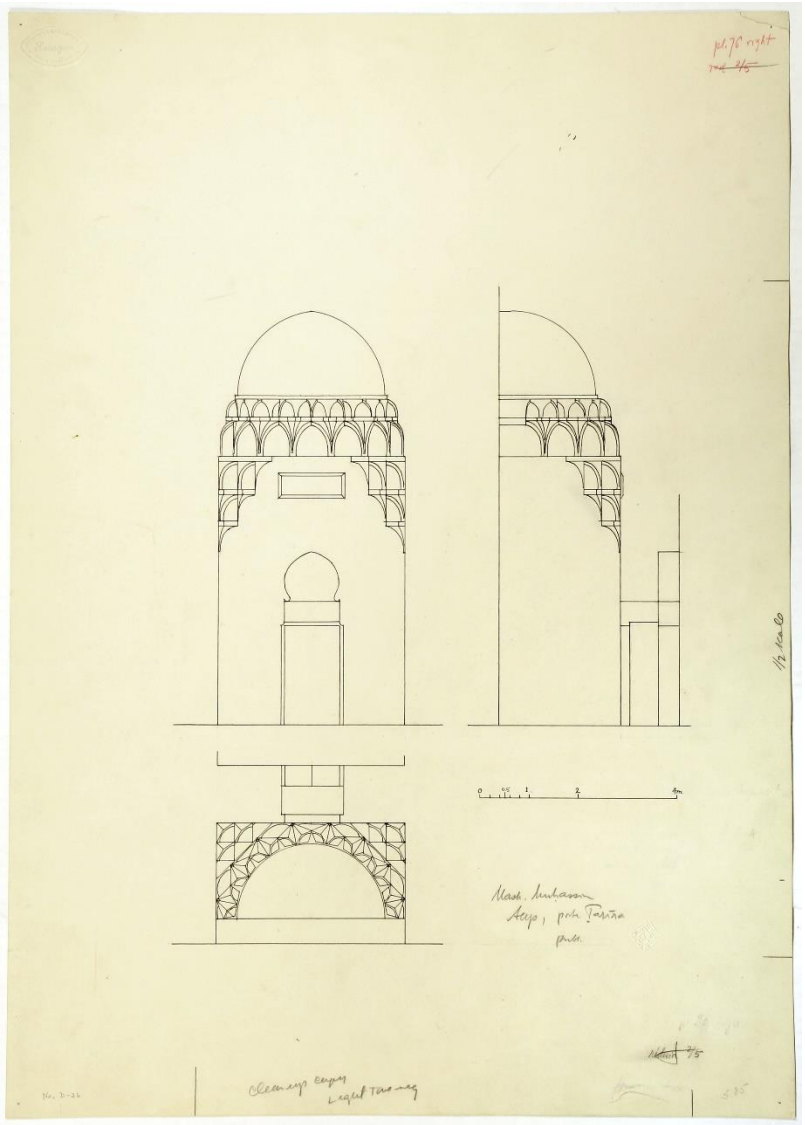
Barrucand, 1992



Stone *muqarnas* portals
The Ayyubid Examples

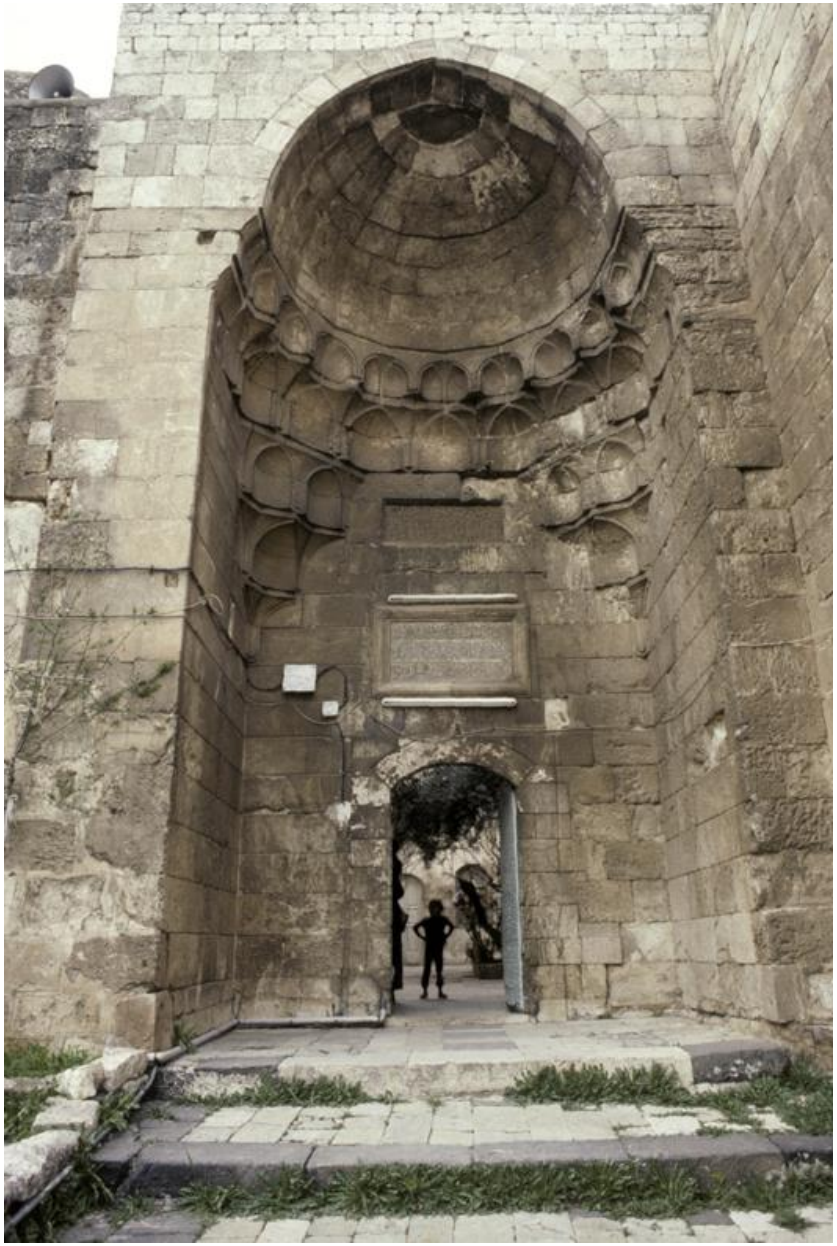
The Portal of the Madrasa Shāḏbakhtiyya and the Portal of Ibn Turayra in the Mashhad al-Muḥassin, Aleppo





The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

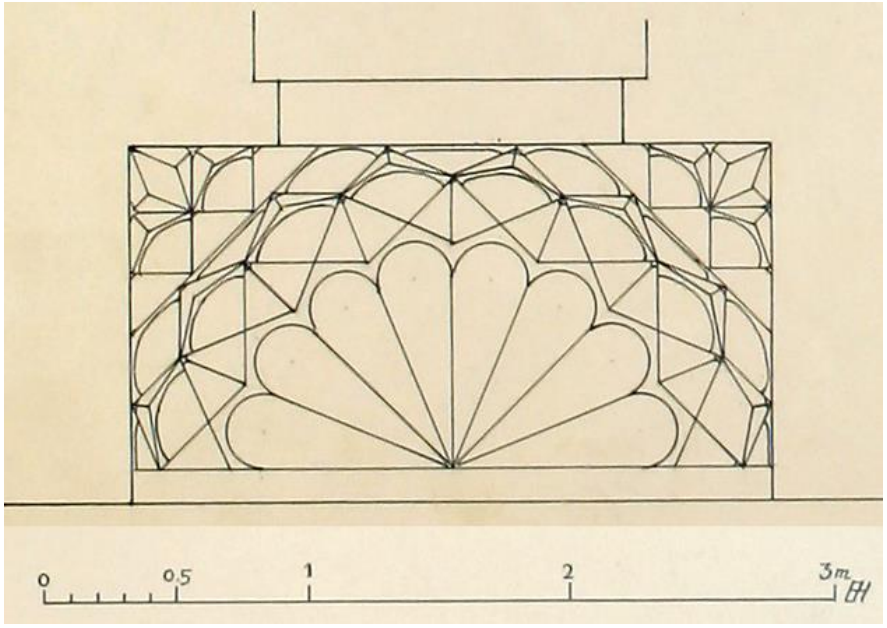
Allen, 1999



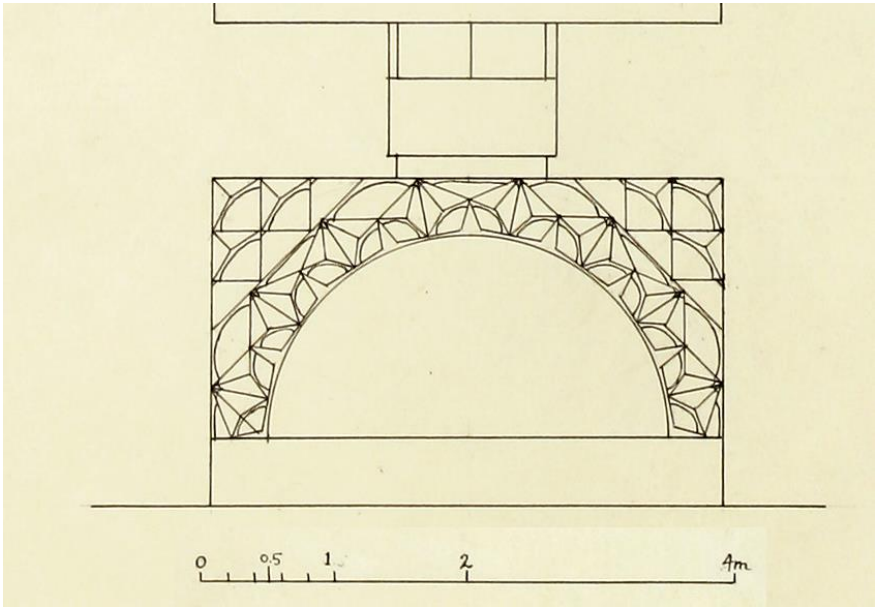
Allen, 1999

Allen, 1999

Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



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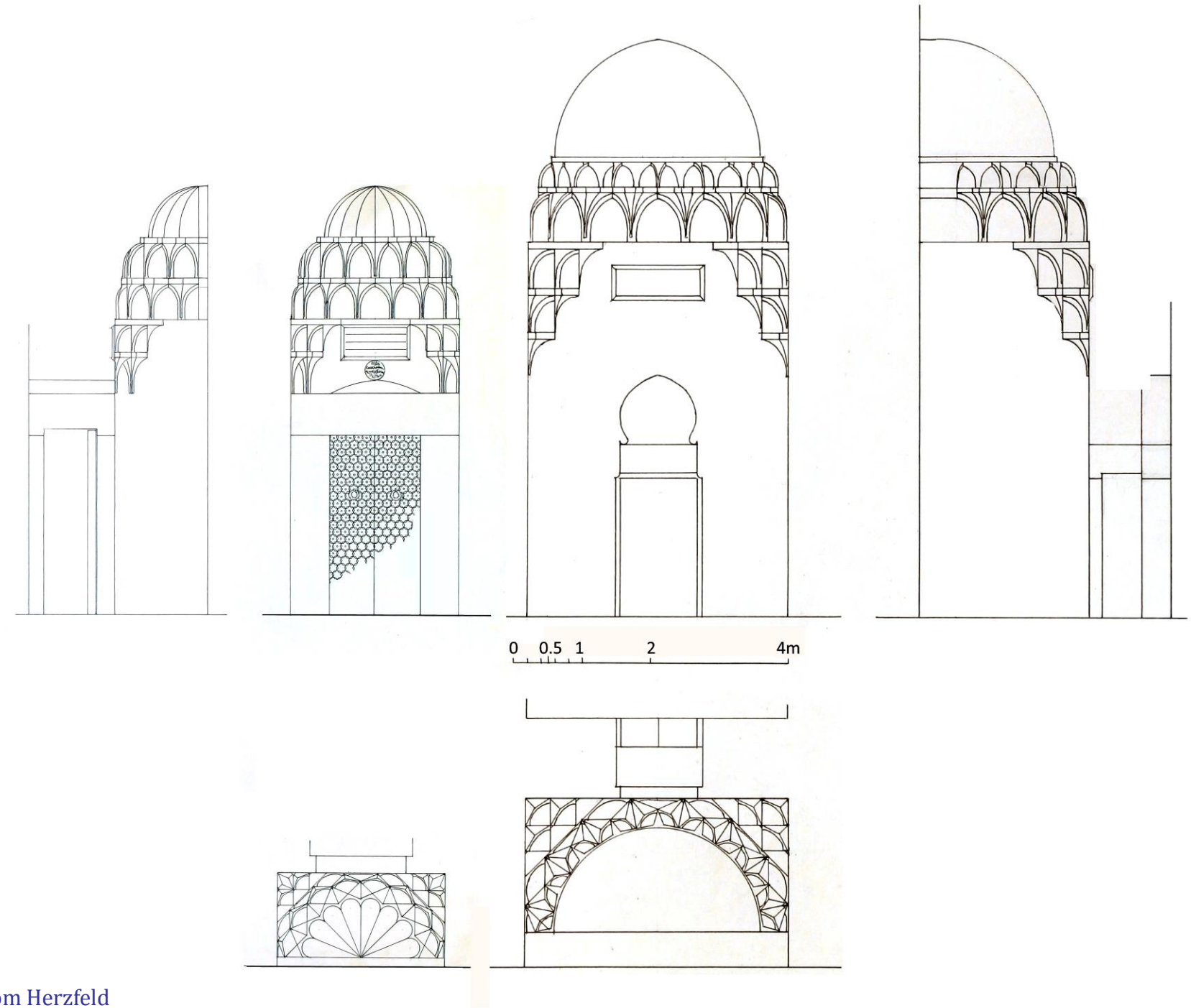


Adapted from Herzfeld

The portal of the Madrasa ʿĀdiliyya, Damascus

Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.5521

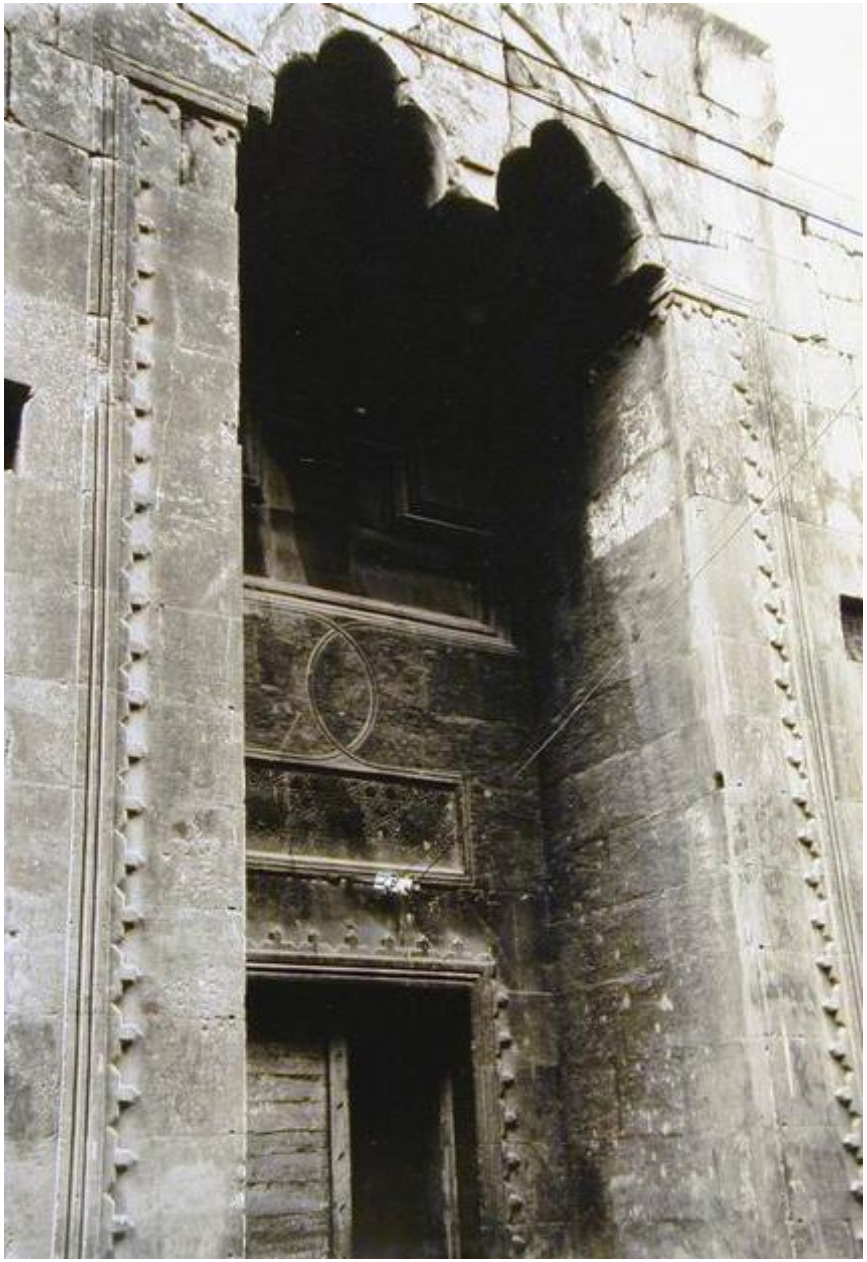
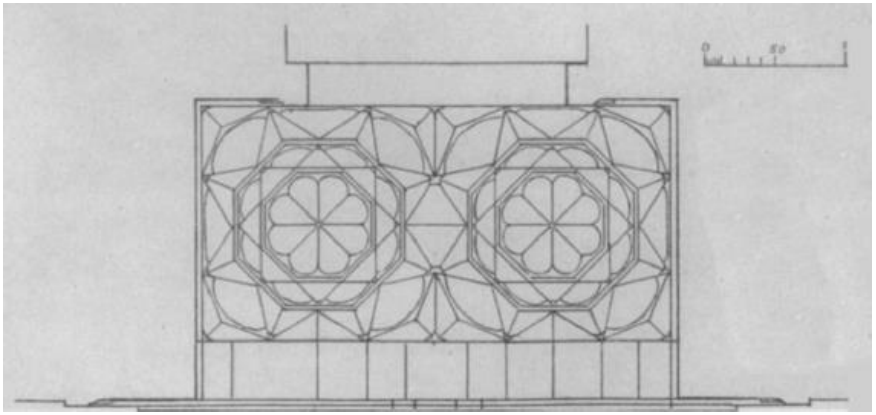
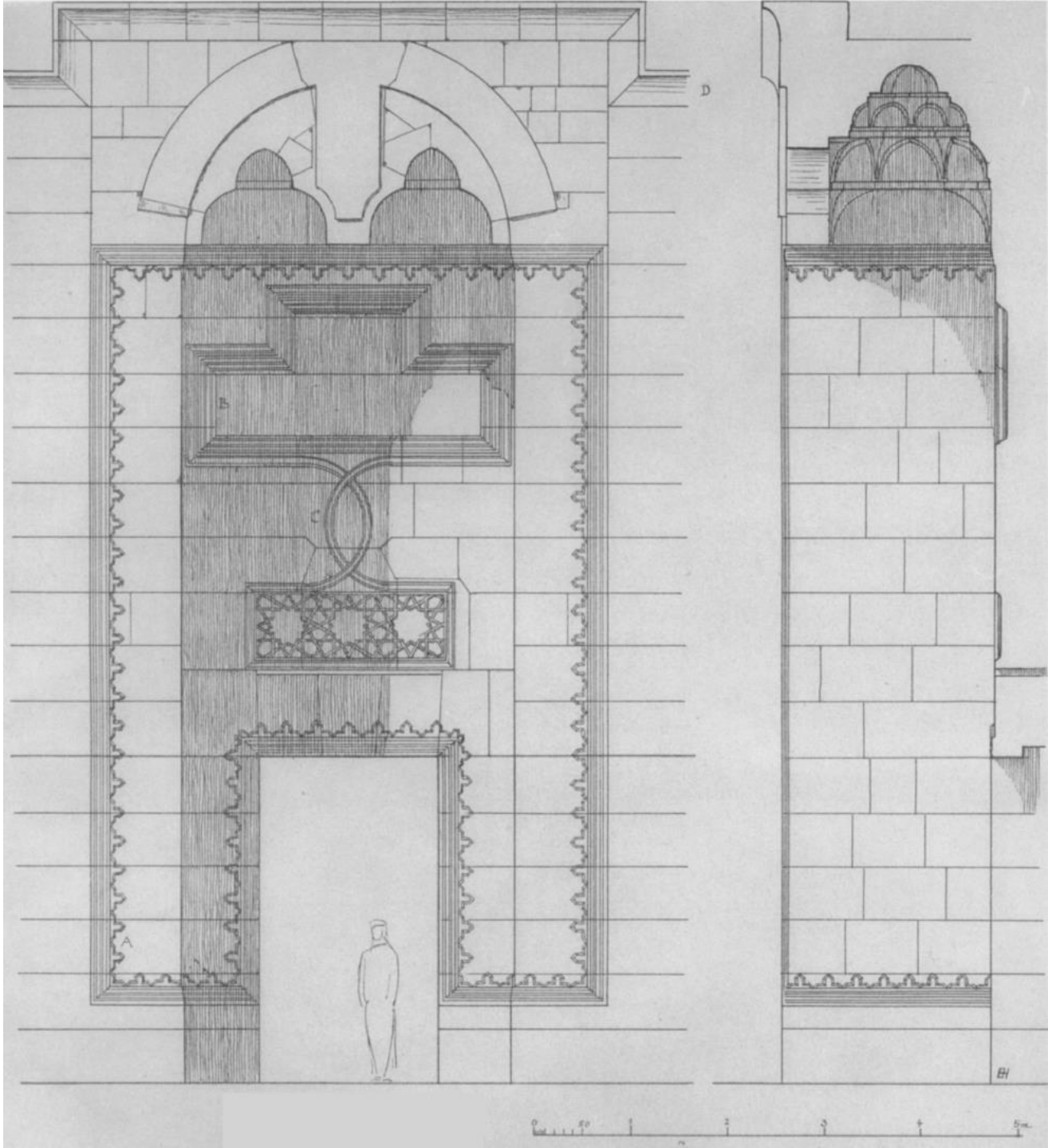


Photo: Creswell Archive, Ashmolean Museum

Allen, 1999



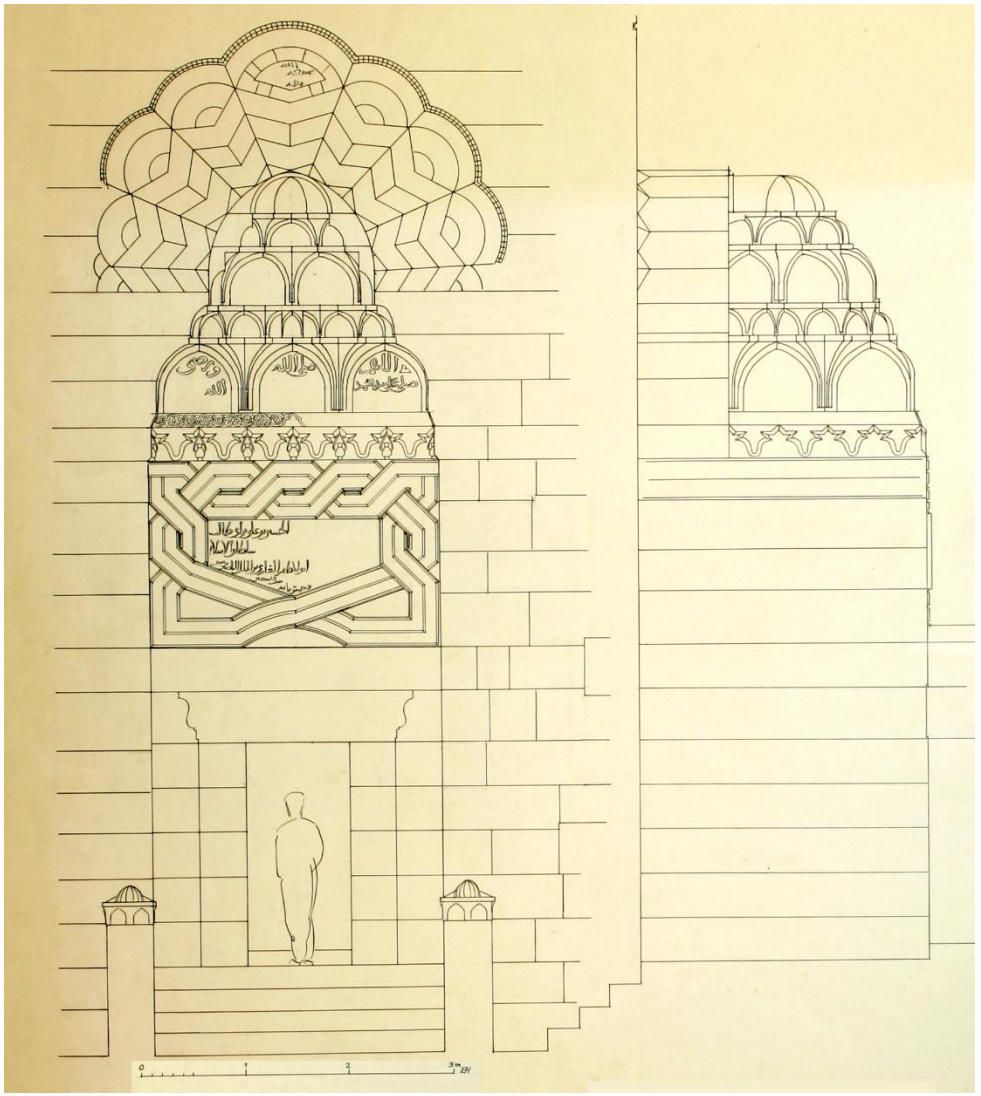
Herzfeld, 1946



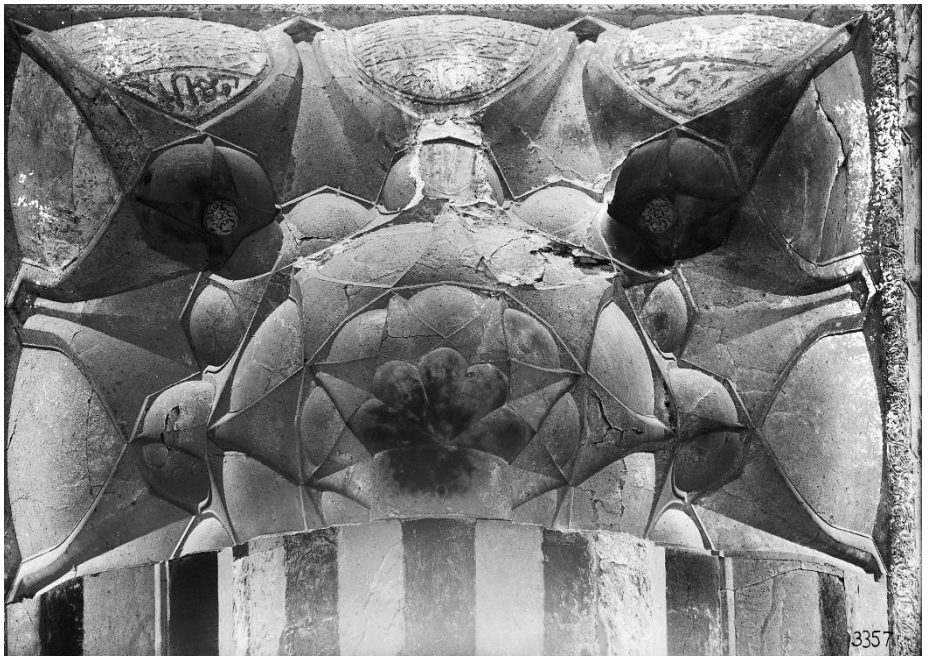
Herzfeld, 1946

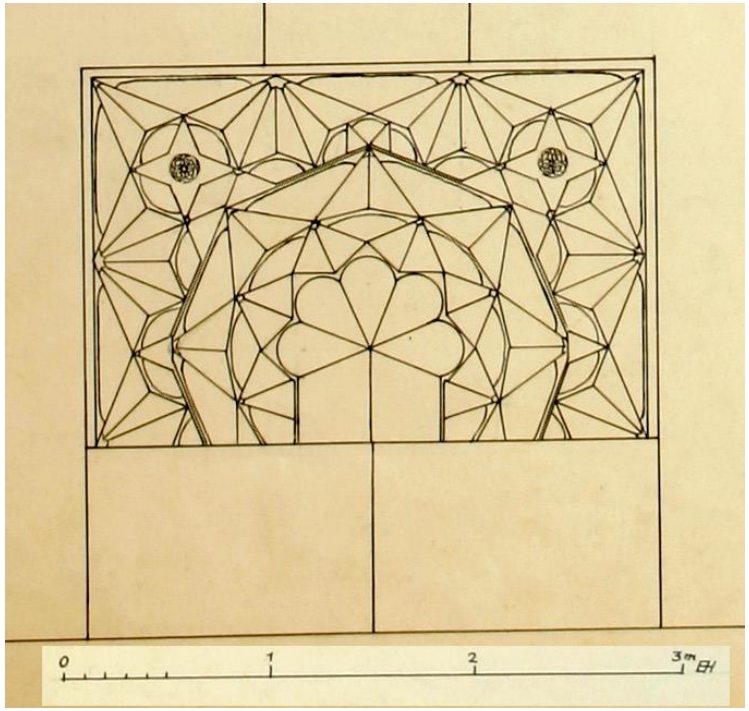
The portal of the Mashhad of al-Ḥusayn

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

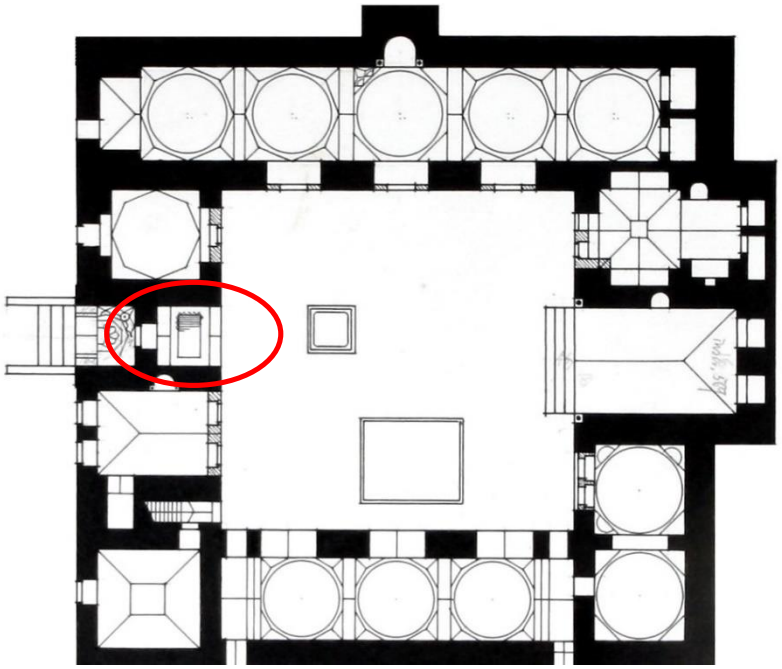


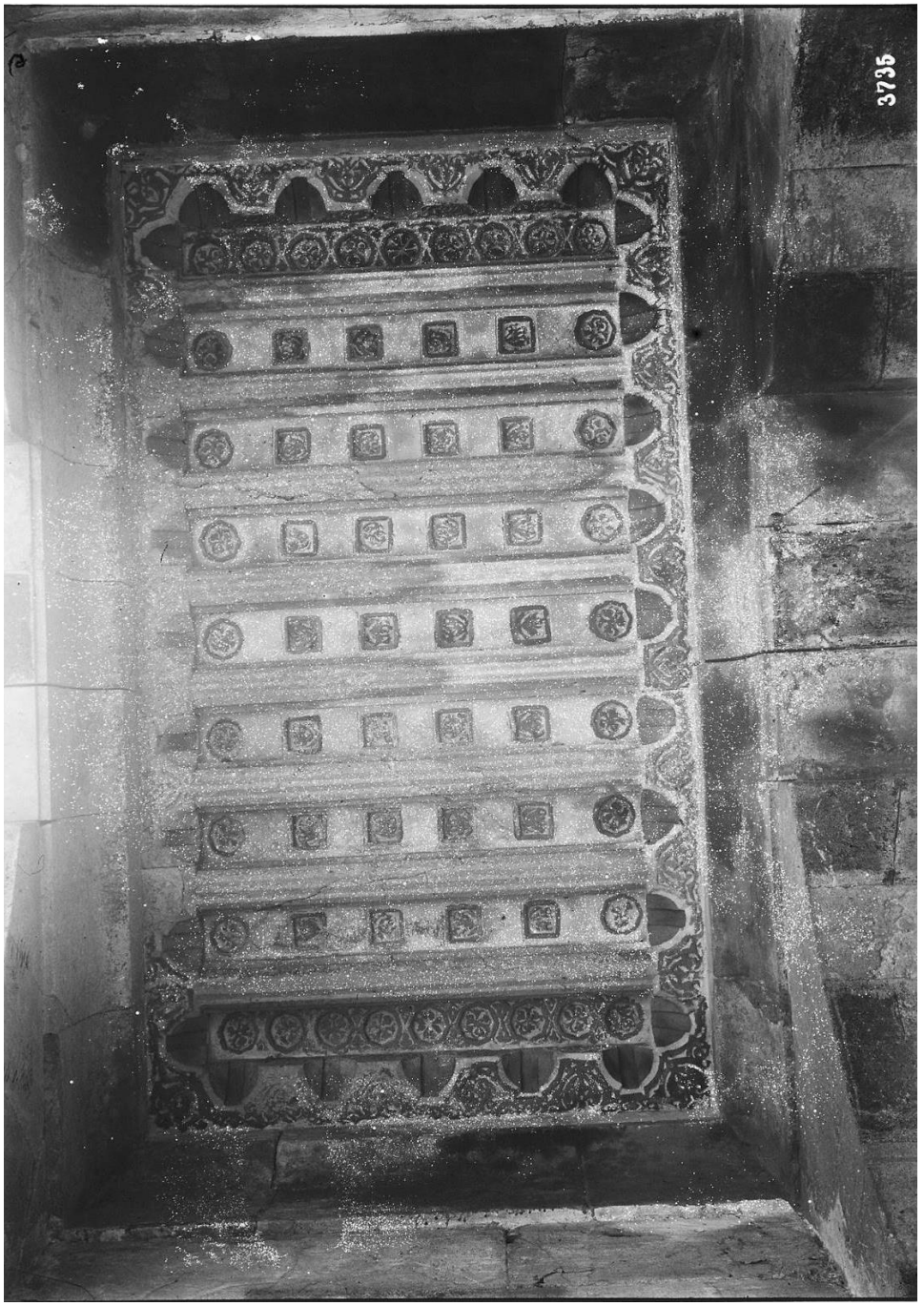


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

Allen, 1999

Sauvaget, 1928





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The East Gate of the Citadel, Damascus

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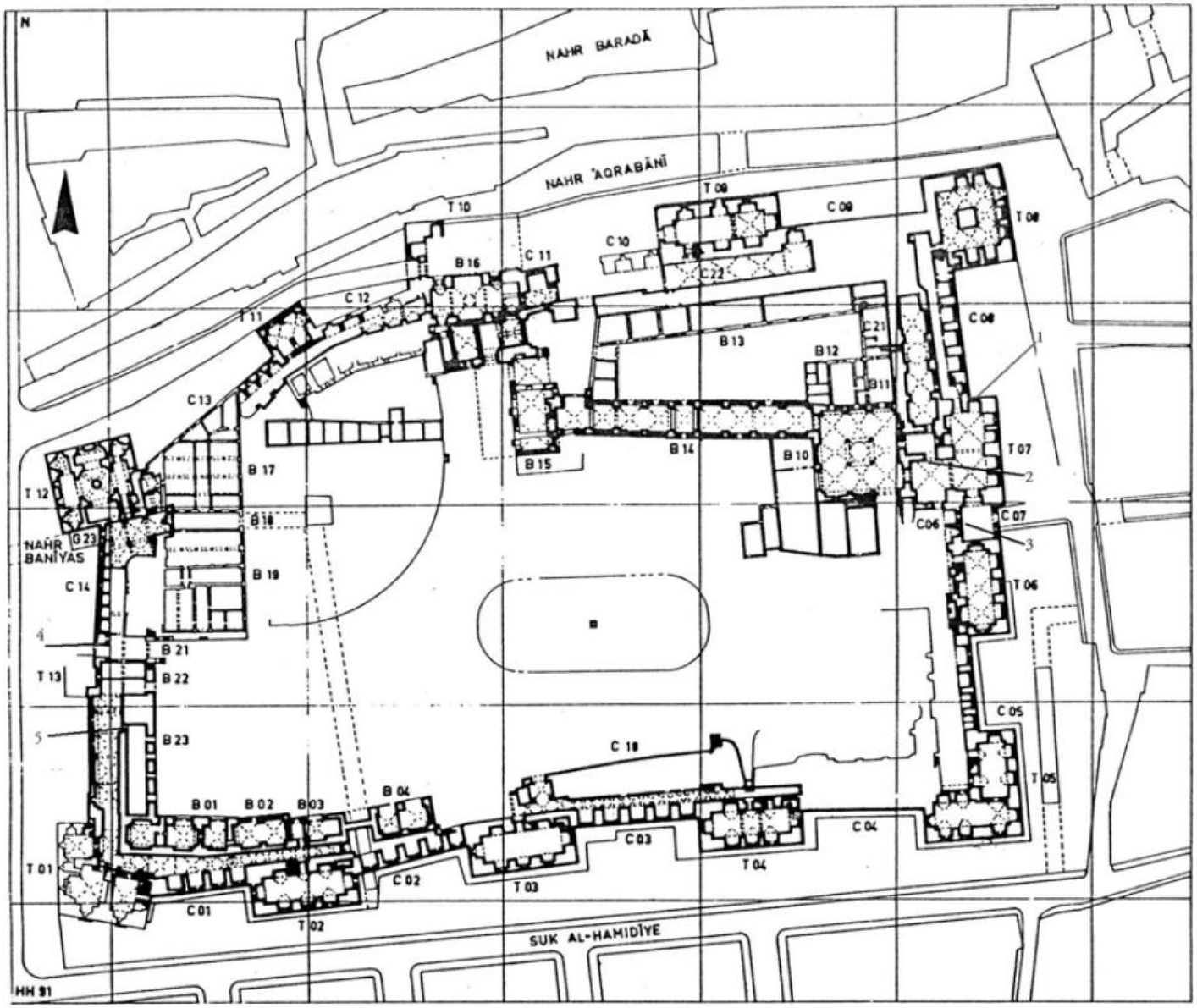
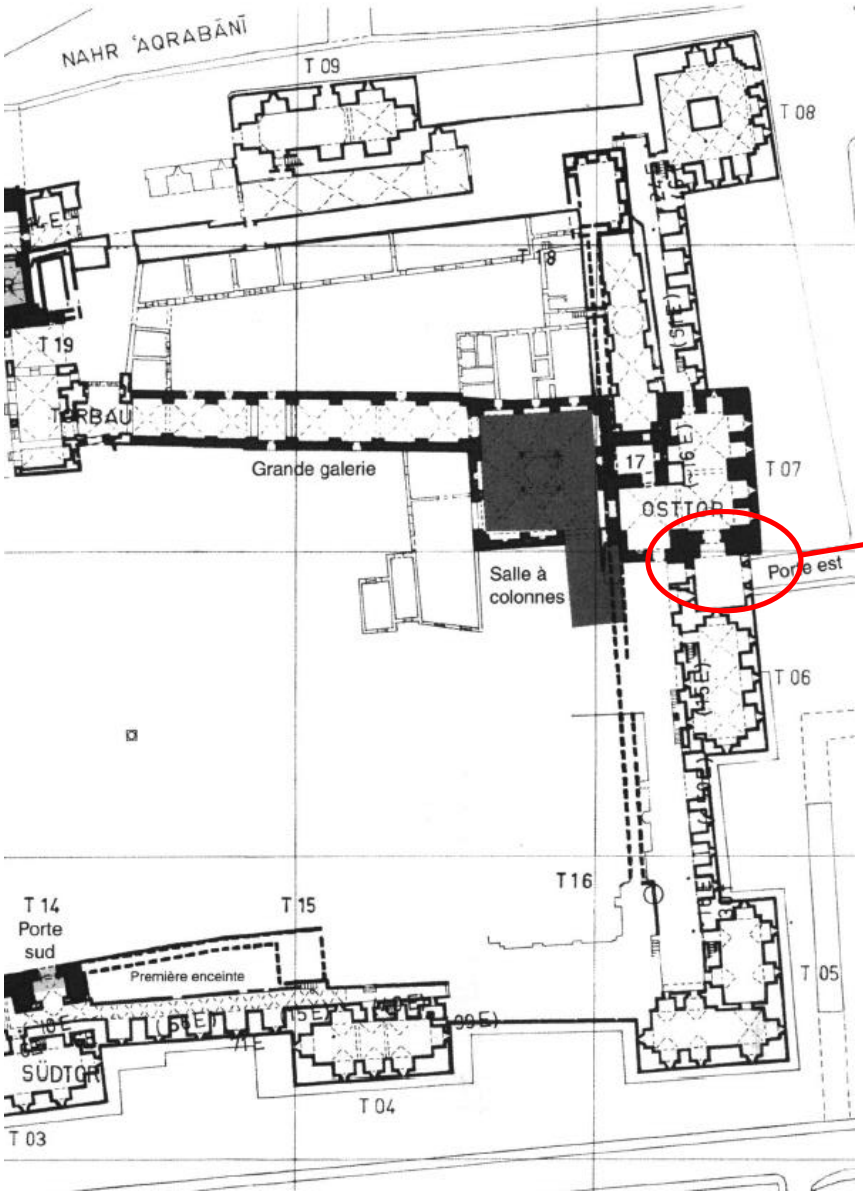
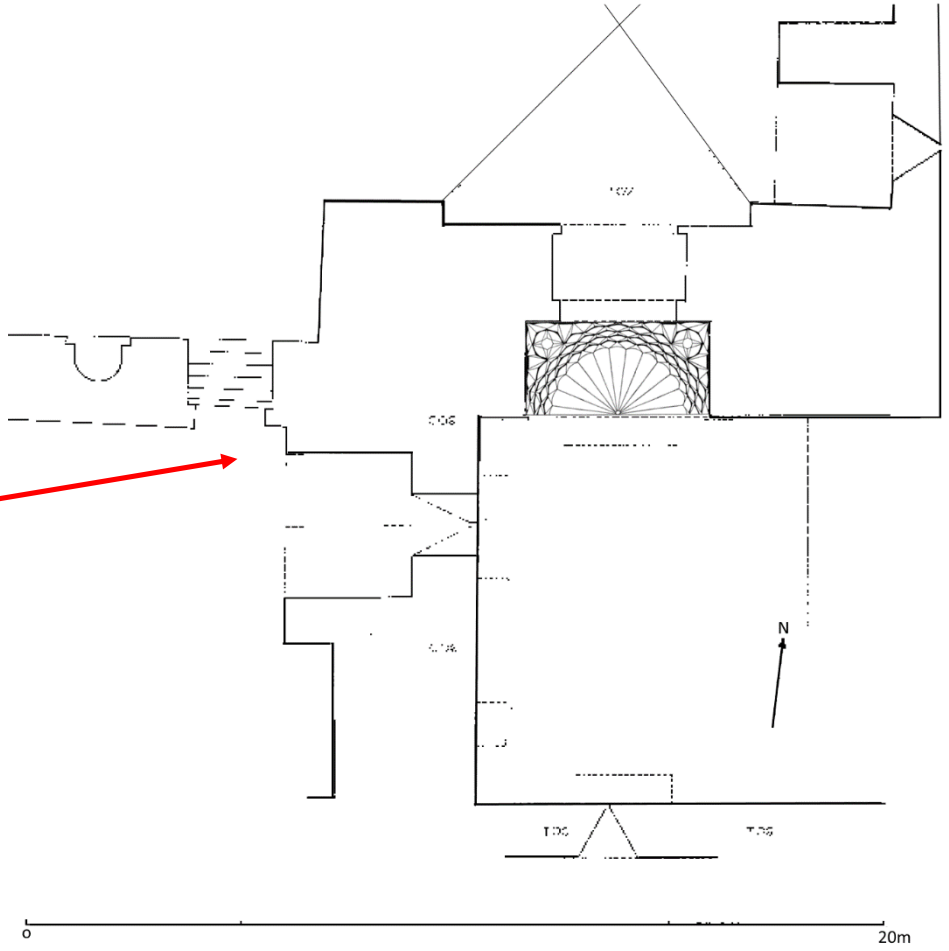


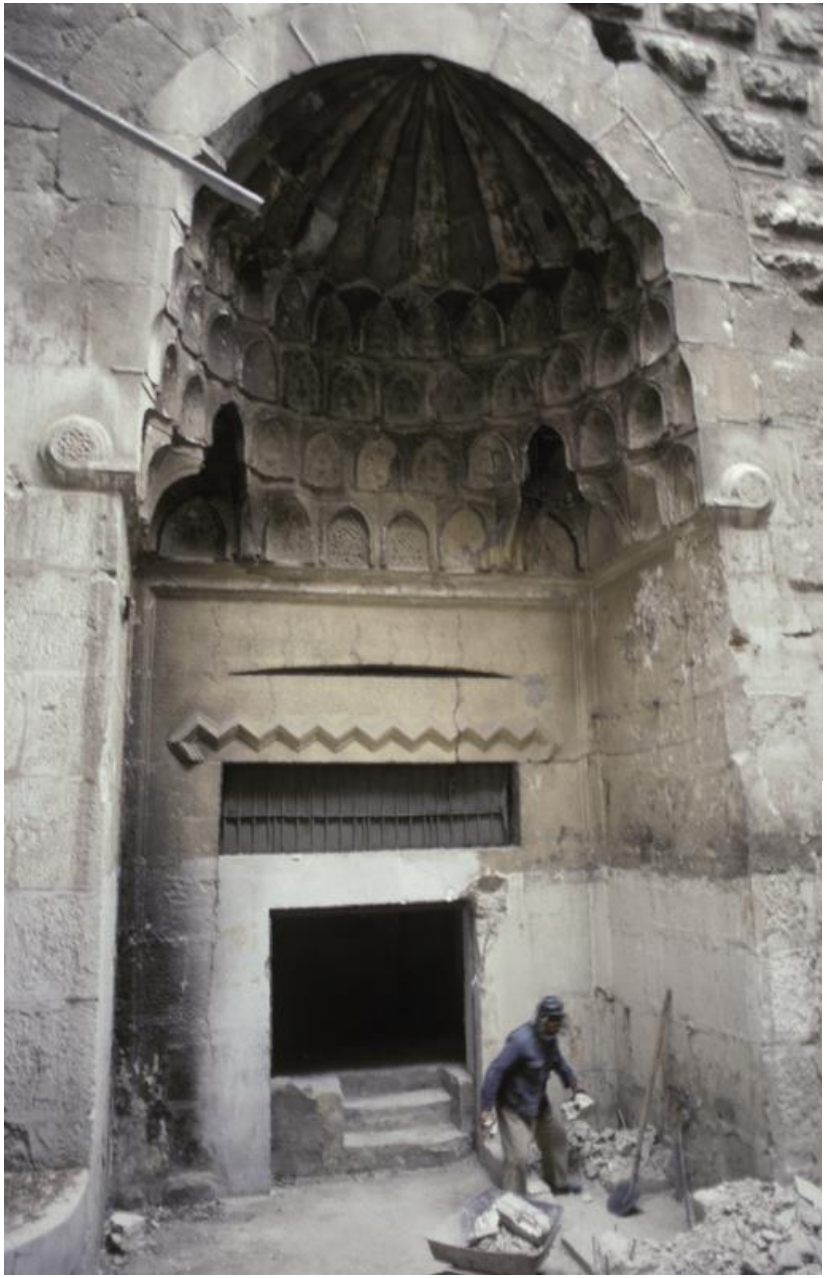
Abb. 1: Damaskus, Zitadelle, Lageplan M. 1:2000

Hanisch, 1996



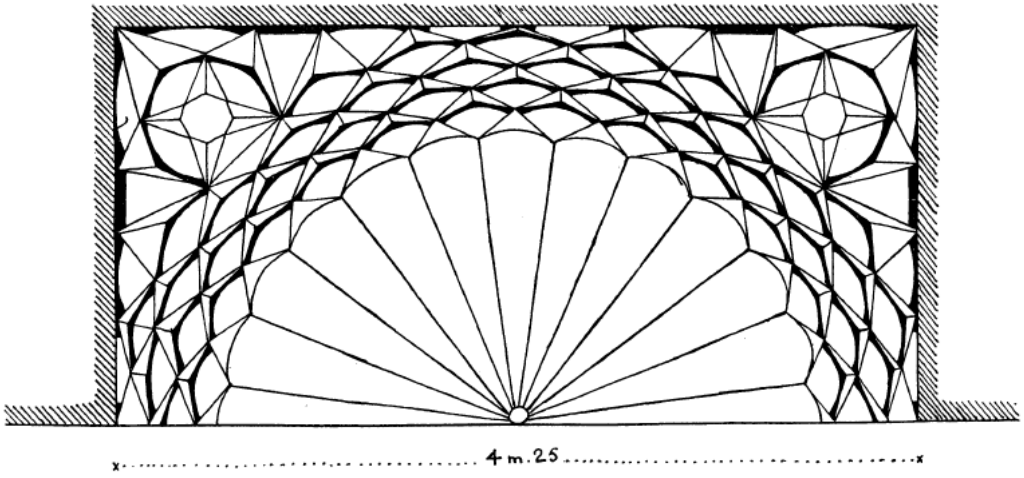


Adapted from Hanisch, 1996; Hartmann-Virnich, 2001; Sauvaget, 1930



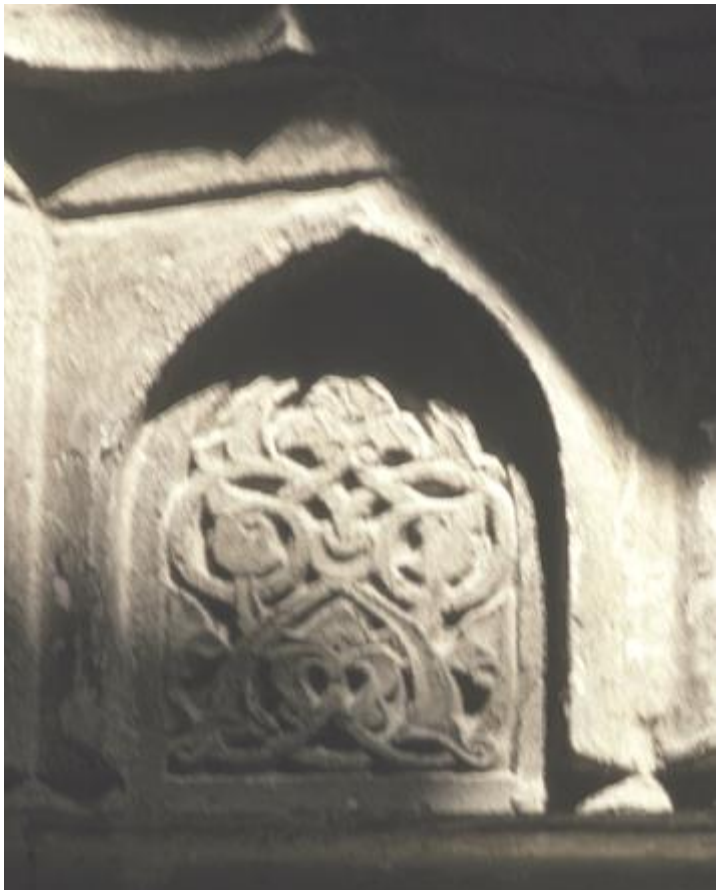
Allen, 1999

Allen, 1999

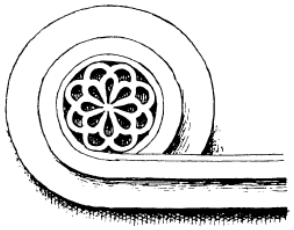


Sauvaget, 1930

Hartmann-Virnich, 1999



Allen, 1999



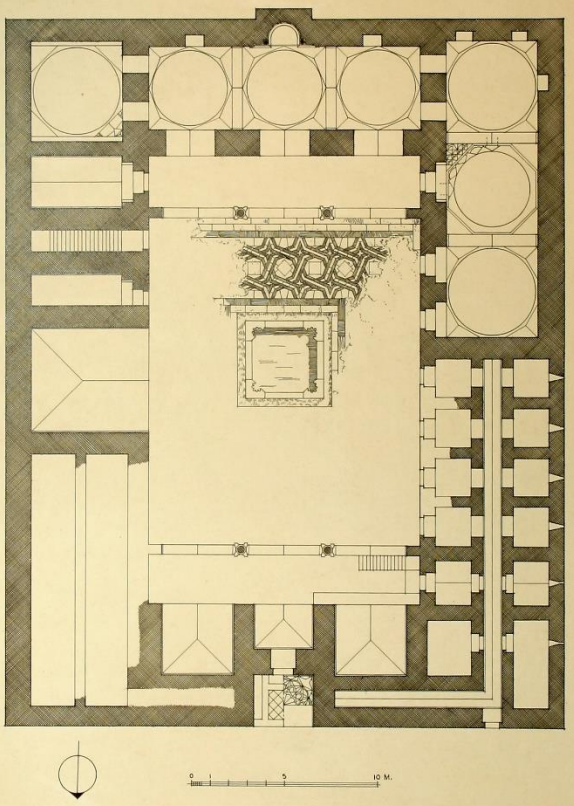
a

b

Sauvaget, 1930

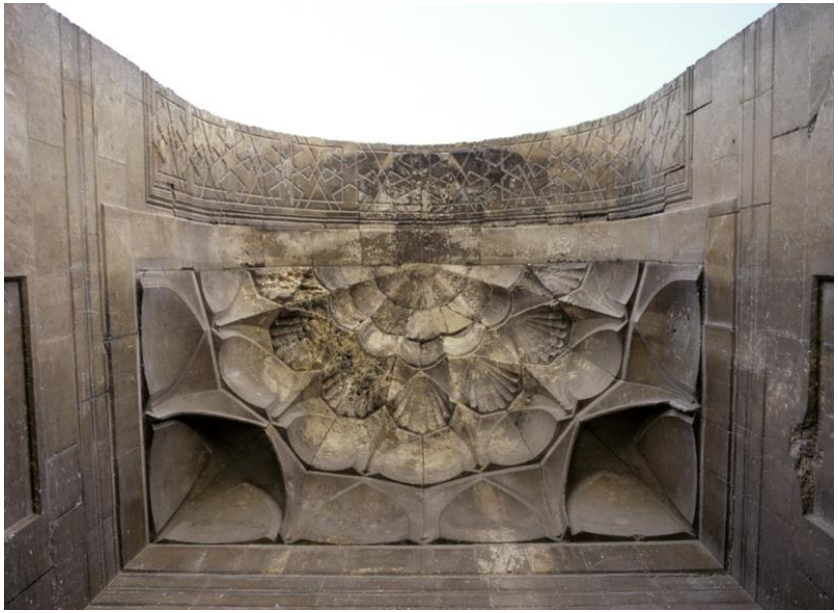
The Portal of the Madrasa Ẓāhiriyya, Aleppo

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

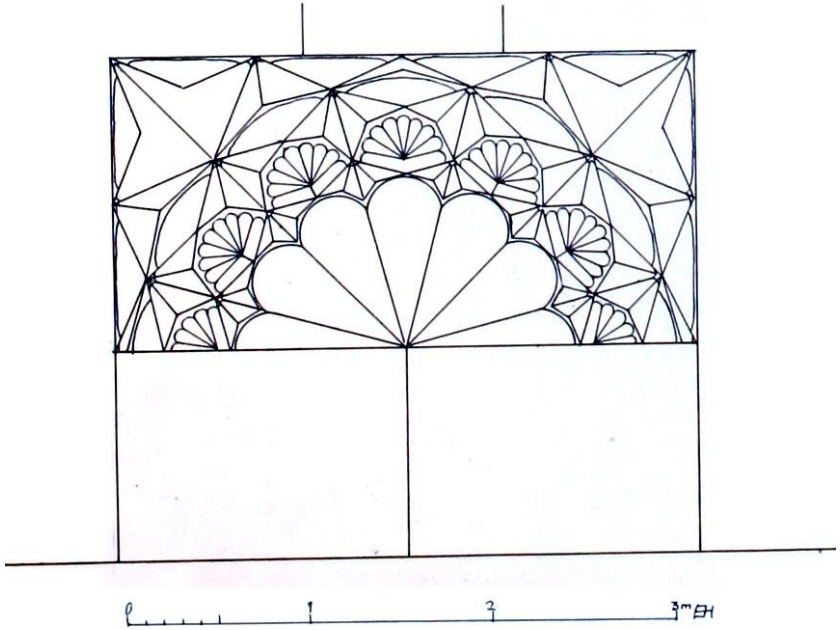


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

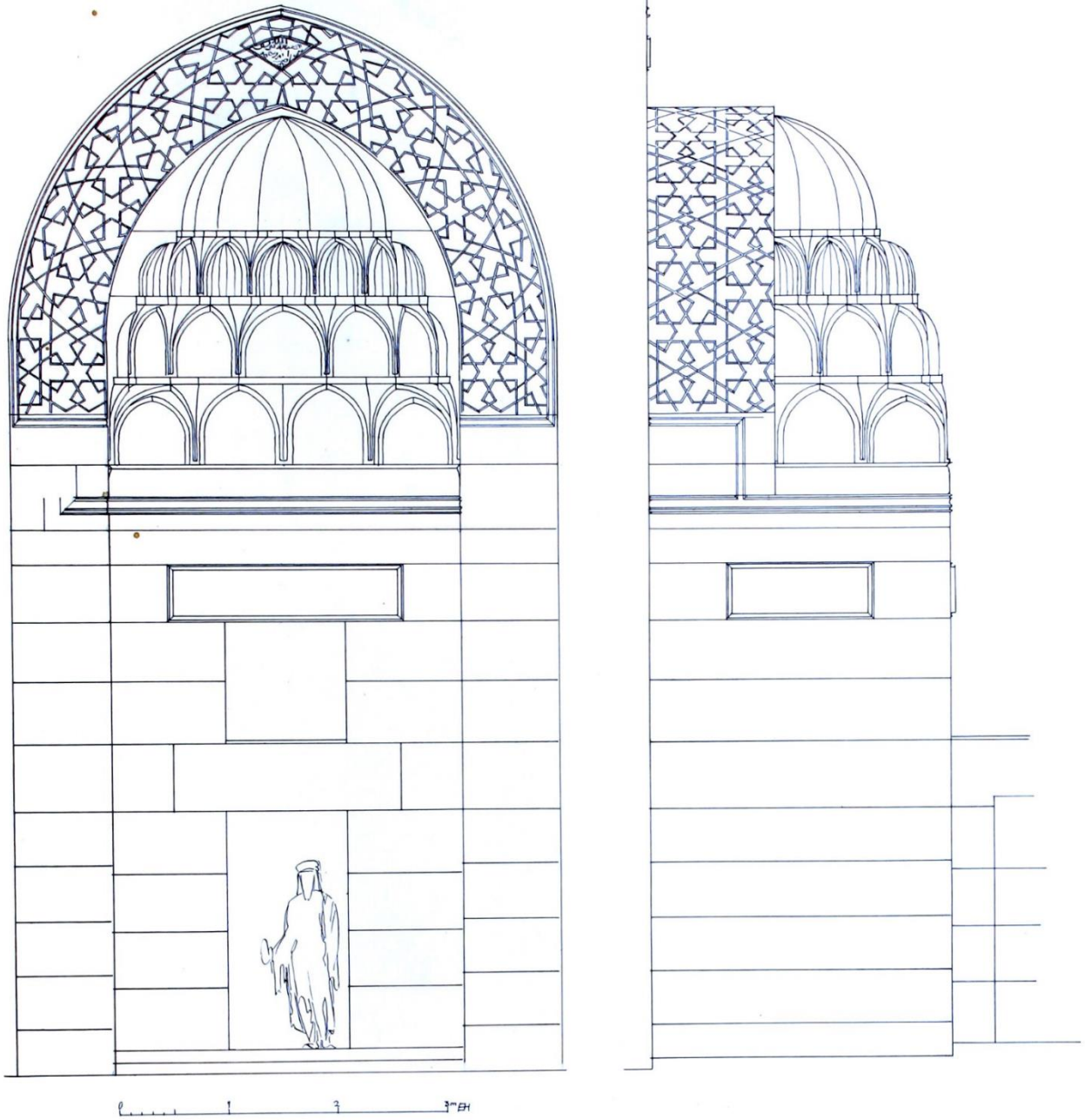
Allen, 1999



Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

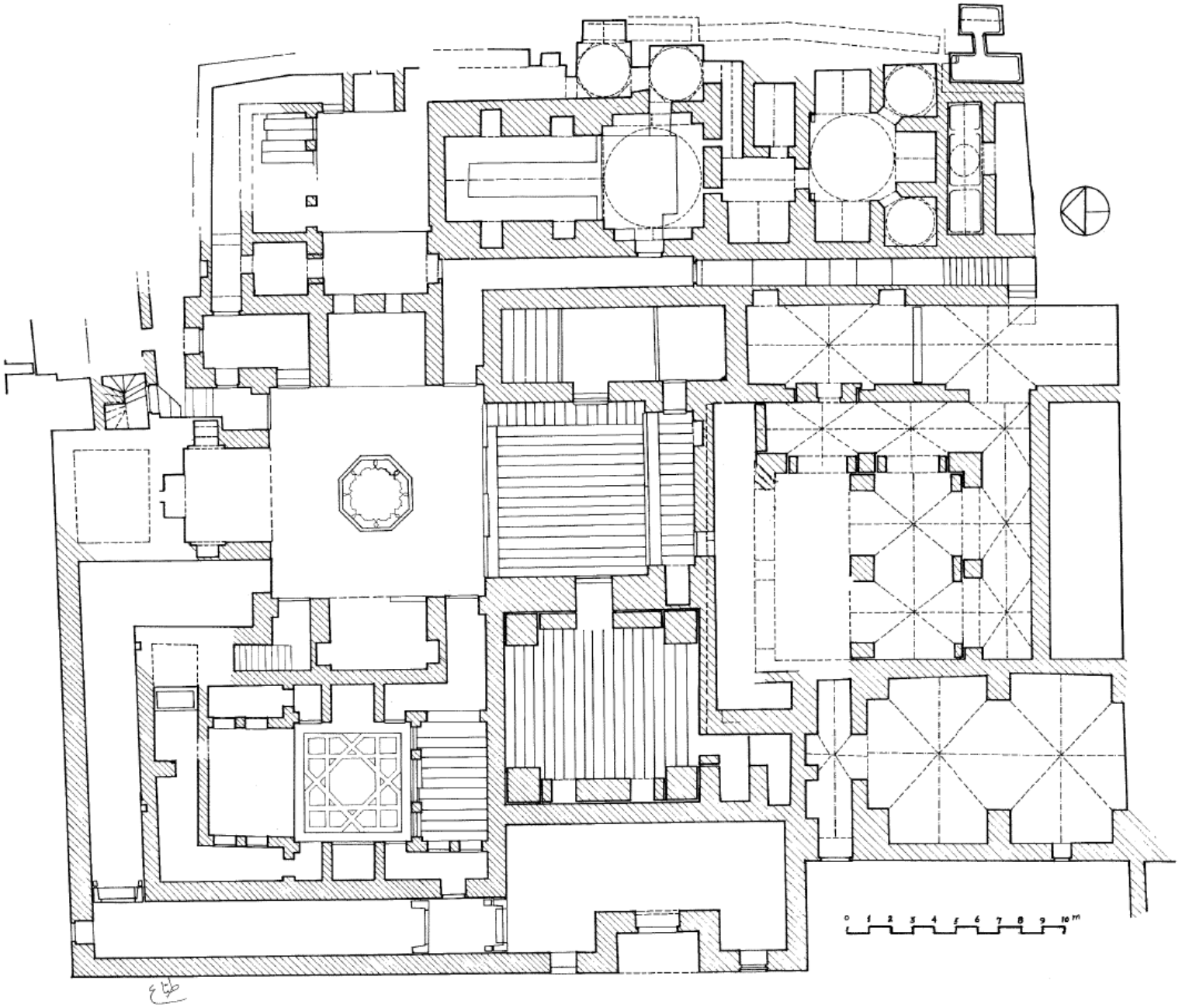


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

Allen, 1999

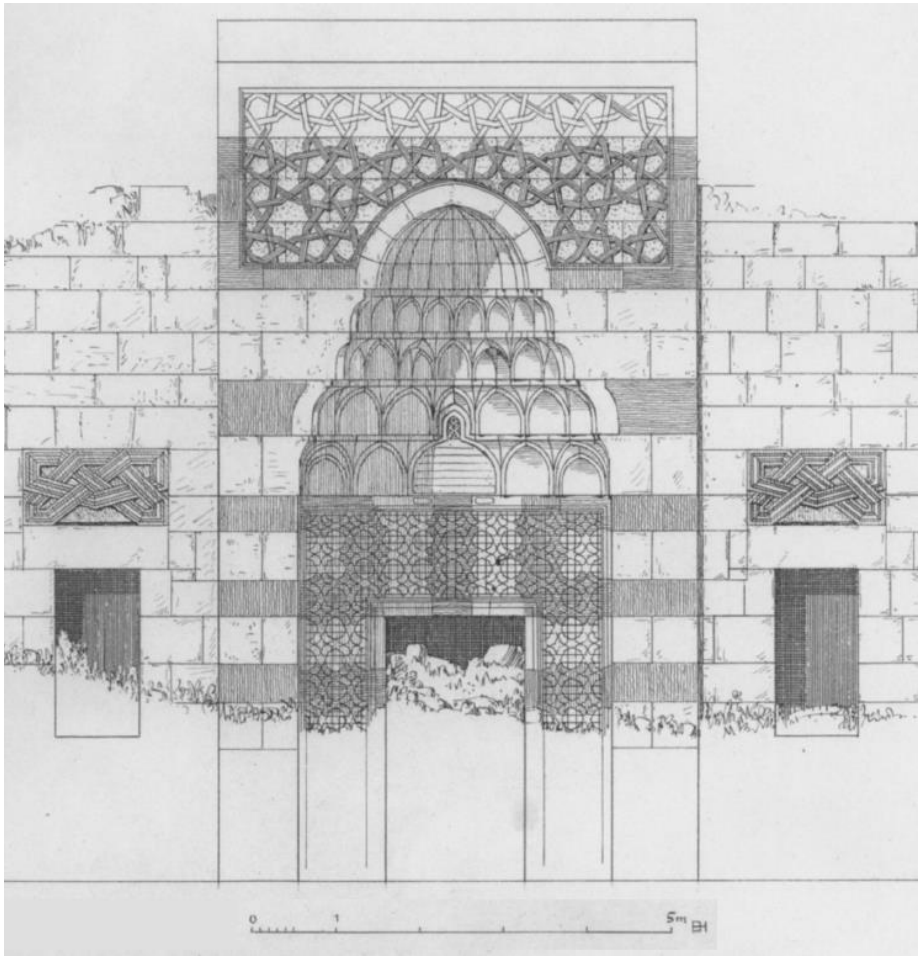
The palace portal of al-Malik al-Ẓāhir on the Citadel of Aleppo

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

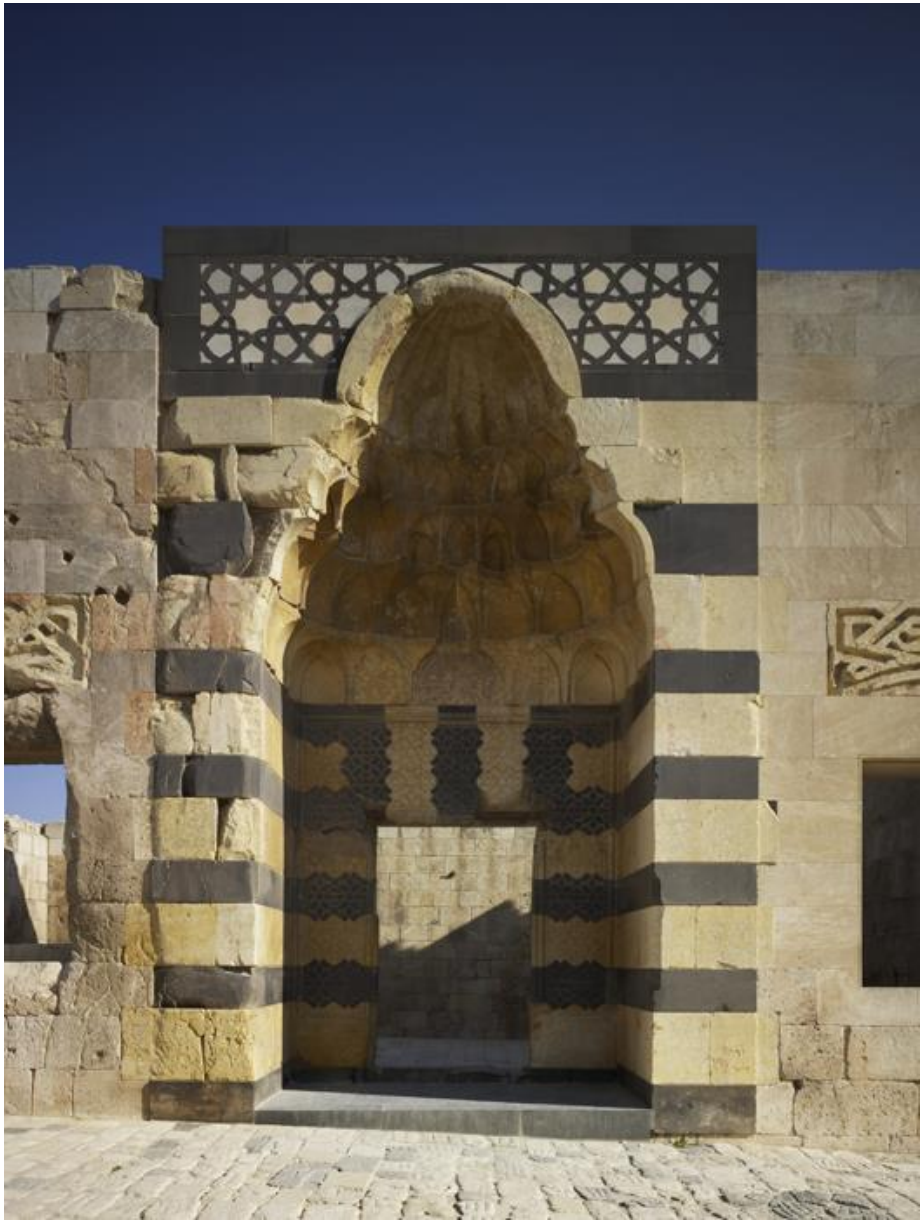


Tabbaa, 1993

Allen, 1999



Herzfeld, 1946



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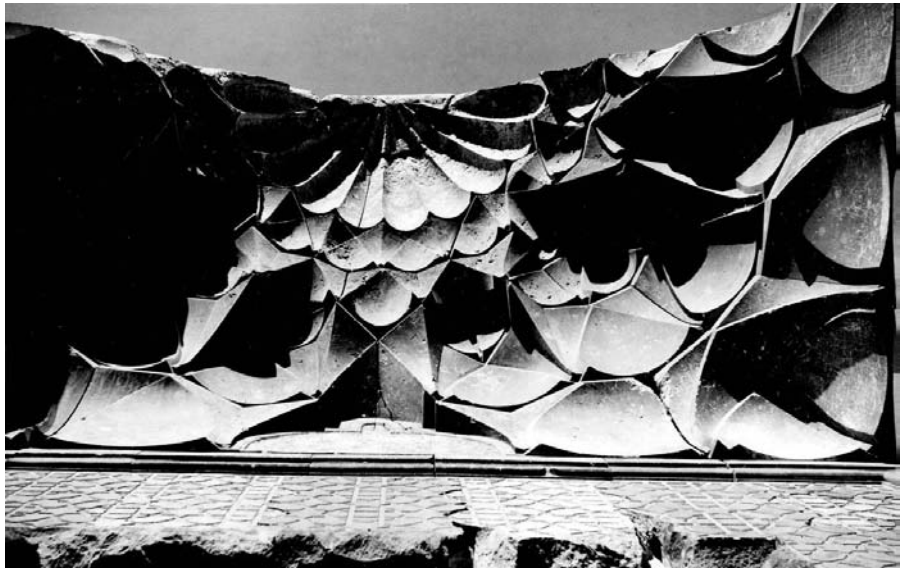

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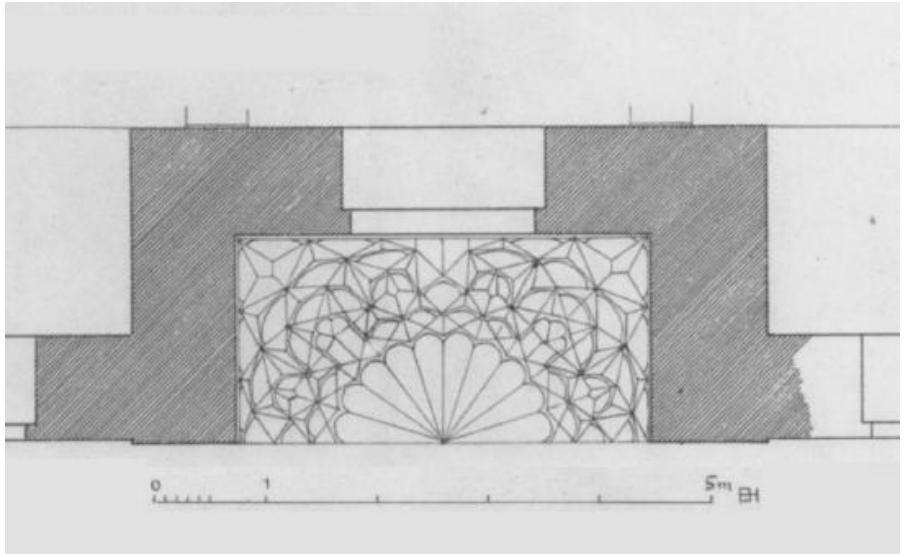
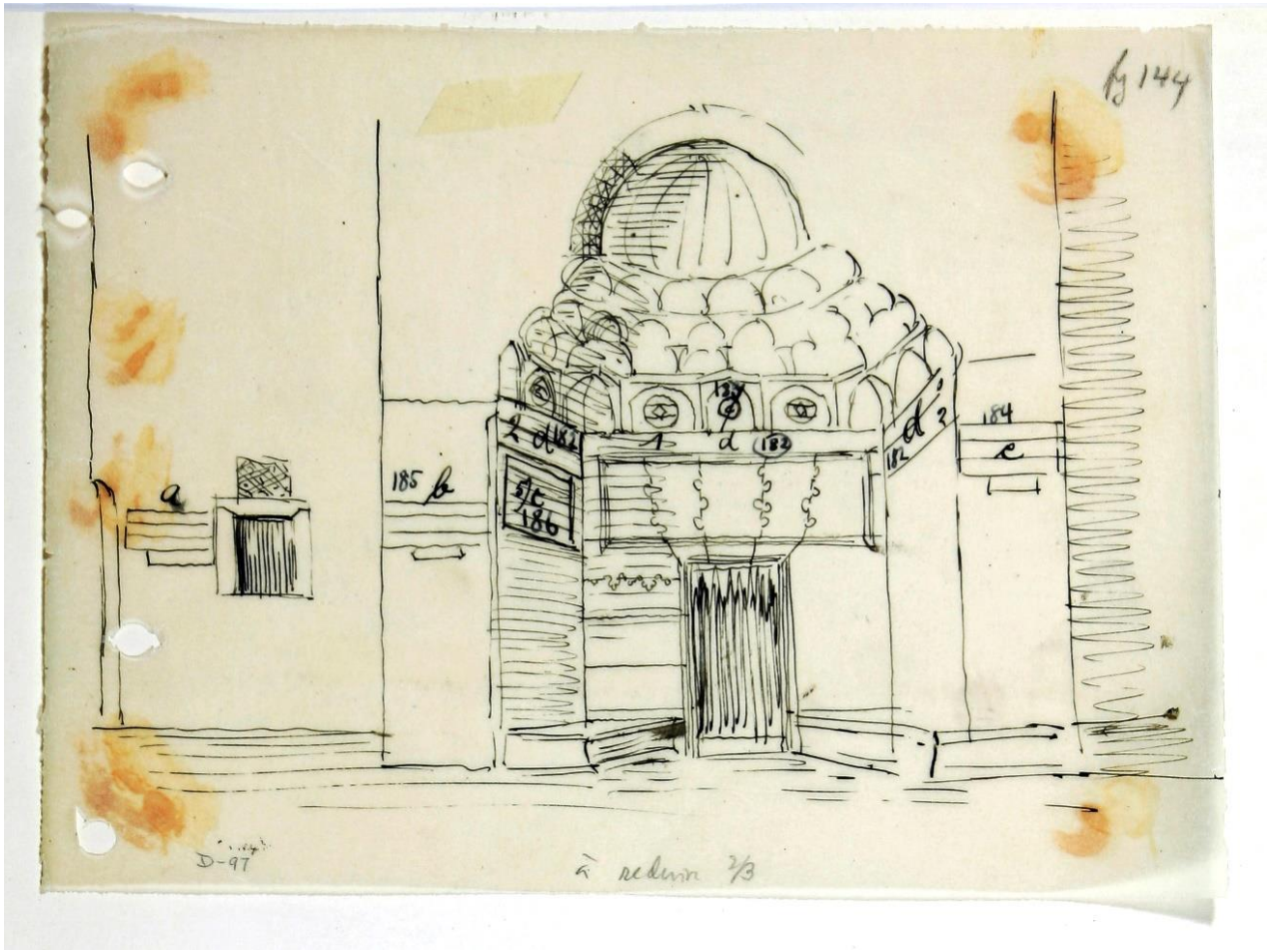
(the picture is erroneously labelled as Firdaus)

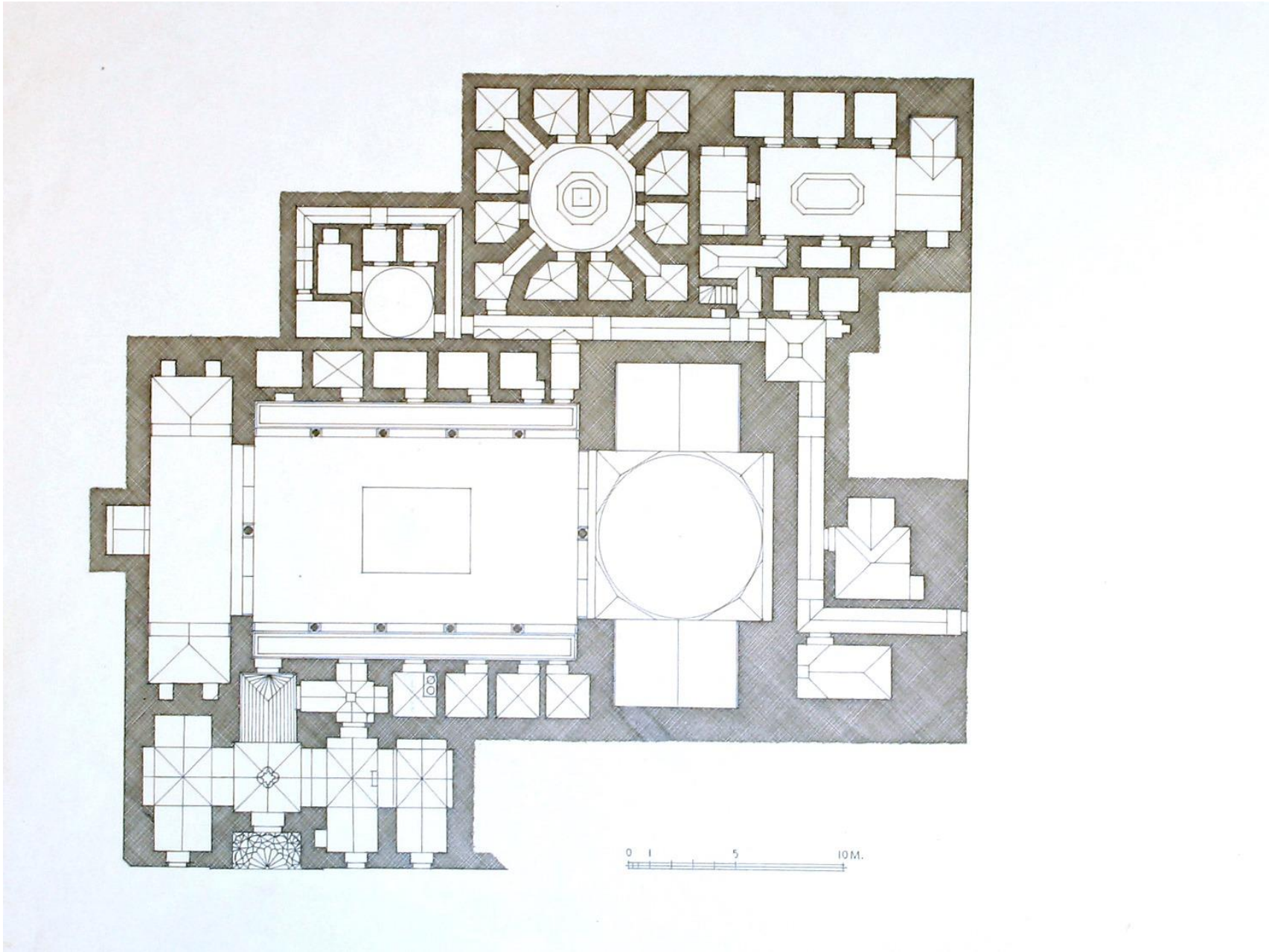


Herzfeld, 1946

The portal of the Māristān Arghūn, Aleppo



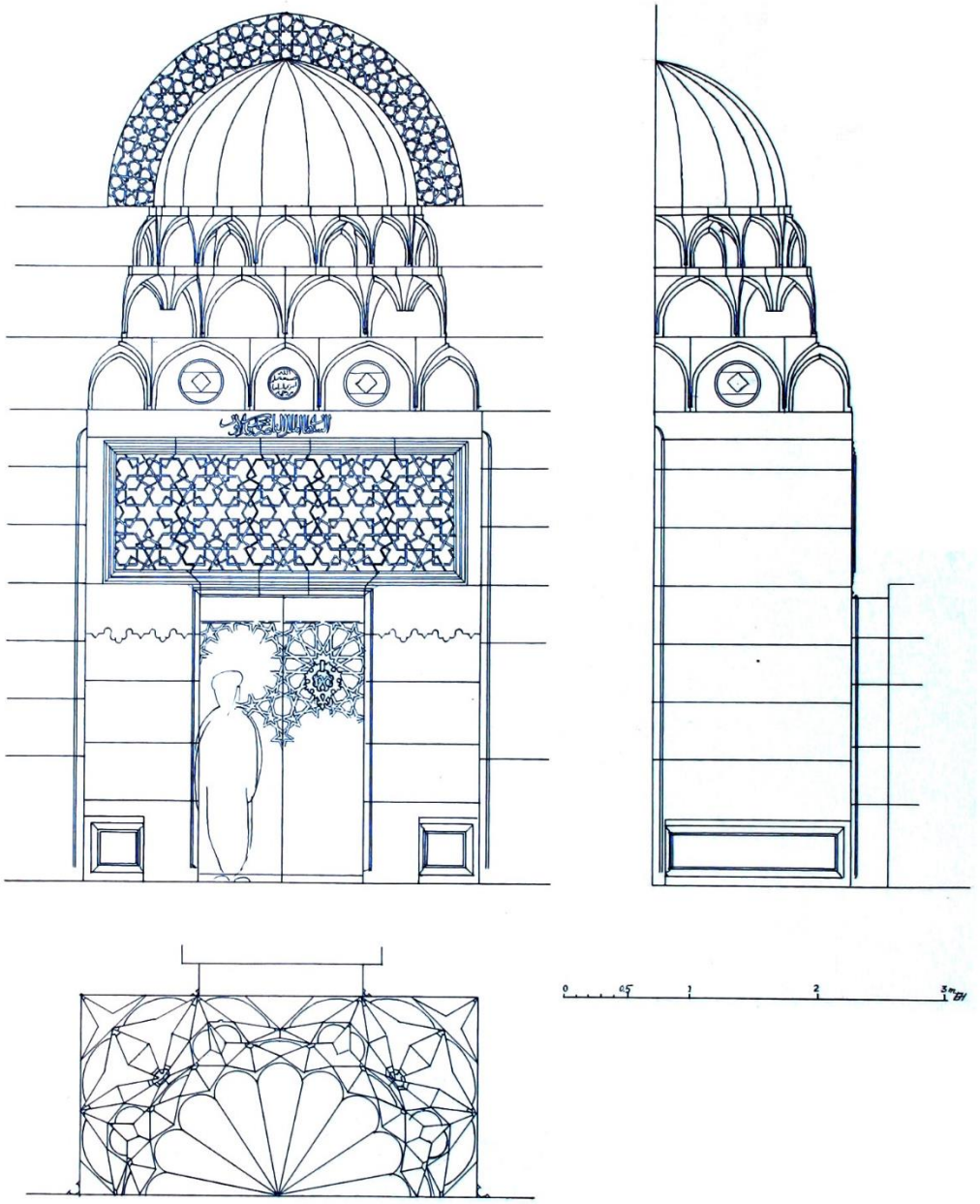
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

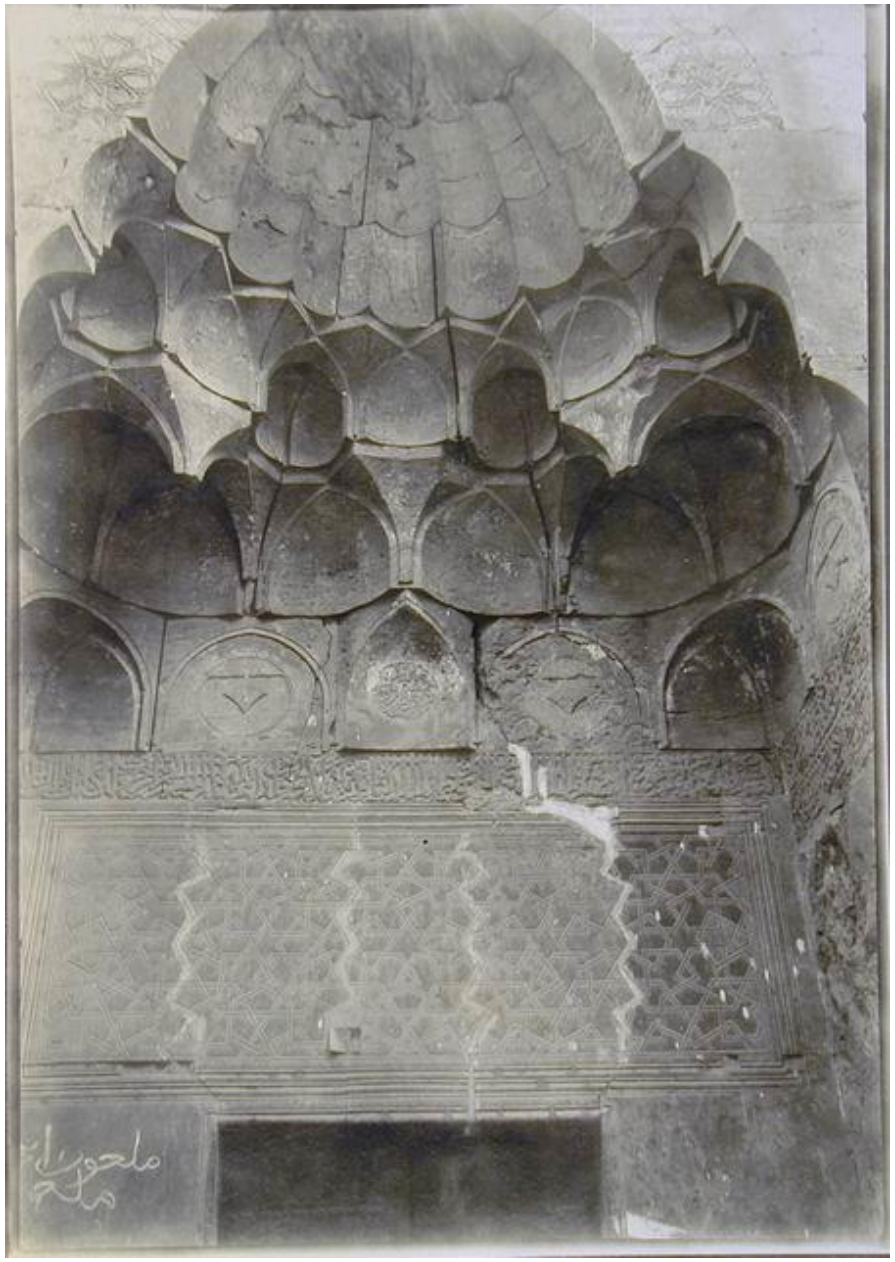
Allen, 1999

Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



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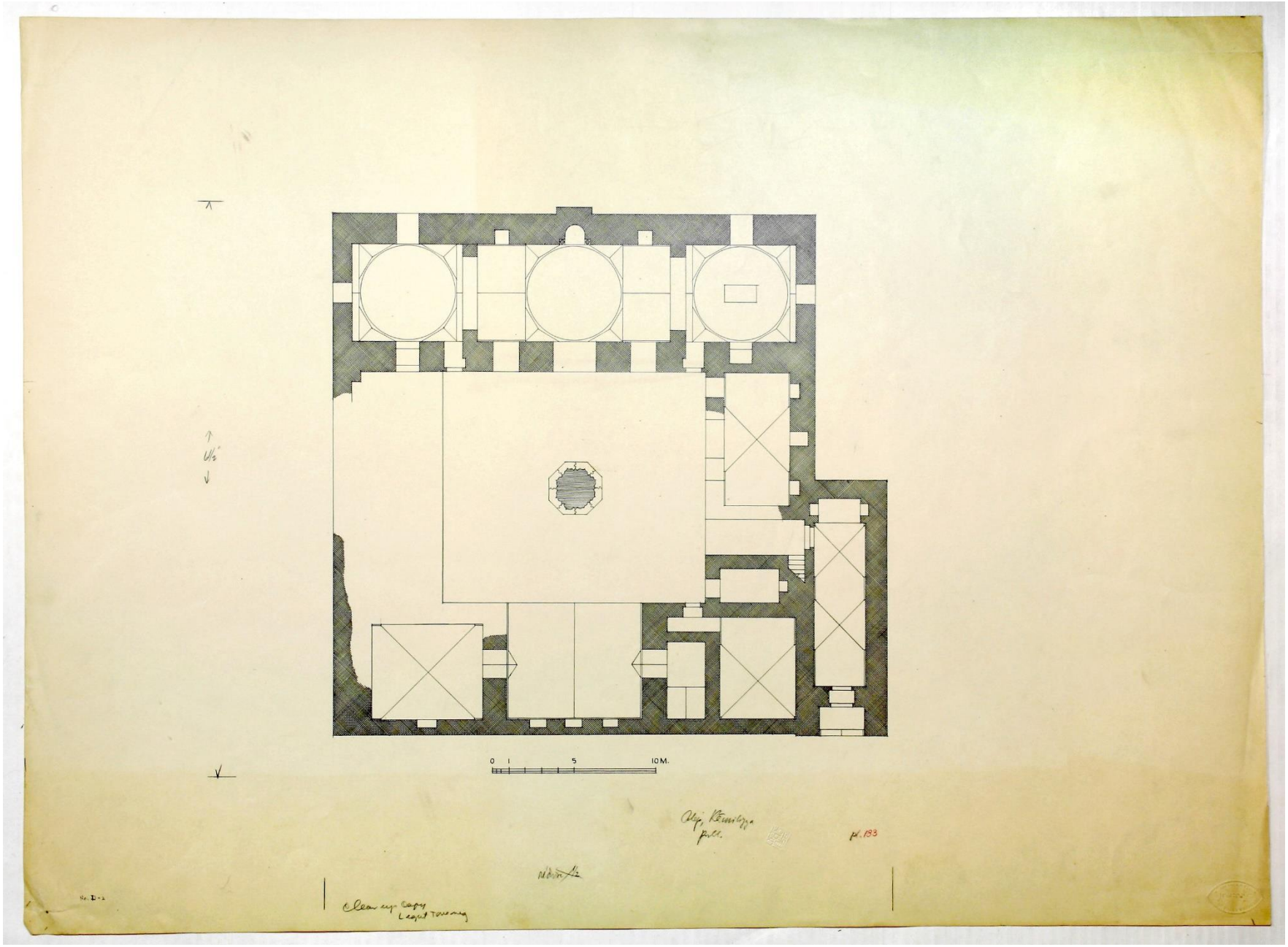
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur
M. Sackler Gallery Archives. Smithsonian Institution, Washington

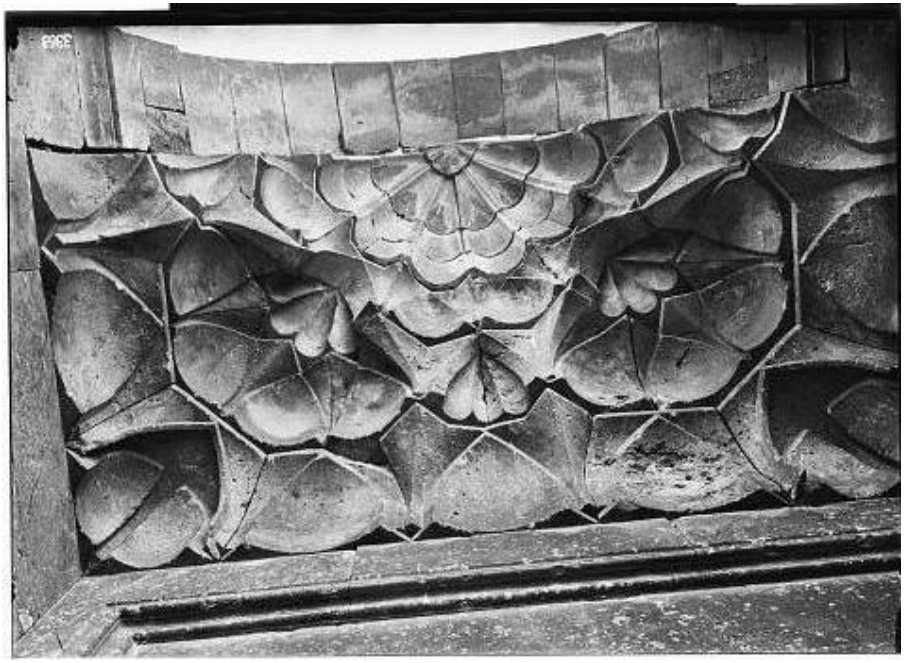
The Portal of Madrasa Kāmiliyya, Firdaws (Aleppo)

Allen, 1999

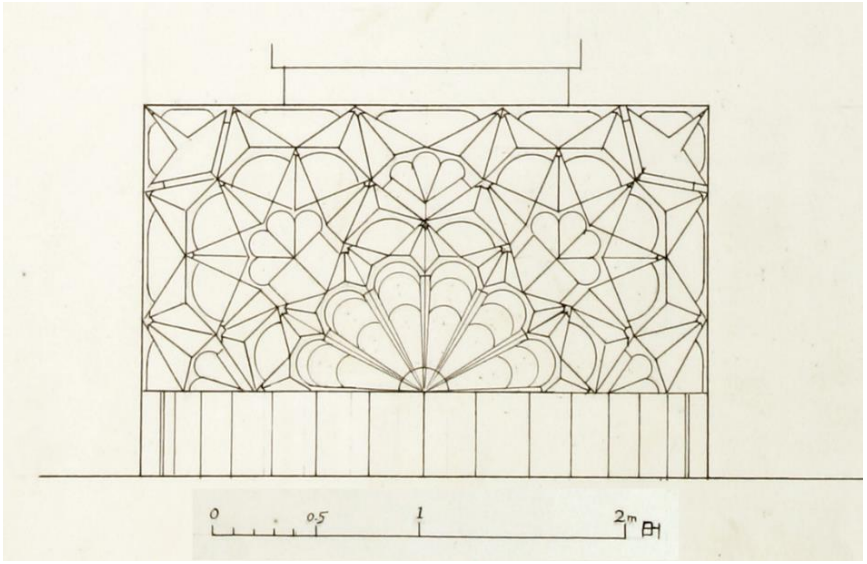


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

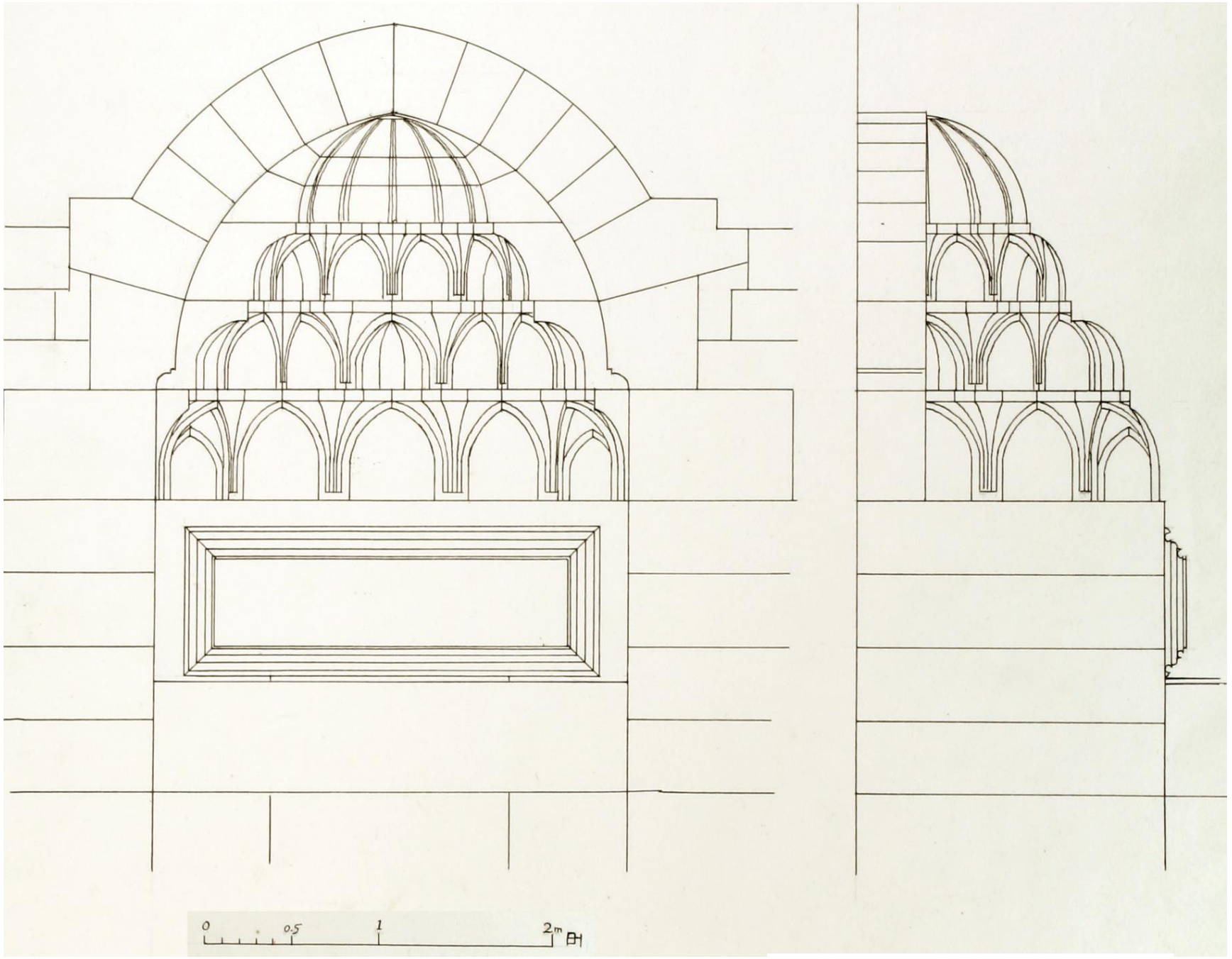
Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



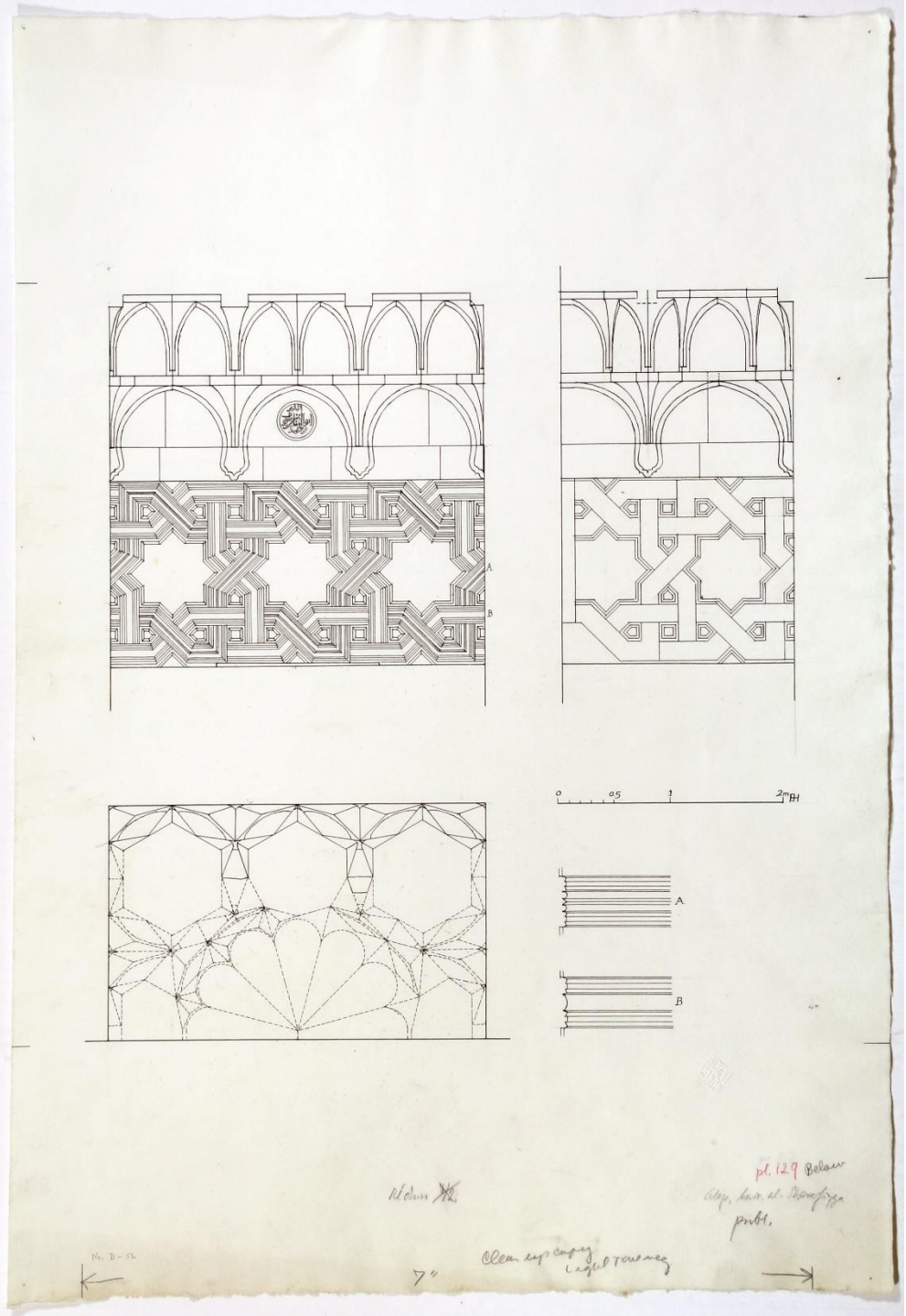
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

The Portal of Madrasa Sharafiyya, Aleppo

Creswell, 1922

Allen 1999

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

Allen 1999

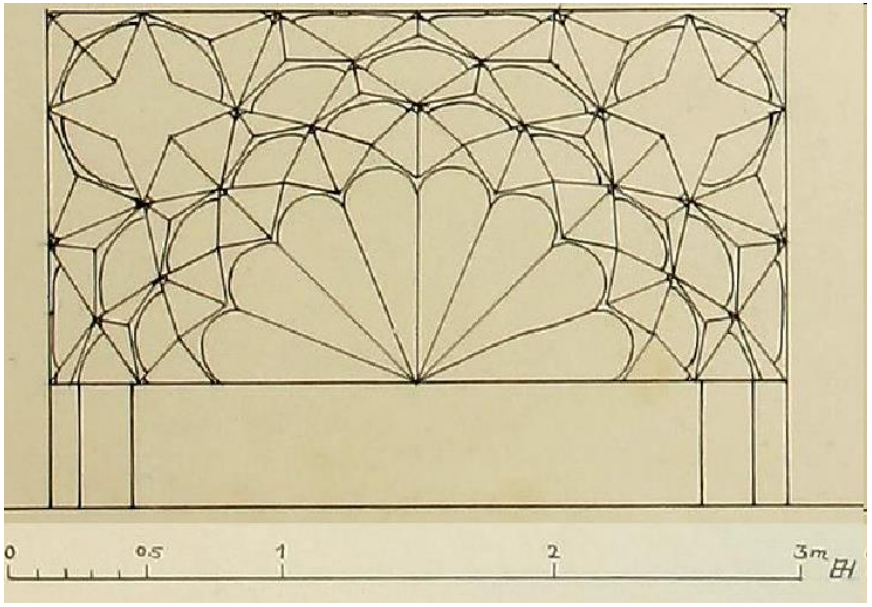
Allen 1999

The Portal of Madrasat al-Firdaws, Aleppo

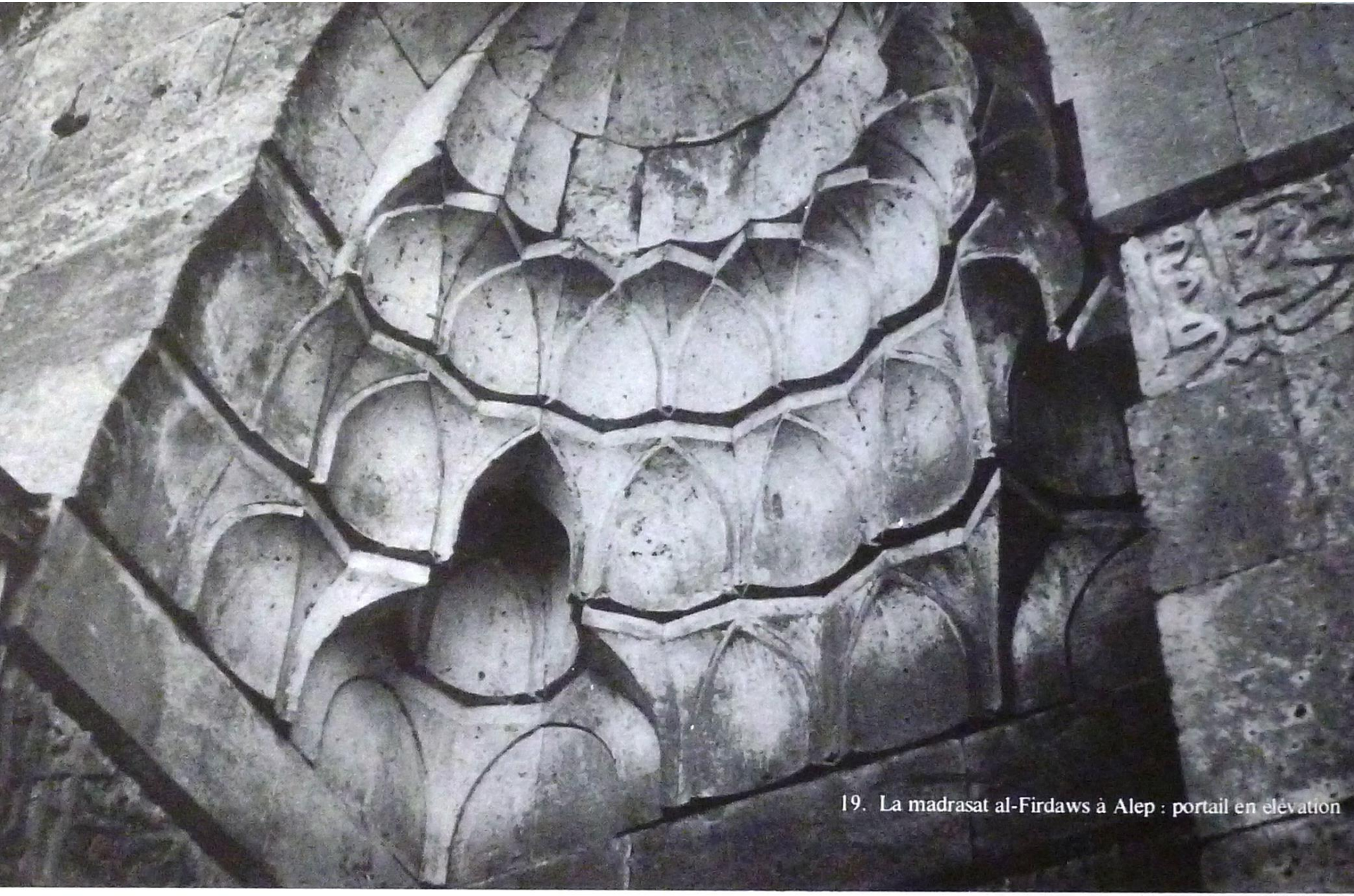
Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.5837

Allen, 1999

Écochard, 1977

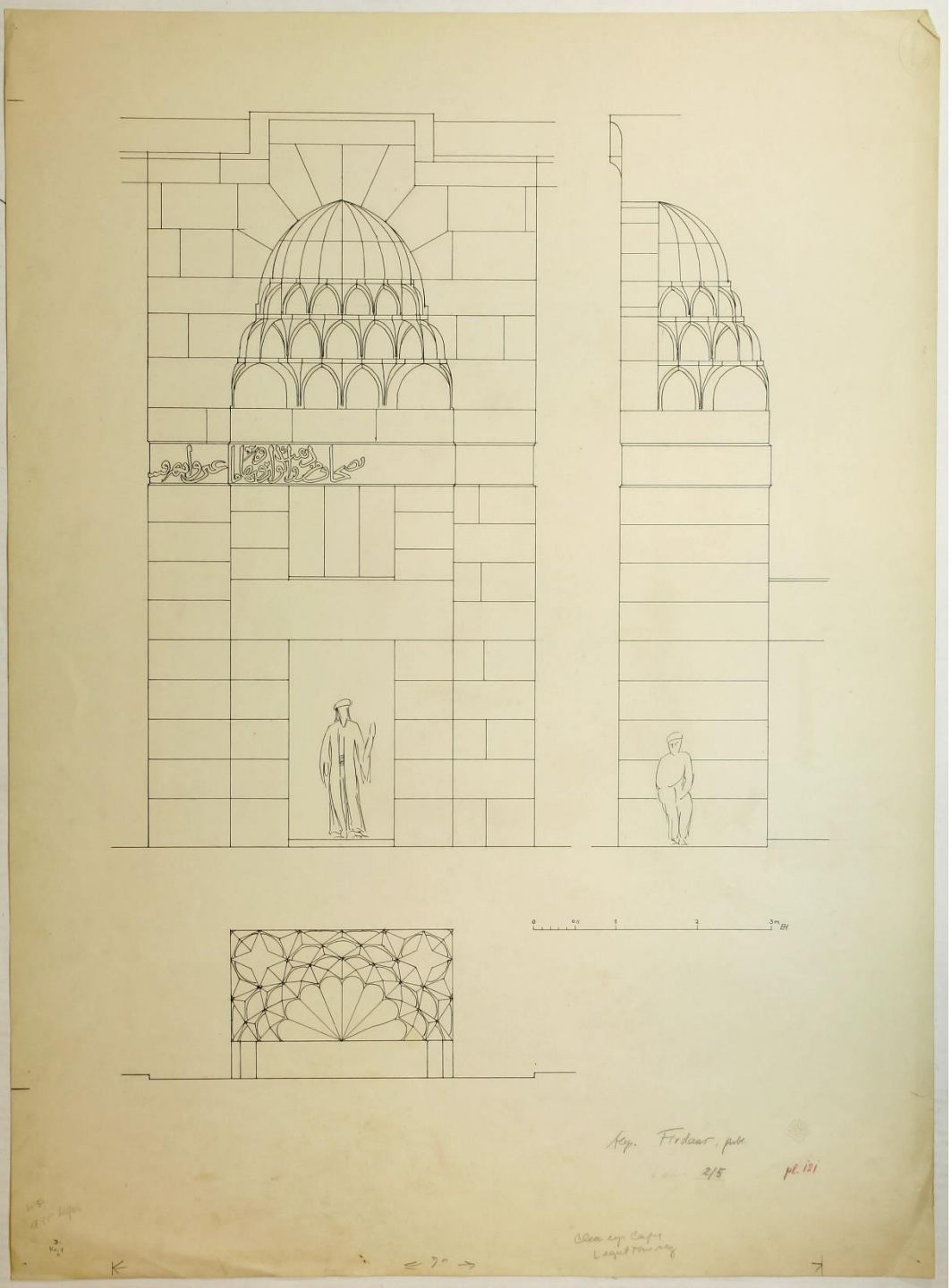


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



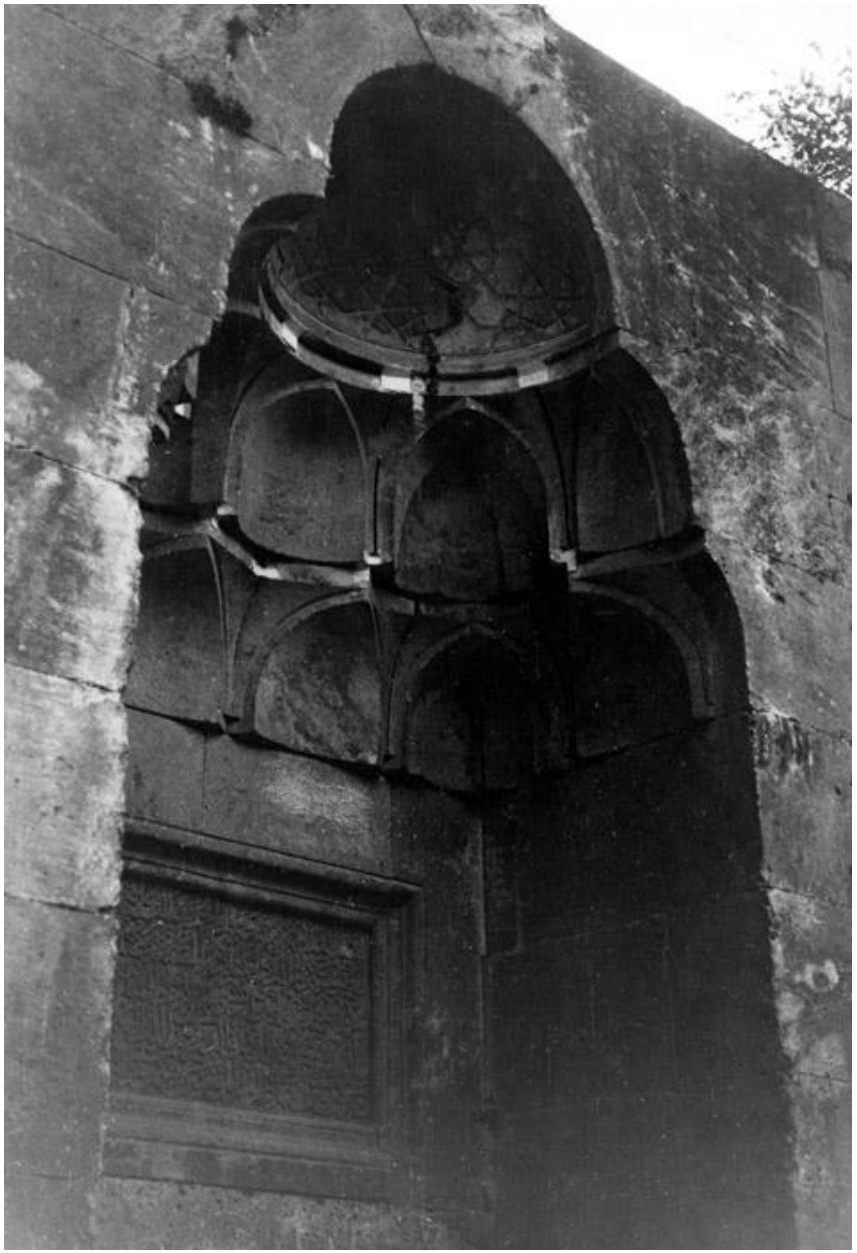
19. La madrasat al-Firdaws à Alep : portail en élévation

Écochard, 1977

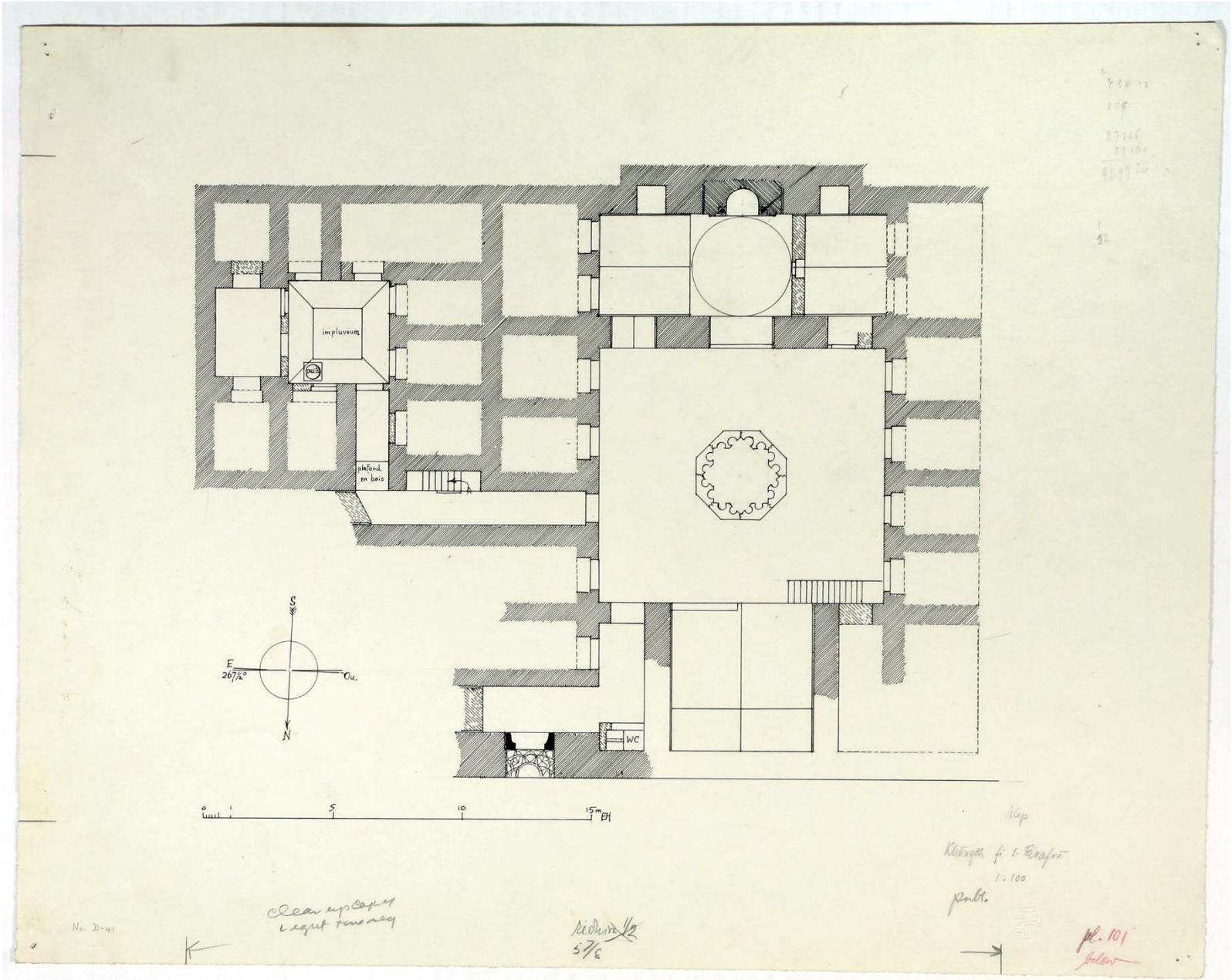


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

The Portal of the Khānaqā of Dayfa Khātūn, Aleppo



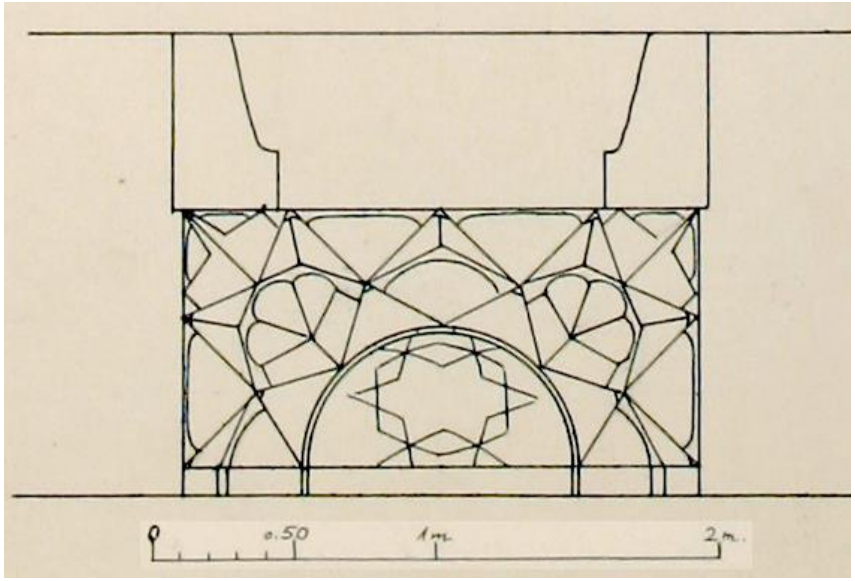
Copyright: Aga Khan Trust for Culture, photo: Michel Écochard



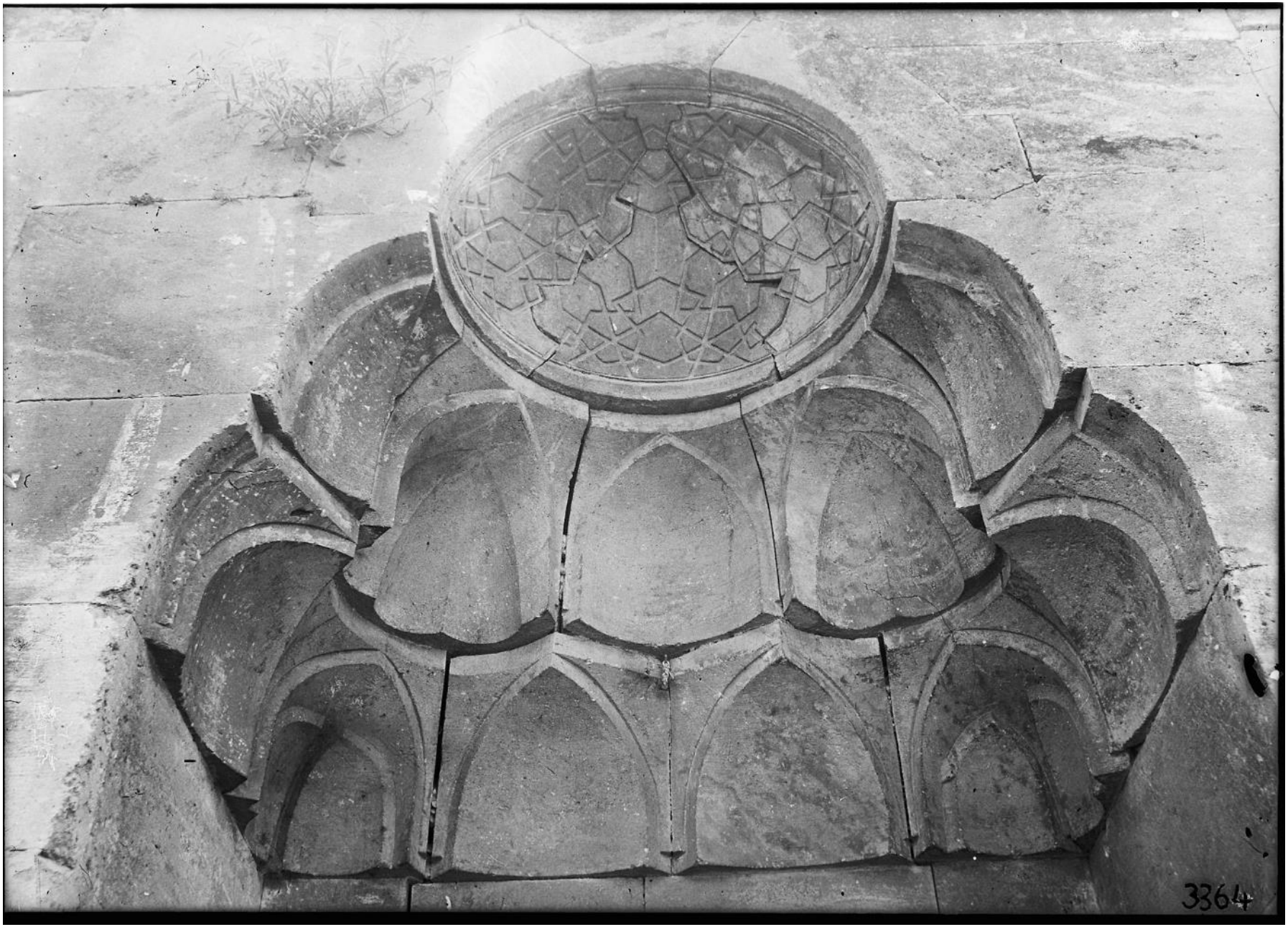
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C

Allen, 1999

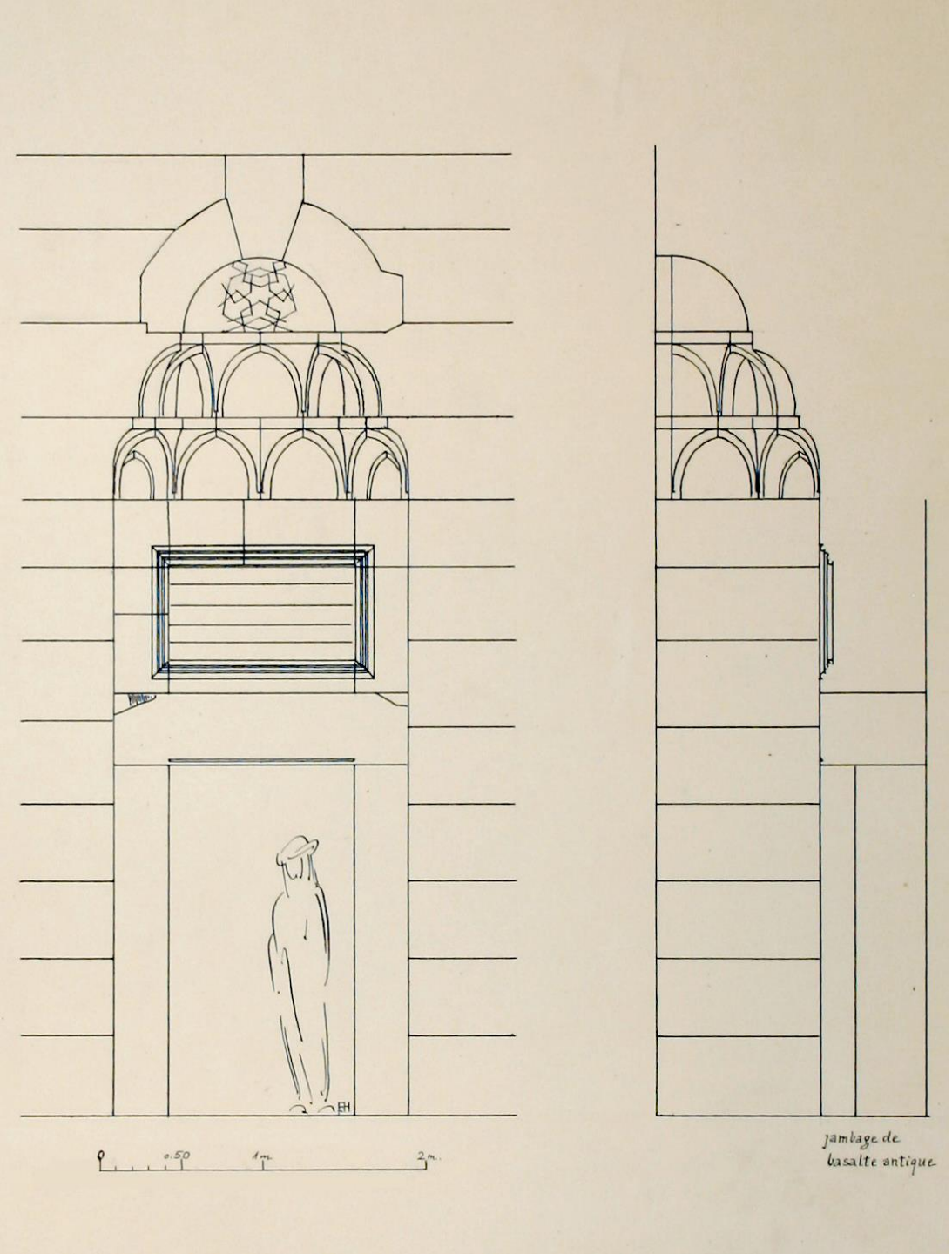
Allen, 1999



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington, D.C



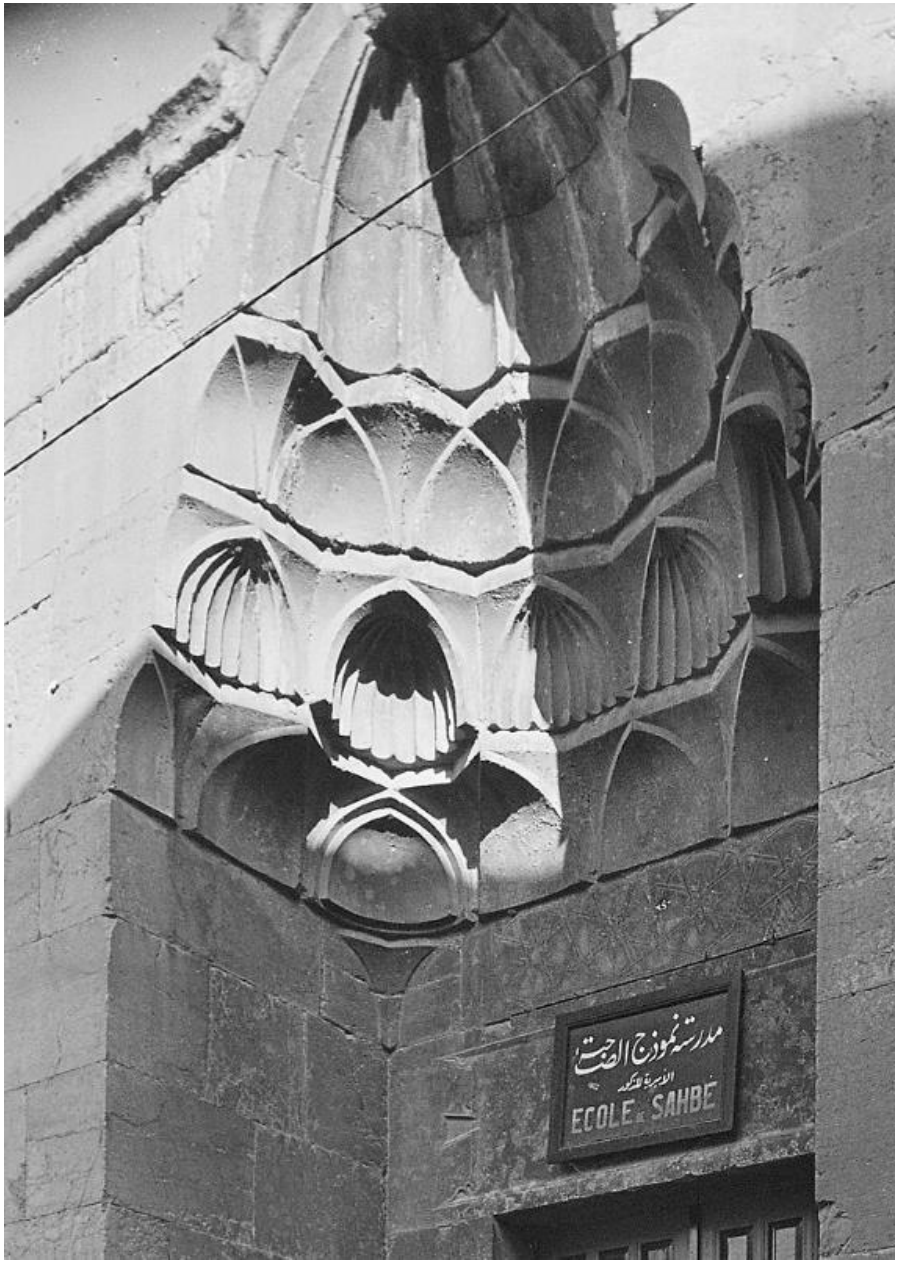
The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

The Portal of Madrasa Ṣāḥibiyya, Damascus

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

Allen, 1999

Allen, 1999

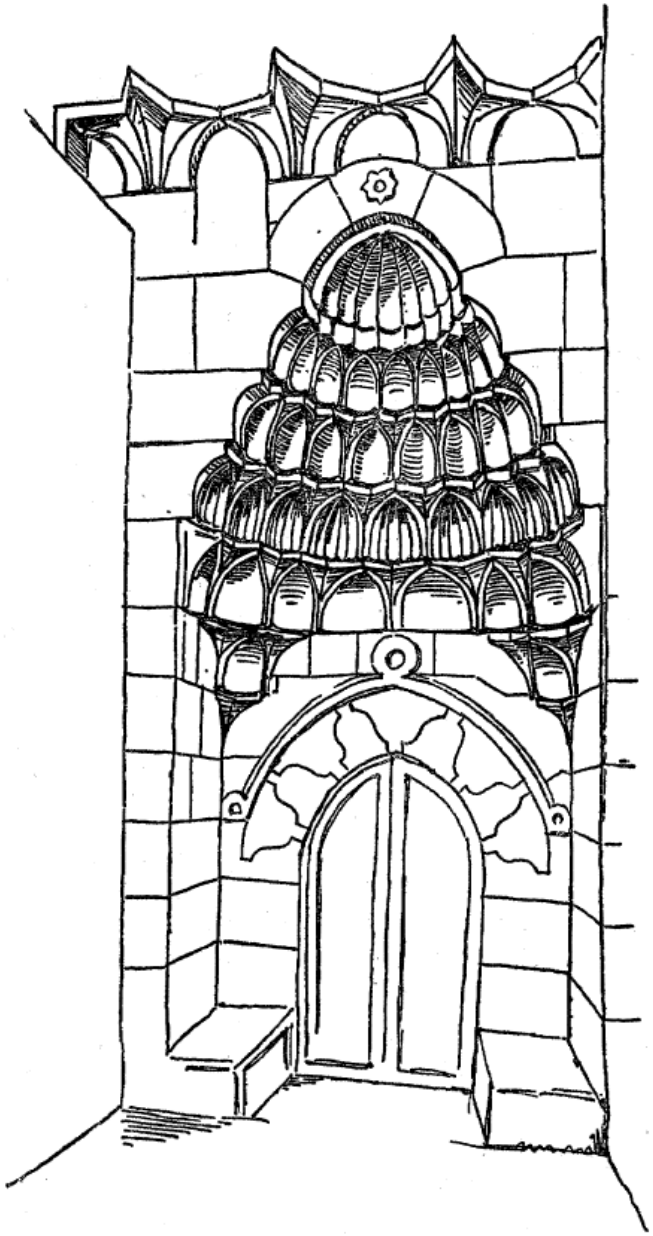


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

The Portal of Madrasa Atābakiyya, Damascus

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

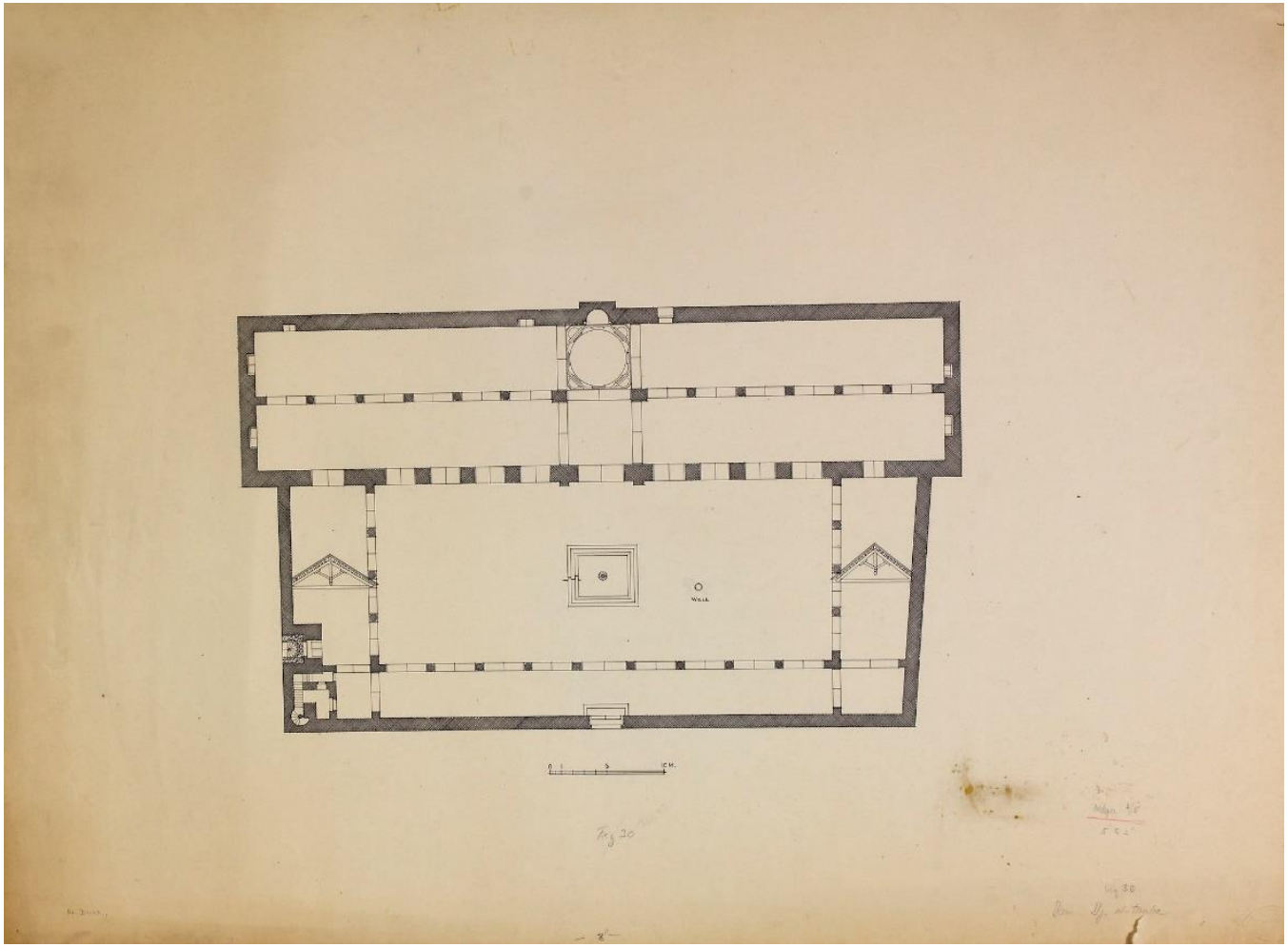
Allen, 1999



Herzfeld, 1946

Allen, 1999

The portal of the Jāmiʿ al-Tawbah, Damascus

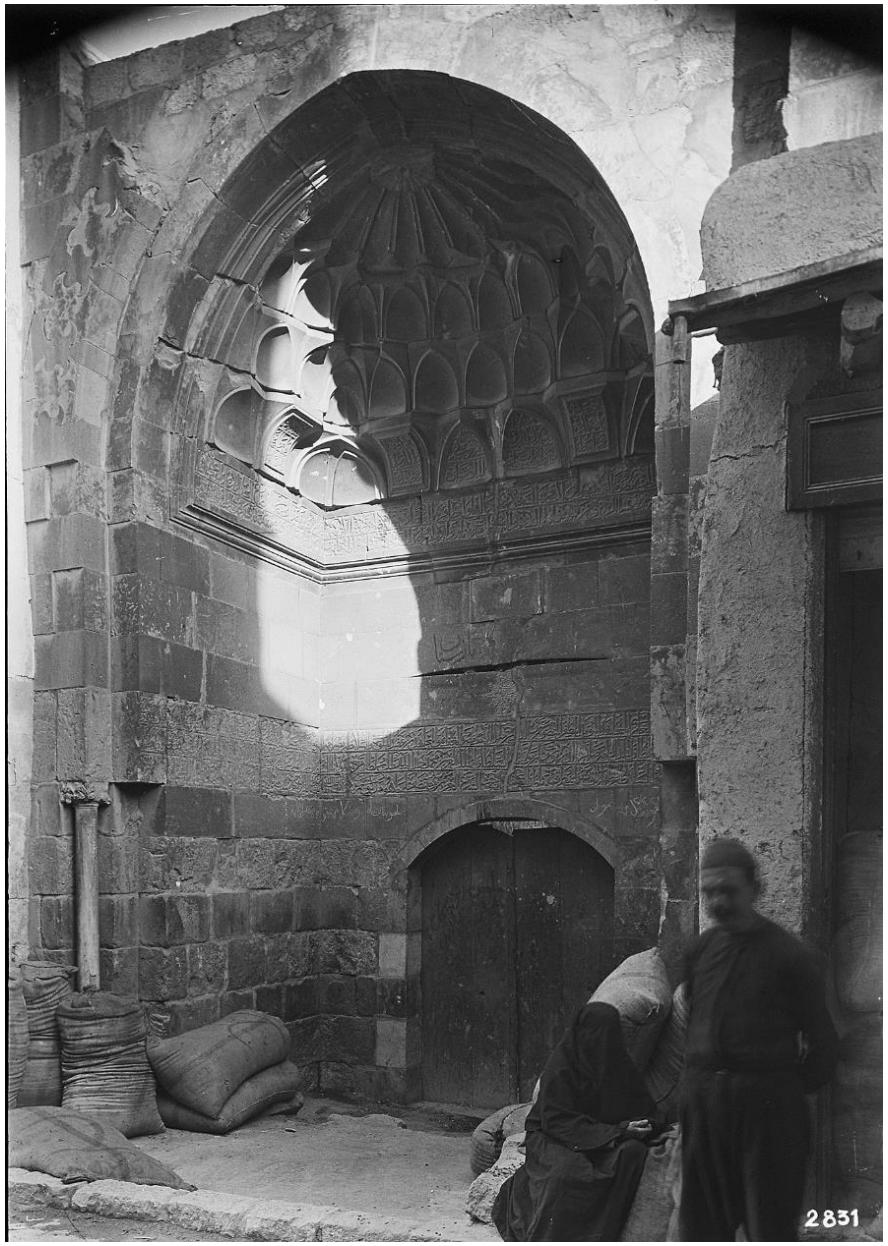


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

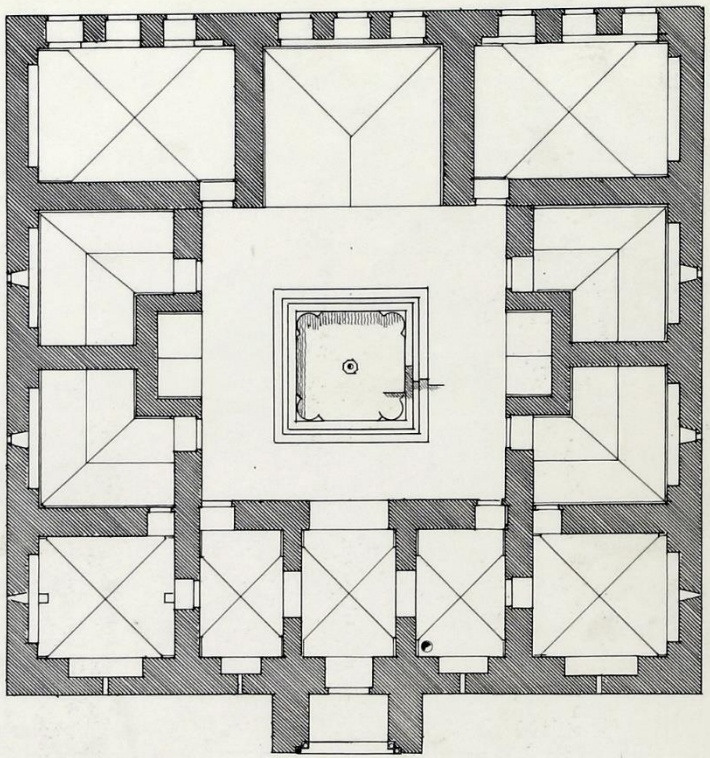
Allen, 1999

Allen, 1999

The Portal of the Māristān al-Qaymarī, Damascus



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

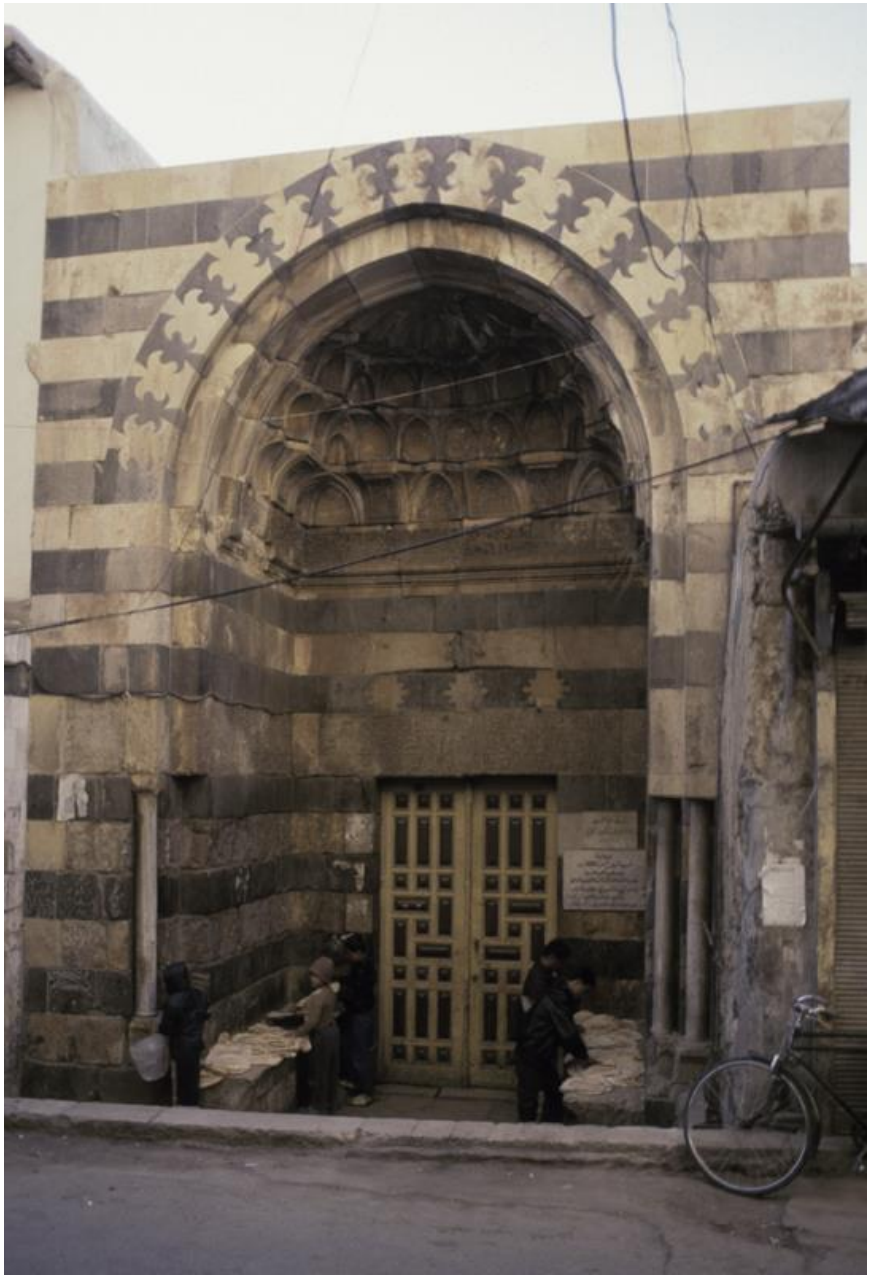


157½

reduce to 6'1/4"

No. D-184

The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington



Allen, 1999

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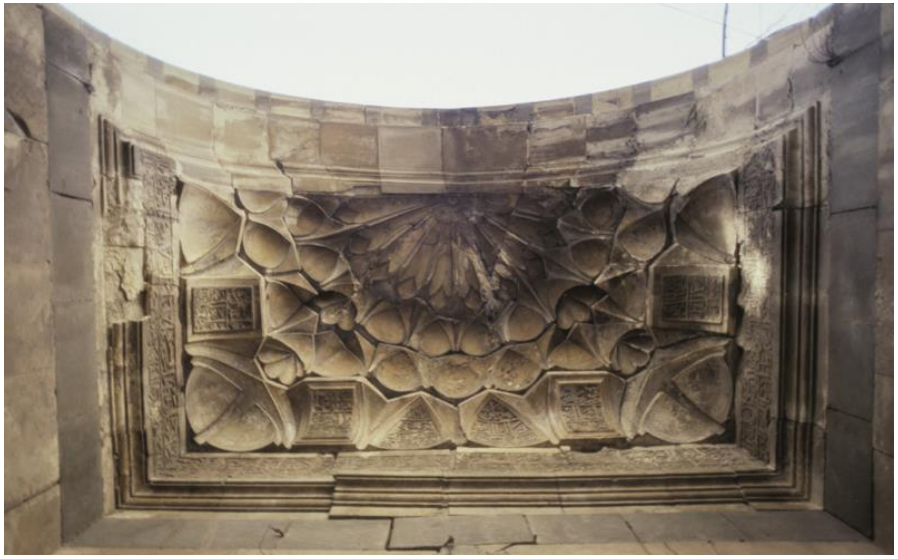
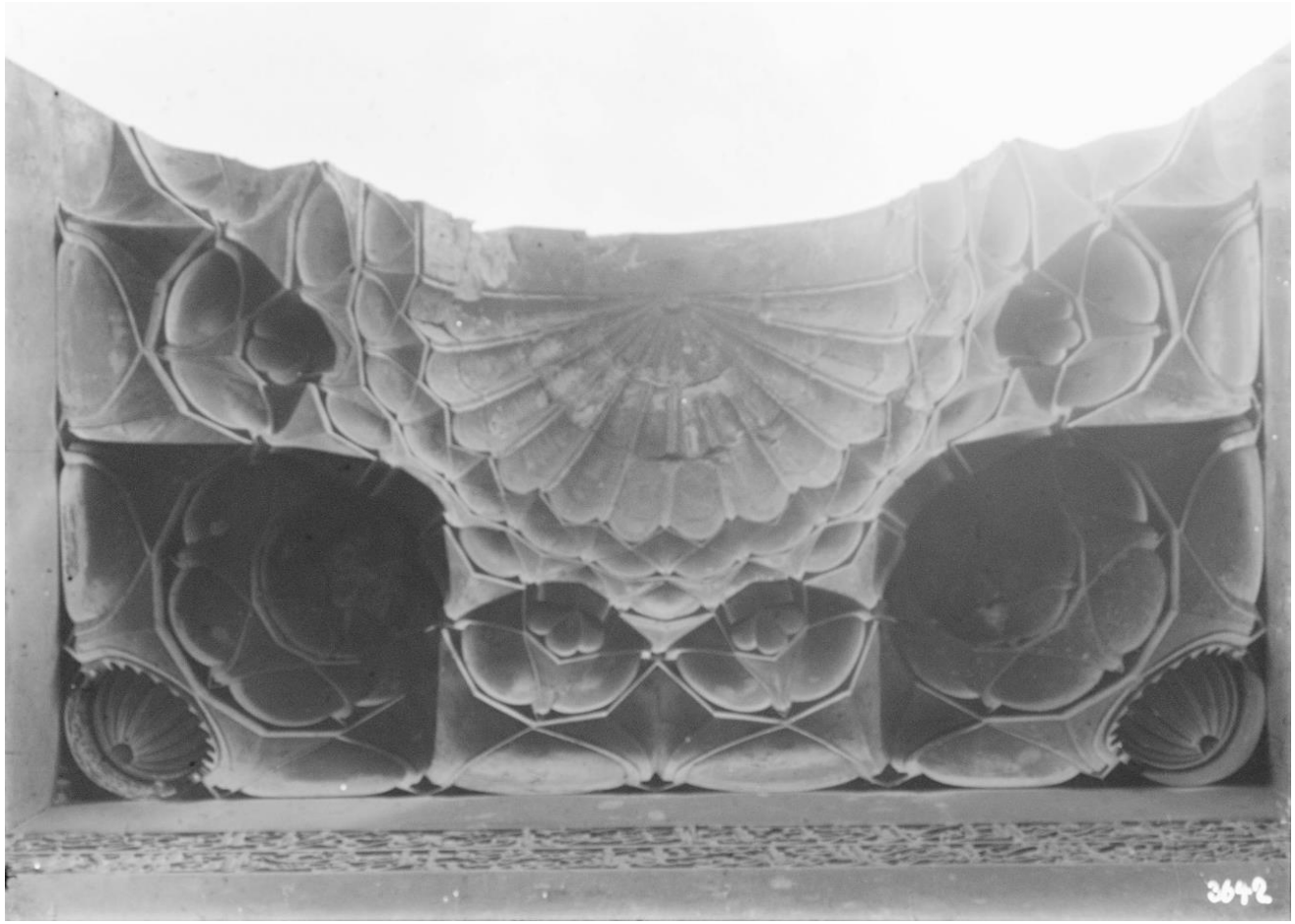


Allen, 1999

Stone *muqarnas* portals

First Mamluk Examples in Syria and the muqarnas *Portal in Egypt and Palestine*

The Portal of Madrasa Ẓāhiriyya, Damascus



The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution, Washington

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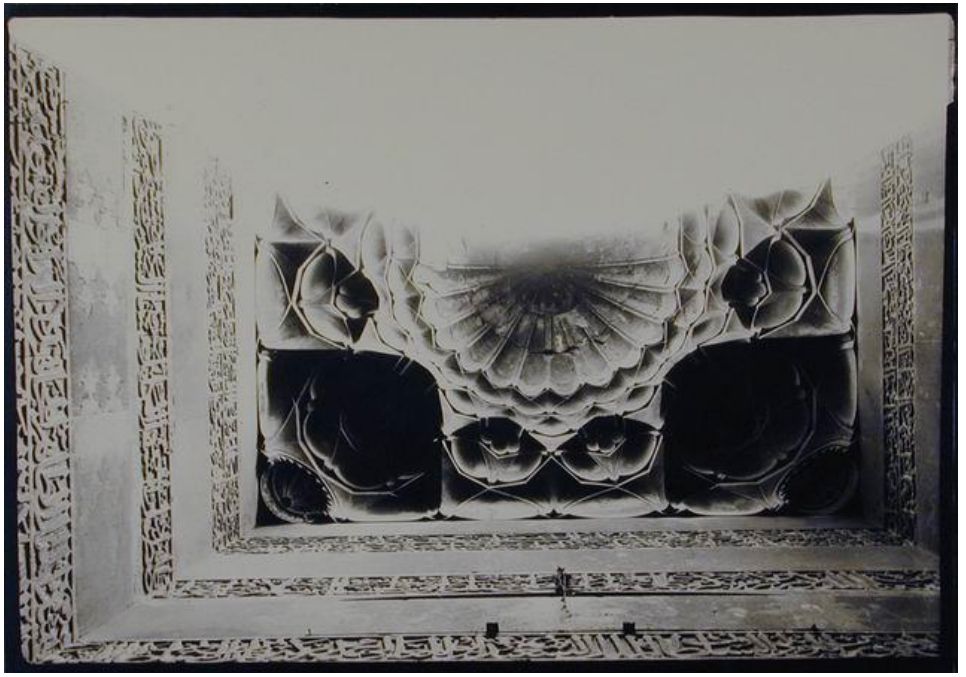

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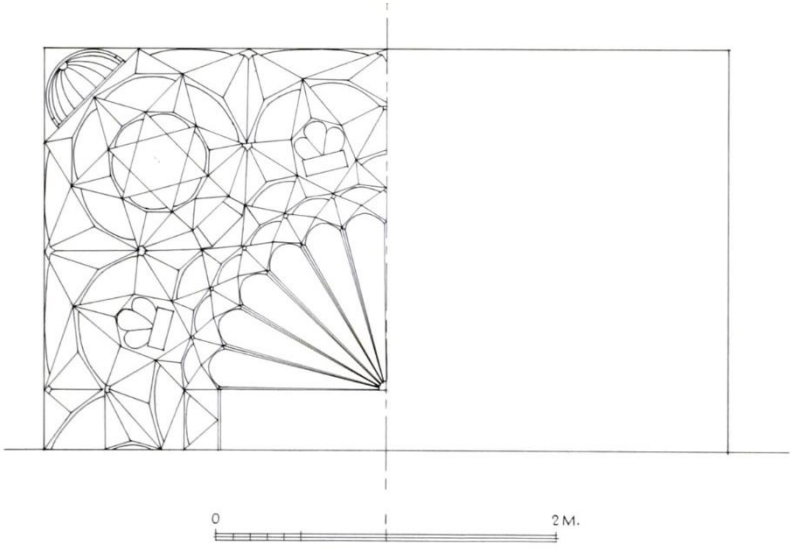
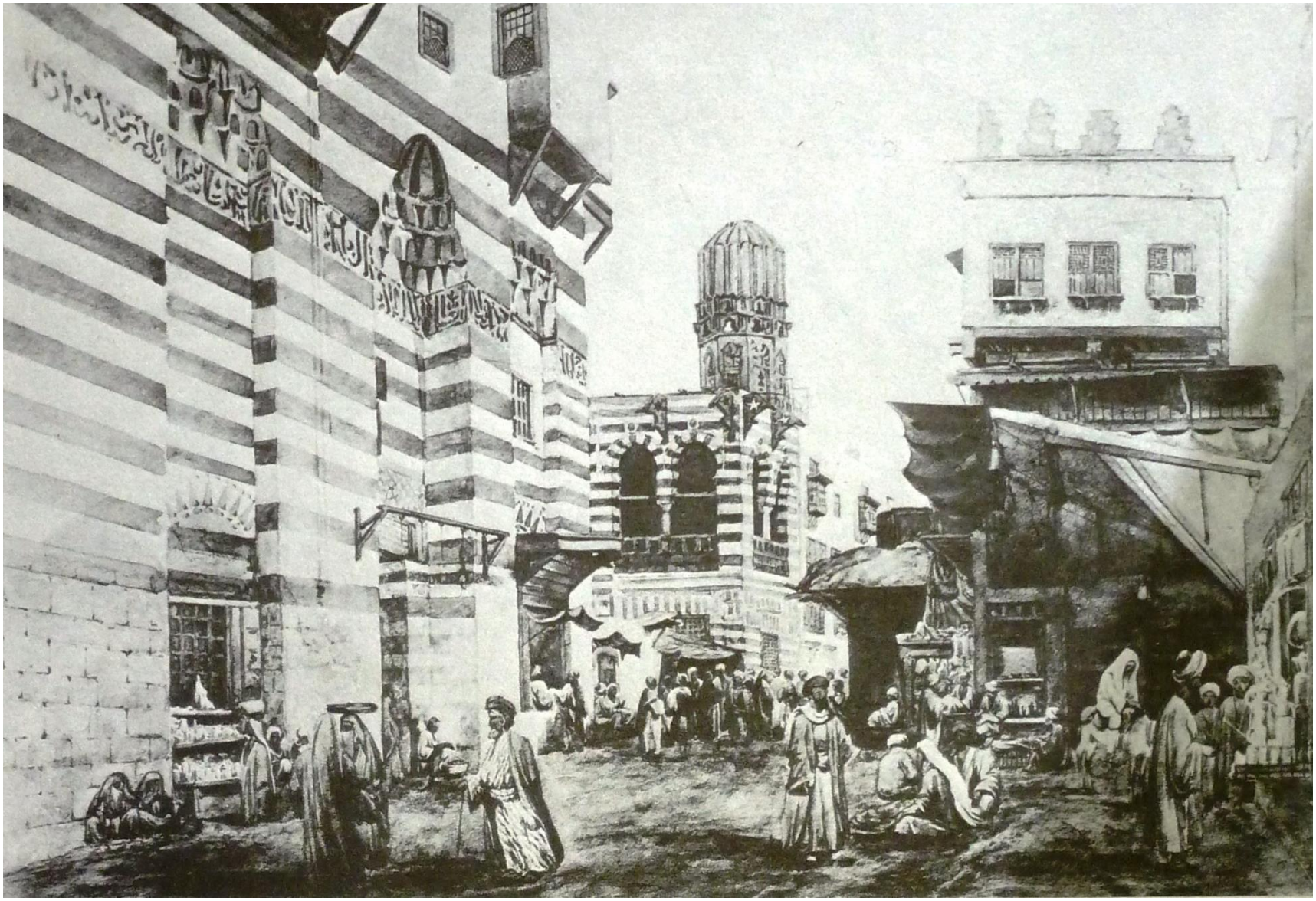


The Ernst Herzfeld papers. Freer Gallery of Art and Arthur M. Sackler Gallery Archives. Smithsonian Institution Washington

The Portal of Madrasa Ẓāhiriyyah, Cairo



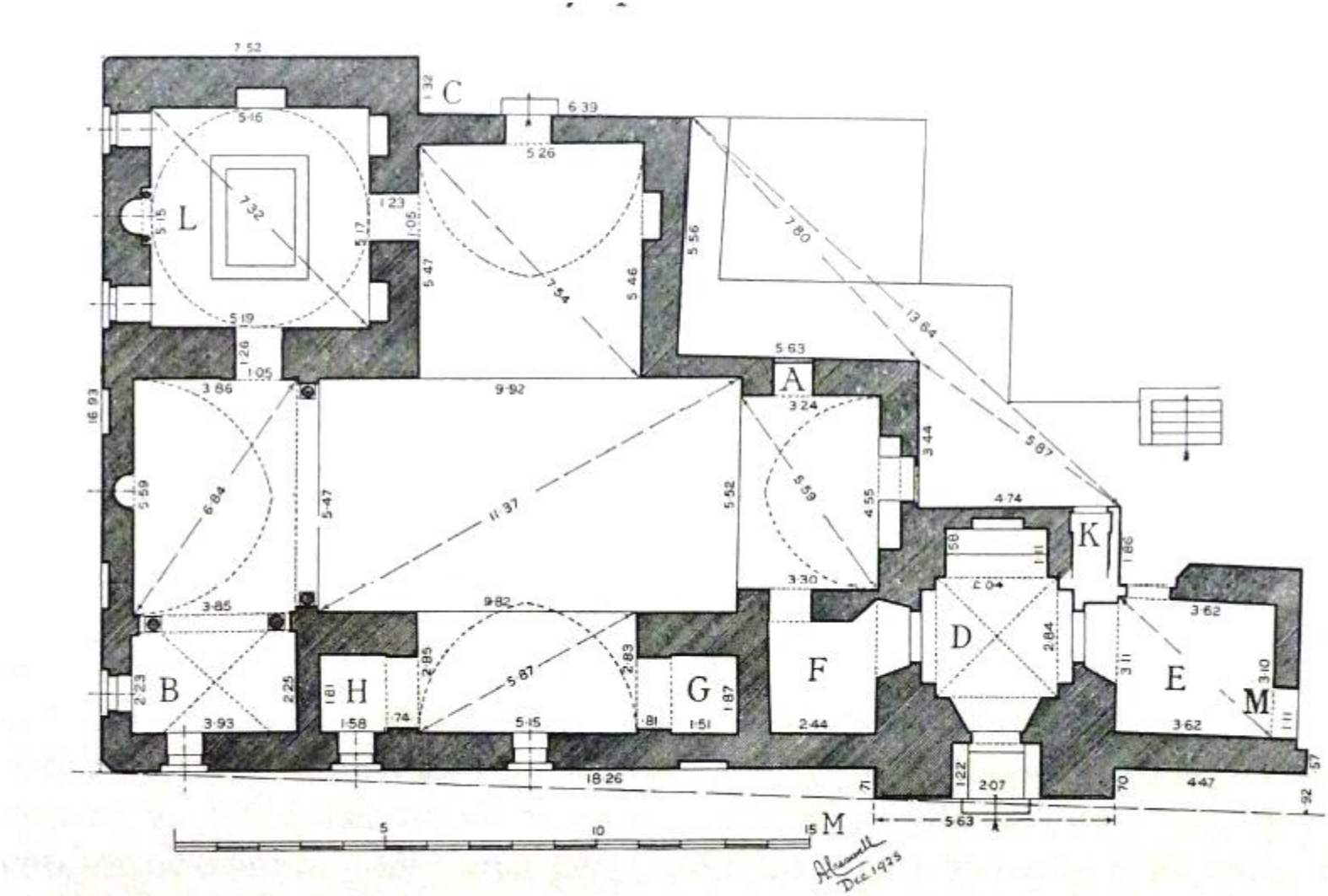
unknown artist, about 1850

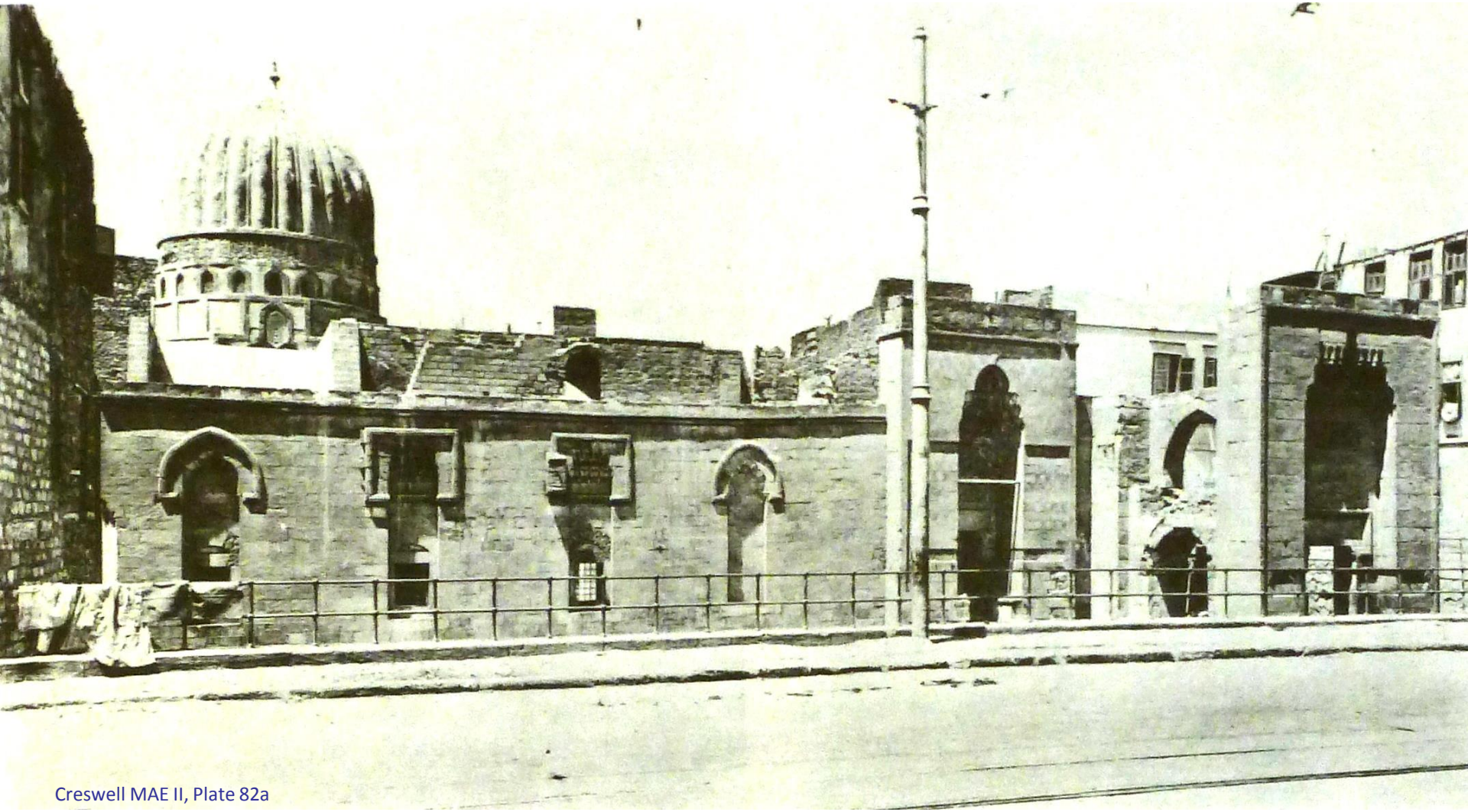
Copyright: Creswell Archive, Ashmolean Museum, negs. EA.CA.4486, 4488 and 4489

Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.5569

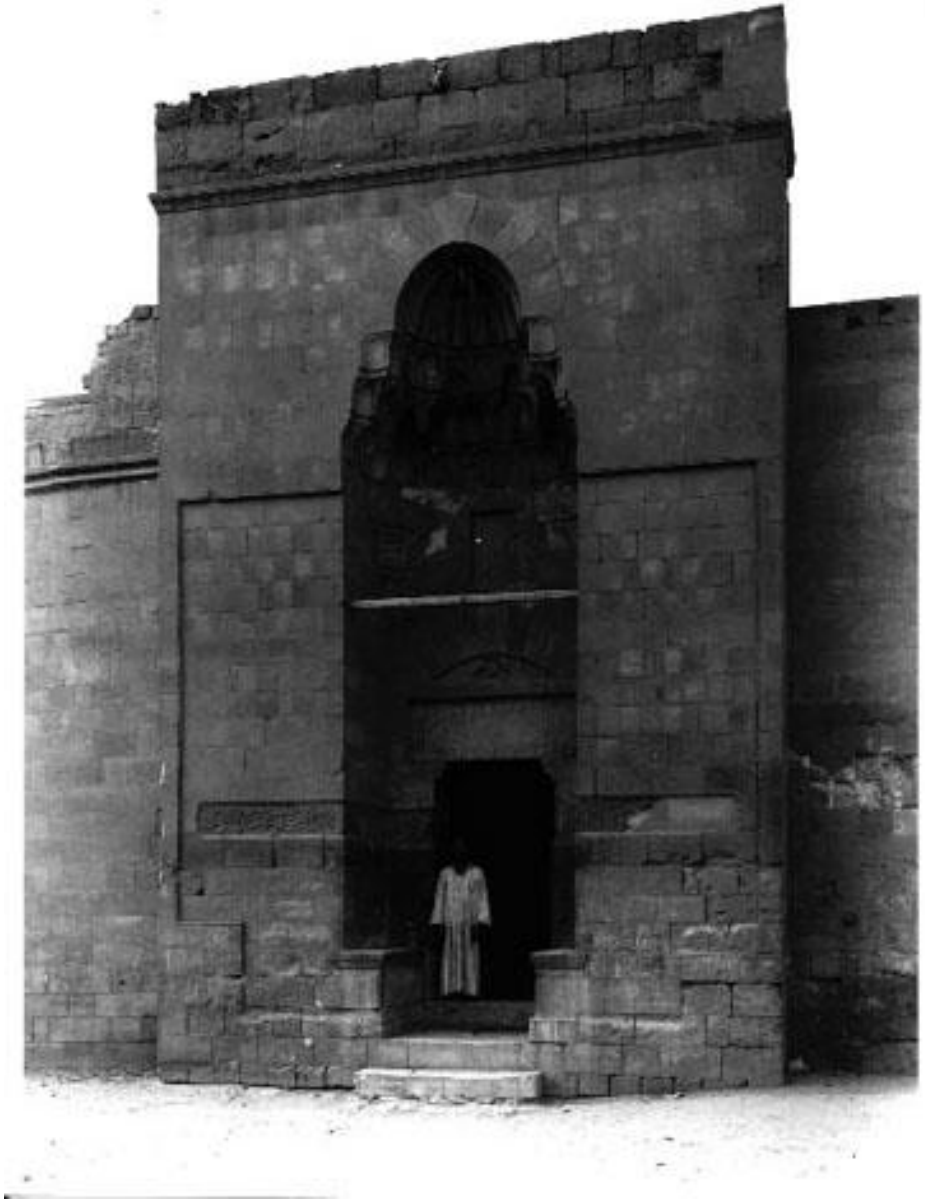
Roberts, David (1796-1864) from "Egypt and Nubia", Vol.3 (litho). Bridgeman Images, from the Stapleton Collection

The Portal of the Mausoleum of Zayn al-Dīn, Cairo





Creswell MAE II, Plate 82a



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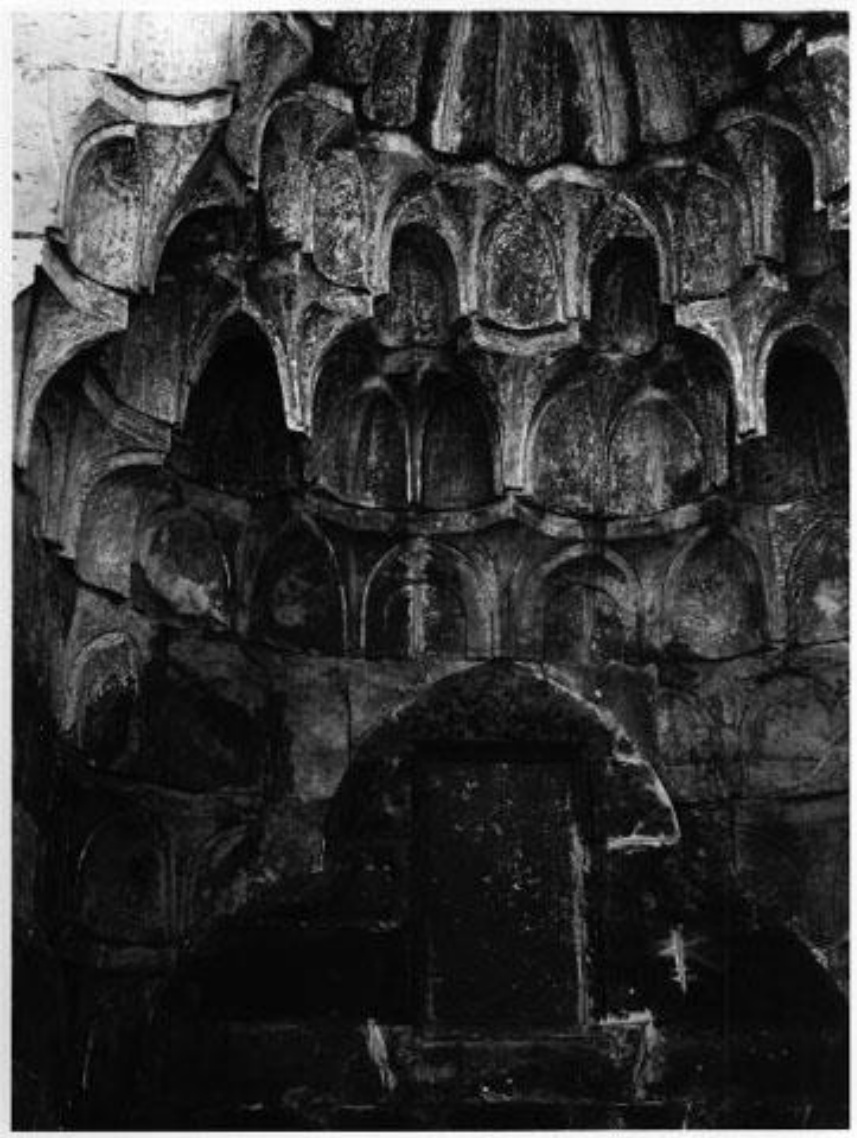
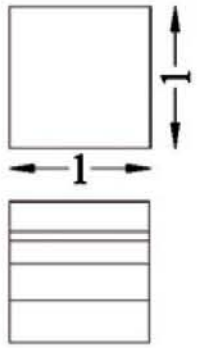
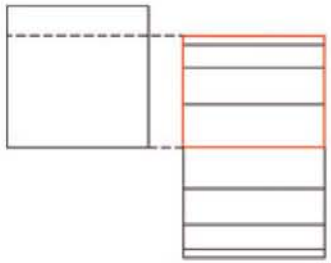
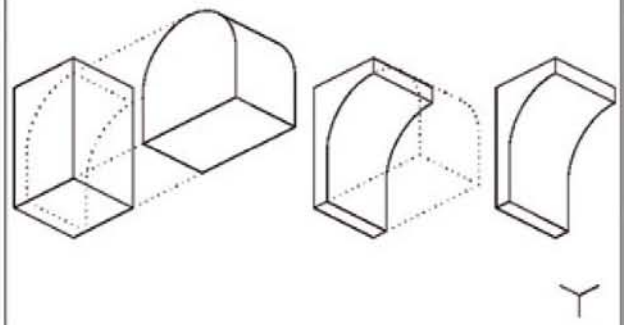
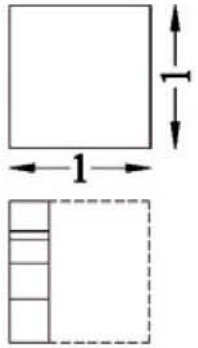
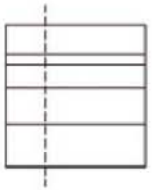
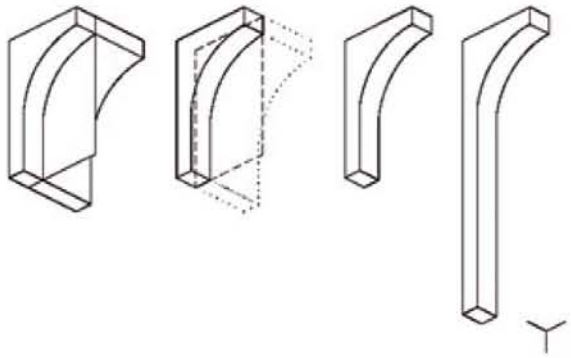
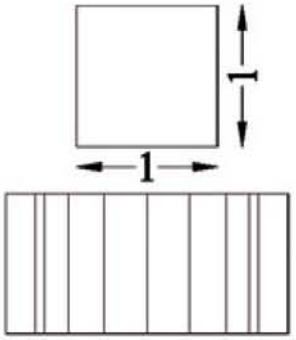
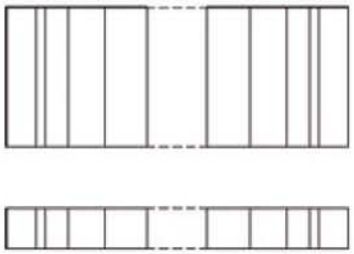
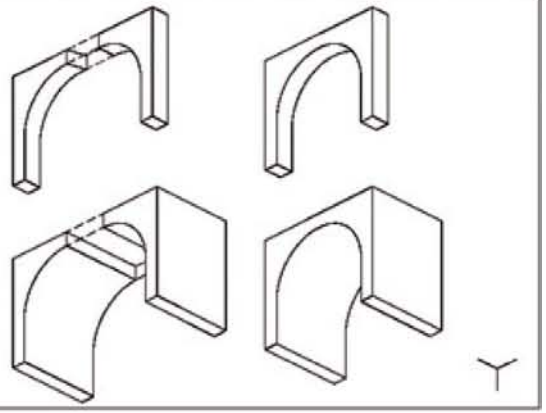


Copyright: Creswell Archive, Ashmolean Museum, neg. EA.CA.4654 and 2613

08. *Muqarnas* in Sicily

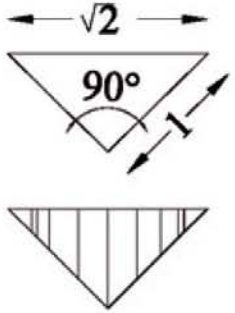
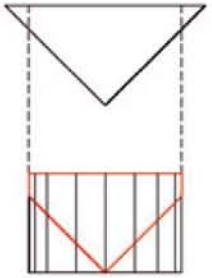
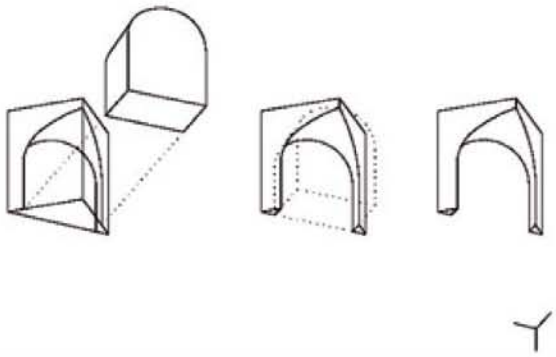
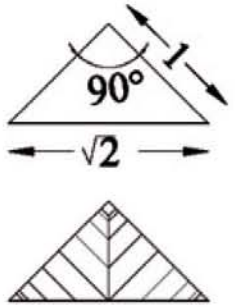
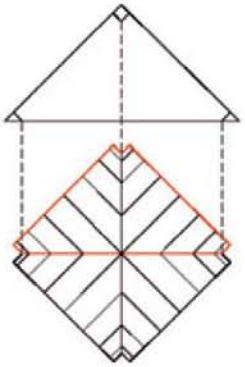
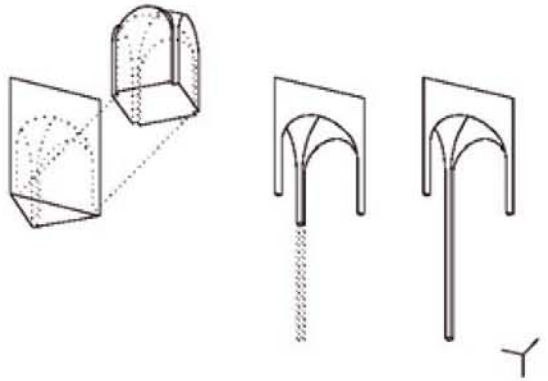
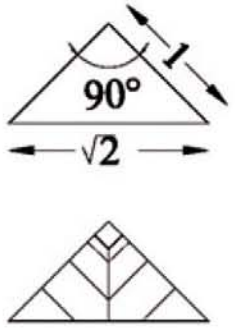
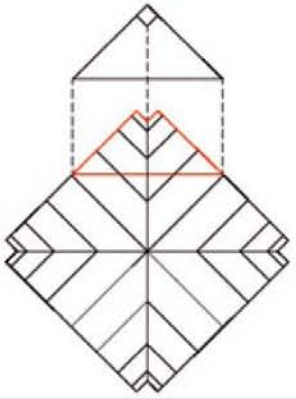
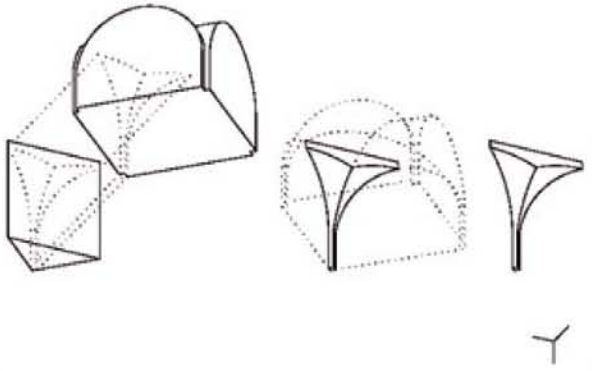
Preliminary note about the classification of Sicilian muqarnas

ELEMENTS OF THE ZISA

ELEMENT A			
ELEMENT B			
ELEMENT C			

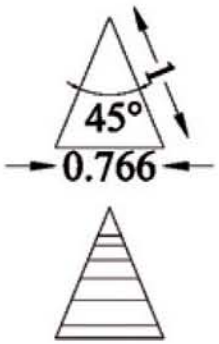
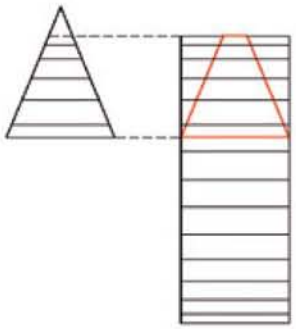
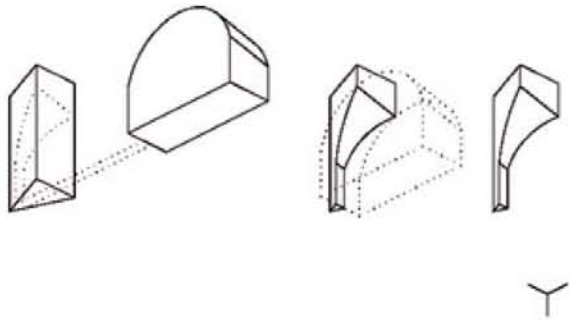
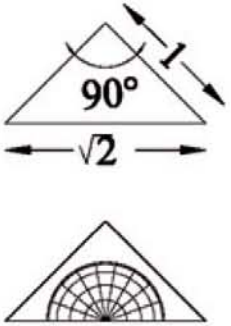
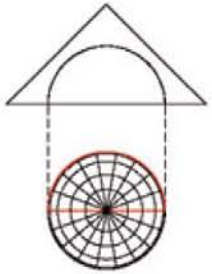
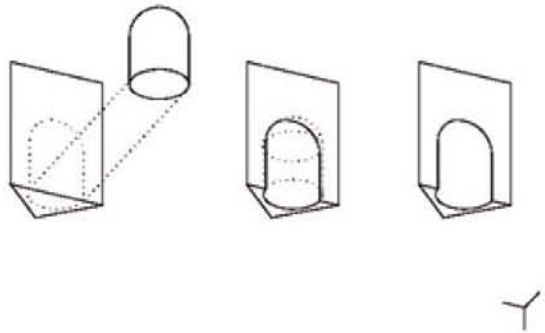
Garofalo, 2010

ELEMENTS OF THE ZISA

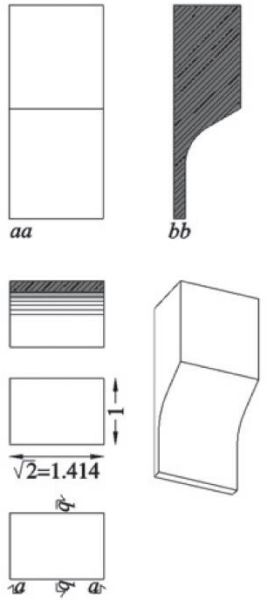
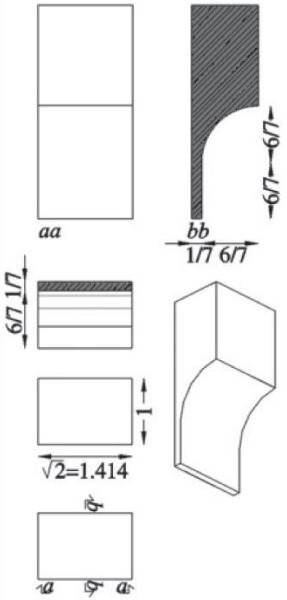
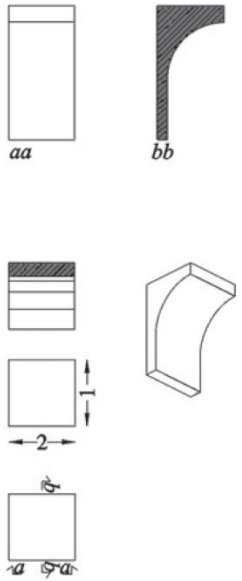
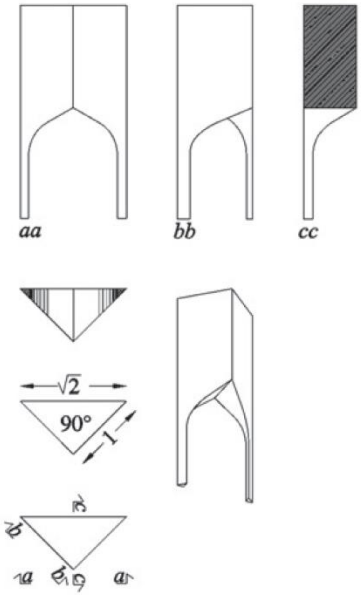
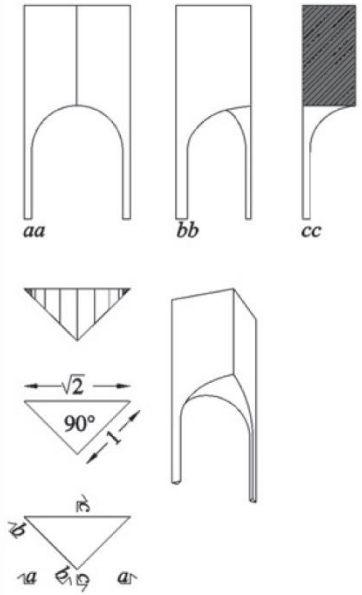
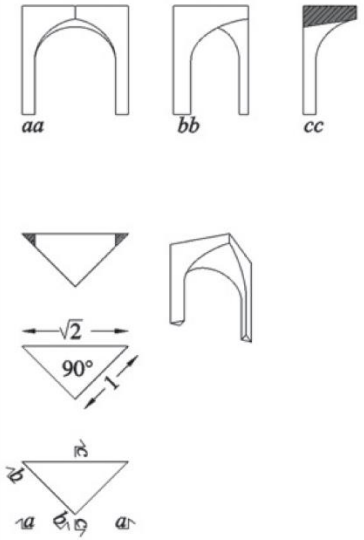
ELEMENT D			
ELEMENT E			
ELEMENT F			

Garofalo, 2010

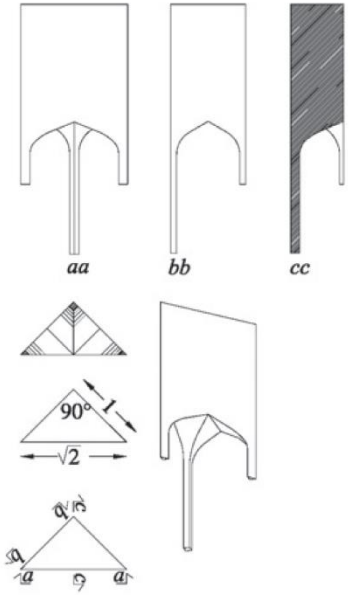
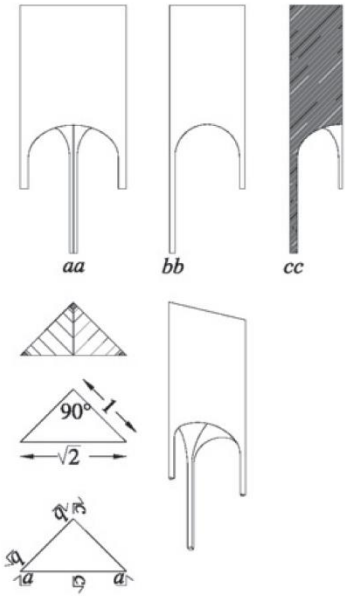
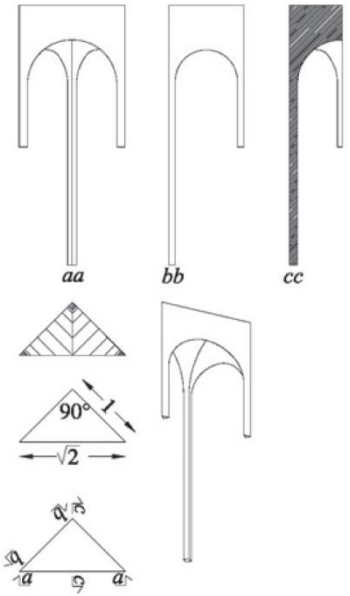
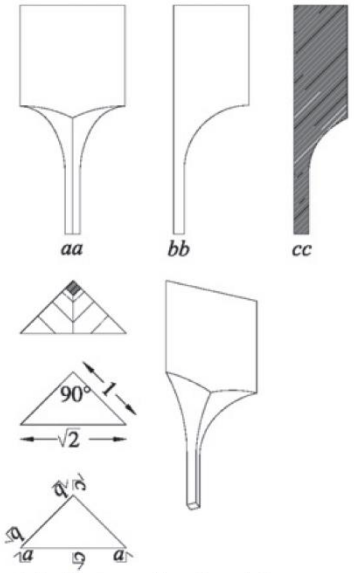
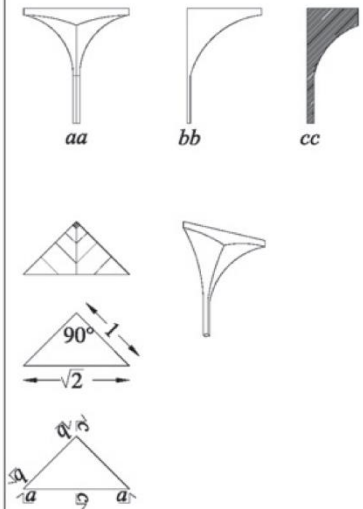
ELEMENTS OF THE ZISA

ELEMENT G			
ELEMENT H			

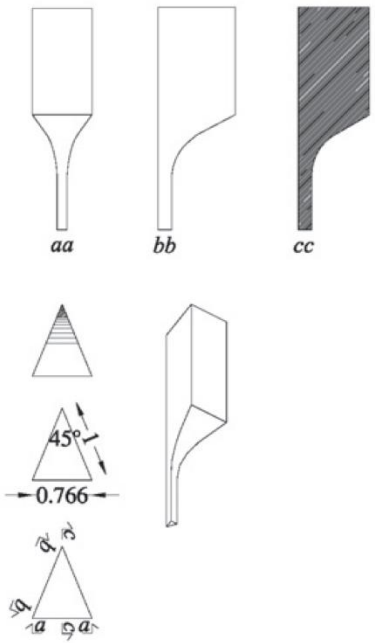
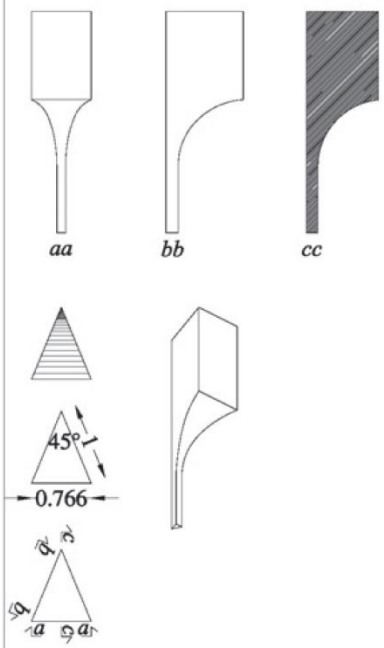
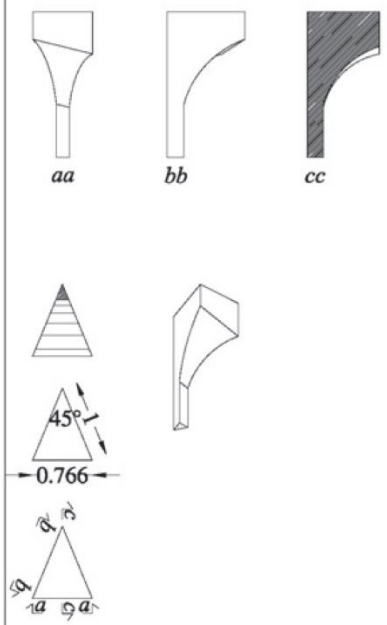
Garofalo, 2010

EASTERN ISLAMIC ELEMENTS	WESTERN ISLAMIC ELEMENTS	ELEMENTS OF THE ZISA
 *T'stiya masdūda*	 *Conça (1)*	 *Element A*
 *Sirwāliyya*	 *Atacia*	 *Element D*

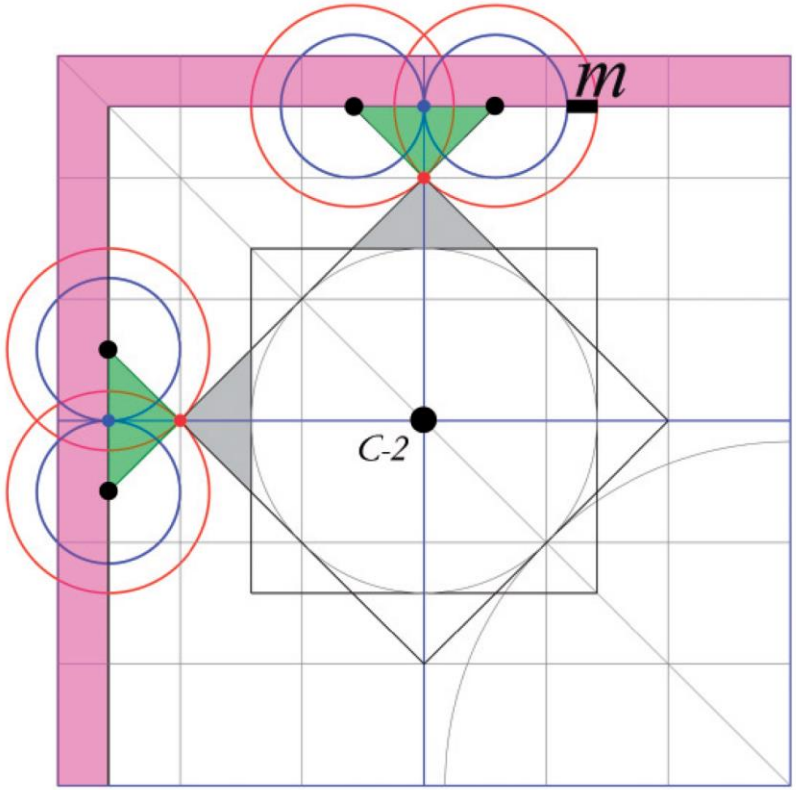
Garofalo, 2010

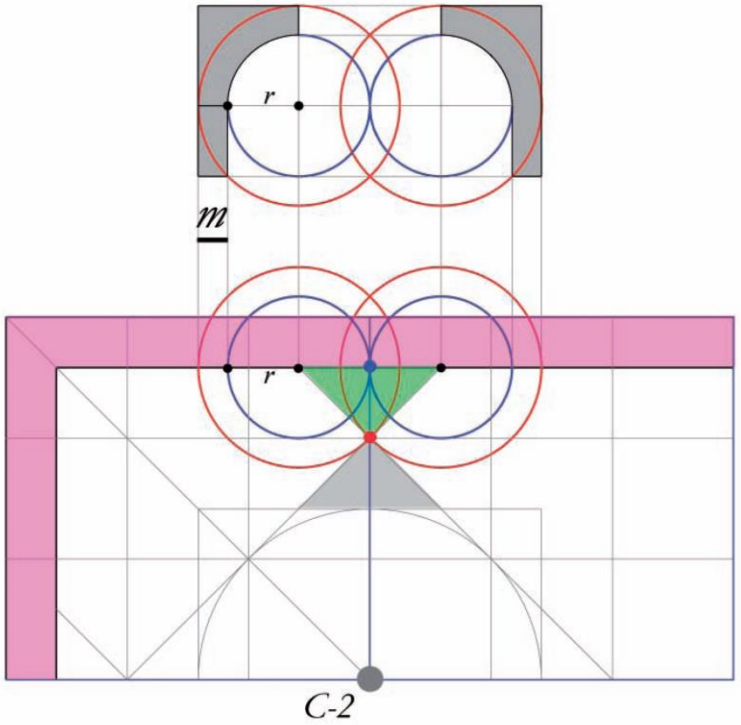
EASTERN ISLAMIC ELEMENTS	WESTERN ISLAMIC ELEMENTS	ELEMENTS OF THE ZISA
 *Sirwāliyya shaʿīra*	 *Medio cuadrado*	 *Element E*
	 *Medio cuadrado abierto por lo más ancho (2)*	 *Element F*

Garofalo, 2010

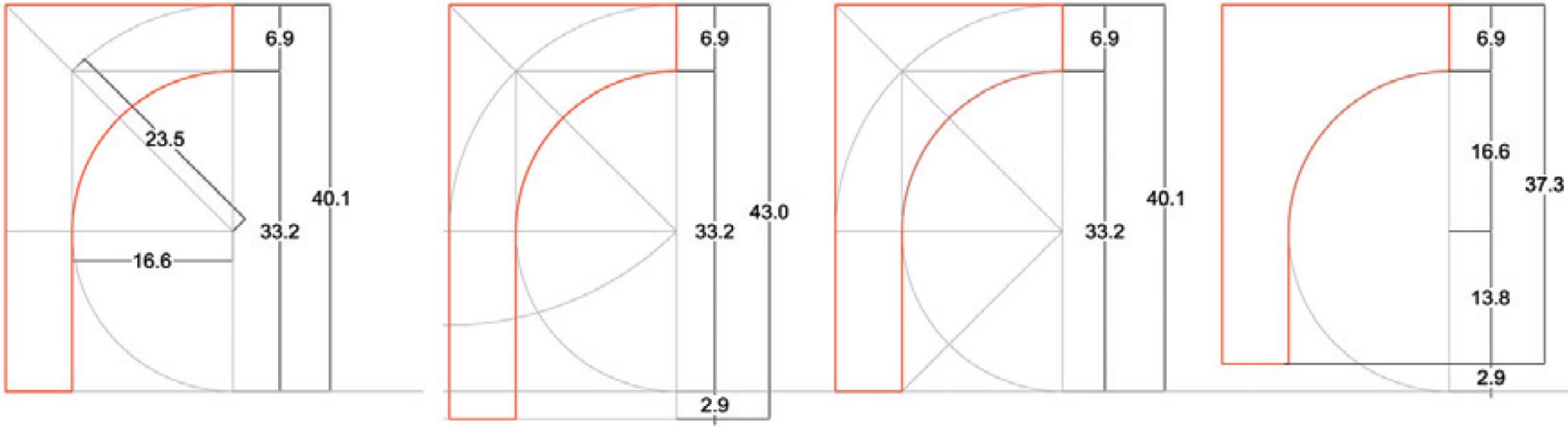
EASTERN ISLAMIC ELEMENTS	WESTERN ISLAMIC ELEMENTS	ELEMENTS OF THE ZISA
		
Lūza (2)	*Dumbaque grullillo*	*Element G*

Garofalo, 2010

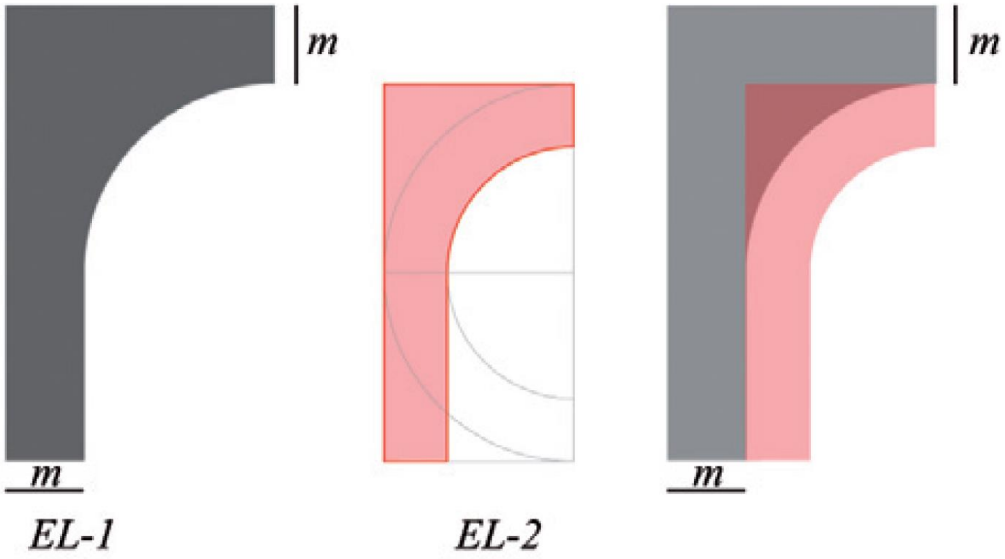




Agnello, 2010



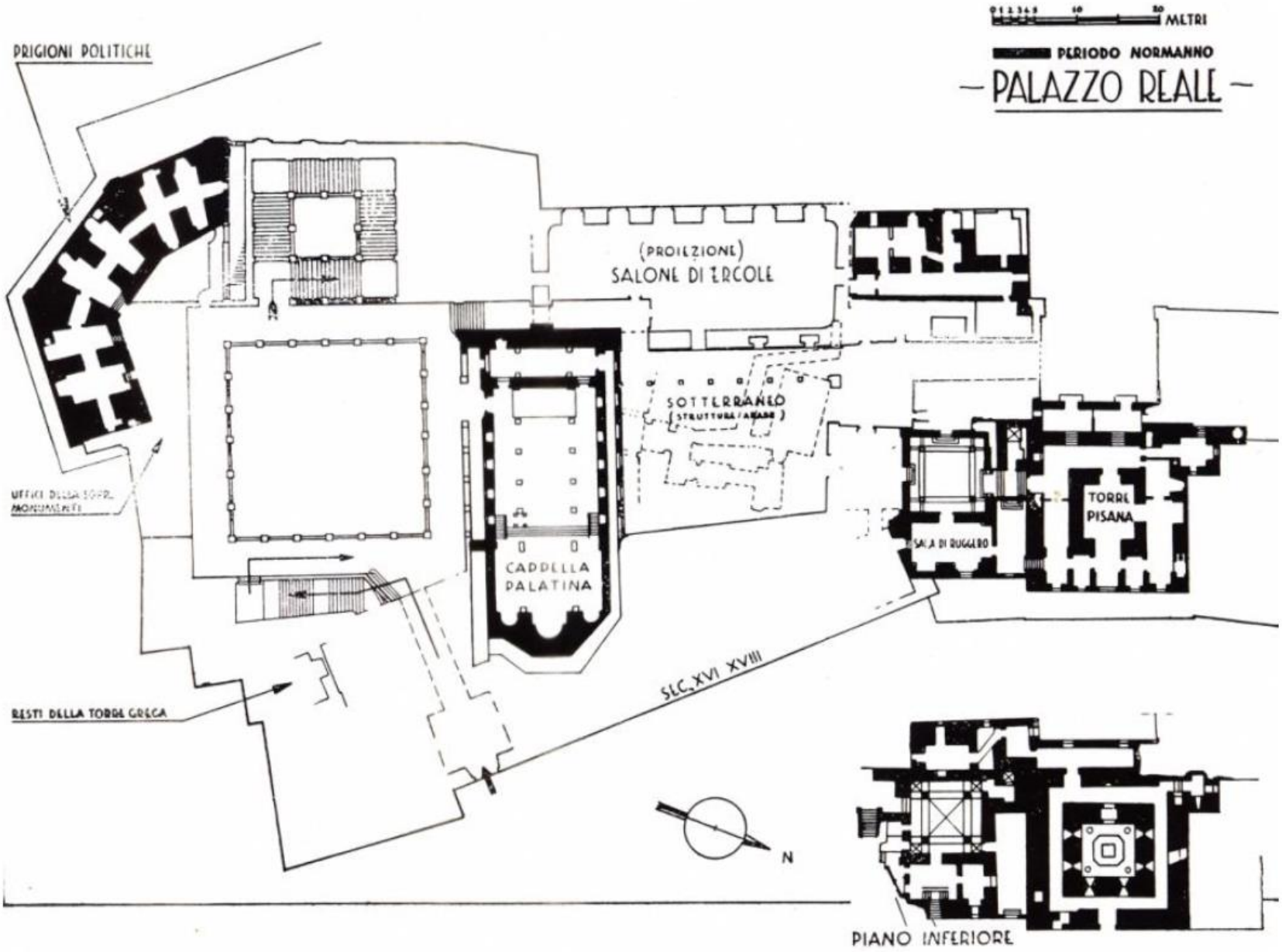
Basic geometric element | 1st Tier | 2nd Tier | 3rd Tier



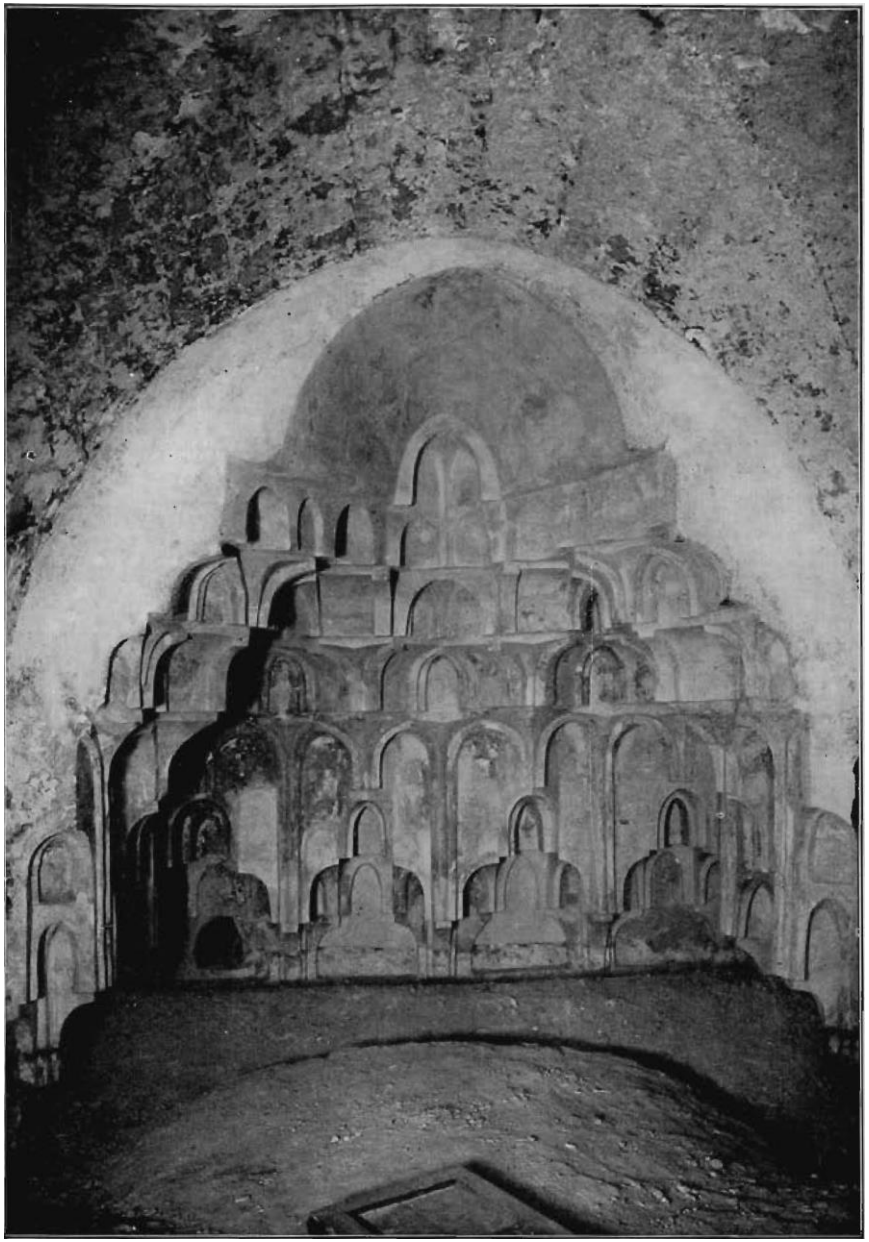
Agnello, 2010

The Royal Palace

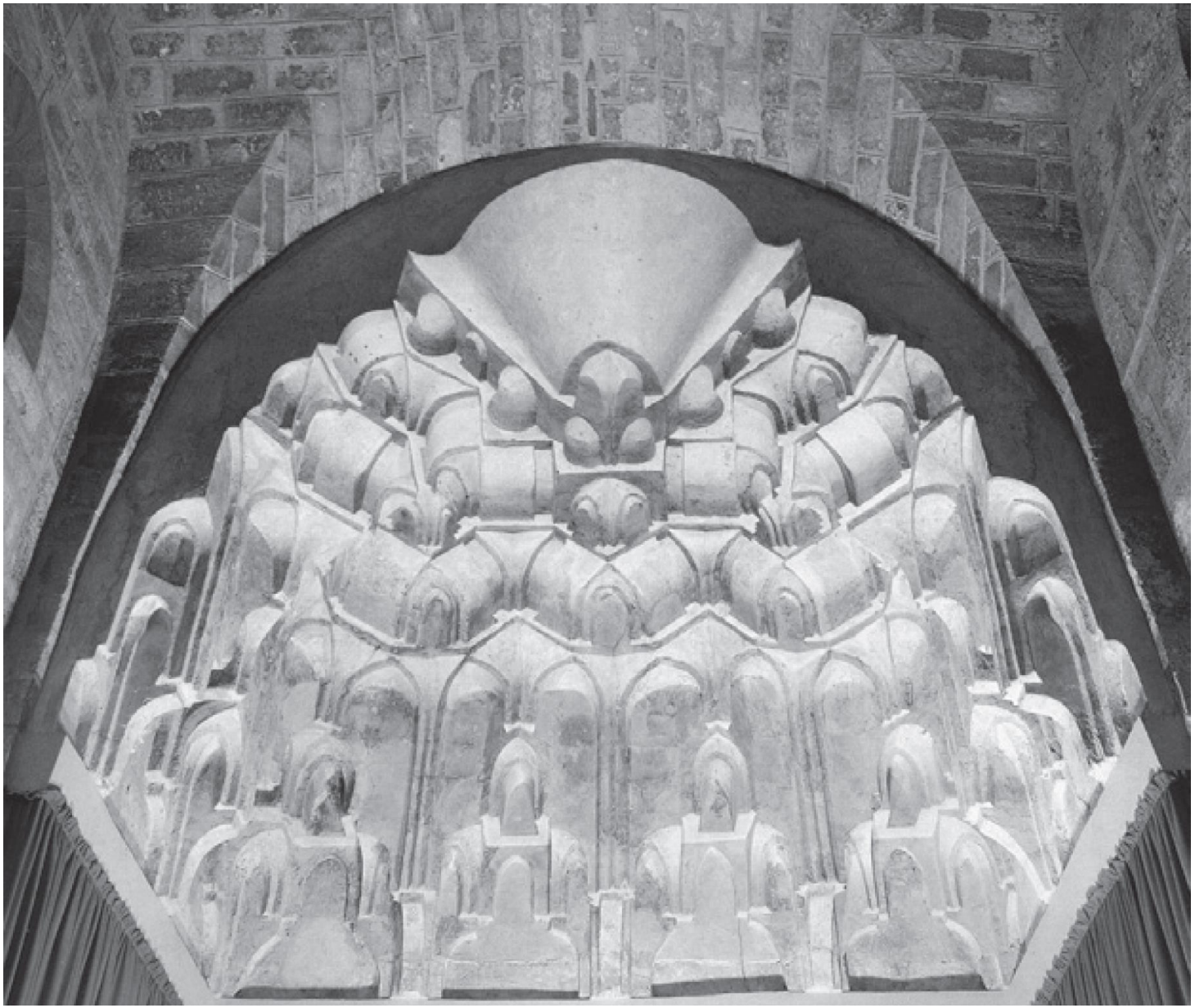
The muqarnas *vault in the commonly named 'Torre Pisana'*



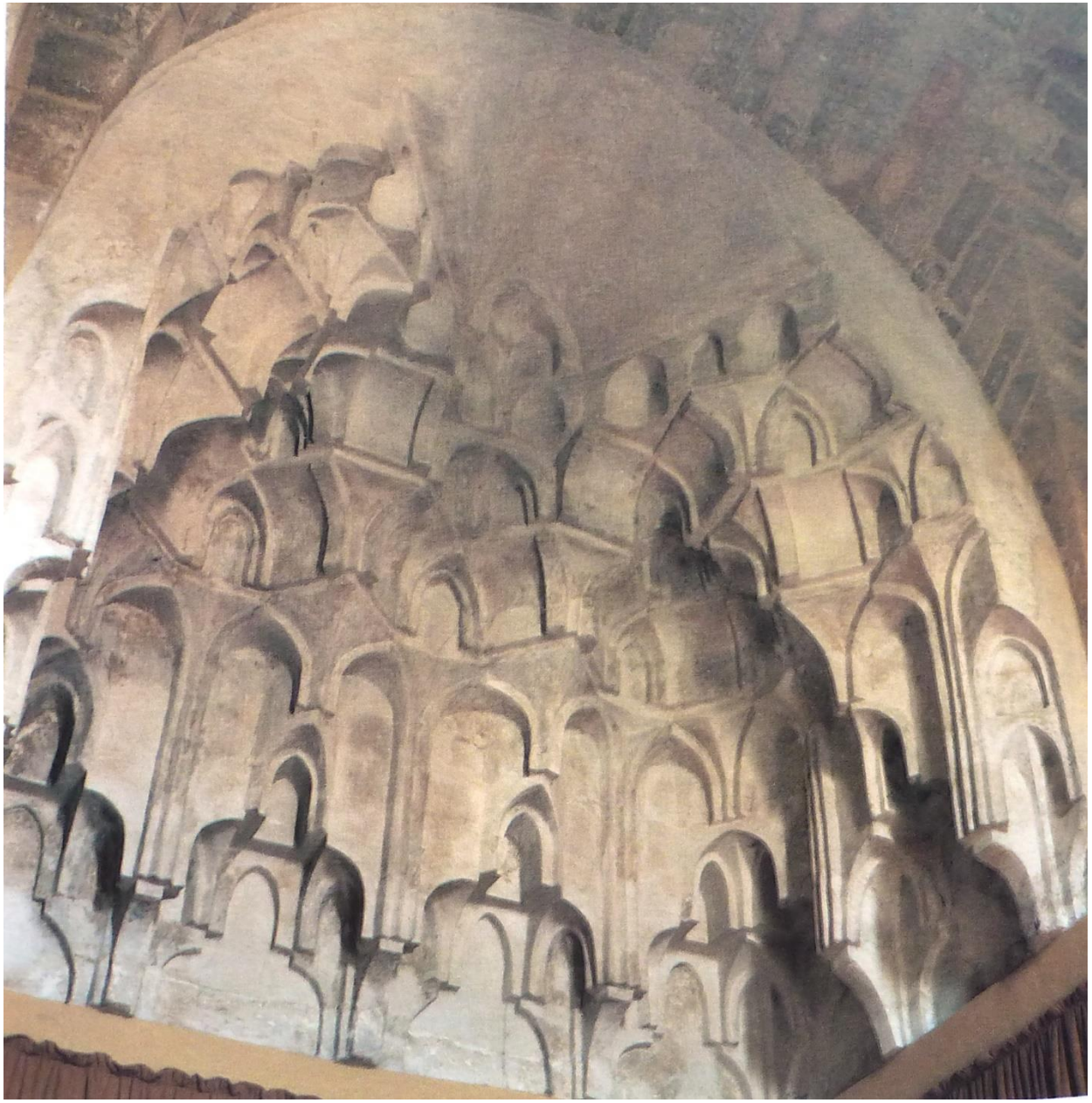
Bellafiore, 1990



Valenti, 1925

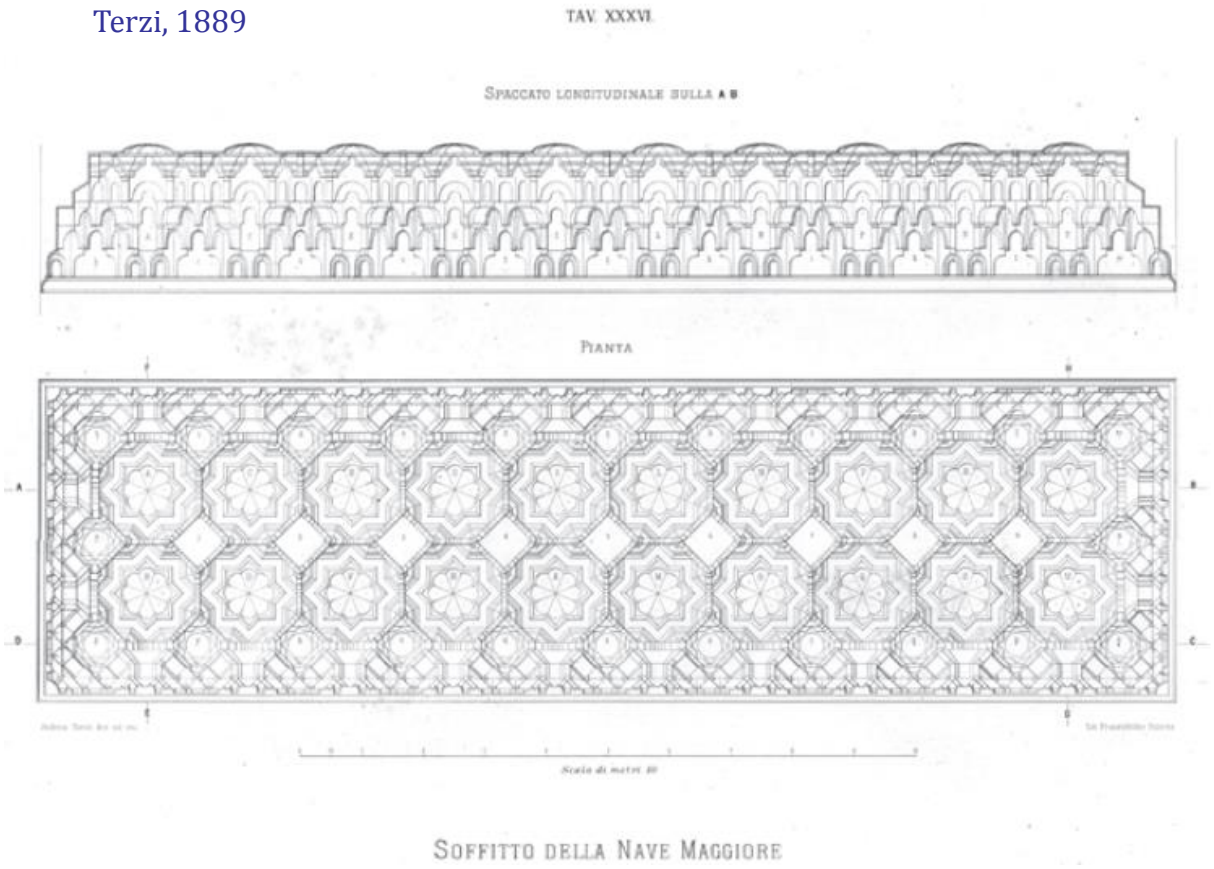


Calandra, 1991

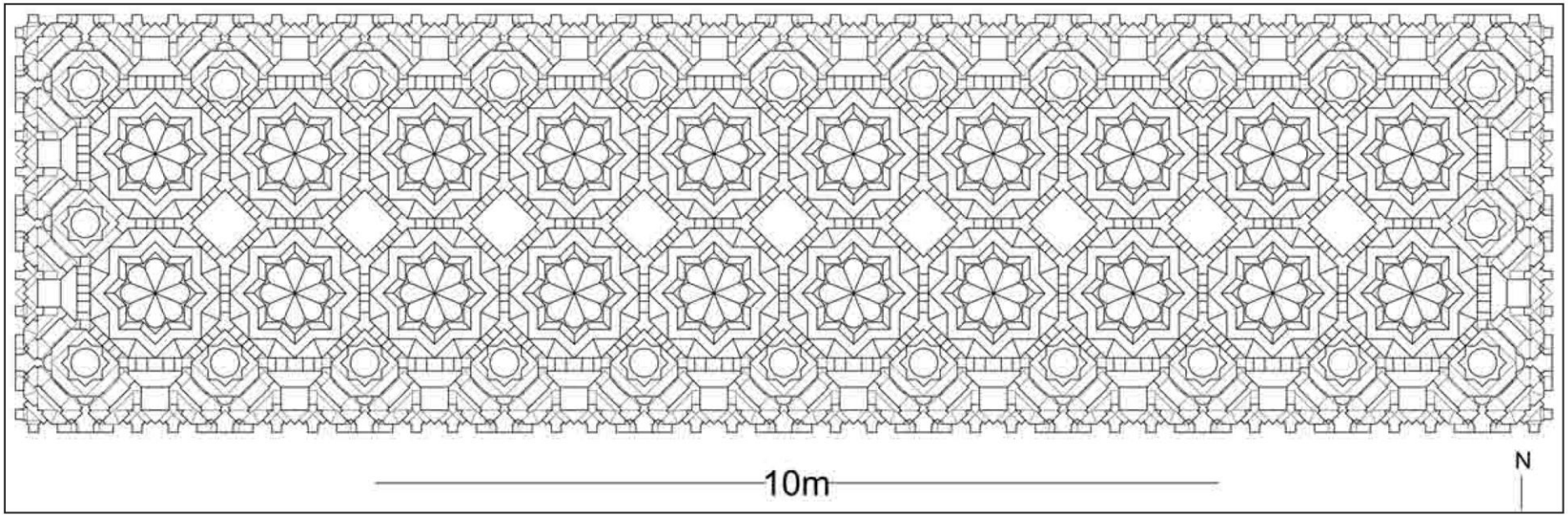


Gabrieli and Scerrato, 1993

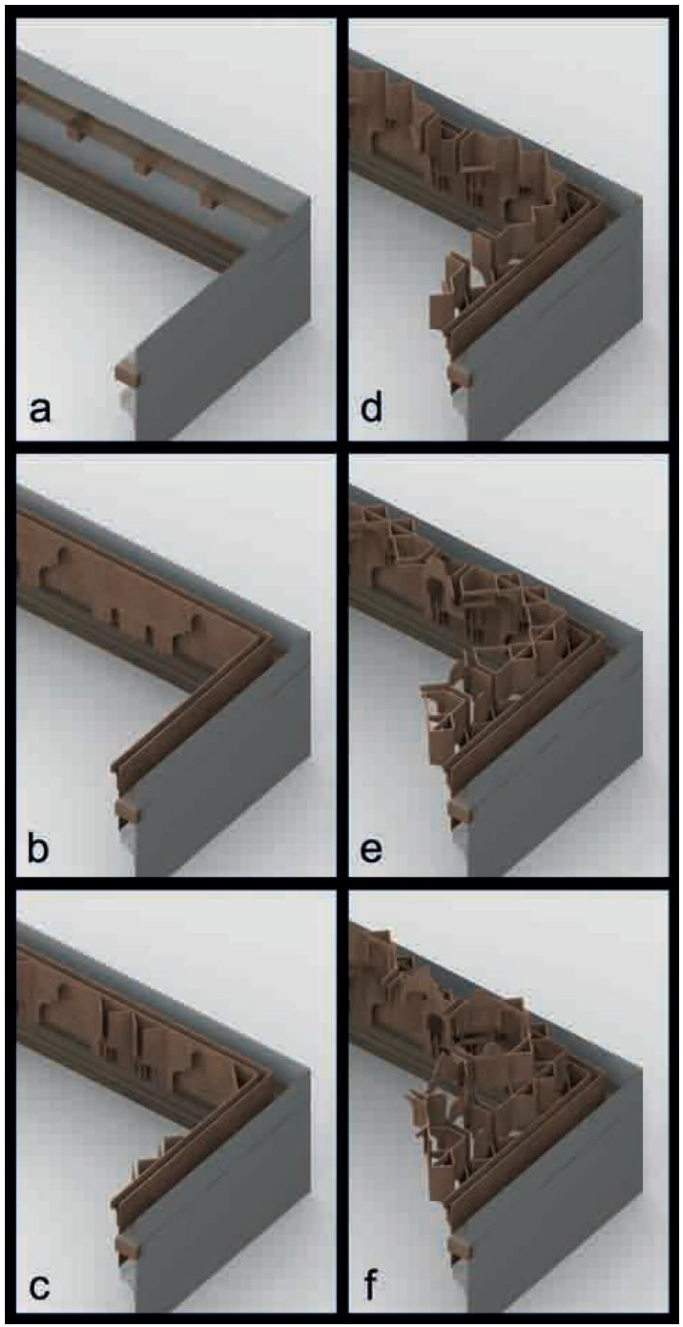
Terzi, 1889

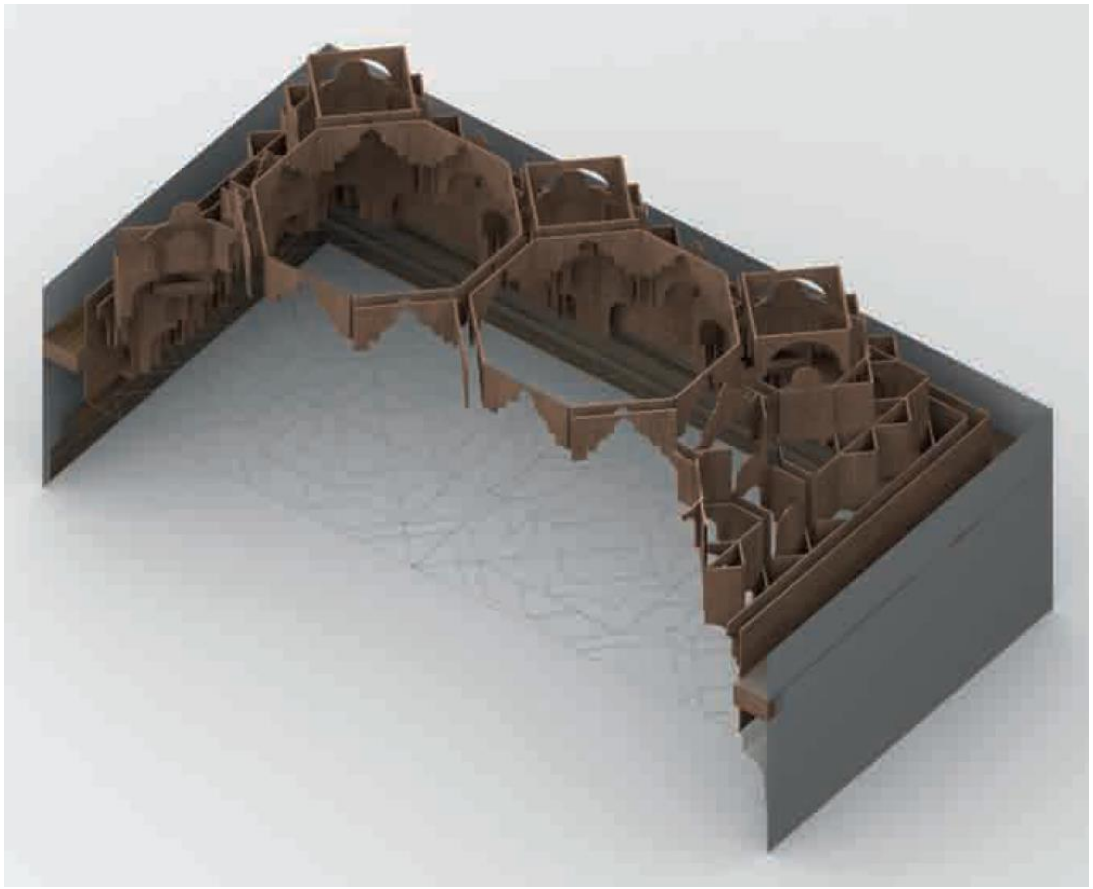


The Royal Palace, Cappella Palatina

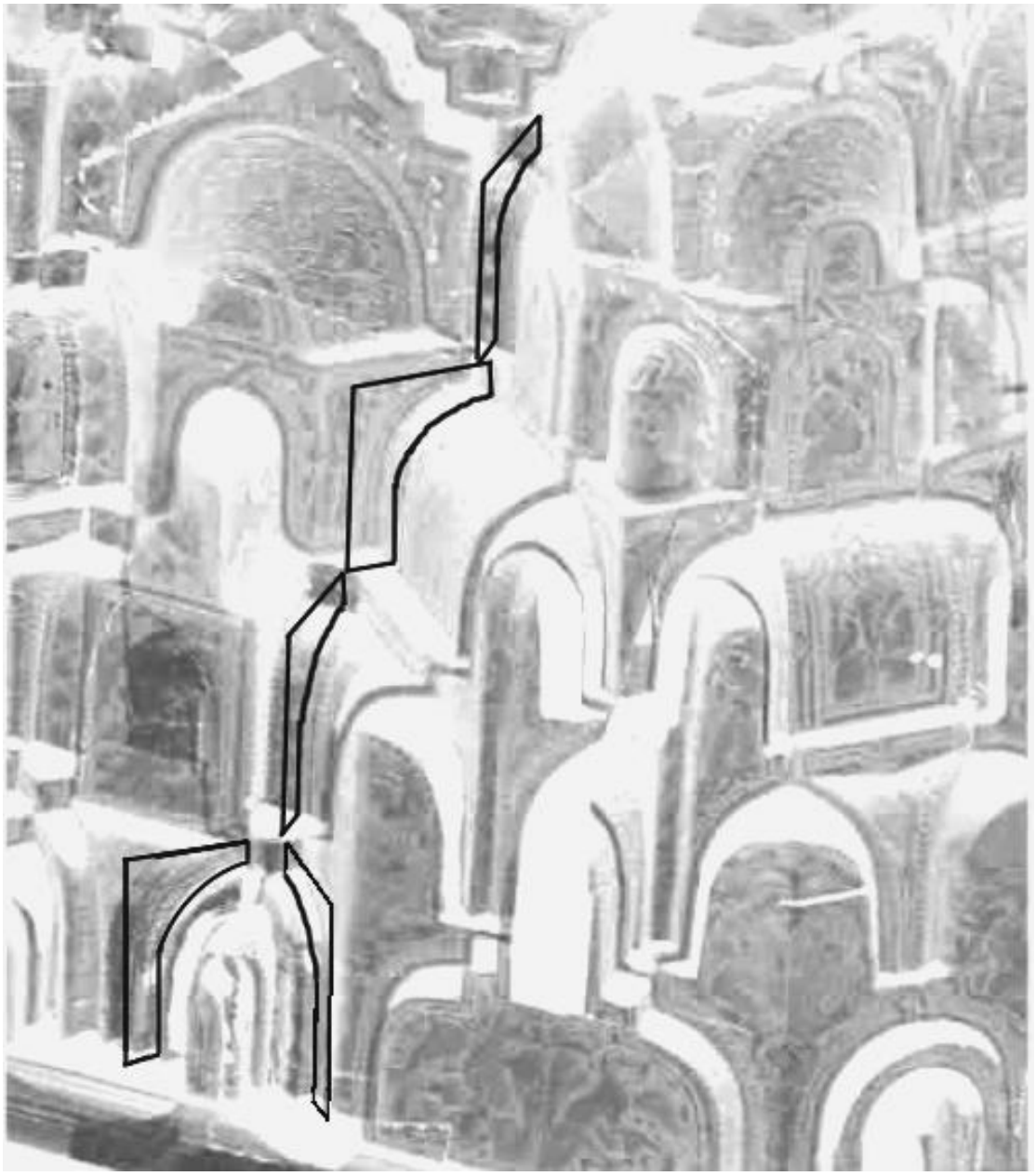


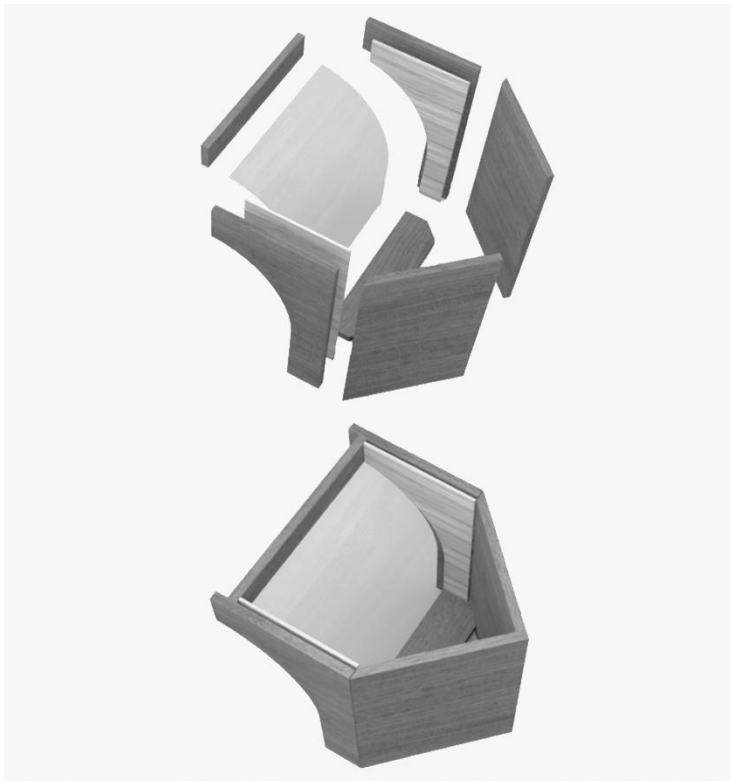
Agnello, 2010



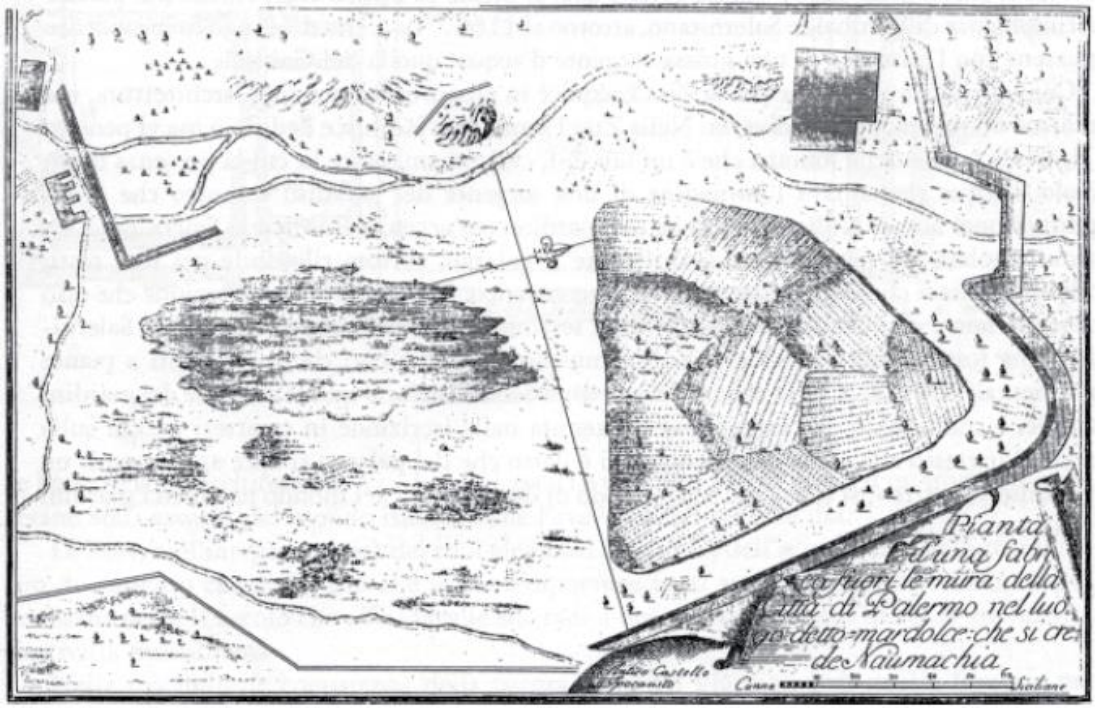


Agnello, 2010

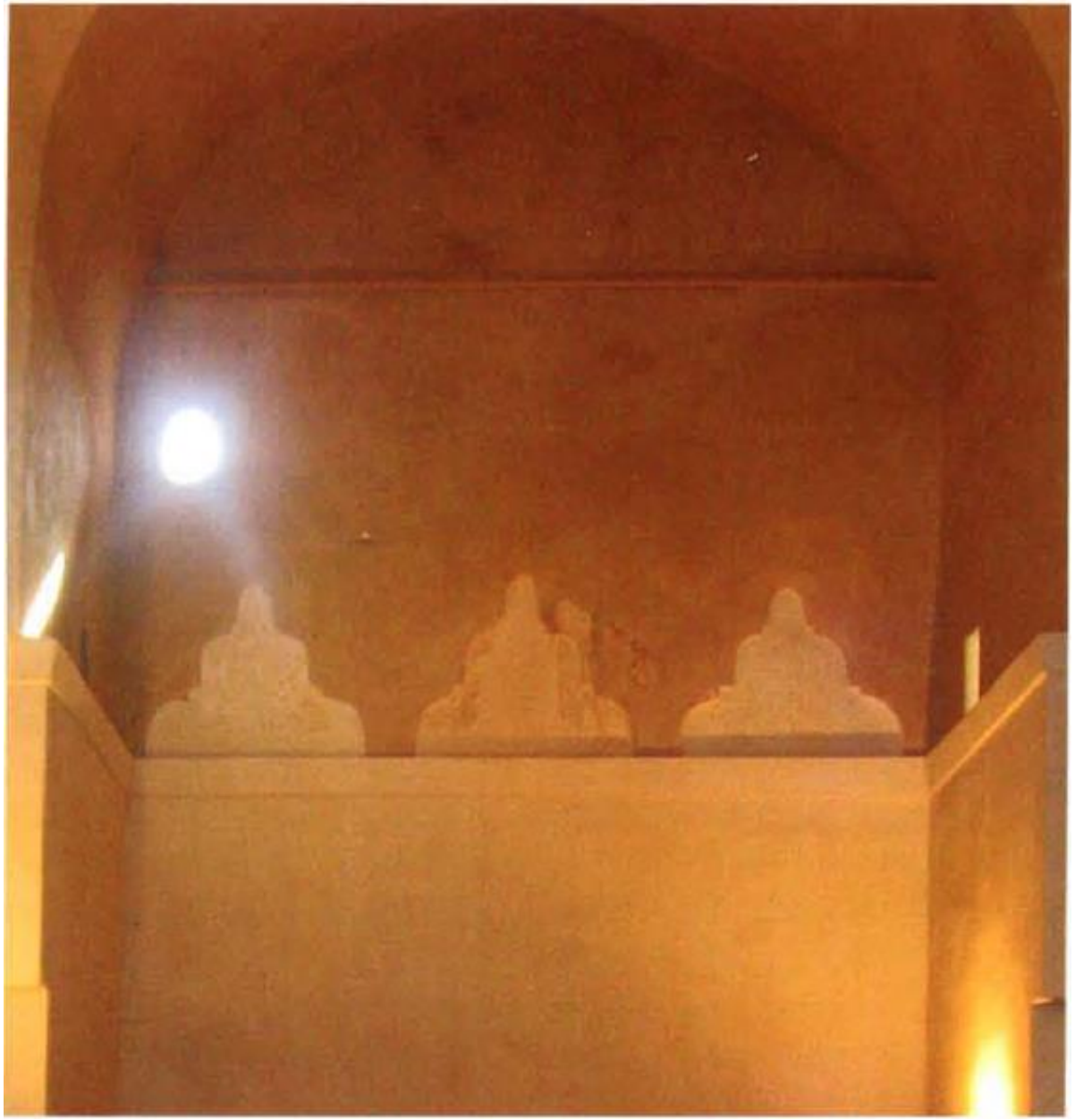




Other Buildings Attributed to Roger II (r. 1130-1154 AD)

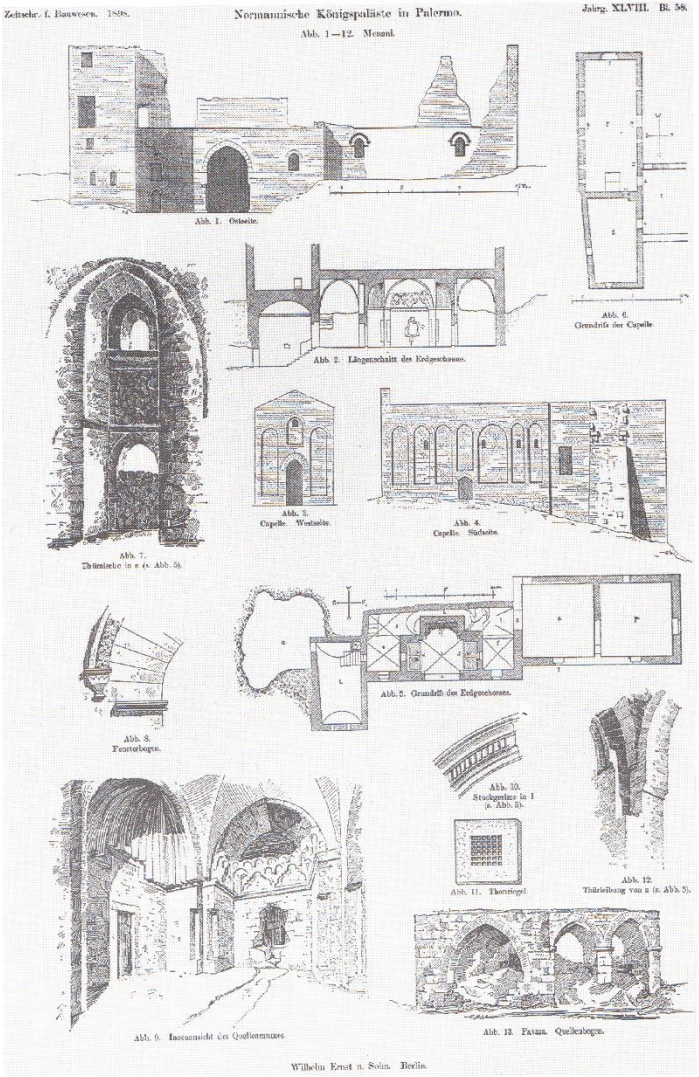

Pianta
d'una fabr
ca fuori le mura della
Città di Palermo nel luo
go detto mardolce che si cre
de Naumachia

Favara

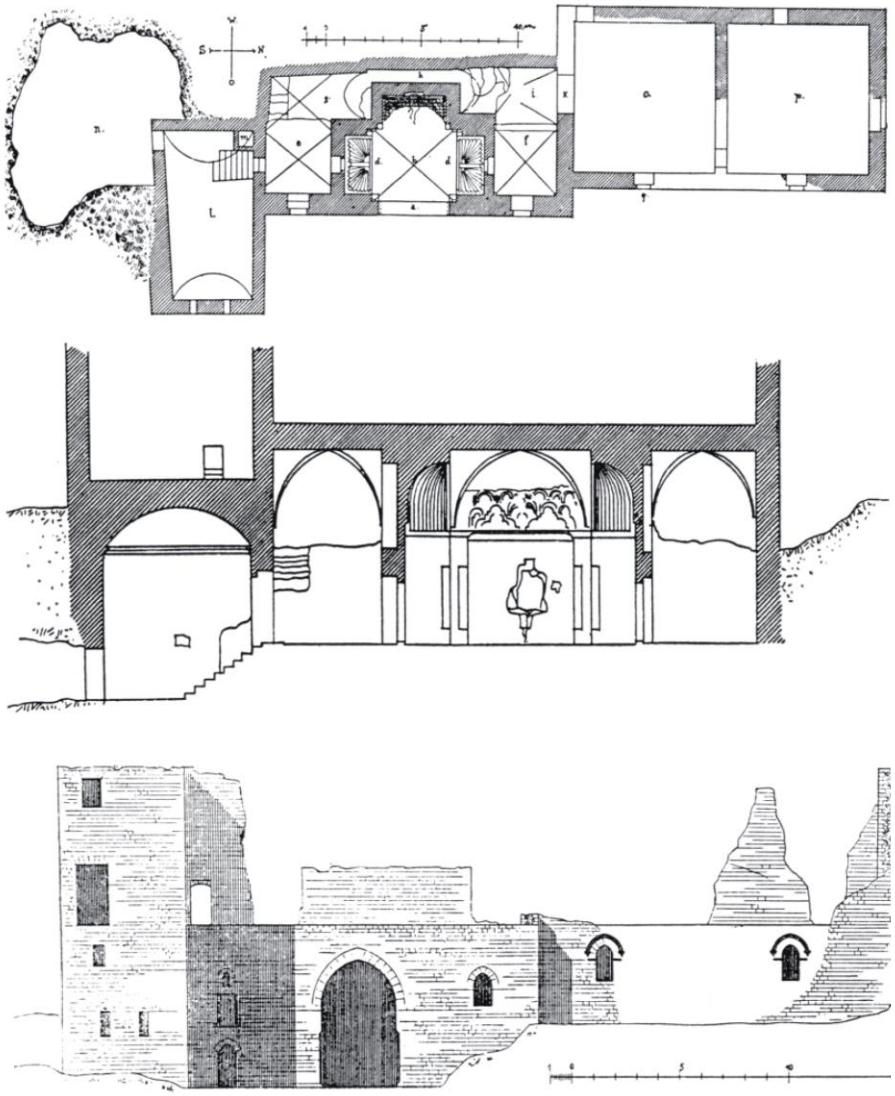


Prescia, 2012

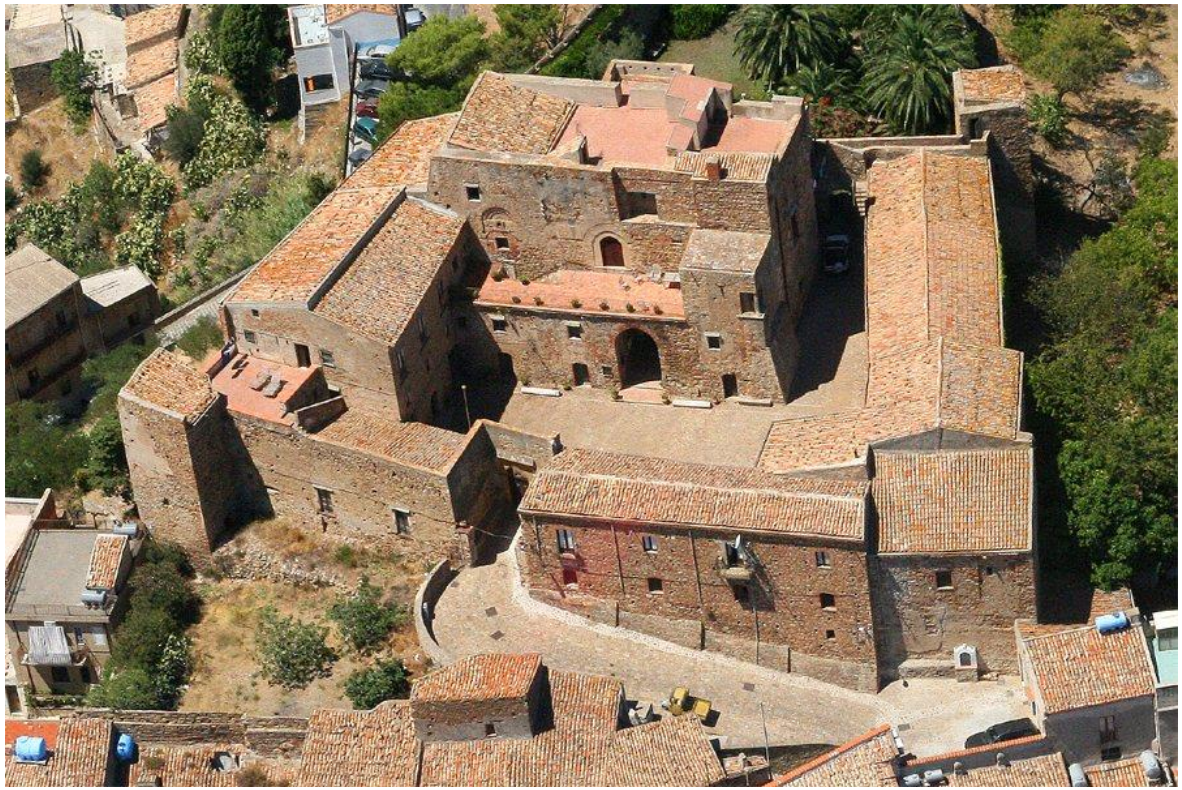
Goldschmidt, 1898



Scibene or Uscibene

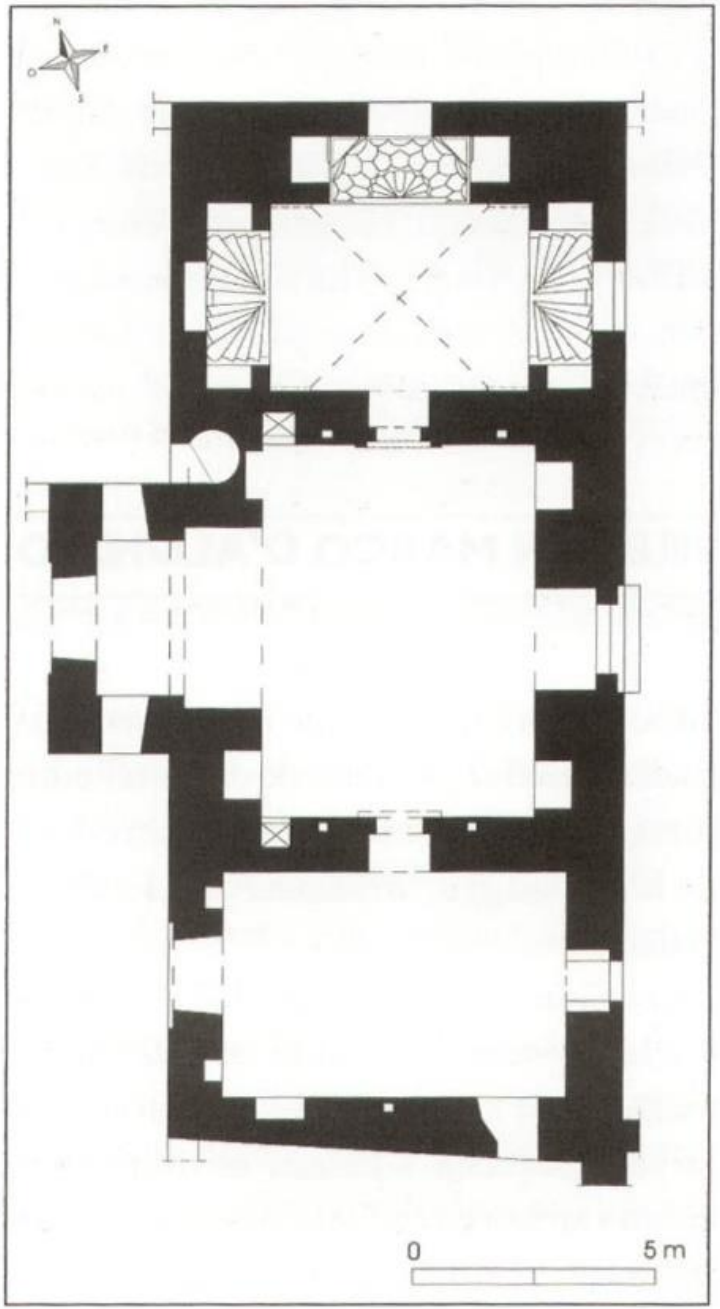


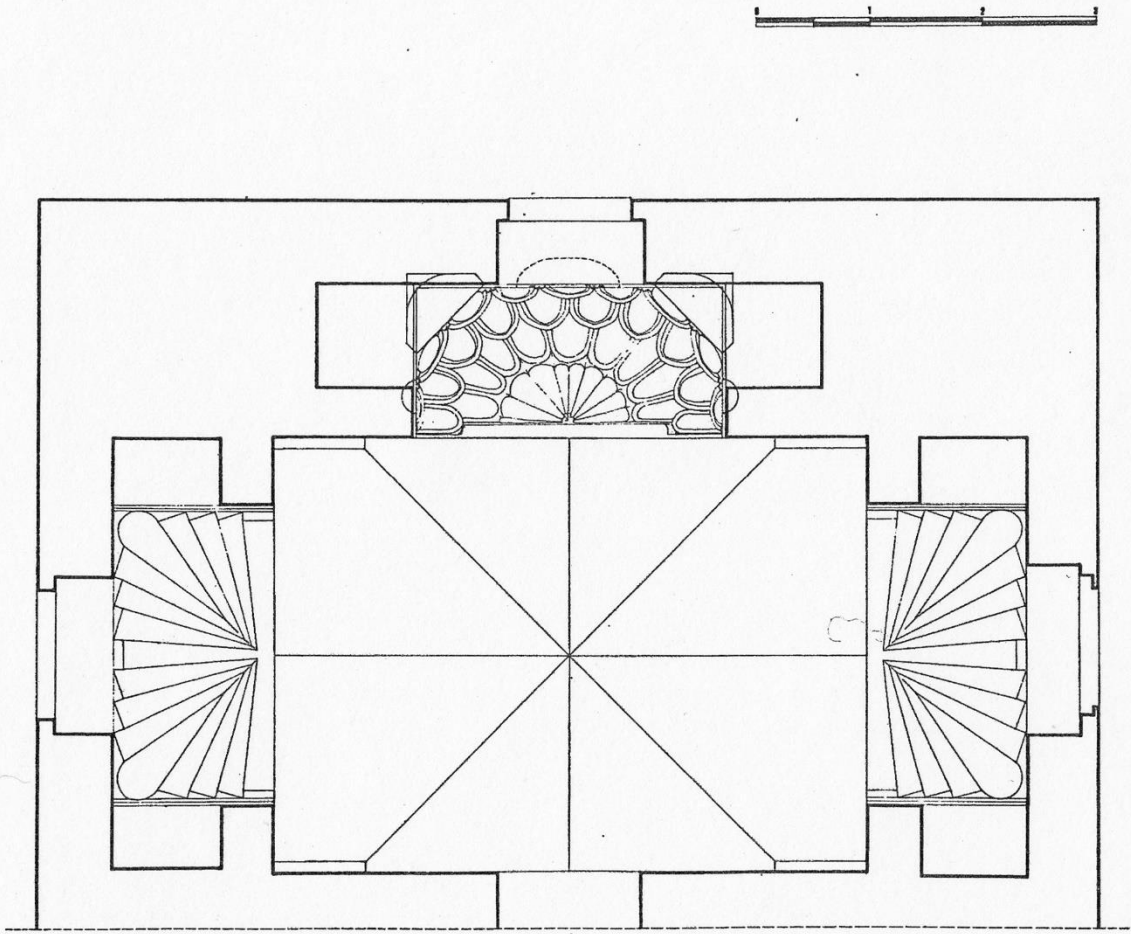
Goldschmidt, 1898 (adapted from)



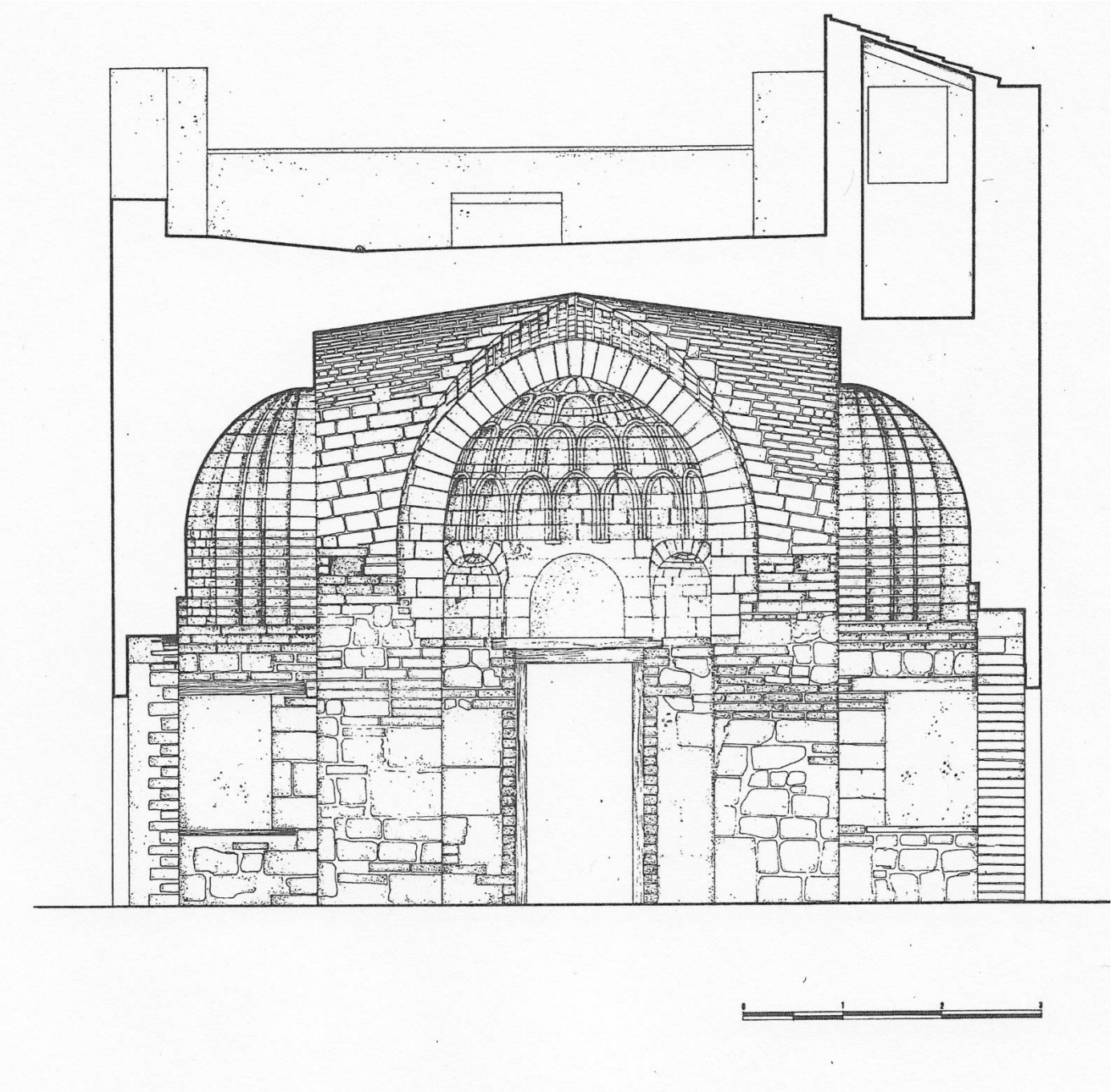
www.minniti.info

Caronia

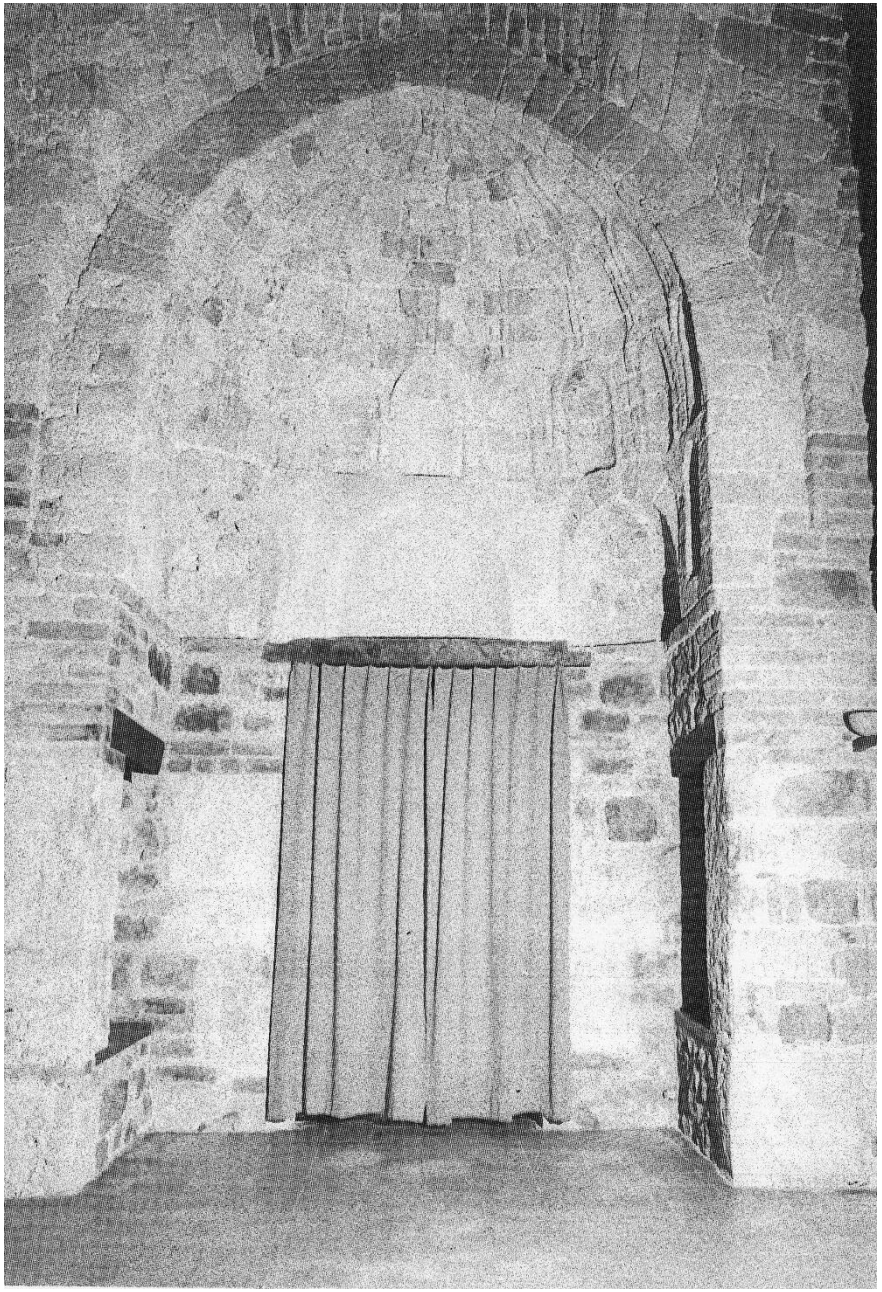


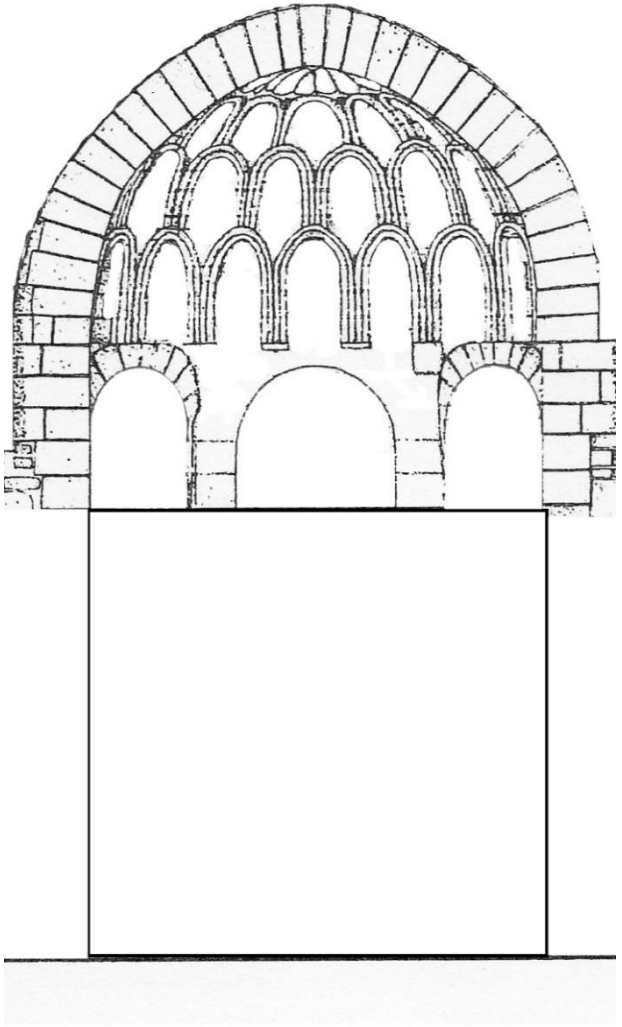


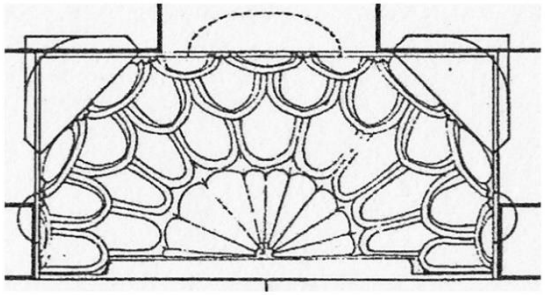
Krönig, 1977 (adapted from)



Krönig, 1977



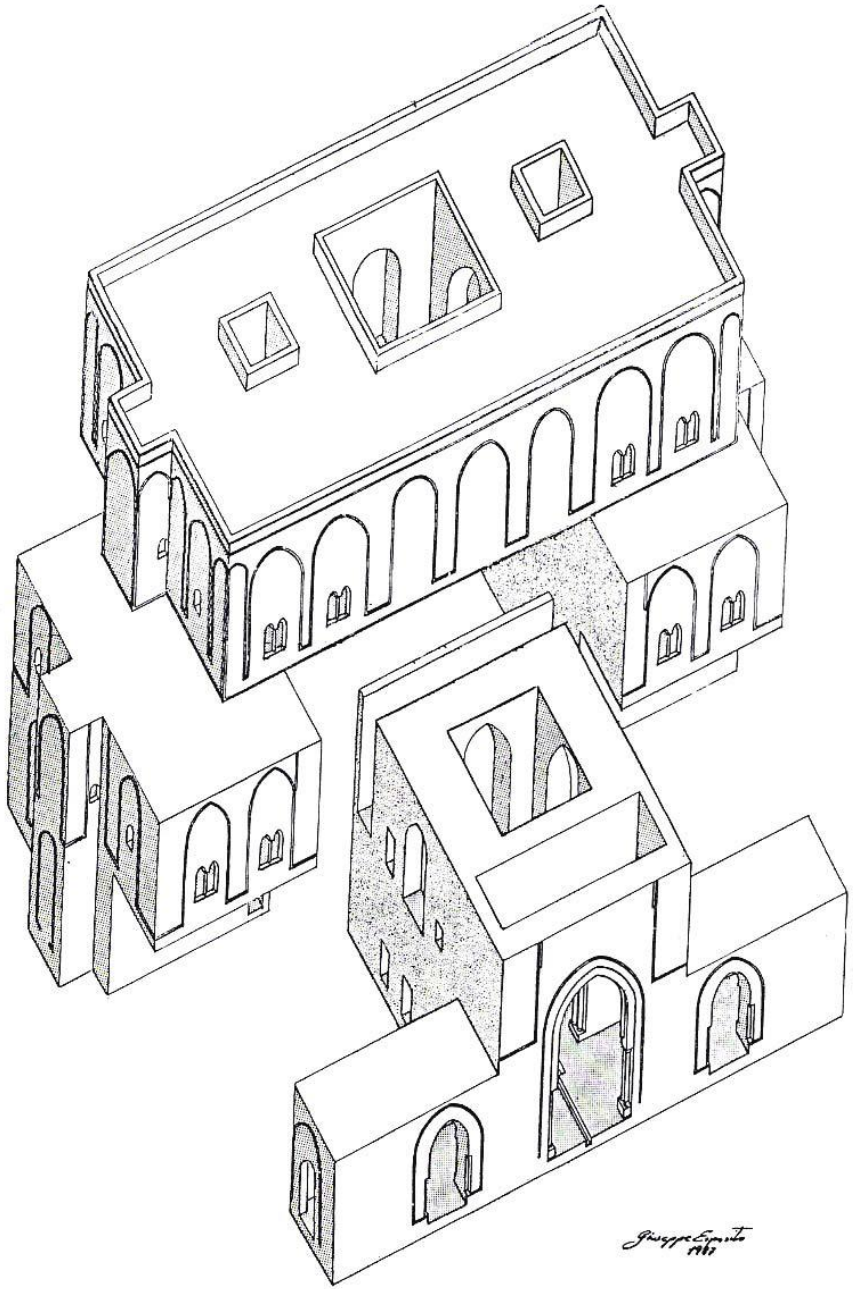




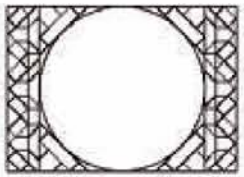
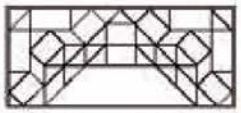
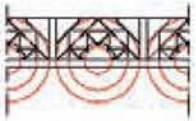
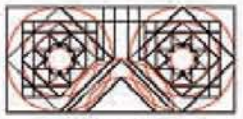
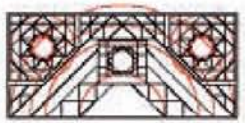
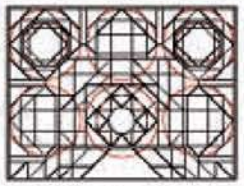
Krönig, 1977 (adapted from)

Krönig, 1977

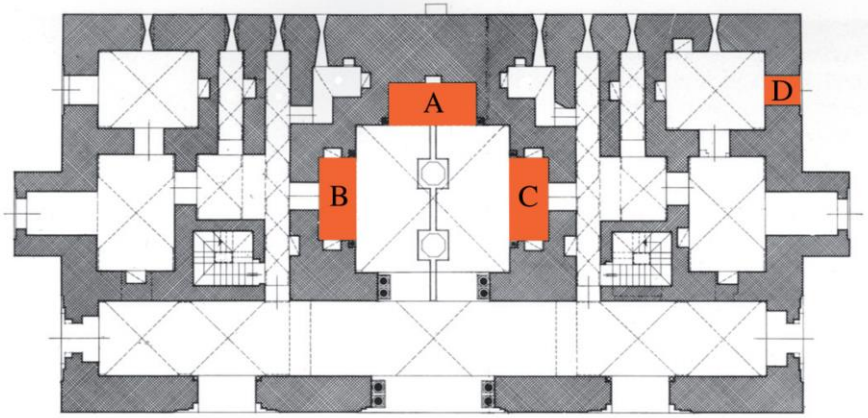
William I (r. 1154-1166 AD) and the Zisa



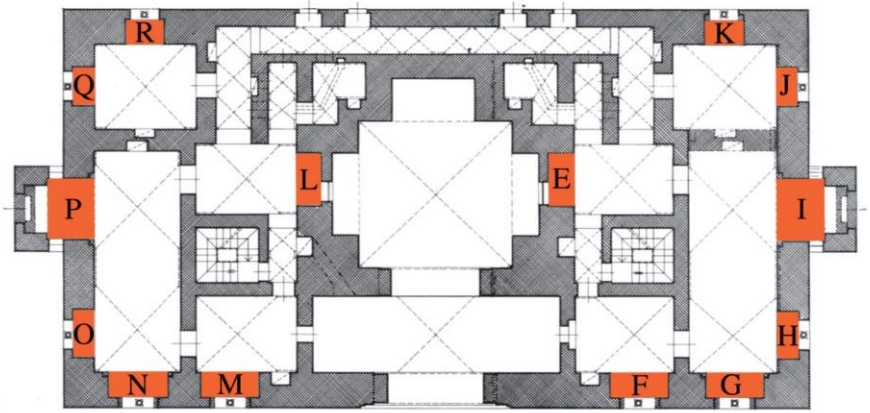
Staacke, 1991

 PLAN 1	 PLAN 2	 PLAN 3	PLAN 4	 PLAN 5	 PLAN 6	 PLAN 7
SS. TRINITÀ CHAPEL	NICHE A		NICHE D	NICHE F		NICHE I
	NICHE R					
	NICHE Q					
	NICHE L					
	NICHE N					
	NICHE O			NICHE H	NICHE B	
	NICHE E			NICHE G	NICHE C	
	NICHE J			NICHE M		
	NICHE K			NICHE S		NICHE P

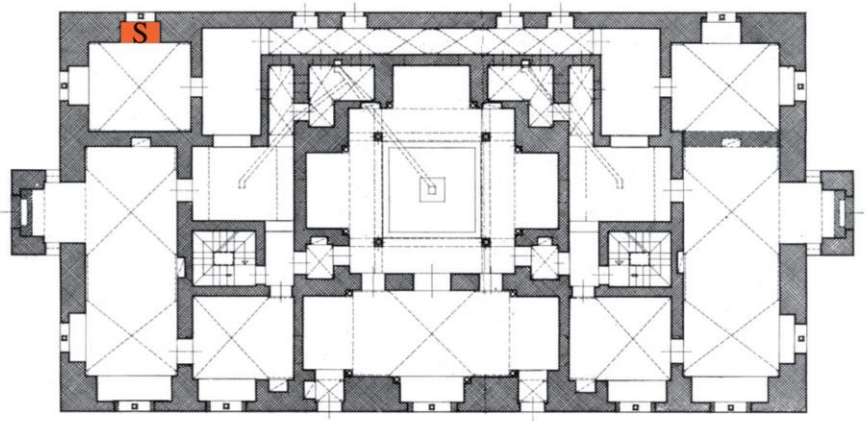
Garofalo, 2010 (adapted from)



LEVEL ONE

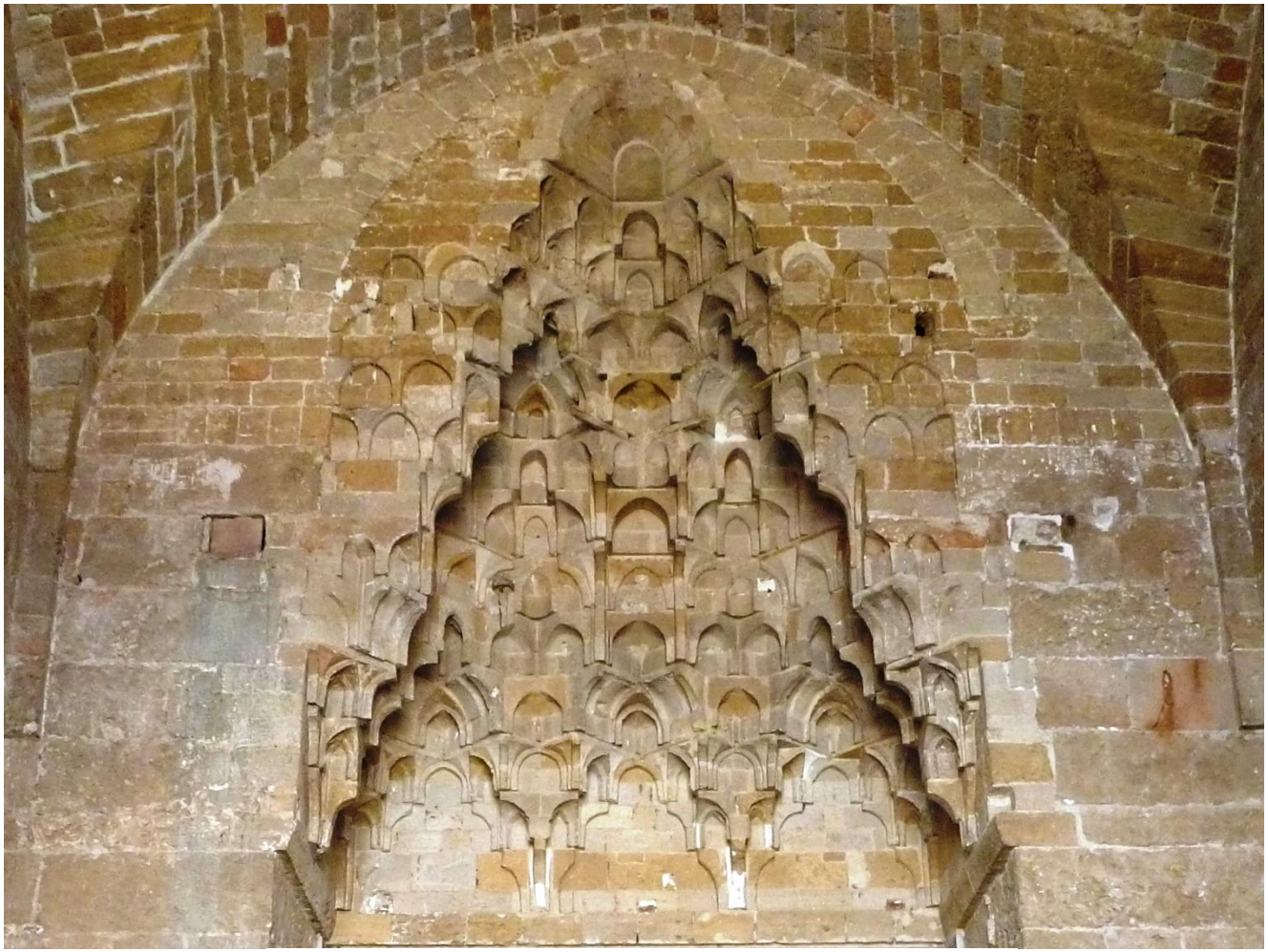


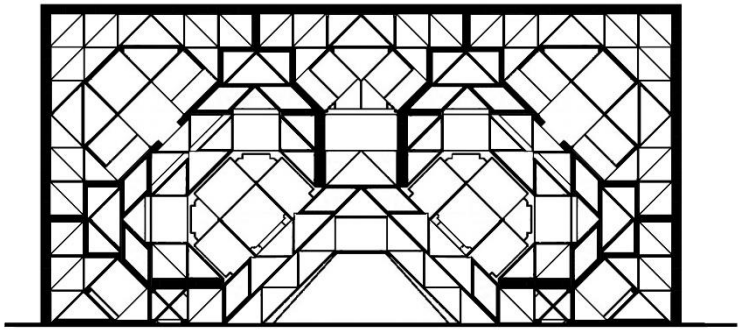
LEVEL TWO



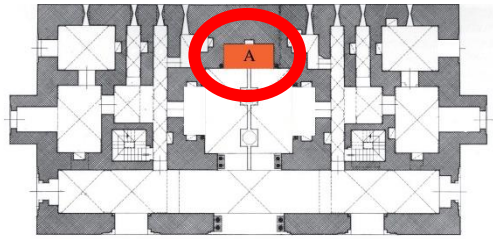
LEVEL THREE

Garofalo, 2010

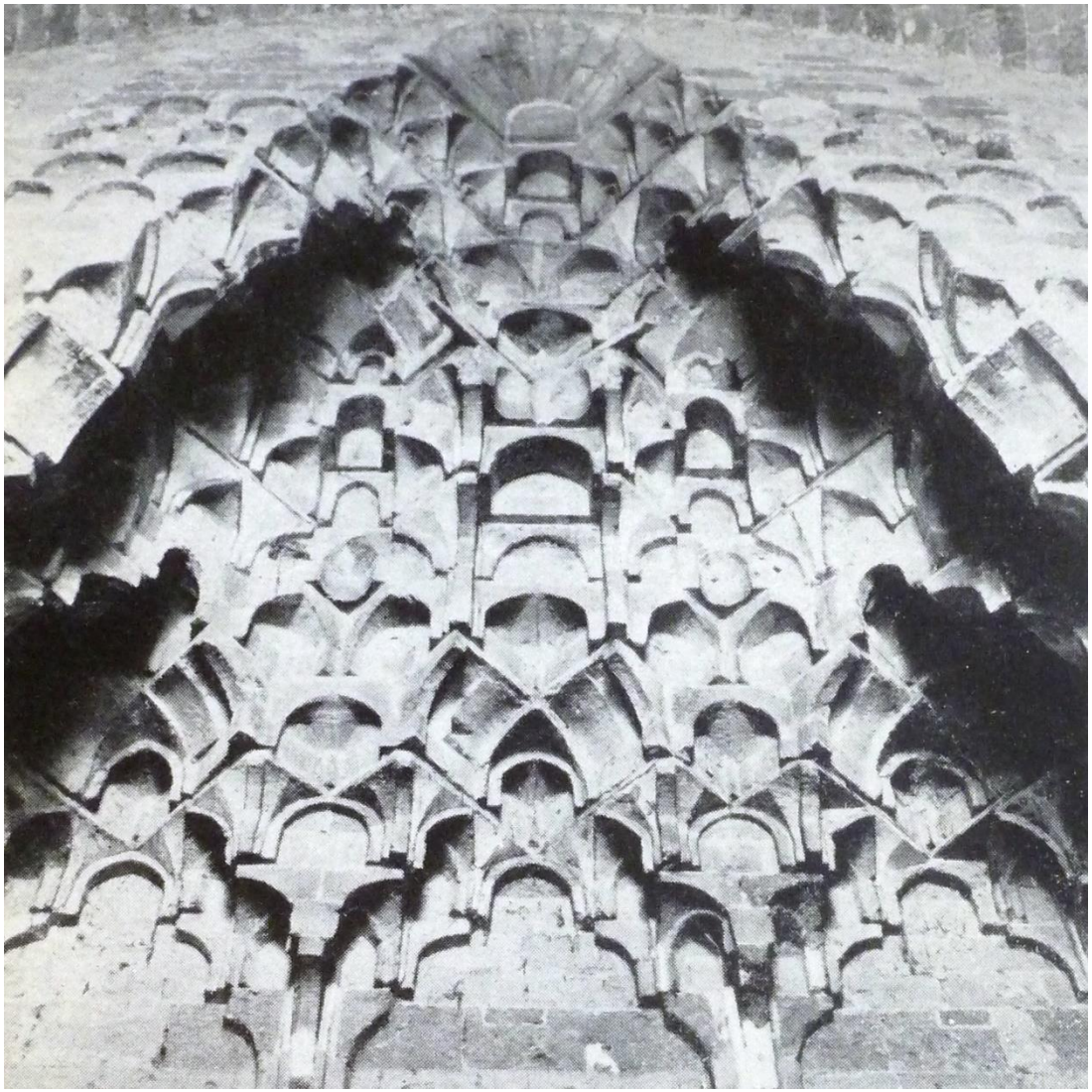




LEVEL ONE, NICHE A

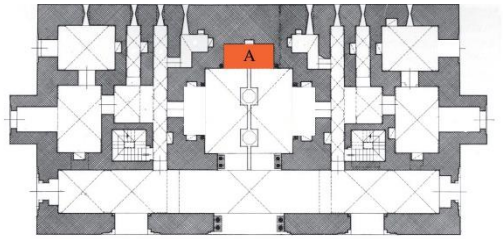


LEVEL ONE

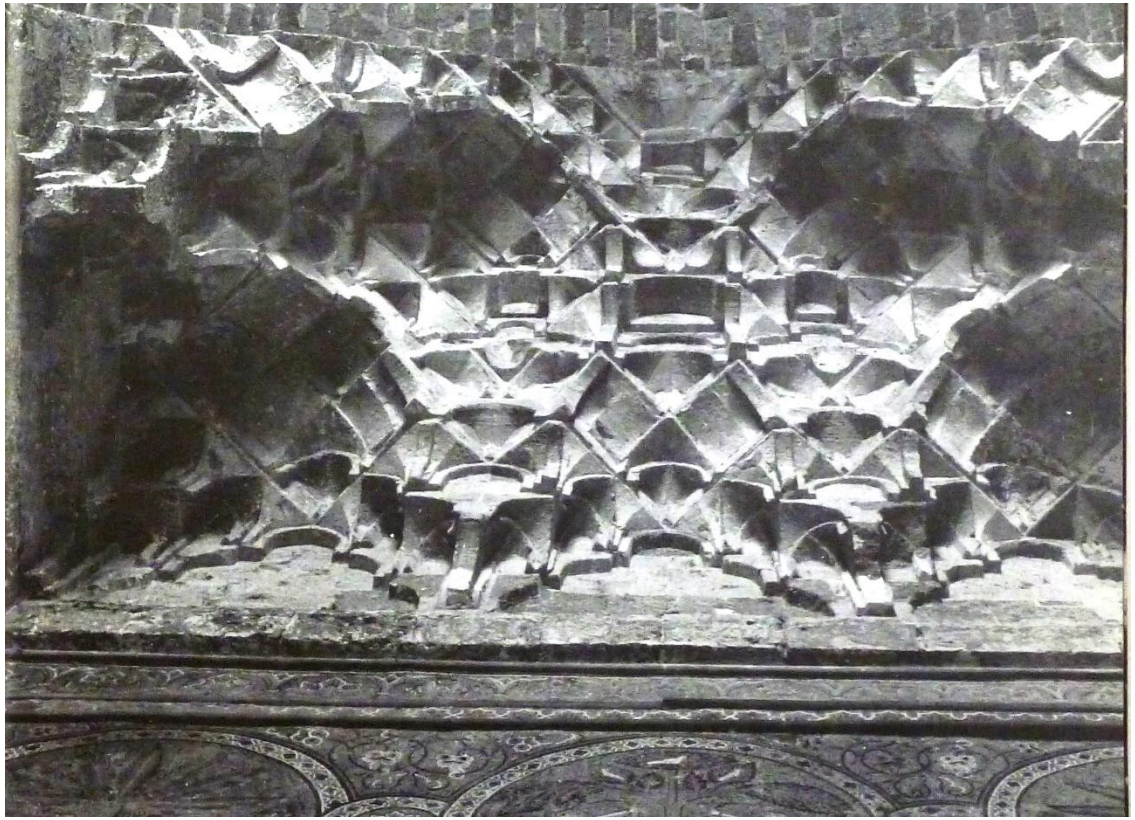


Bellafiore, 1978

LEVEL ONE, NICHE A

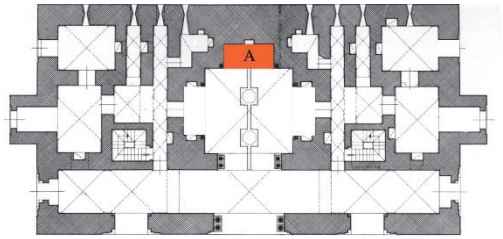


LEVEL ONE

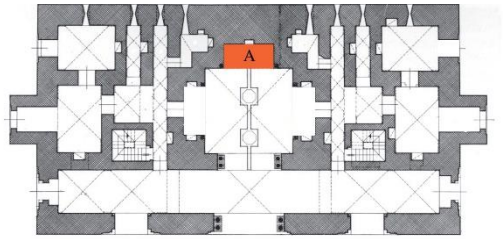


Ecochard, 1977

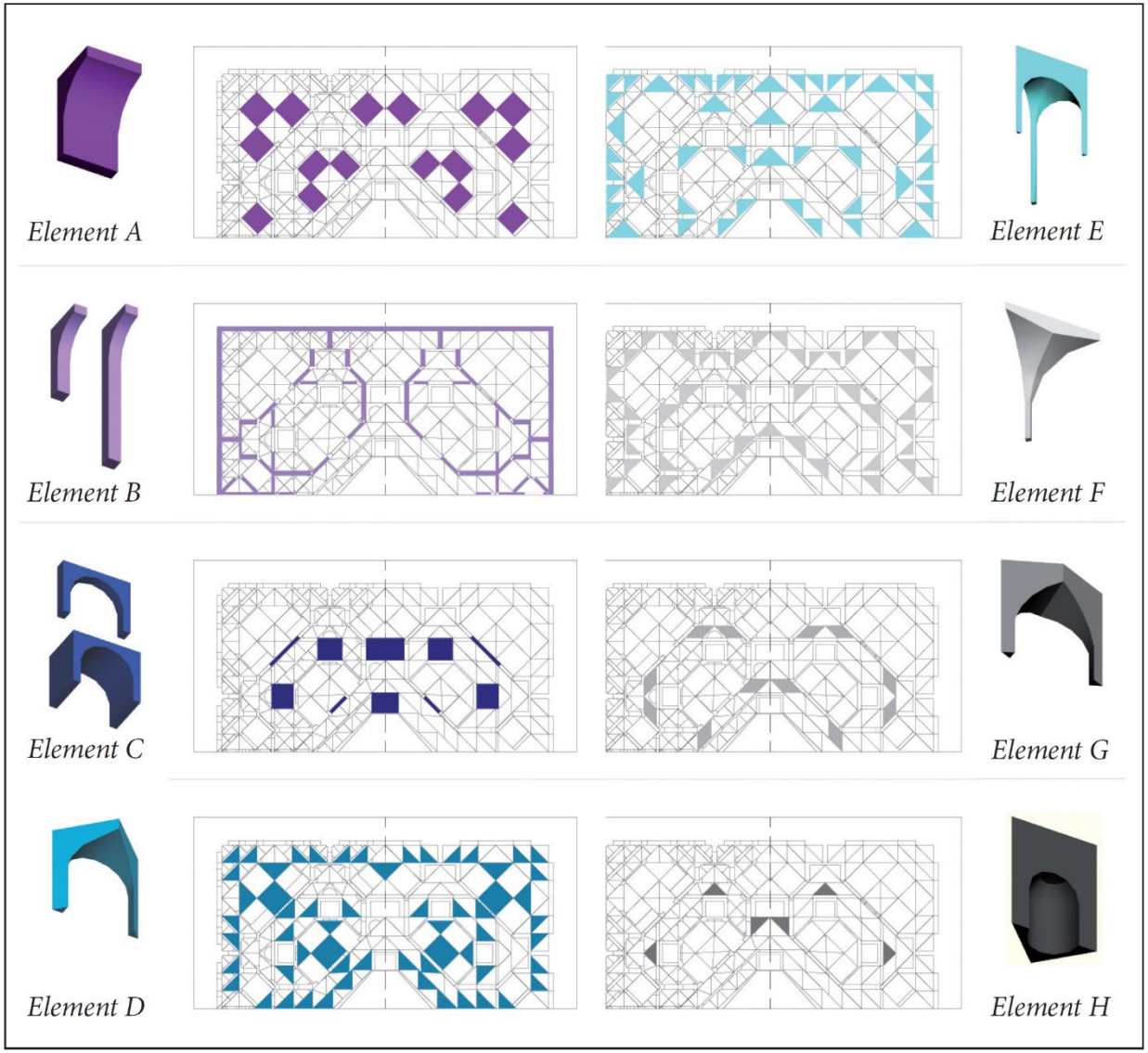
LEVEL ONE, NICHE A



LEVEL ONE, NICHE A

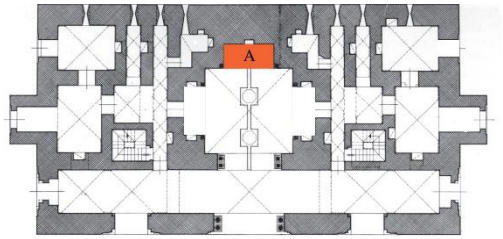


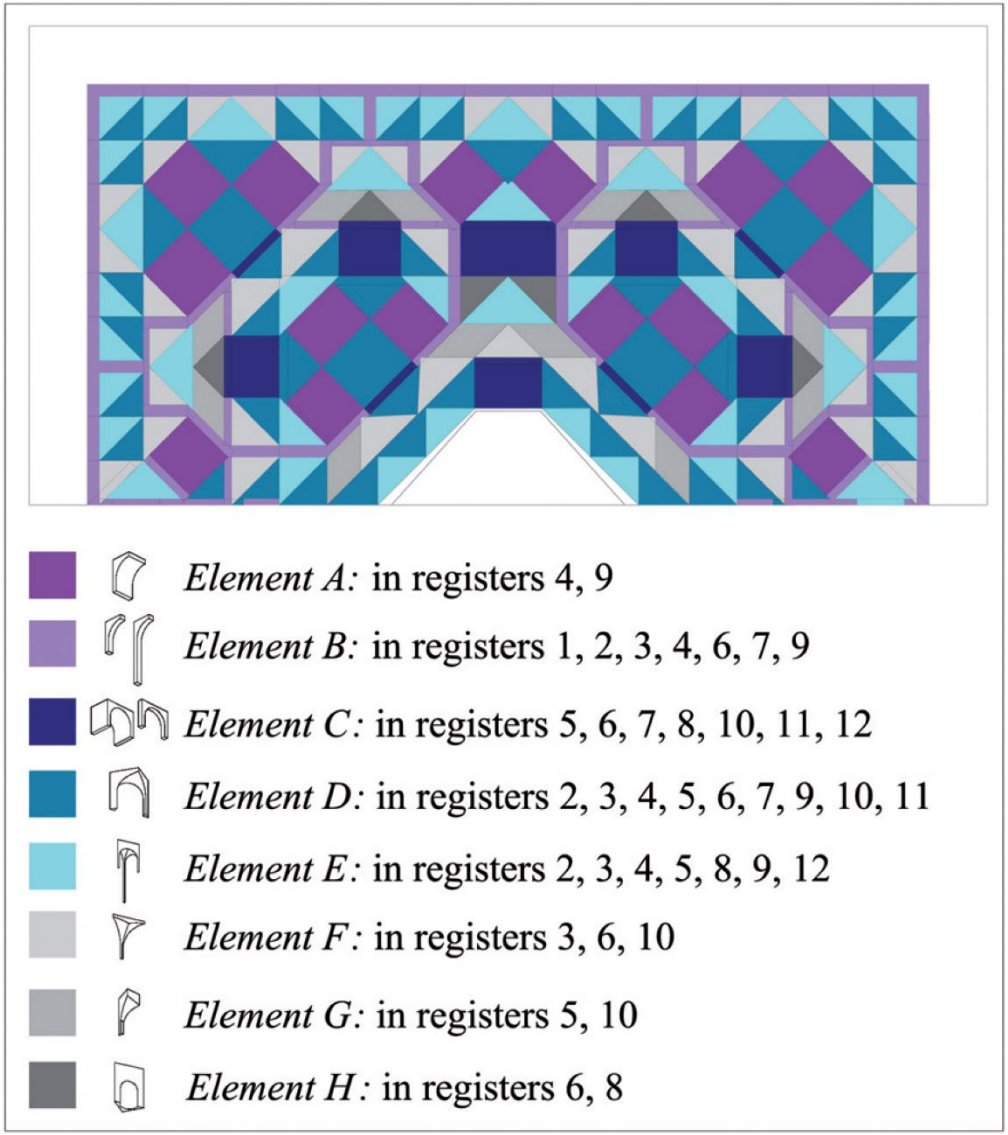
LEVEL ONE



Garofalo, 2010

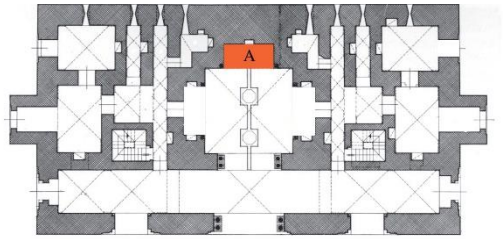
LEVEL ONE, NICHE A



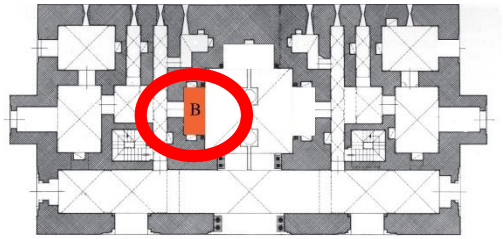


Garofalo, 2010

LEVEL ONE, NICHE A

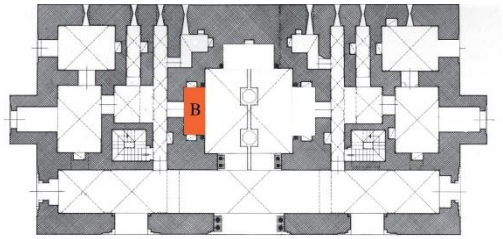


LEVEL ONE, NICHE B



LEVEL ONE

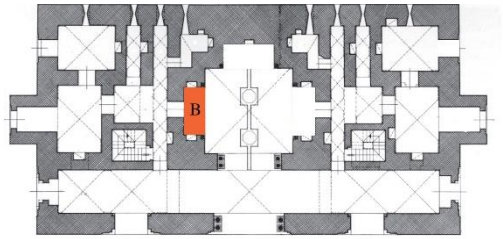
LEVEL ONE, NICHE B



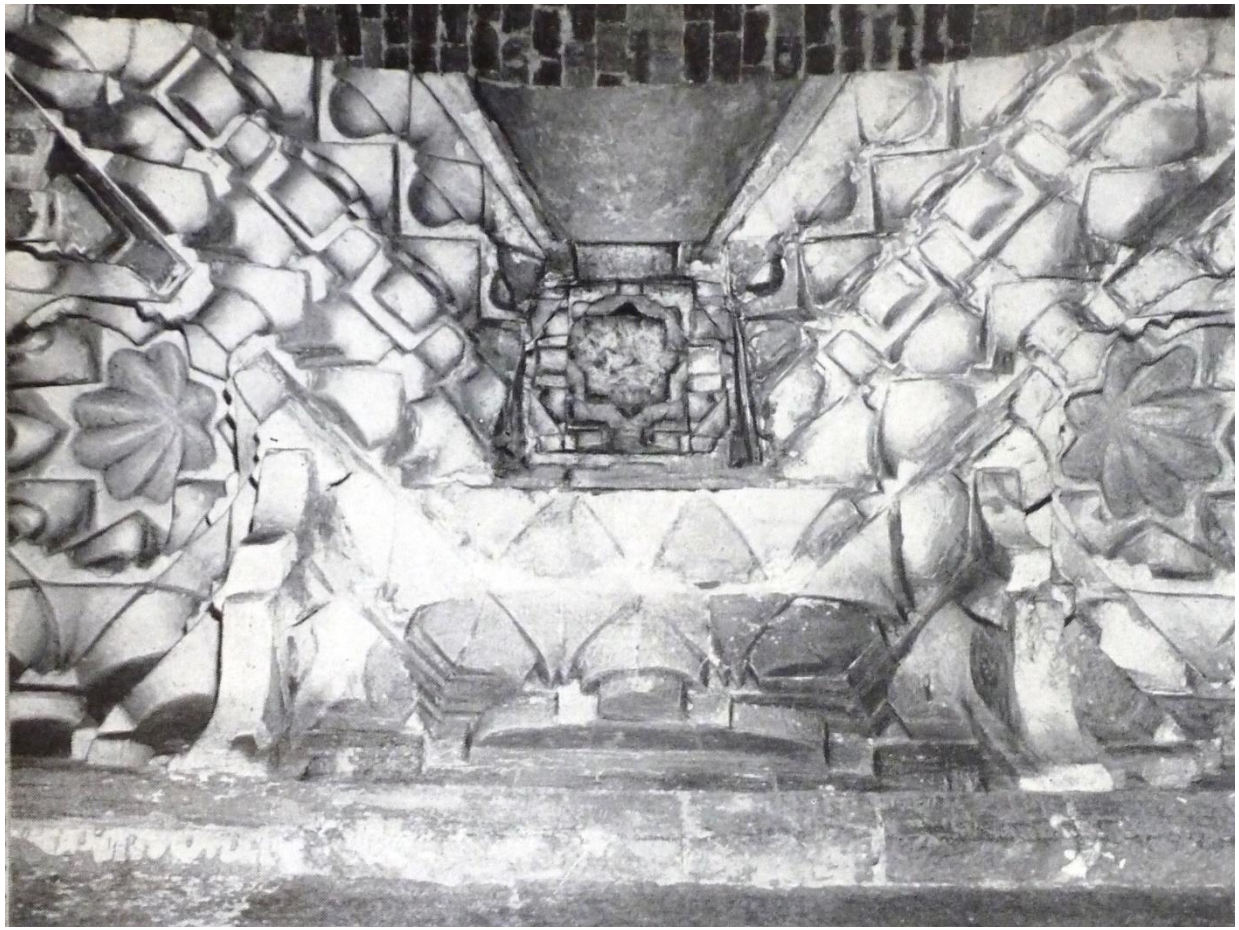
LEVEL ONE

Bellafiore, 1978

LEVEL ONE, NICHE B

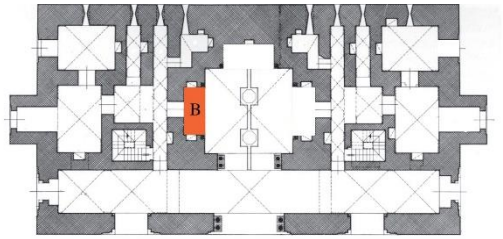


LEVEL ONE

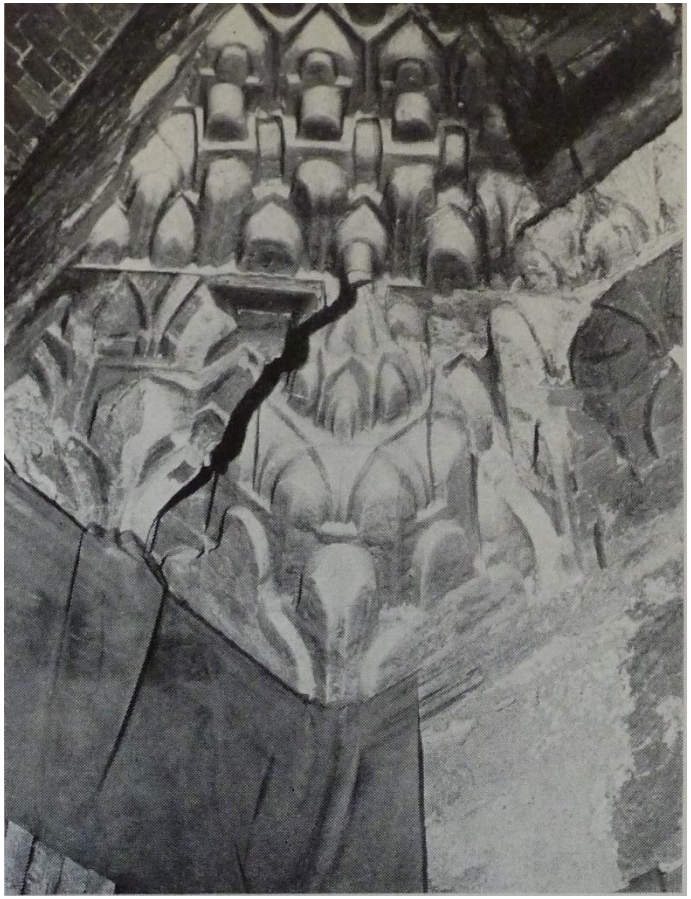


Bellafiore, 1978

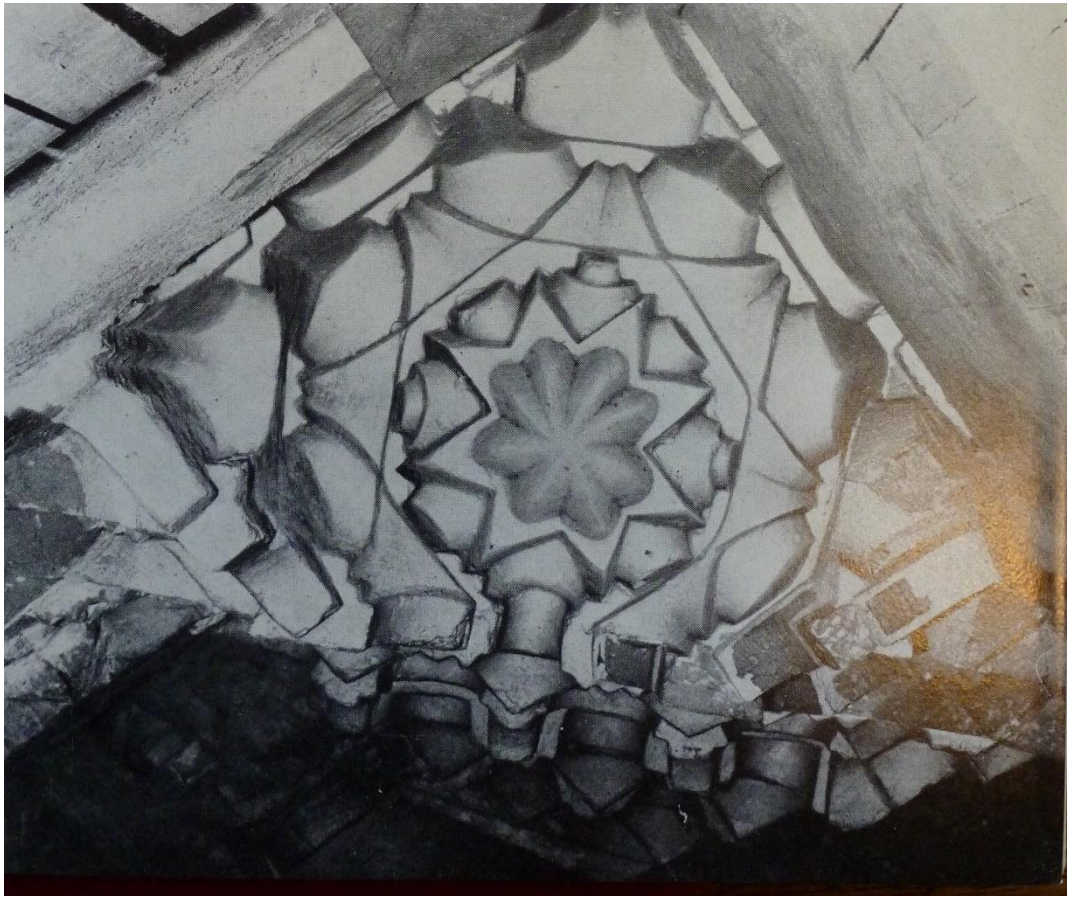
LEVEL ONE, NICHE B



LEVEL ONE

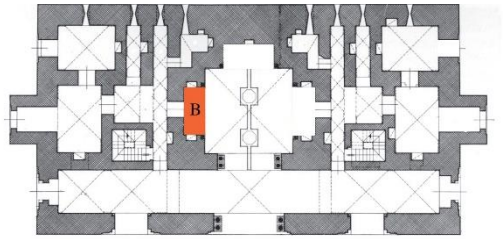


Bellafiore, 1978



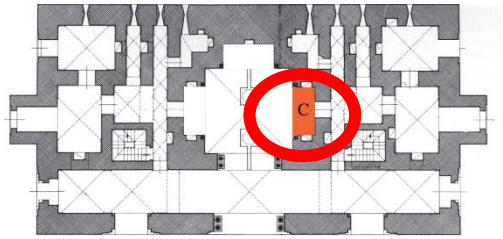
Bellafiore, 1978

LEVEL ONE, NICHE B



LEVEL ONE

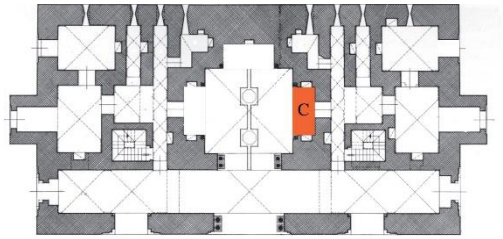
LEVEL ONE, NICHE C



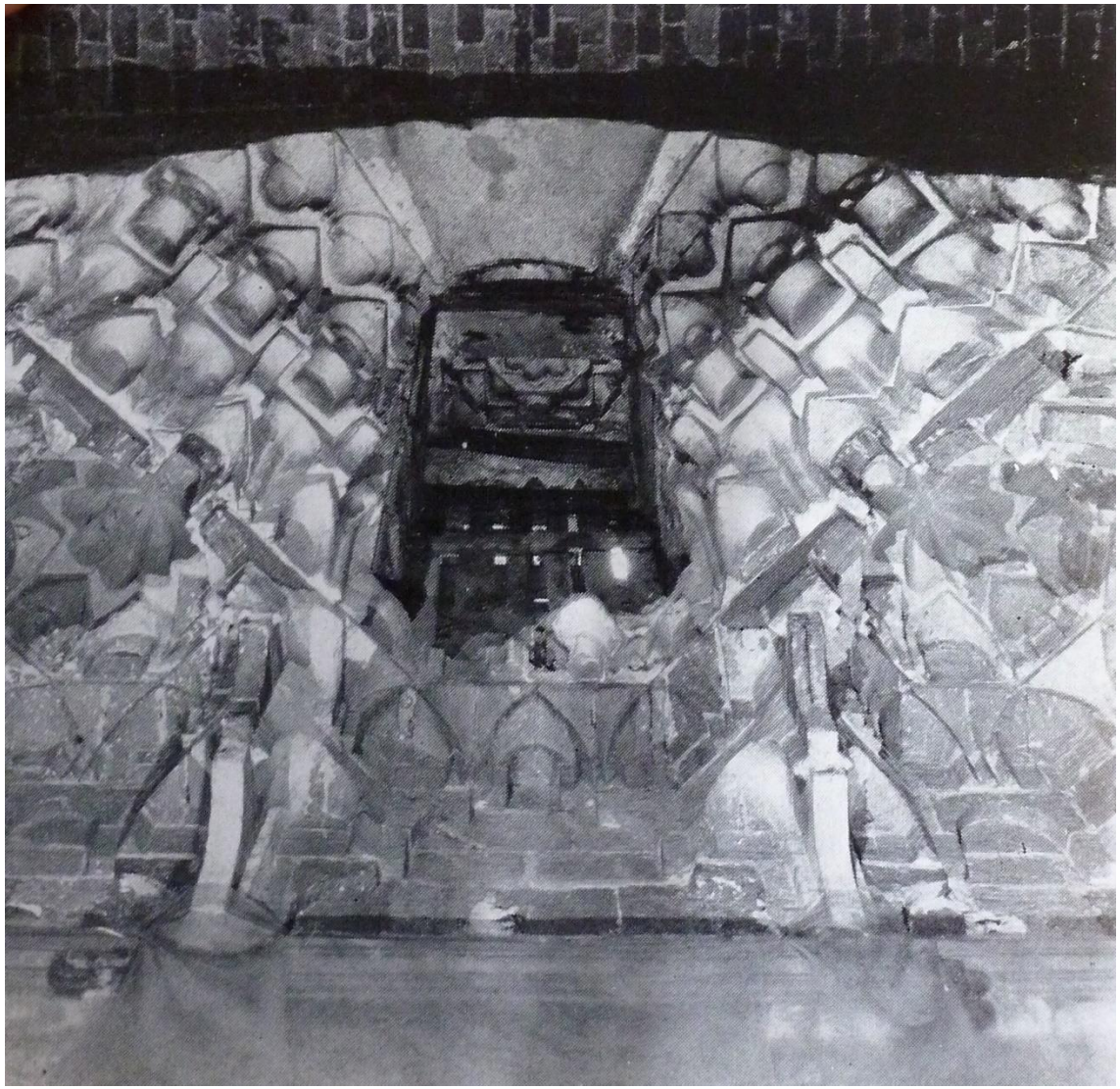
LEVEL ONE

Bellafiore, 1978

LEVEL ONE, NICHE C

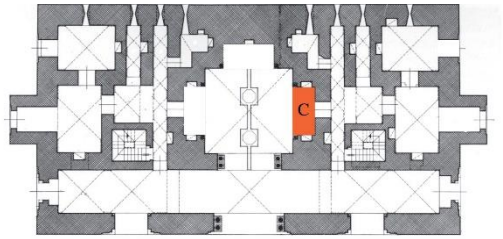


LEVEL ONE

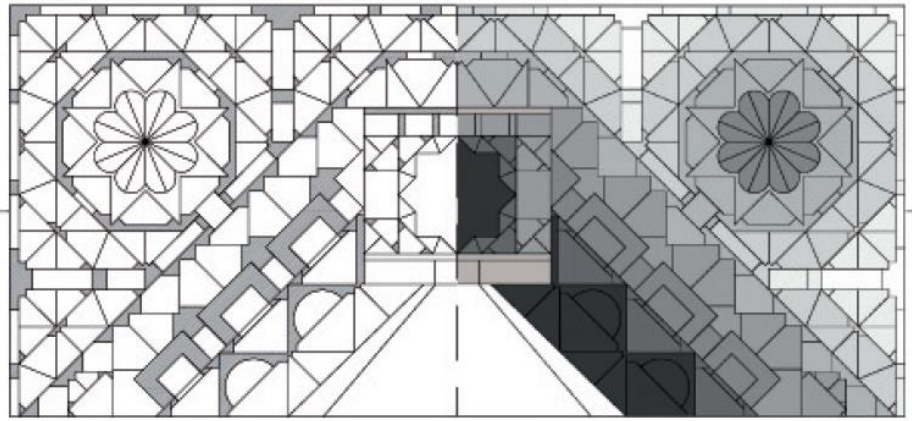


Bellafiore, 1978

LEVEL ONE, NICHE C

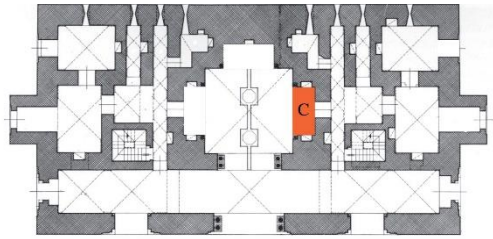


LEVEL ONE

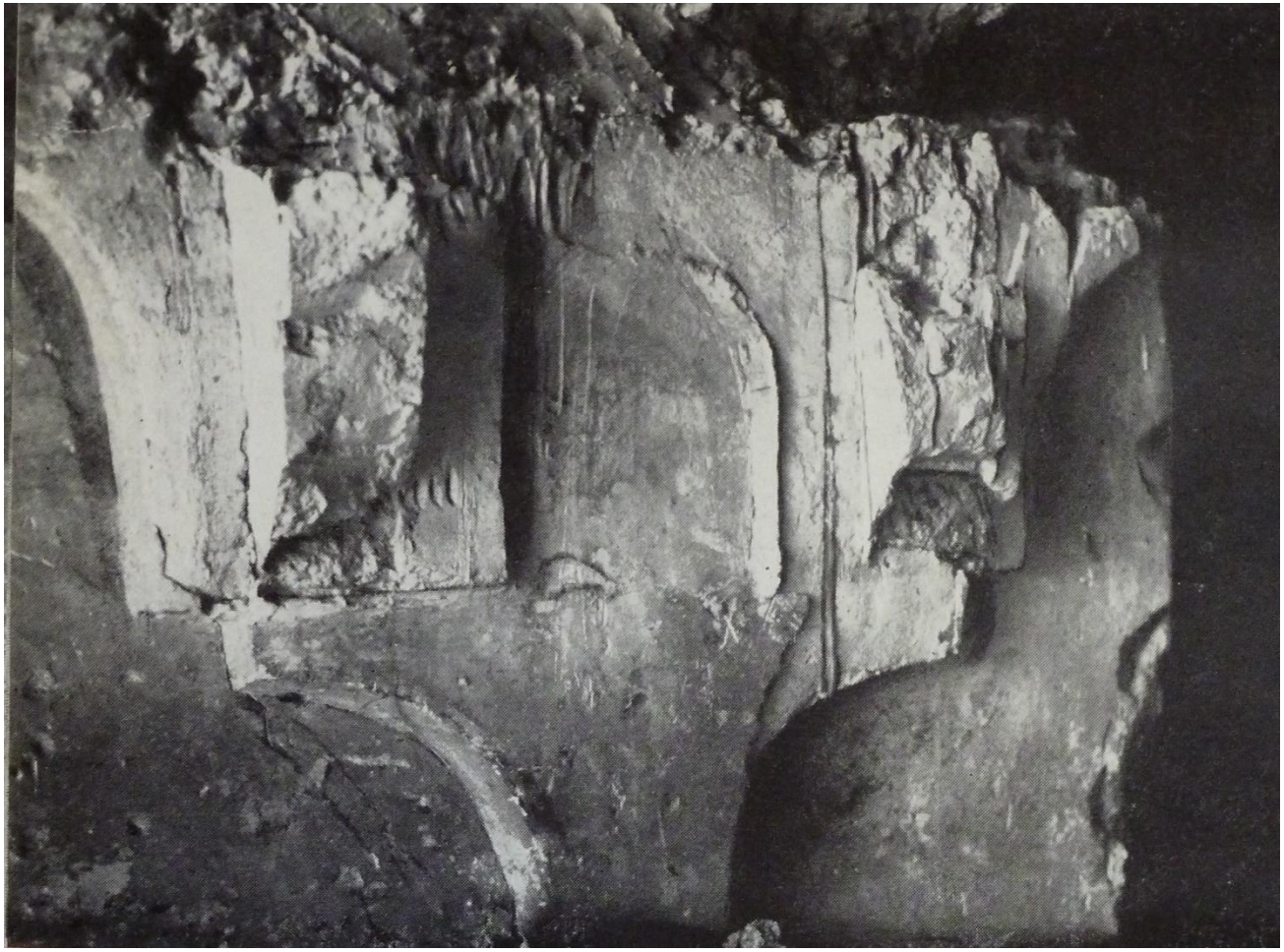


Garofalo, 2010 (adapted from)

LEVEL ONE, NICHE C

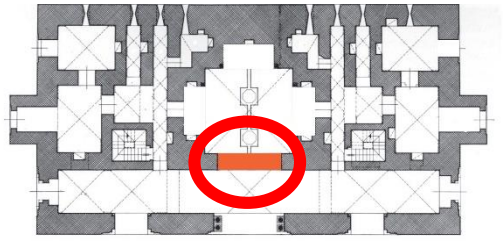


LEVEL ONE

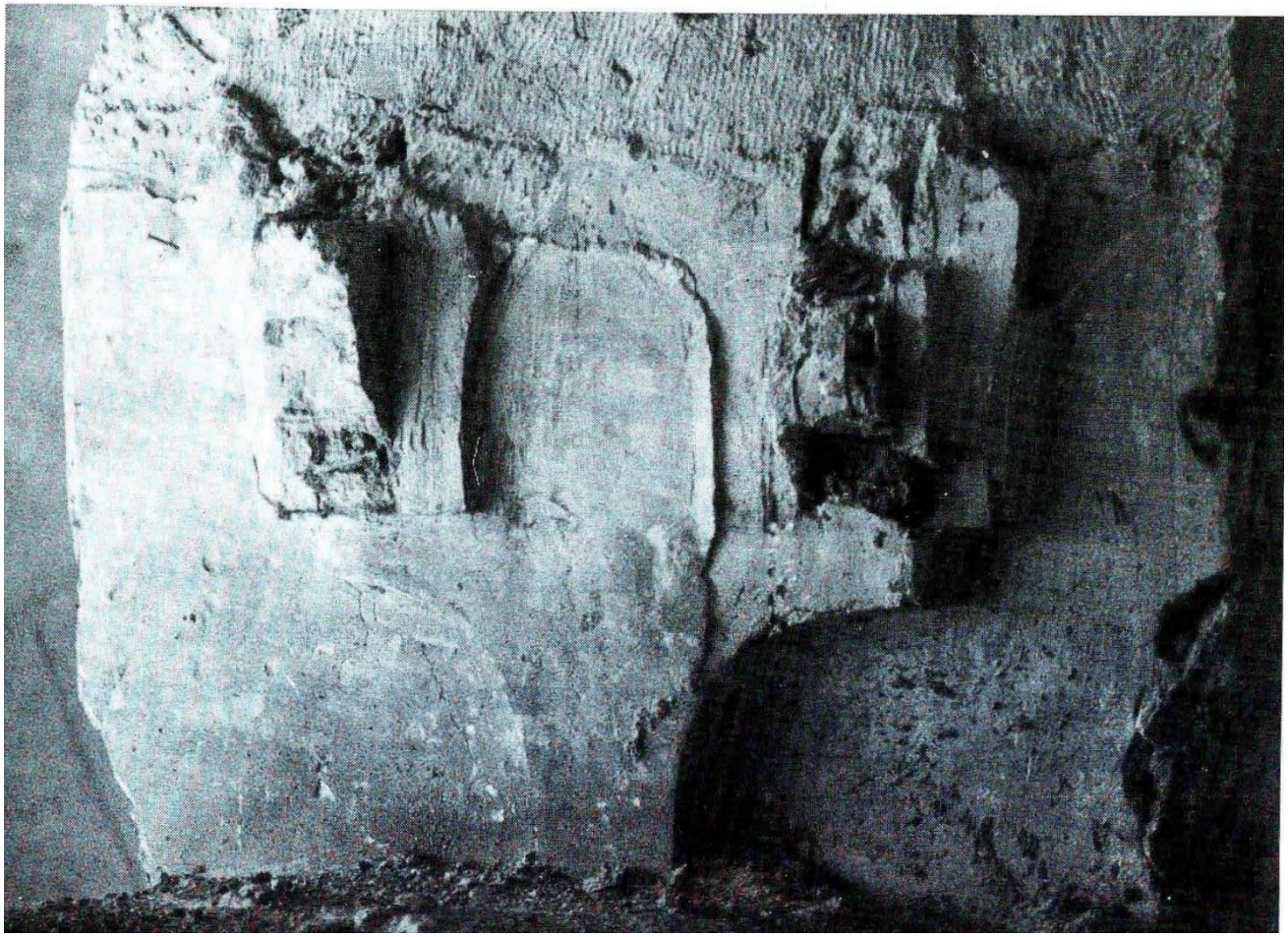


Bellafiore, 1978

LEVEL ONE, MUQARNAS ARCH

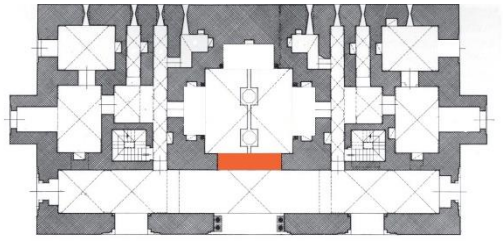


LEVEL ONE



Staacke, 1991

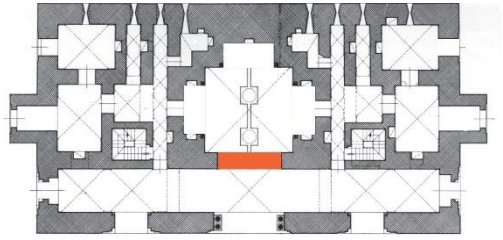
LEVEL ONE, MUQARNAS ARCH



LEVEL ONE

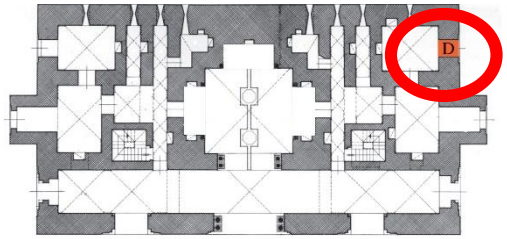
Bellafiore, 1978

LEVEL ONE, MUQARNAS ARCH

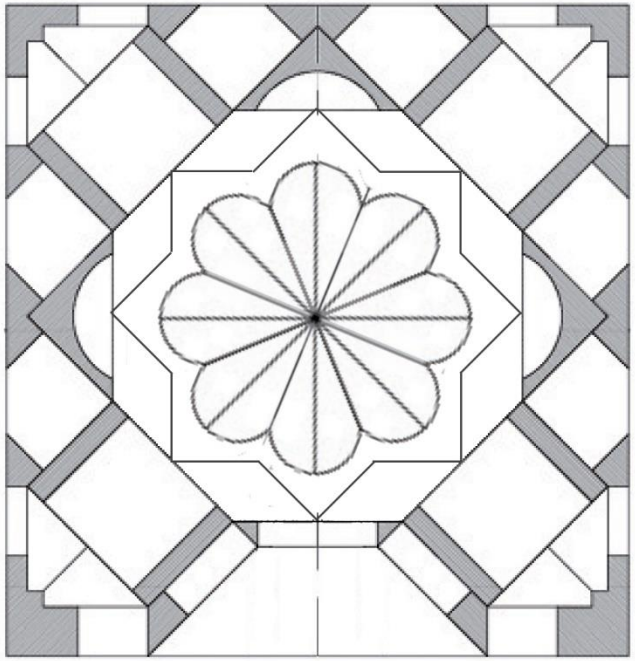


LEVEL ONE

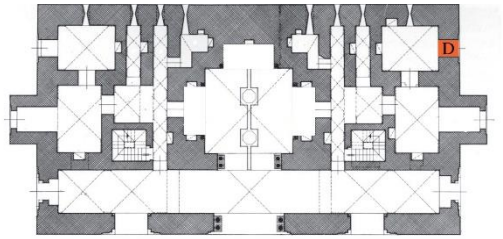
LEVEL ONE, NICHE D



LEVEL ONE



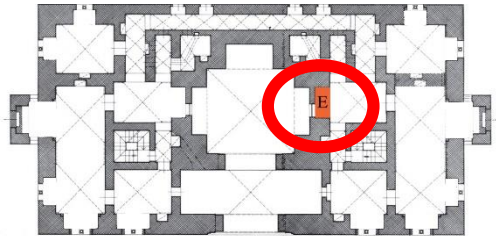
LEVEL ONE, NICHE C



LEVEL ONE

Caronia, 1982

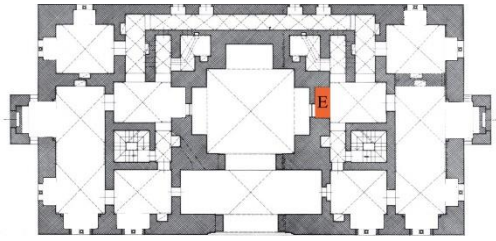
LEVEL TWO, NICHE E



LEVEL TWO

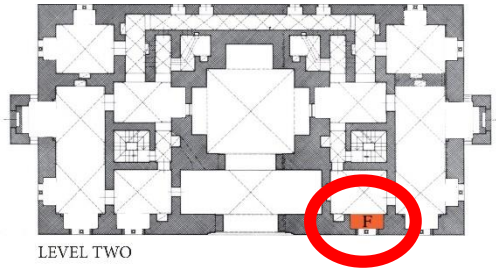
Caronia, 1982

LEVEL TWO, NICHE E

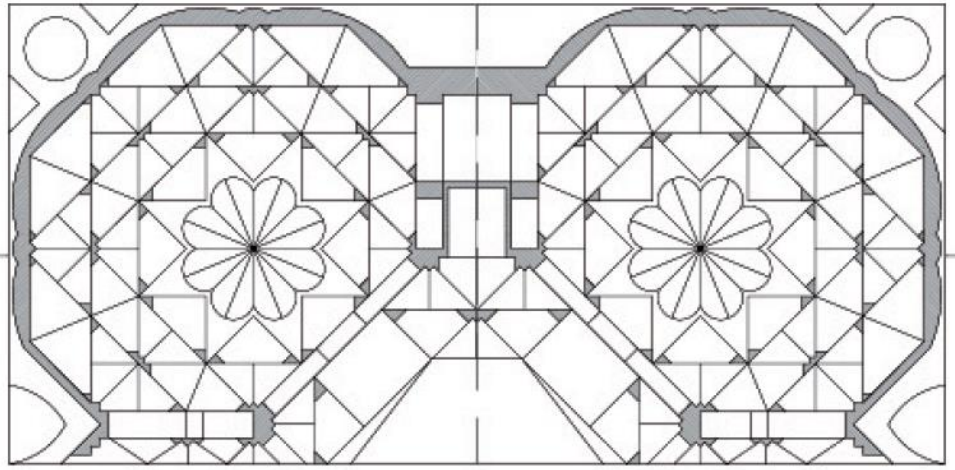


LEVEL TWO

LEVEL TWO, NICHE F

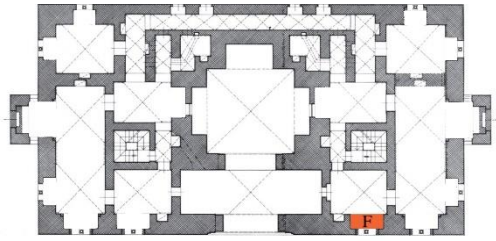


Caronia, 1982



Garofalo, 2010 (adapted from)

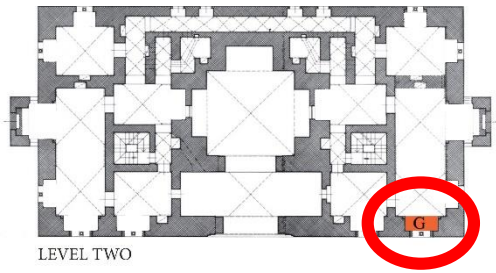
LEVEL TWO, NICHE F

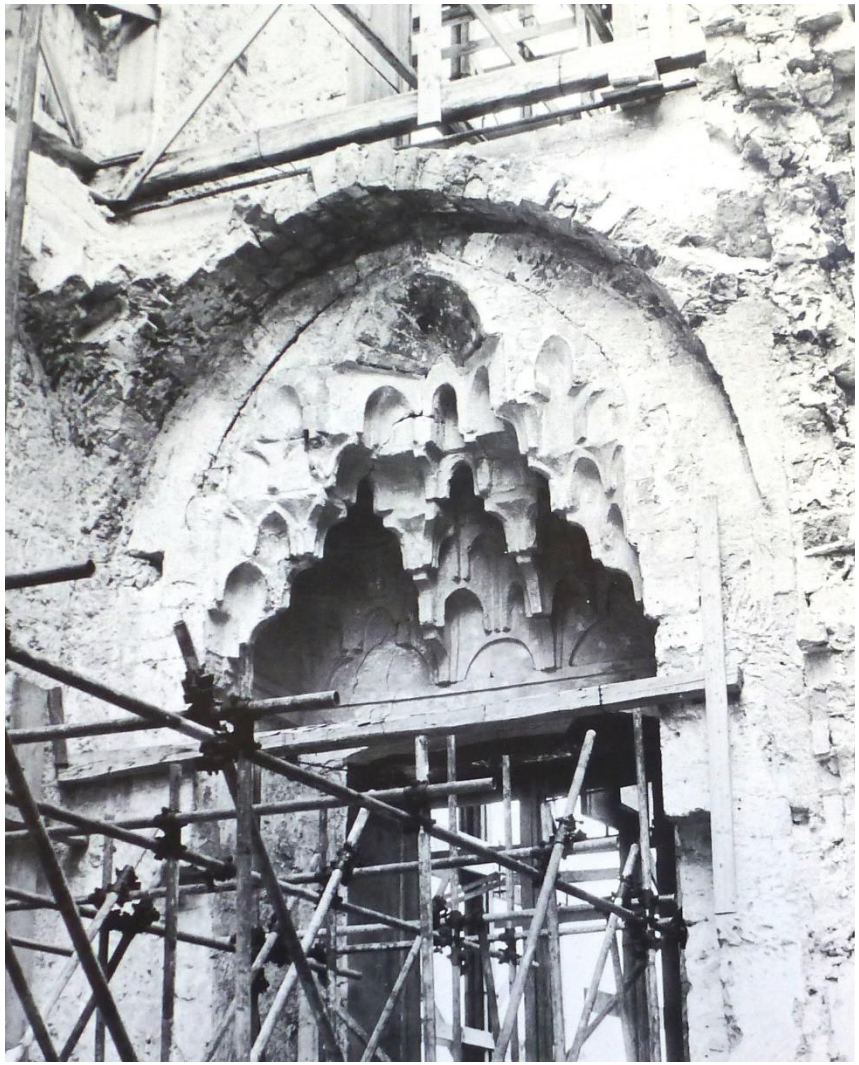


LEVEL TWO

Caronia, 1982

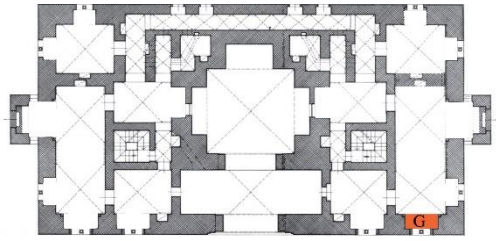
LEVEL TWO, NICHE G





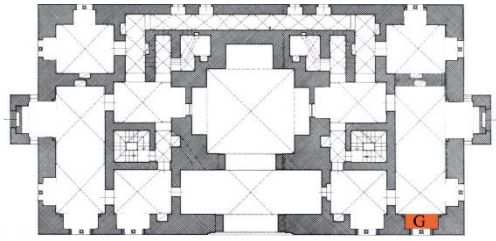
Caronia, 1982

LEVEL TWO, NICHE G



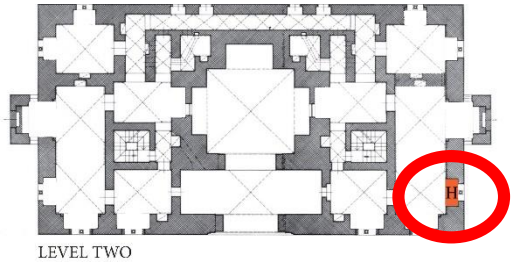
LEVEL TWO

LEVEL TWO, NICHE G



LEVEL TWO

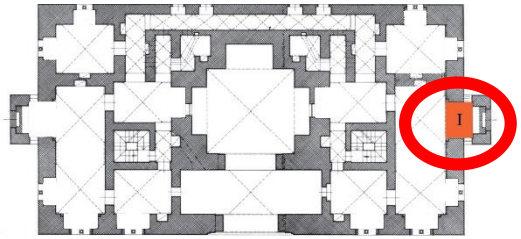
LEVEL TWO, NICHE H



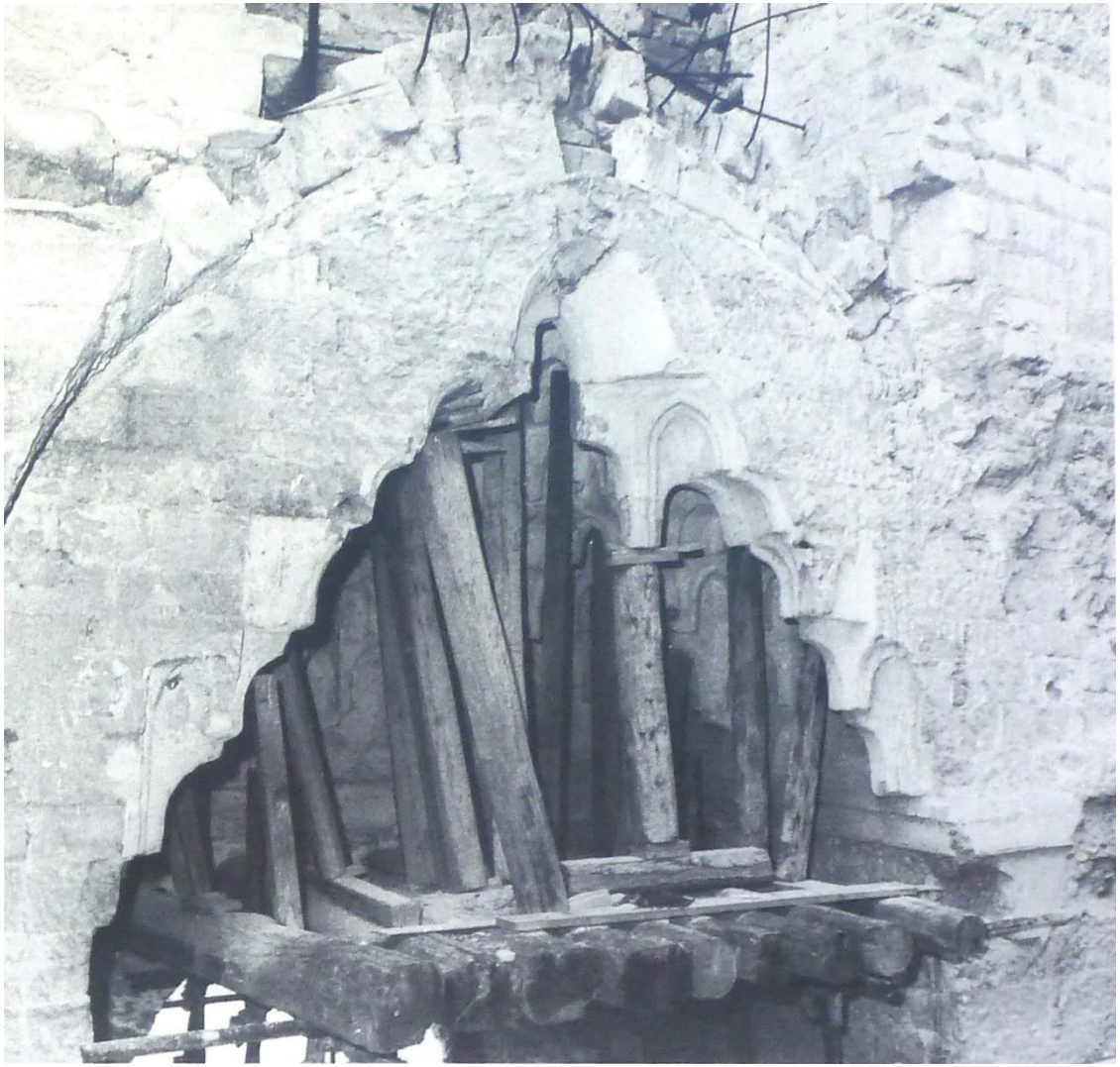
LEVEL TWO

Caronia, 1982

LEVEL TWO, NICHE I

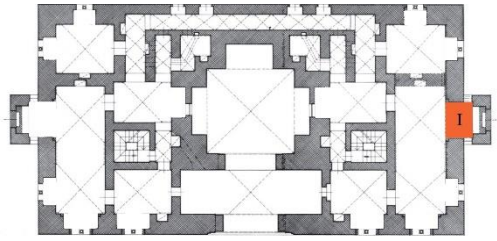


LEVEL TWO



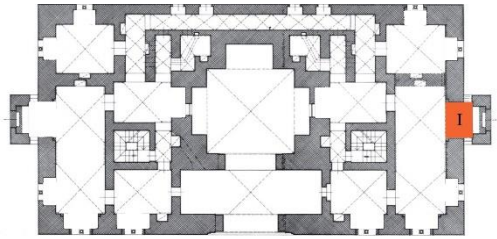
Caronia, 1982

LEVEL TWO, NICHE I



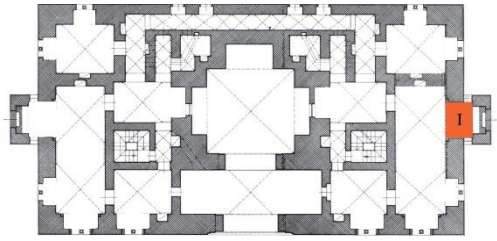
LEVEL TWO

LEVEL TWO, NICHE I



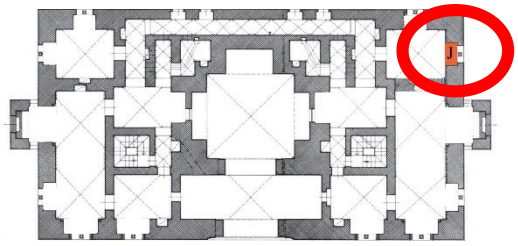
LEVEL TWO

LEVEL TWO, NICHE I

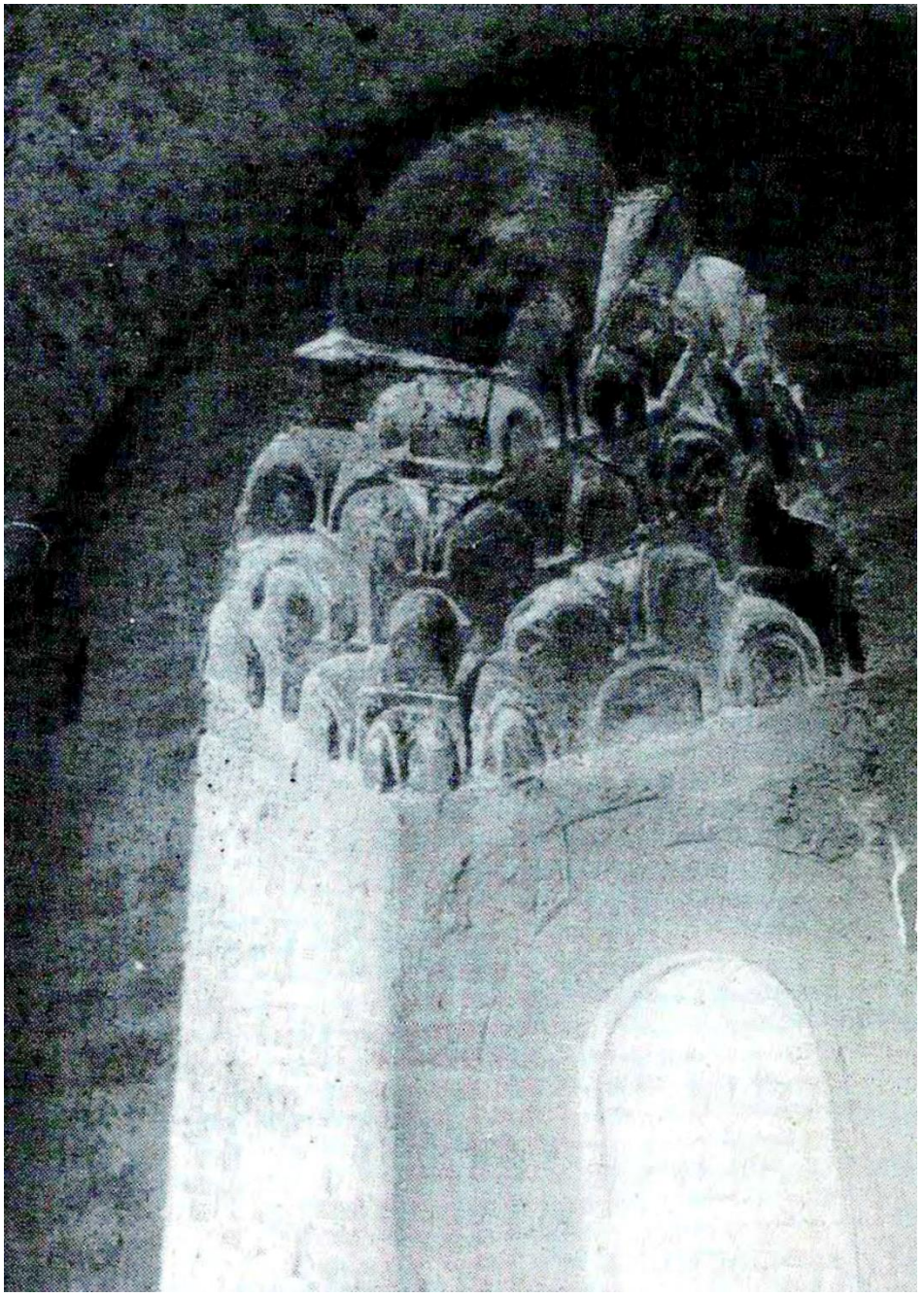


LEVEL TWO

LEVEL TWO, NICHE J

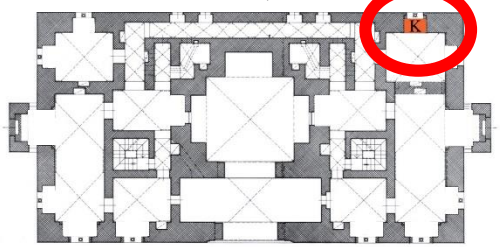


LEVEL TWO



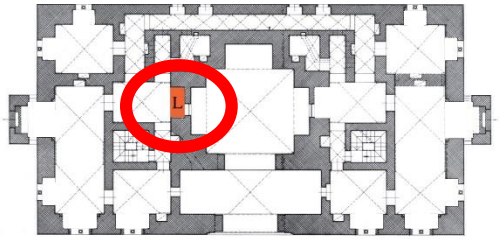
Caronia, 1982

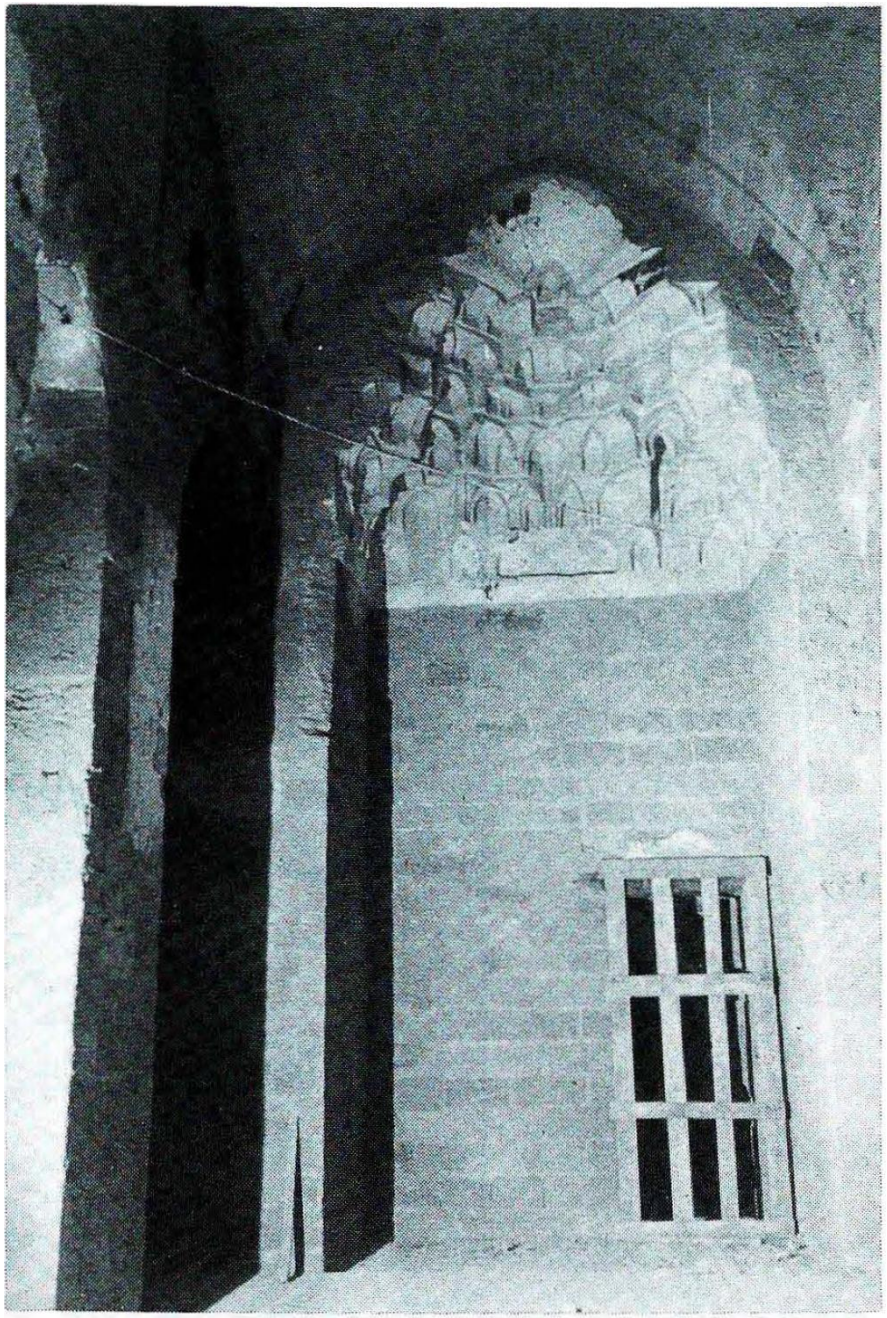
LEVEL TWO, NICHE K



LEVEL TWO

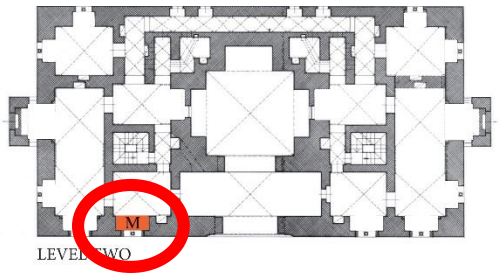
LEVEL TWO, NICHE L





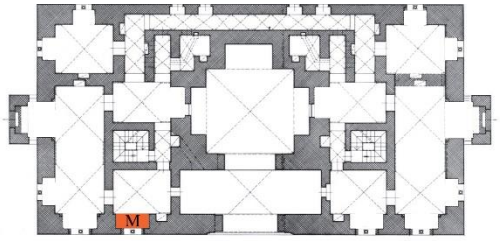
Staacke, 1991

LEVEL TWO, NICHE M



Caronia, 1982

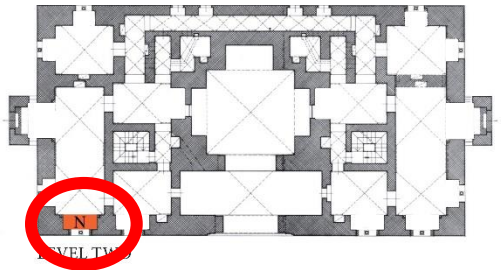
LEVEL TWO, NICHE M



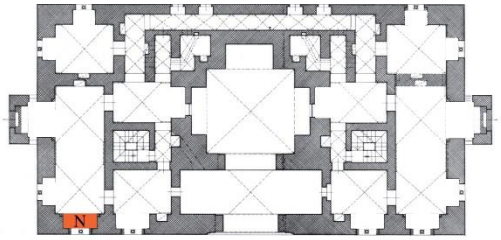
LEVEL TWO

Bellafiore, 1978

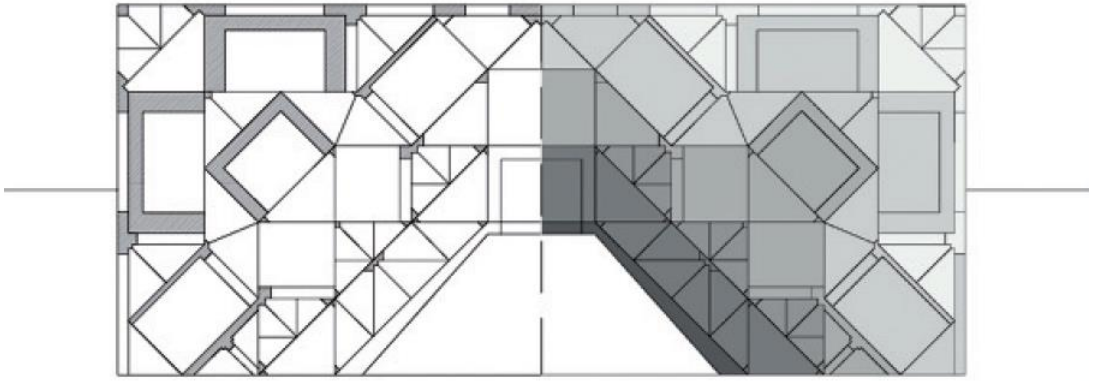
LEVEL TWO, NICHE N



LEVEL TWO, NICHE N

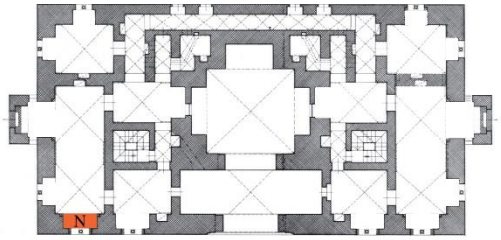


Caronia, 1982



Garofalo, 2010

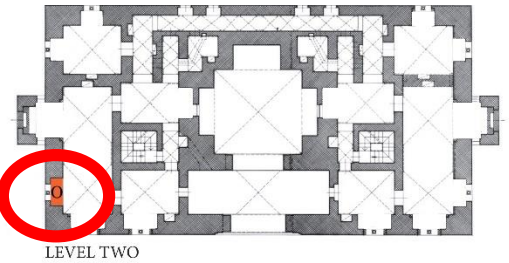
LEVEL TWO, NICHE N



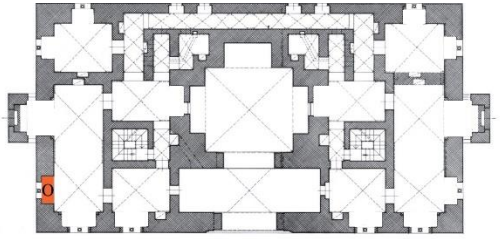
LEVEL TWO

Caronia, 1982

LEVEL TWO, NICHE O

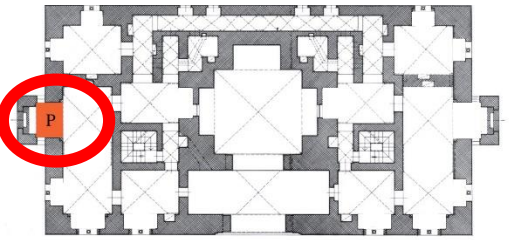


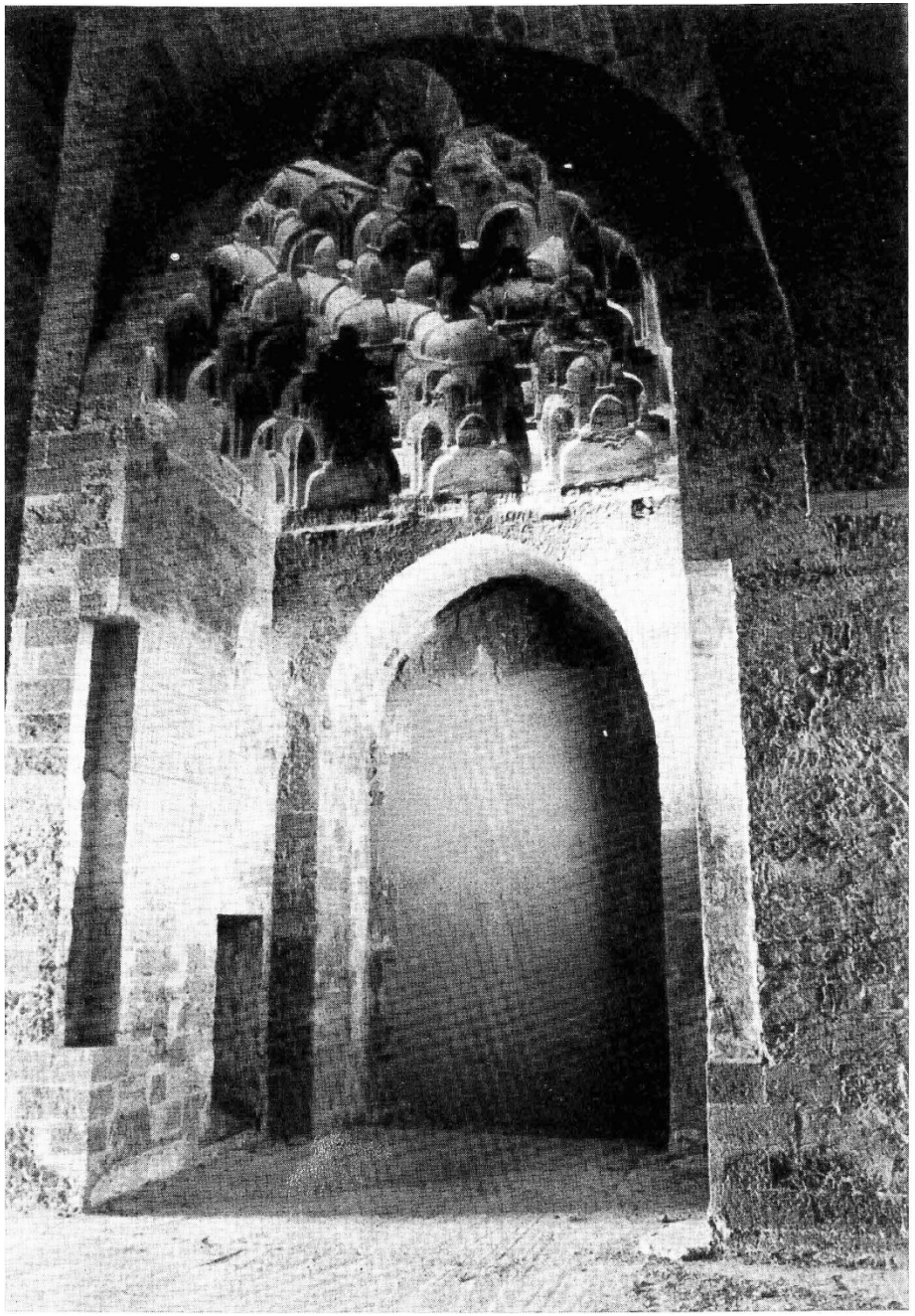
LEVEL TWO, NICHE O



LEVEL TWO

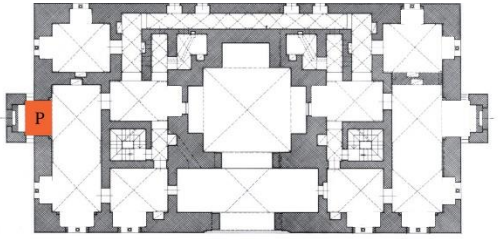
LEVEL TWO, NICHE P



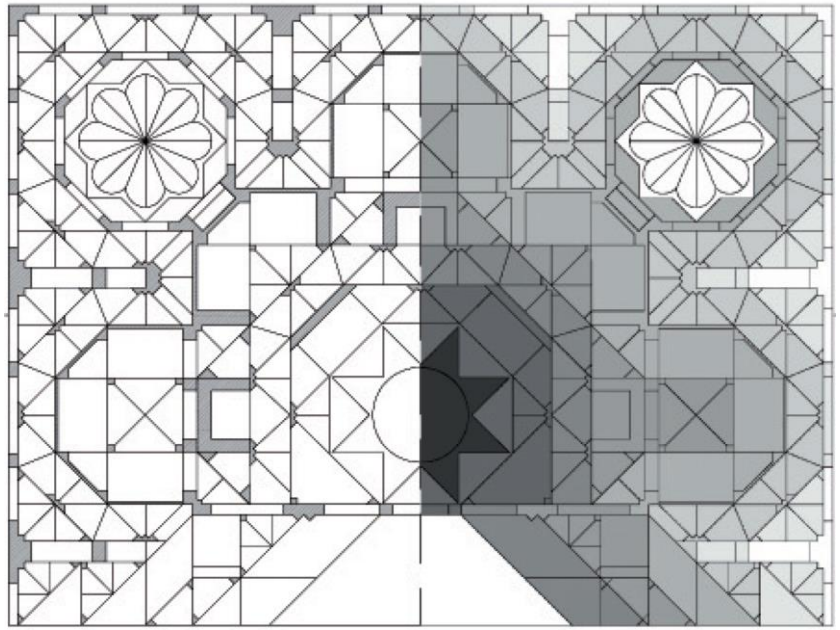


Bellafiore, 1978

LEVEL TWO, NICHE P

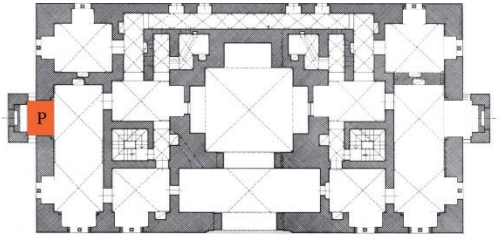


LEVEL TWO

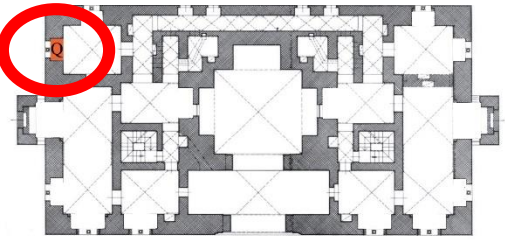


Garofalo, 2010 (adapted from)

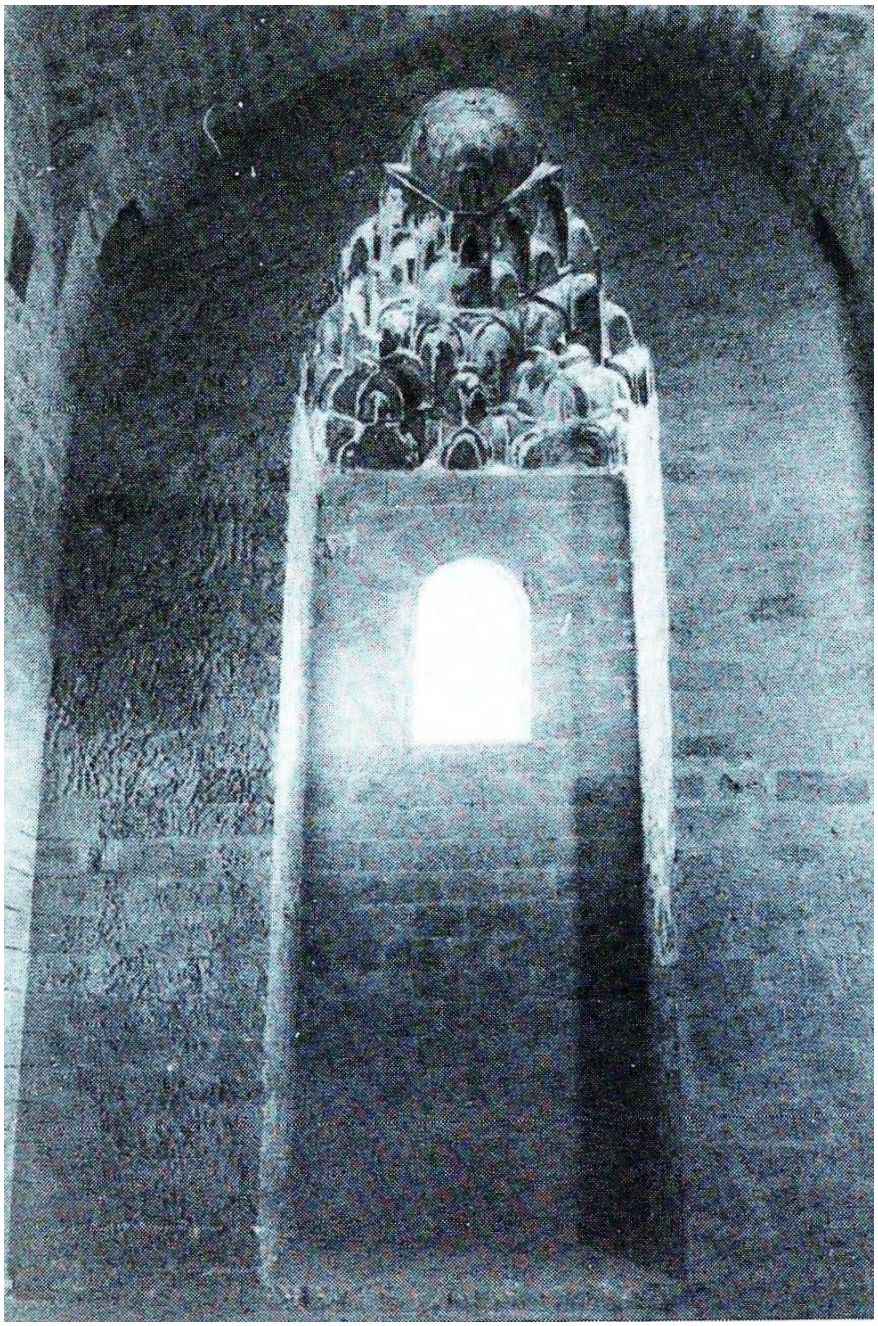
LEVEL TWO, NICHE P



LEVEL TWO, NICHE Q

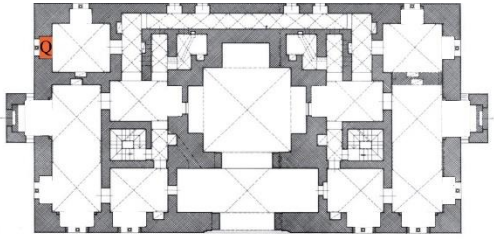


LEVEL TWO



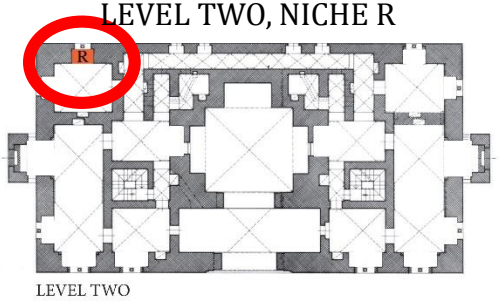
Staacke

LEVEL TWO, NICHE Q



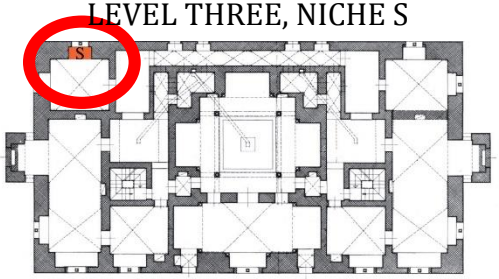
LEVEL TWO

LEVEL TWO, NICHE R



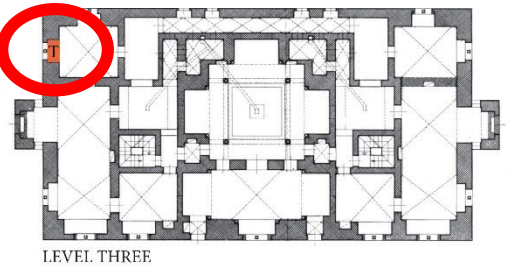
Caronia, 1982

LEVEL THREE, NICHE S



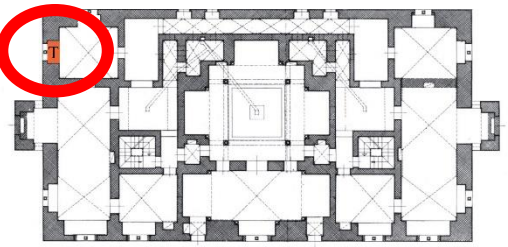
LEVEL THREE

LEVEL THREE, NICHE T



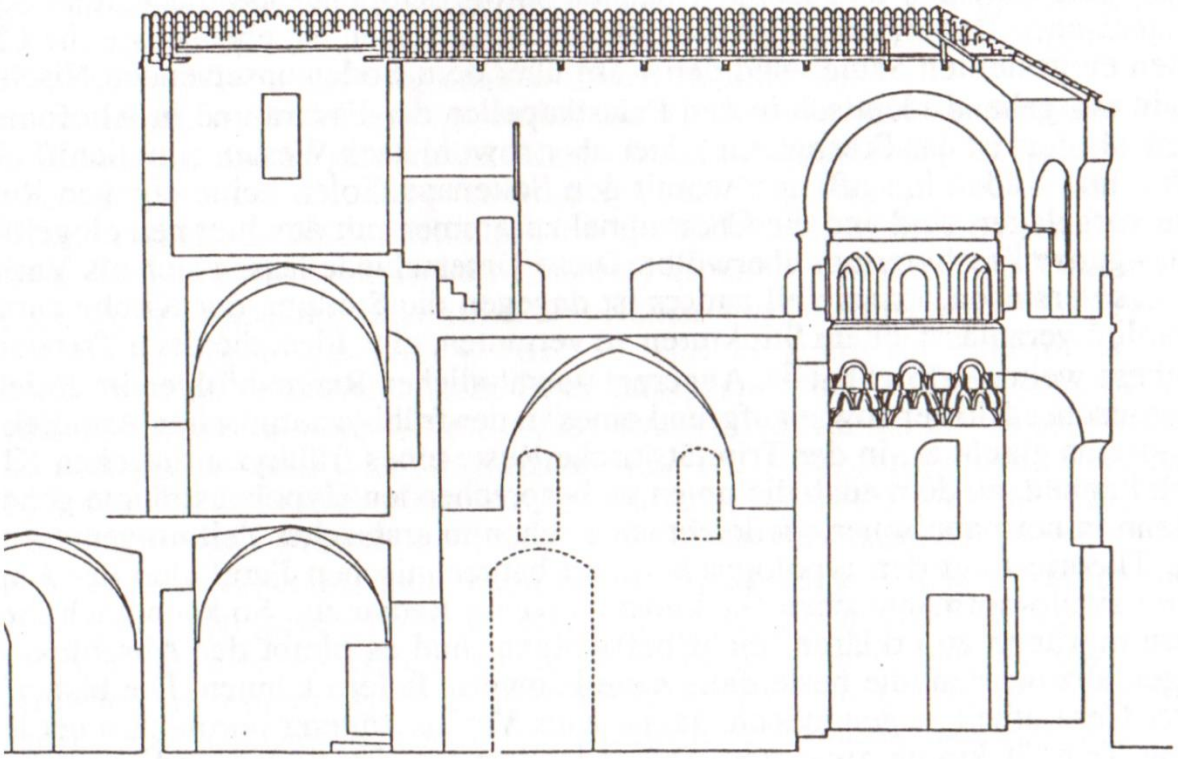
Staacke, 1991

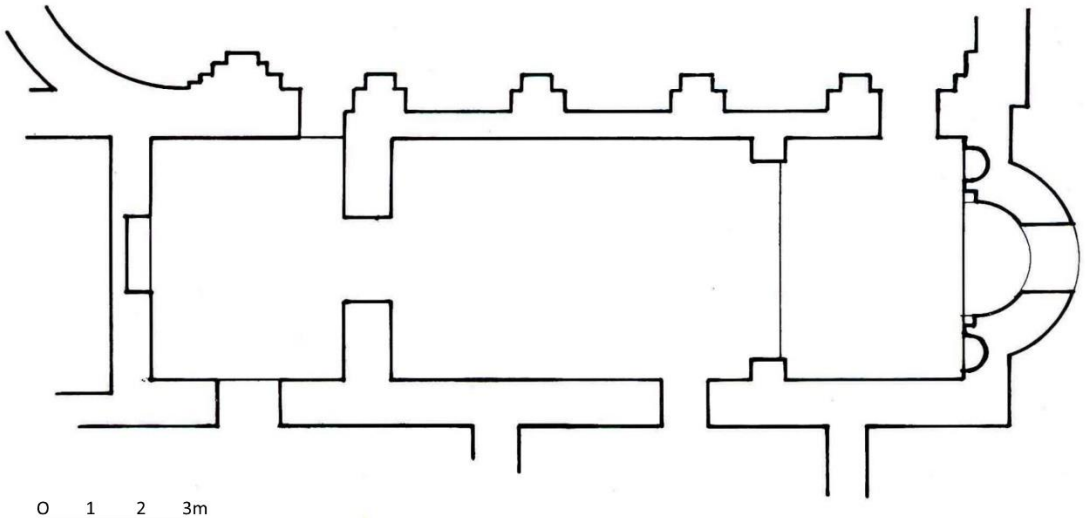
LEVEL THREE, NICHE T



LEVEL THREE

The chapel of SS. Trinità

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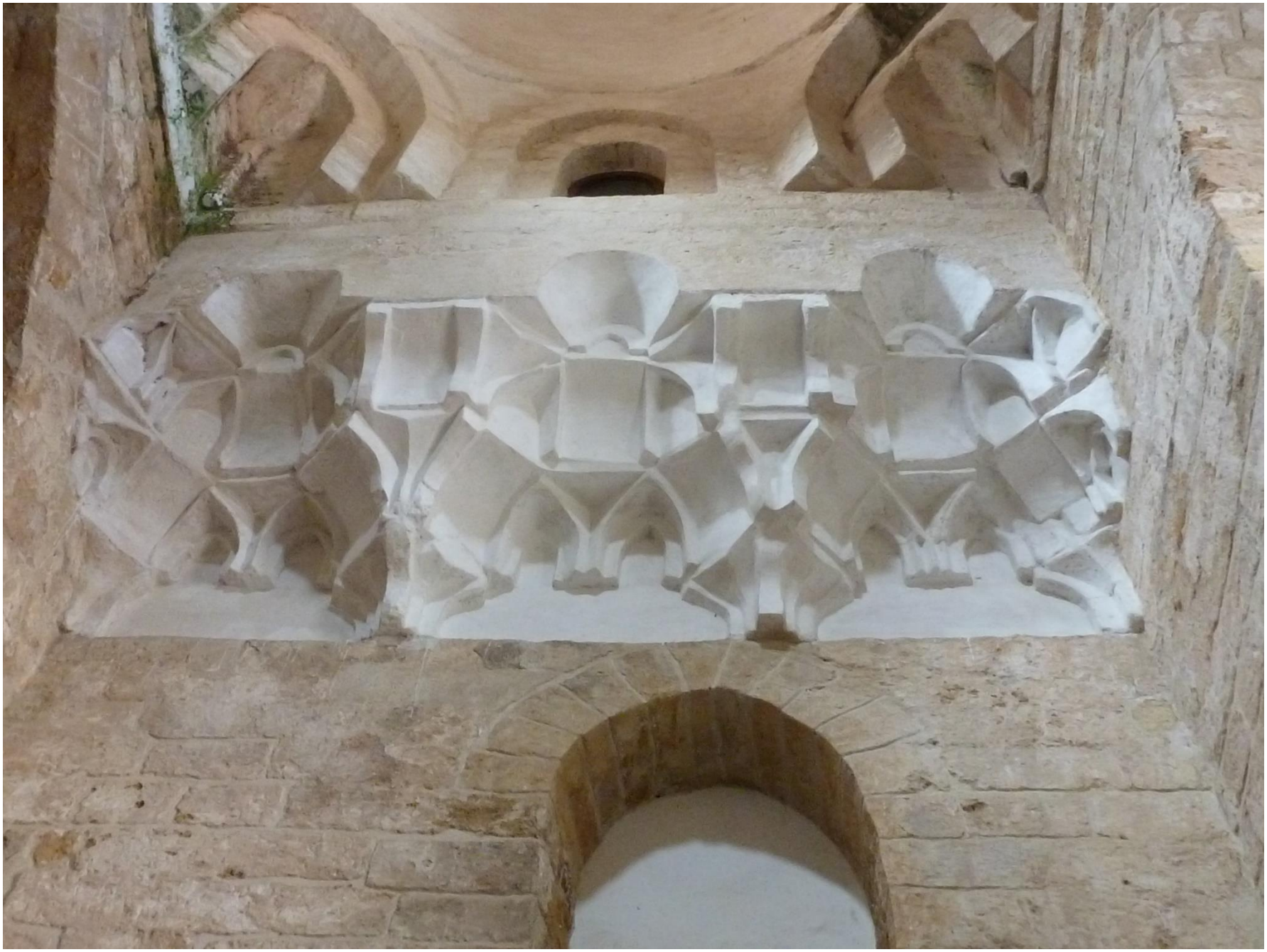


08. *Muqarnas* in Sicily

William II (reg. 1166-1189 AD)

The Cuba Palace

Del Collegio della Comp.a de Jesus de Gran.a B.e

INFORMATIONE DEL

PESTIFERO, ET CONTAGIOSO MORBO:

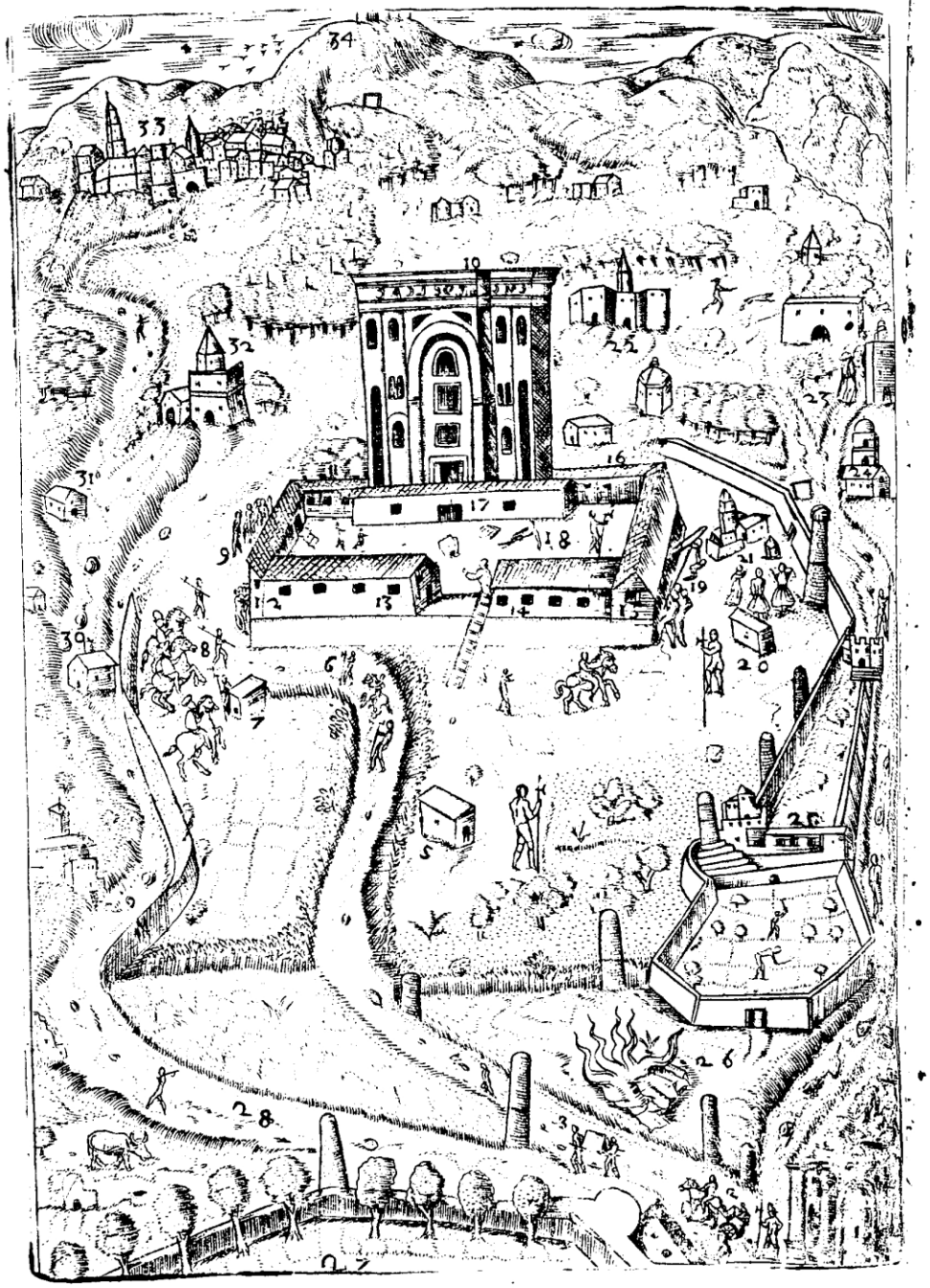
IL QVALE AFFLIGGE ET HAVE AFFLITTO QVESTA Città di Palermo, & molte altre Città, e Terre di questo Regno di Sicilia, nell'Anno 1575. ET 1576.

R. 812

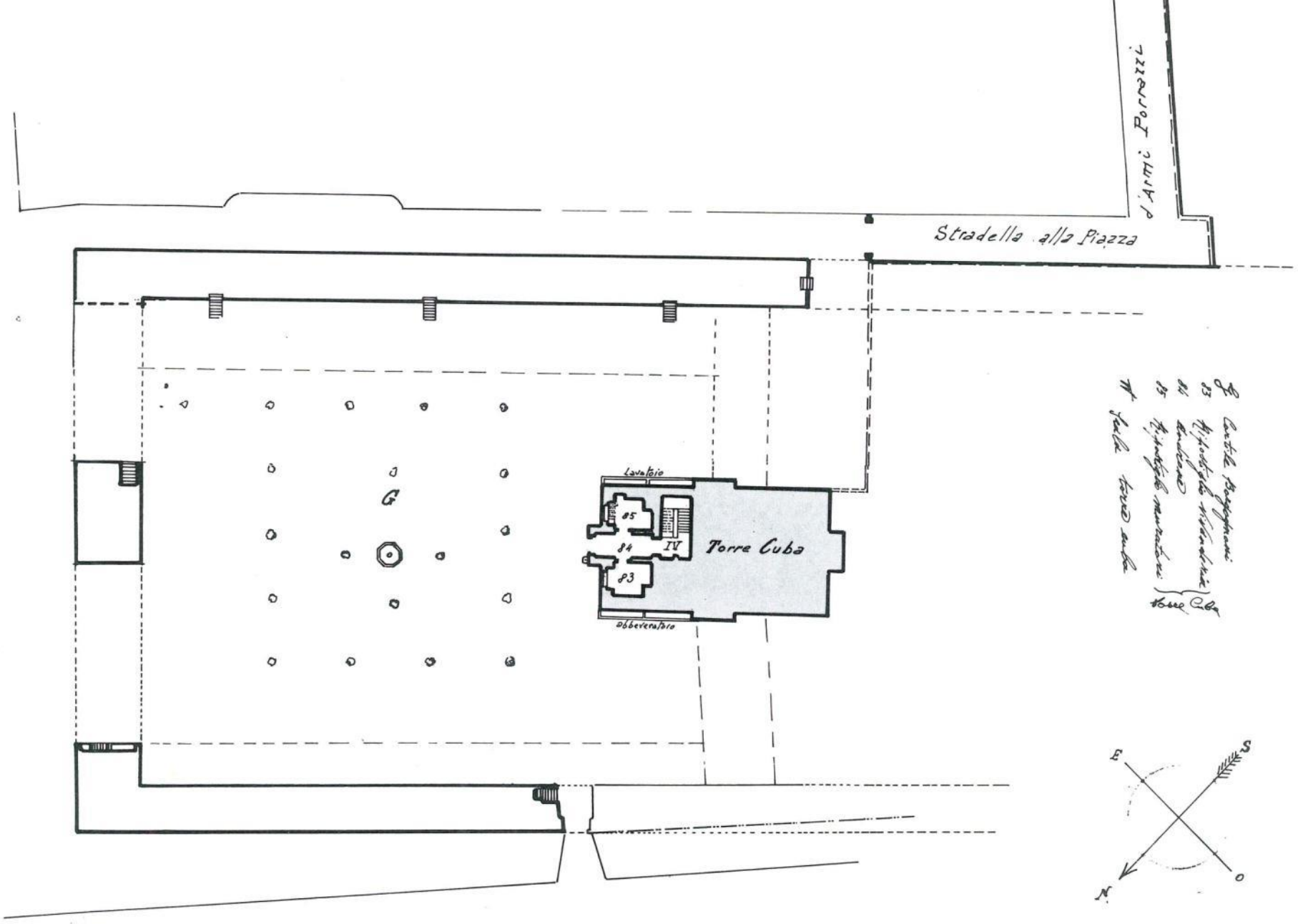
DATA ALLO INVITTISSIMO, ET POTENTISSIMO RE FILIPPO, RE DI SPAGNA. &c.

Col Regimento preseruatiuo, & curatiuo, Da Giouan Filippo Ingrassia, Protofisico per sua Maestà in questo Regno.

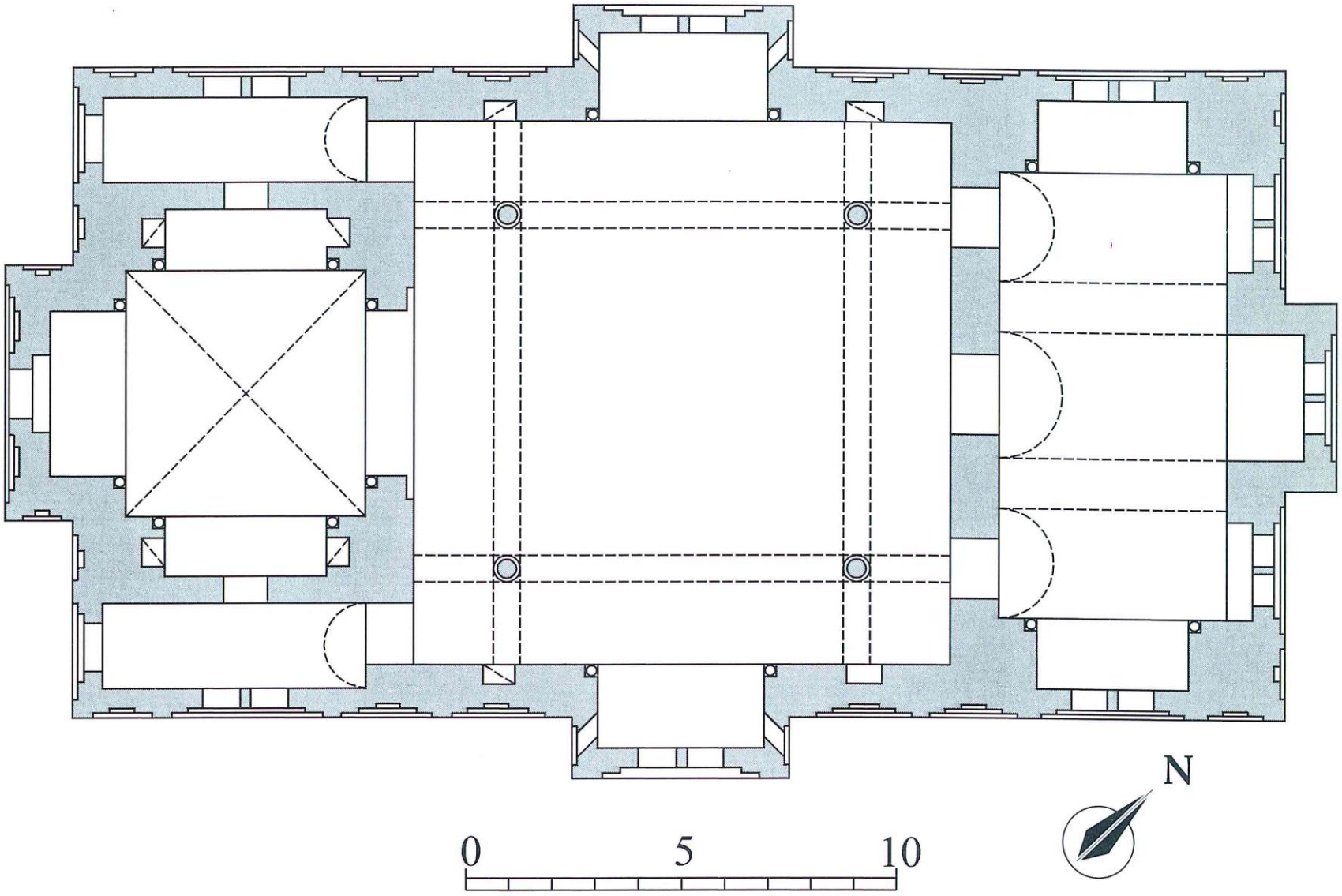
CVM PRIVILEGIO PER DICENNIVM.



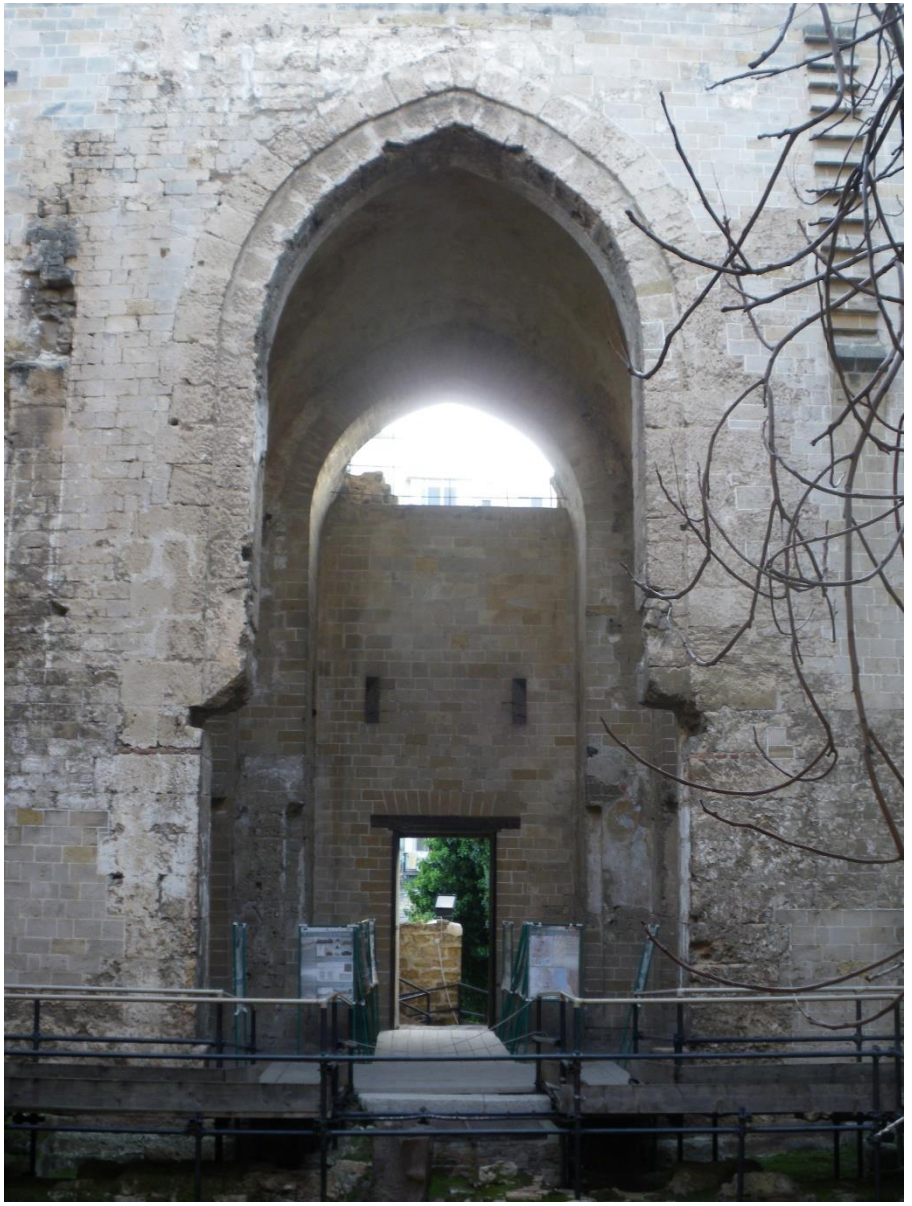
Ingrassia, 1576

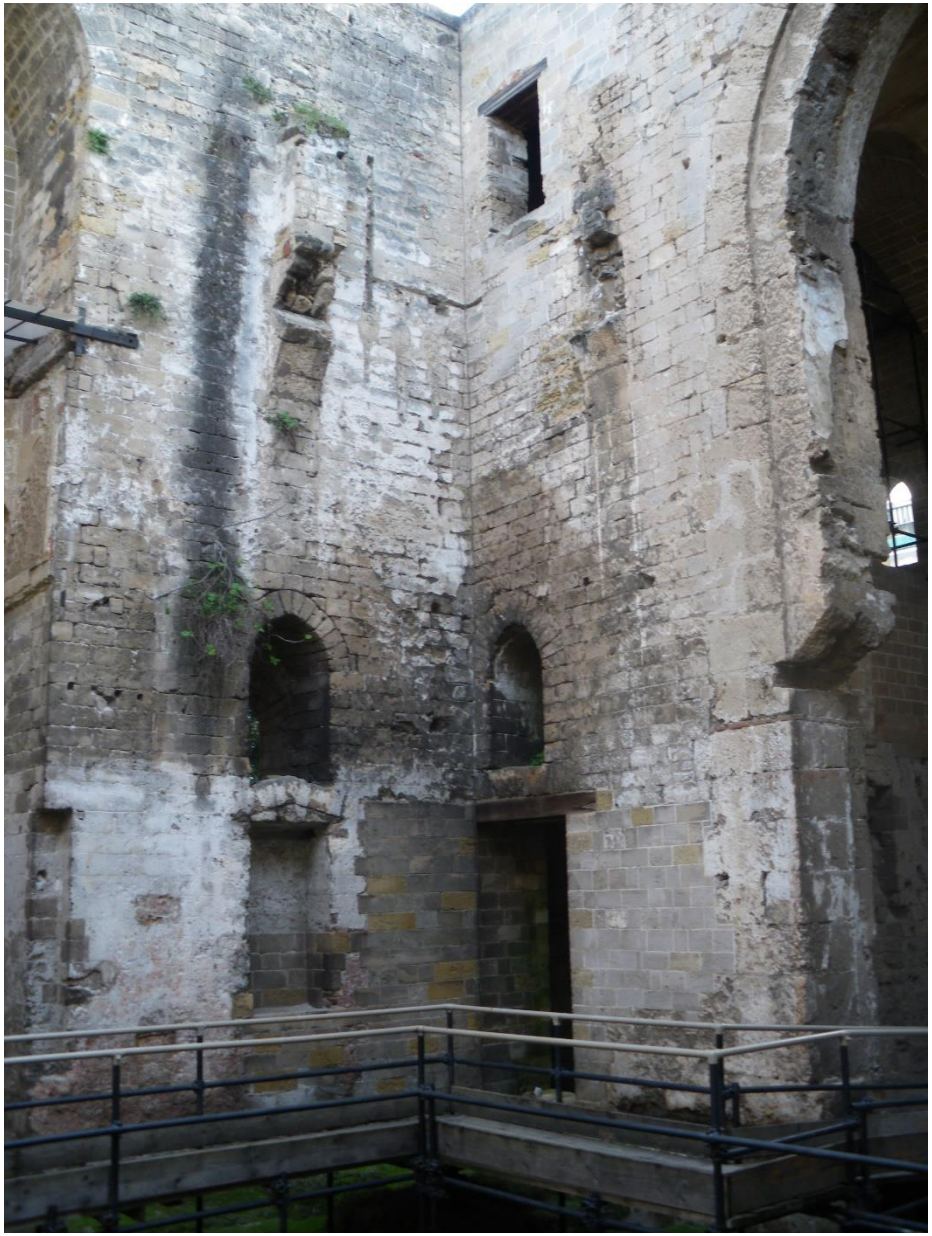


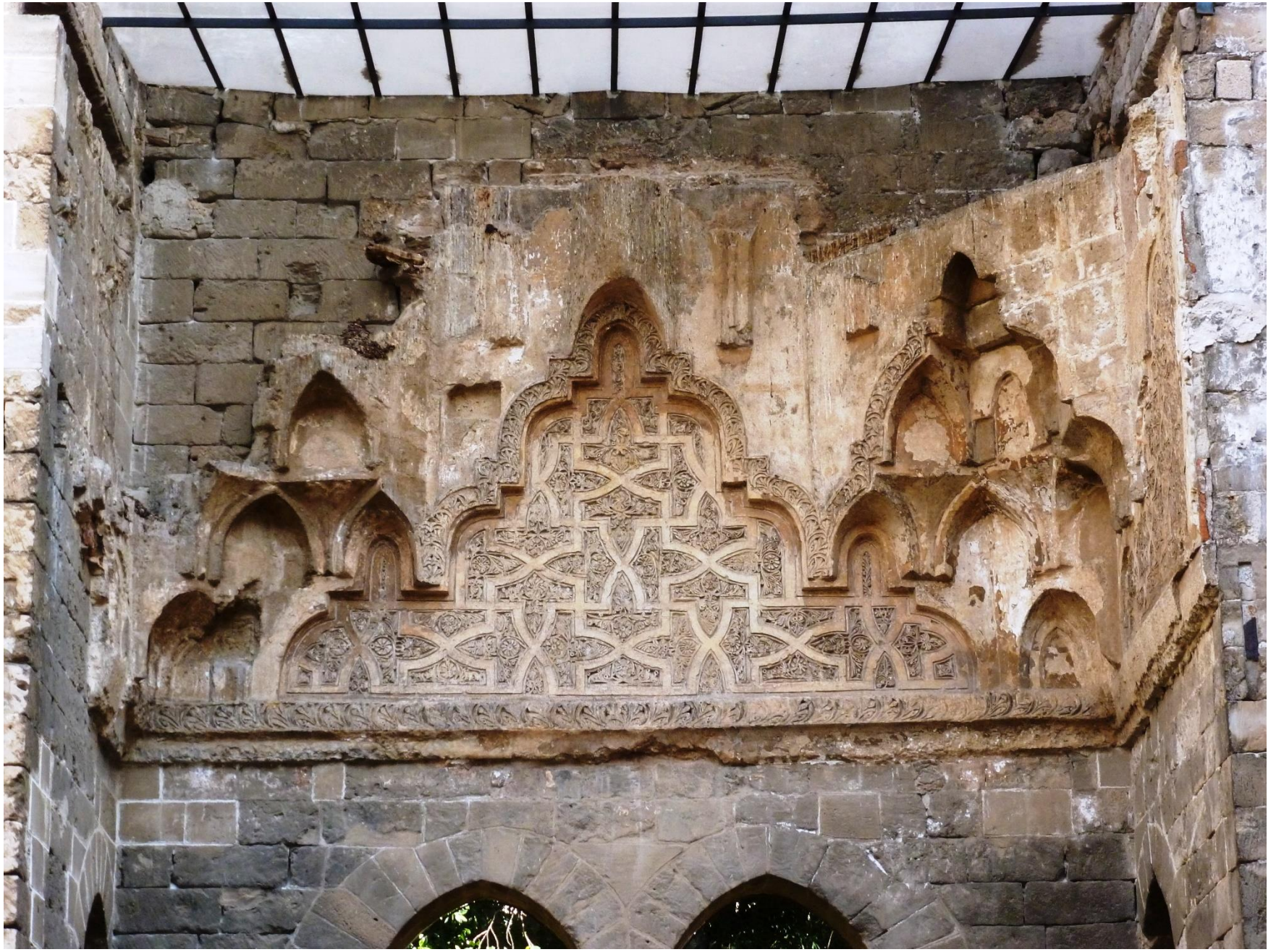
Caronia and Noto, 1988 (plan of 1912)

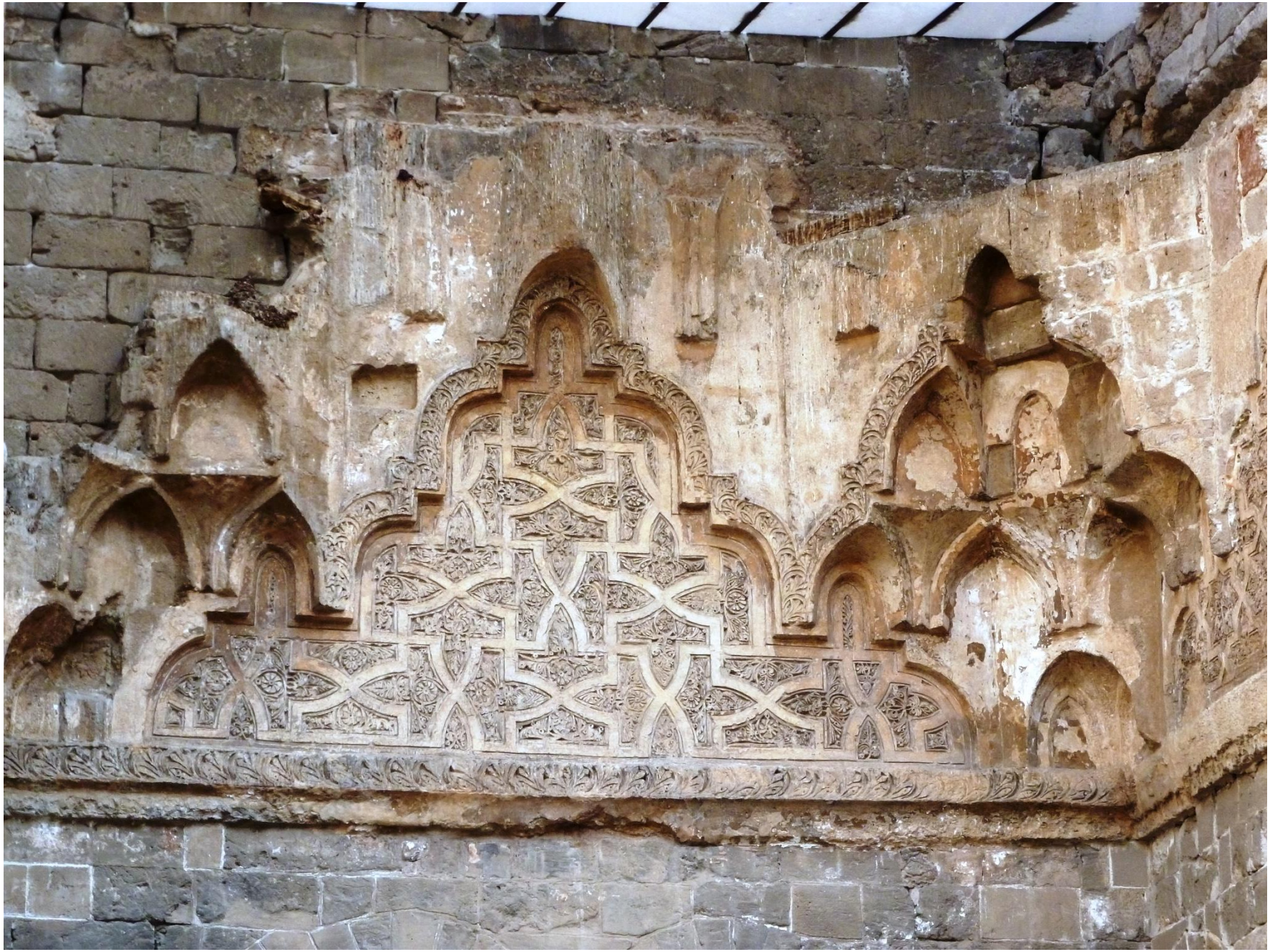


Lorenzi, 2006

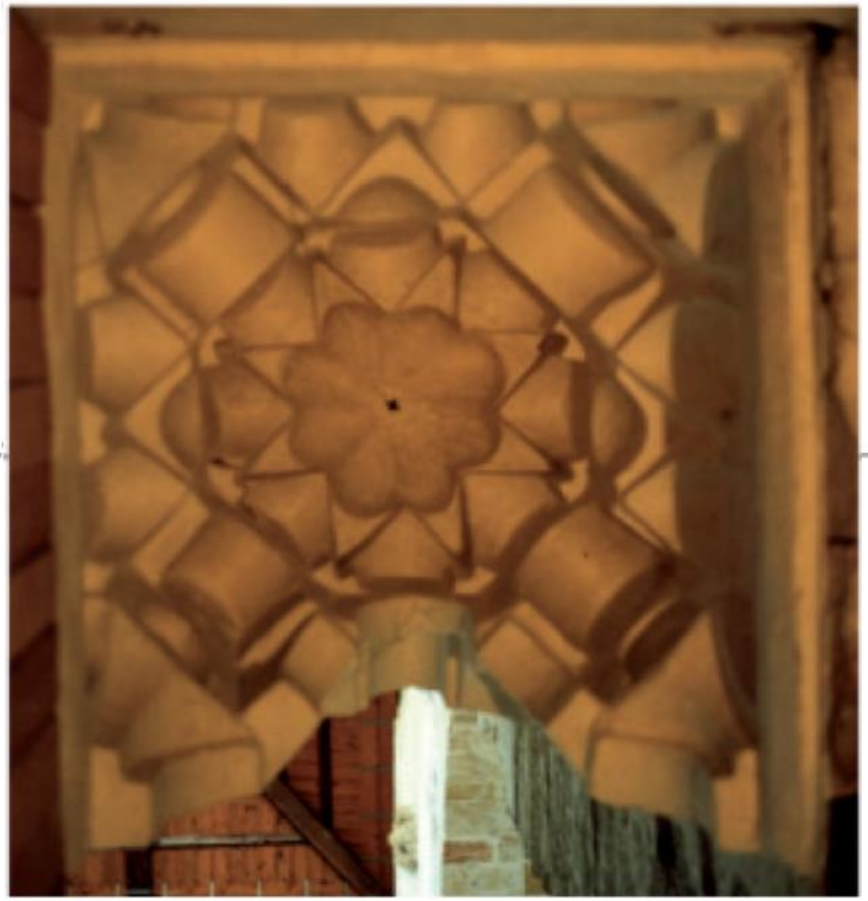


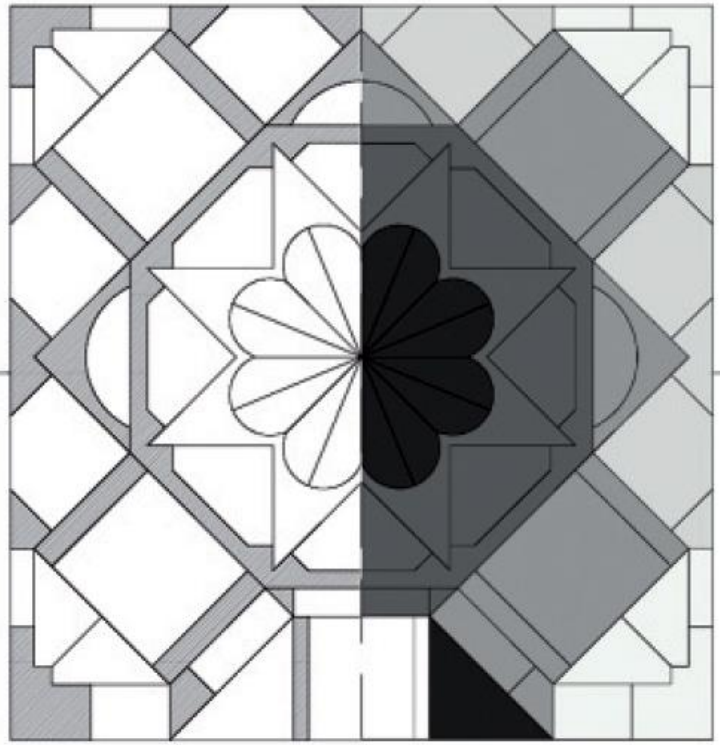




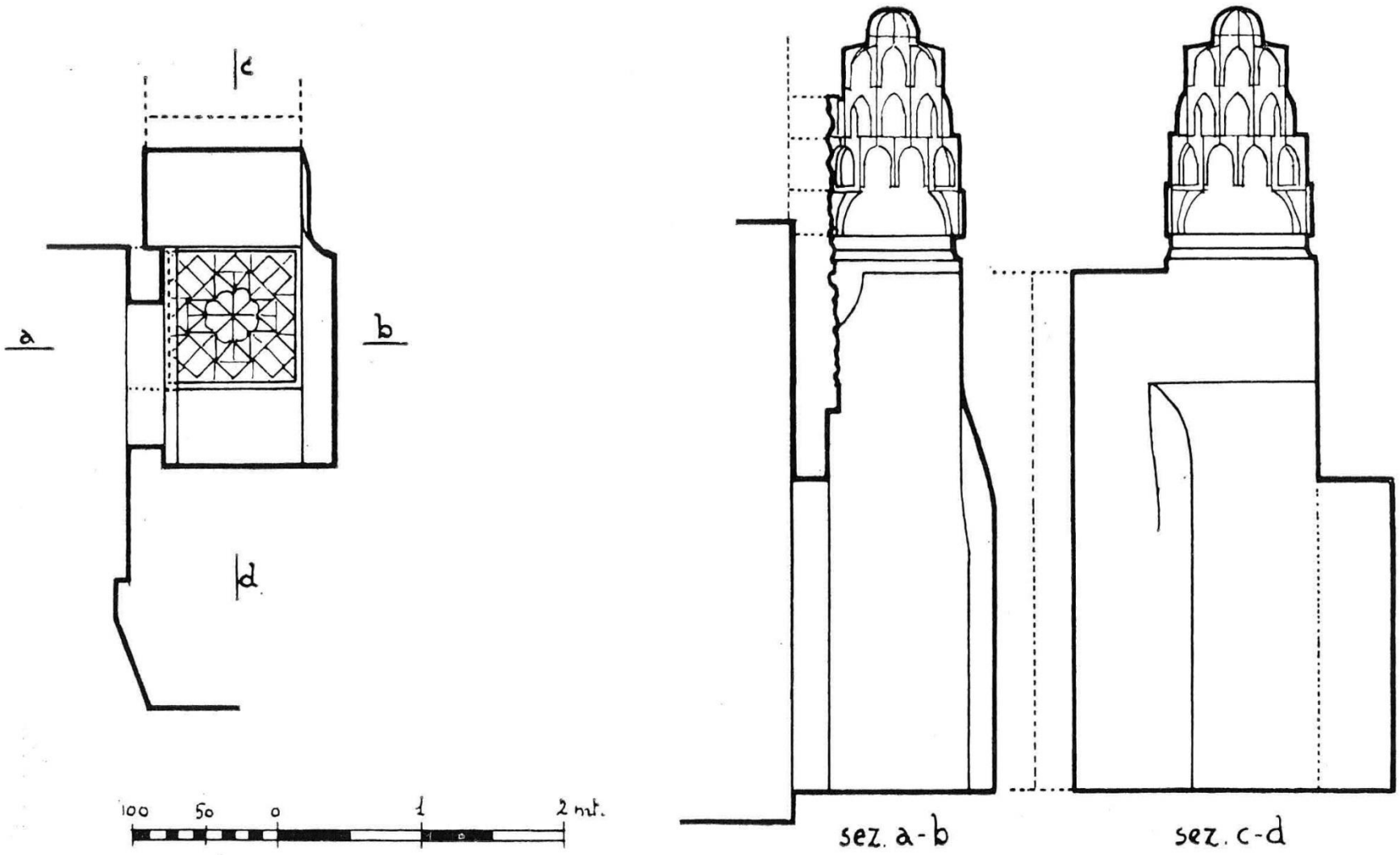


The Cathedral of Palermo



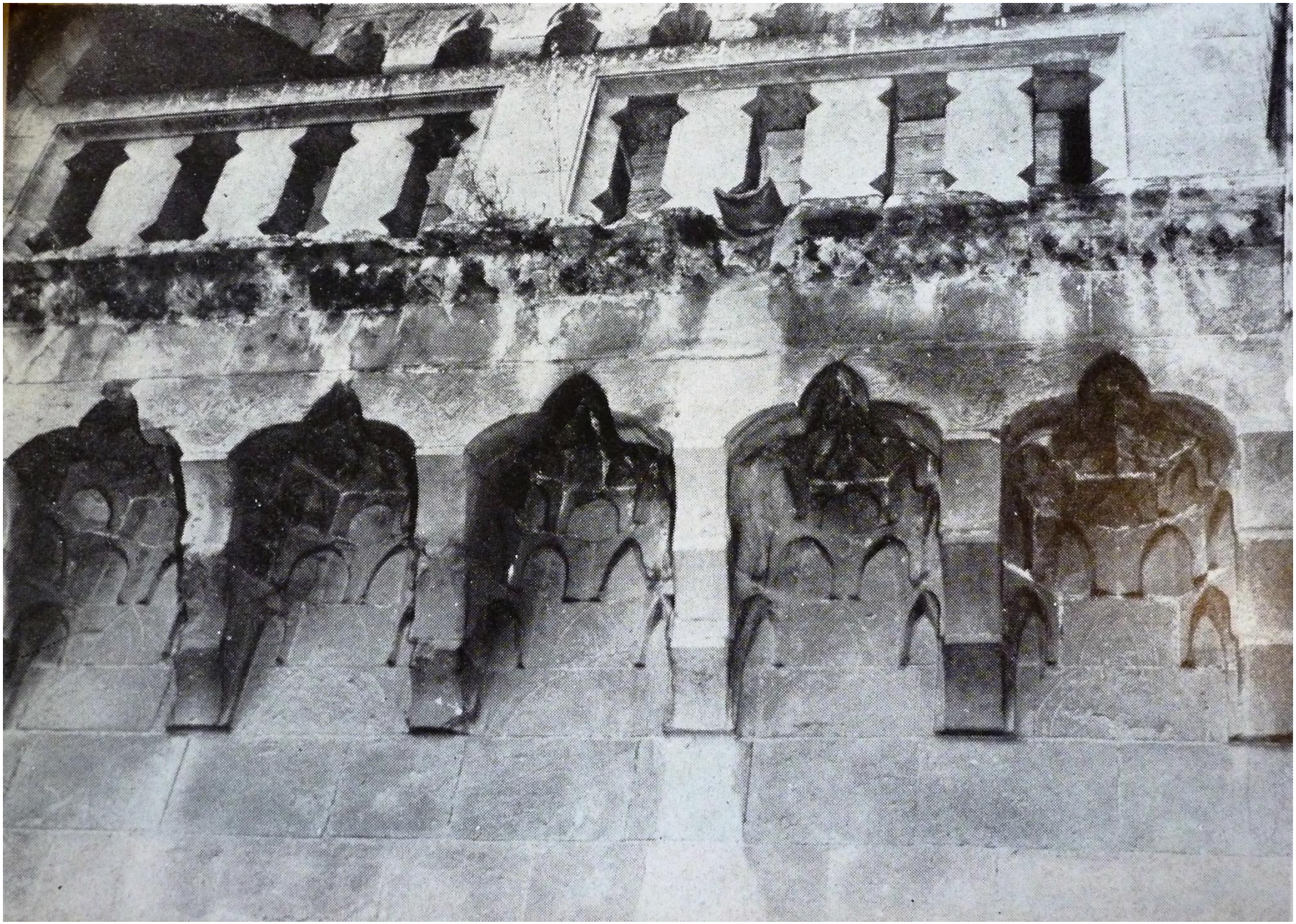


Garofalo, 2010

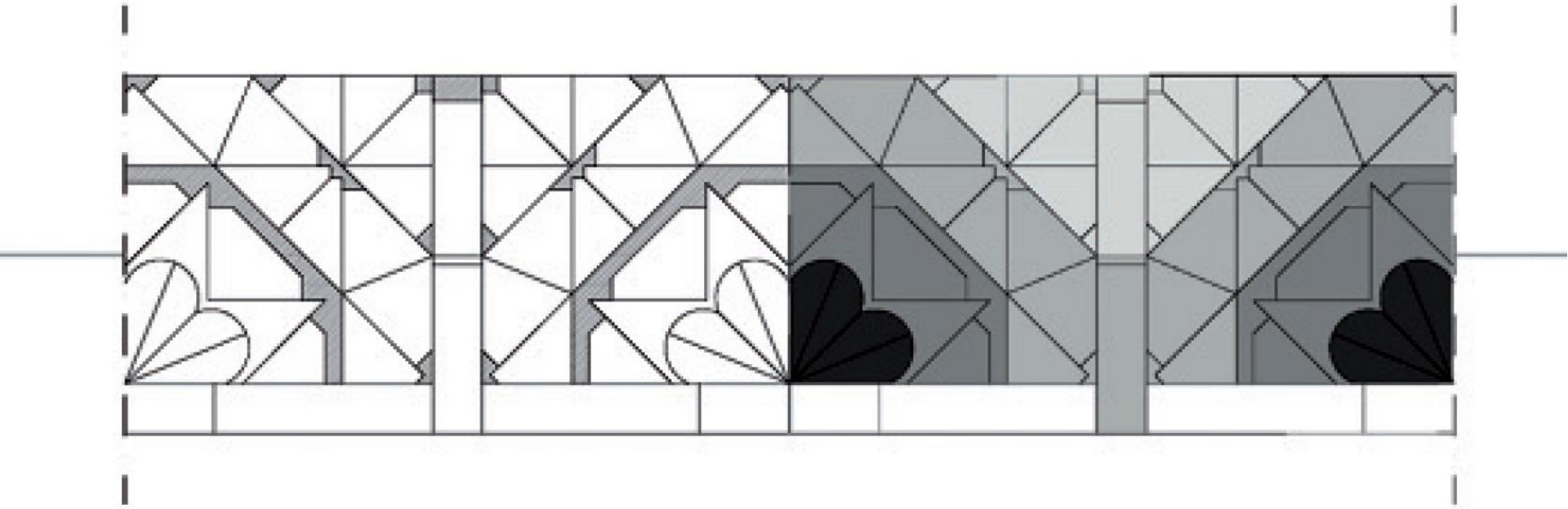


Zanca, 1952

Garofalo, 2010



Bellafiore, 1976

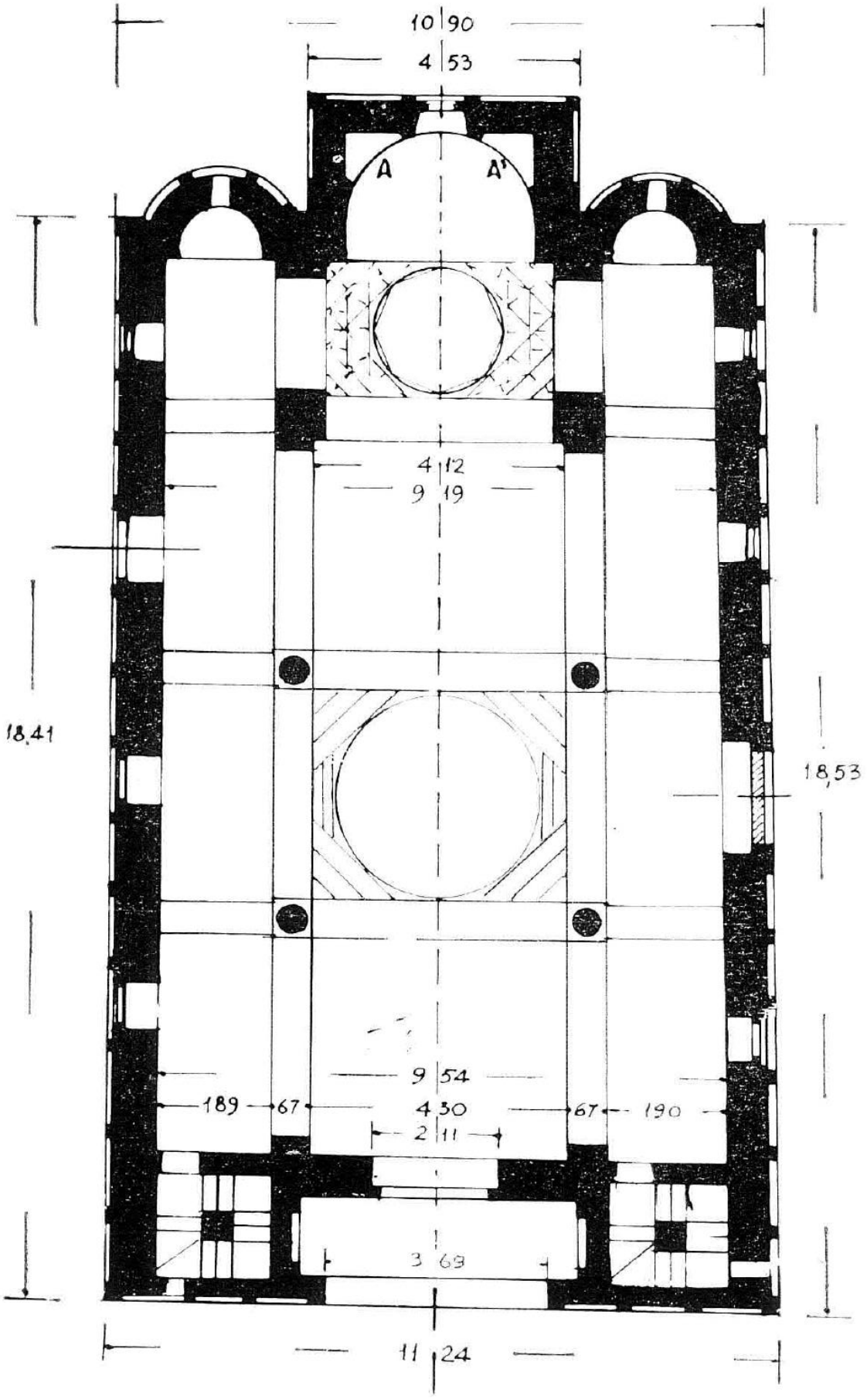


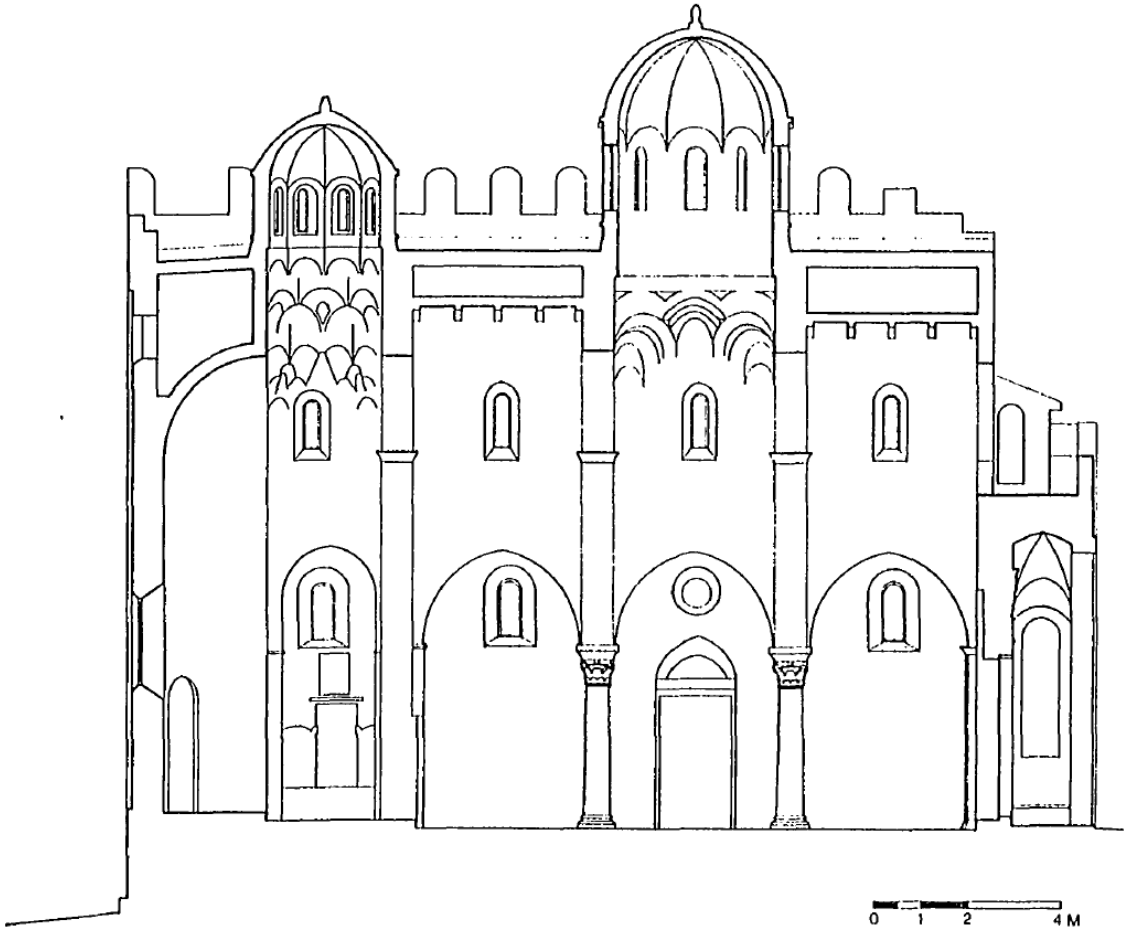
Garofalo, 2010

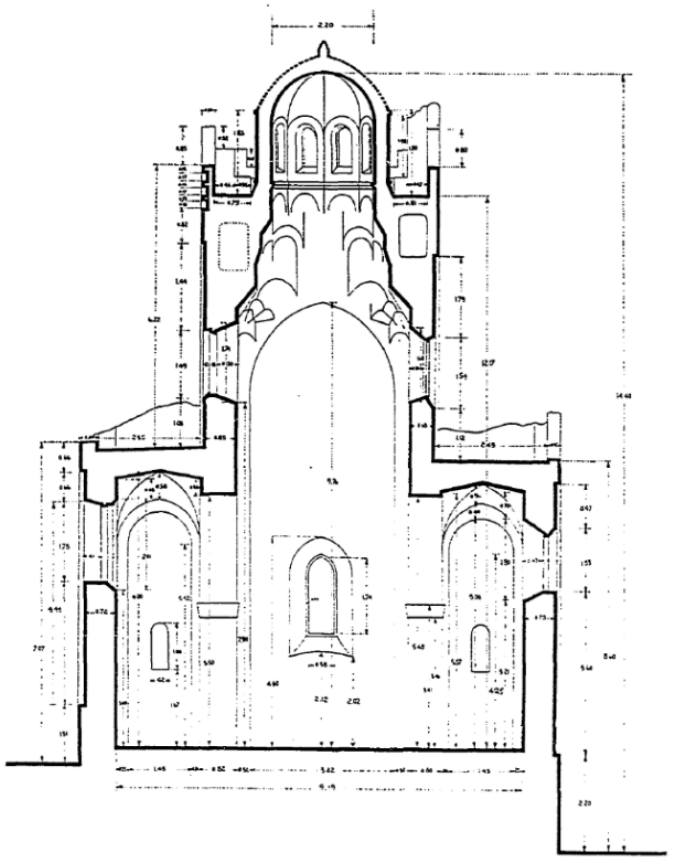
Wikimedia Commons

The Church of SS. Pietro e Paolo in the valley of Agrò

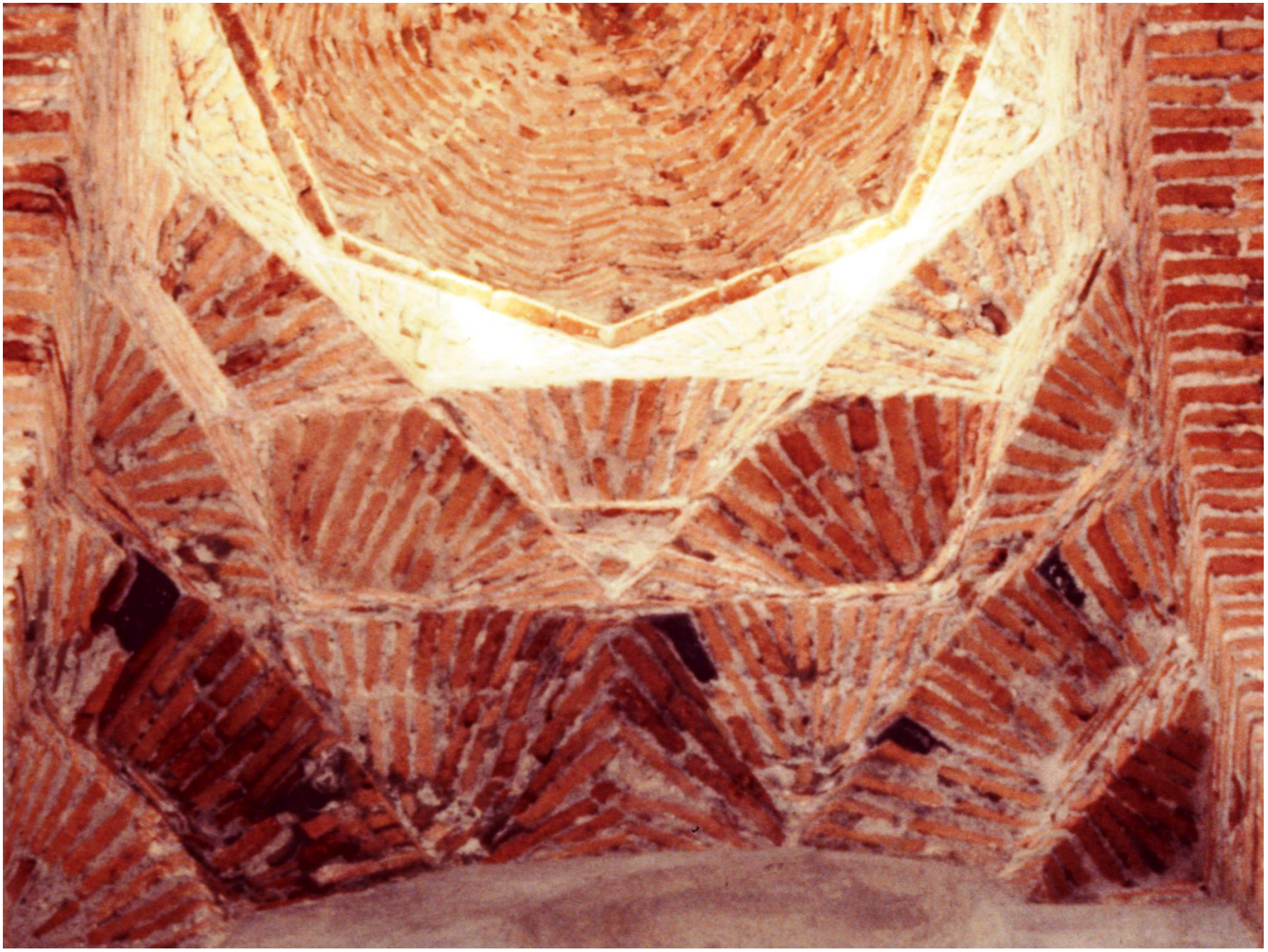
Di Stefano, 1979

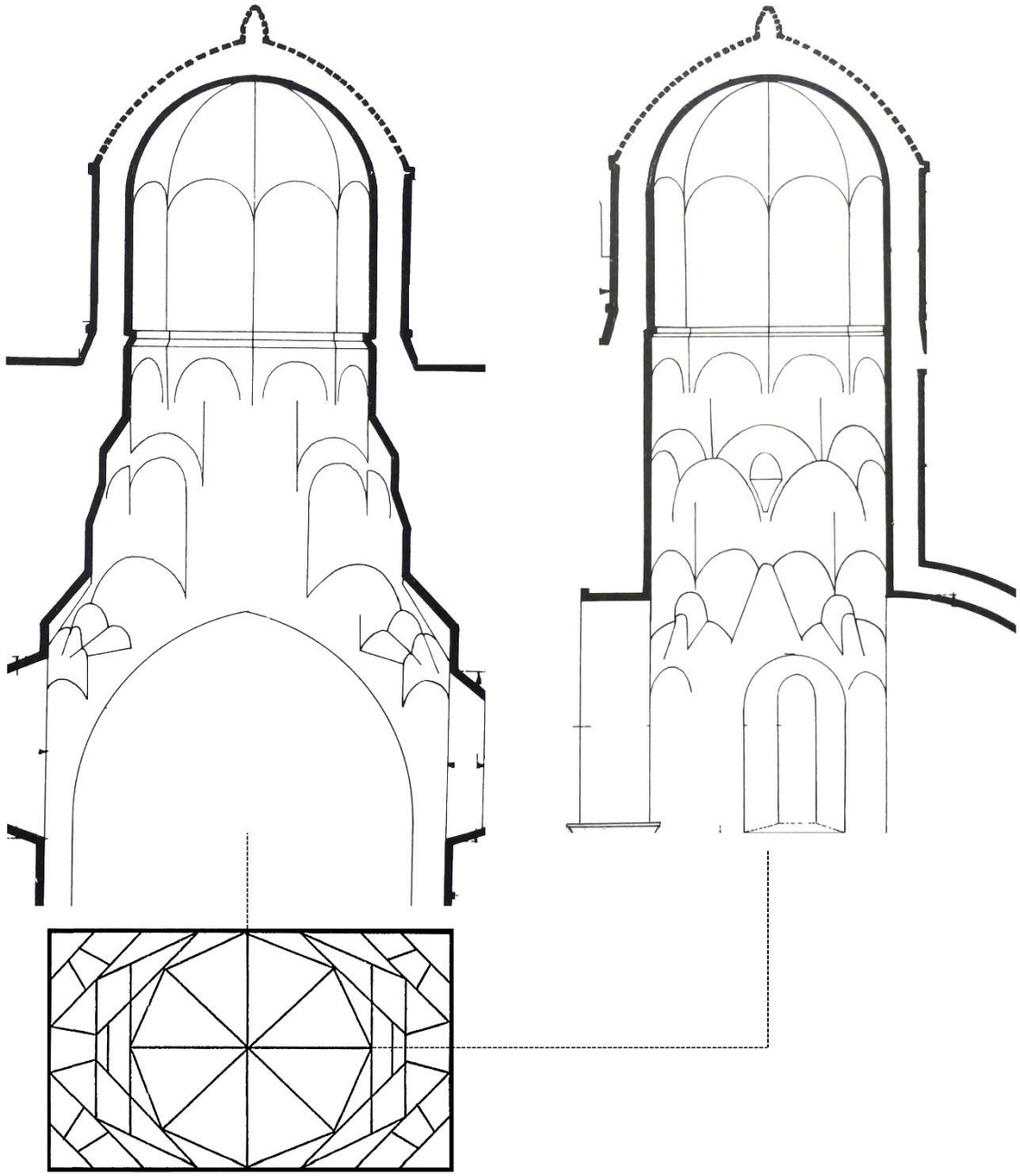






Basile, 1938





Basile, 1938 (adapted from)