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Bahn Mamluk Wooden Ceilings

JASMIN WARDANI

2001

Thesis
2001/53
C.I

The American University in Cairo
School of Humanities and Social Sciences
Department of Arabic Studies

Bahri Mamluk Wooden Ceilings

A Thesis Submitted to:

The Department of Arabic Studies

In Partial Fulfillment of the Requirements of

The Degree of Master of Arts in Islamic Art and Architecture

By

Jasmin Wardani

Under the supervision of Dr. George Scanlon

May/2001

THE AMERICAN UNIVERSITY IN CAIRO

BAHRI MAMLUK WOODEN CEILINGS

A THESIS SUBMITTED BY

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TO THE DEPARTMENT OF ARABIC STUDIES

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Table of Contents

List of Figures.....	IV
List of Plates.....	VI
Introduction.....	1
Chapter1.....	2
Origin and development of coffered ceilings.....	2
1. In general.....	2
2. Pre-Mamluk Egypt.....	8
Chapter 2.....	15
The wood sources and trade.....	15
1. The local woods.....	15
2. The Imported woods.....	18
Chapter 3.....	21
Motival Analysis.....	21
1. In general.....	21
2. Blazons.....	23
2. a) Basic information on blazons and heraldry....	23
2. b) Mamluk blazons.....	24
2. c)The blazons of the Bahri Mamluk wooden ceilings.....	27
1. Qalā'ūn.....	27
2. Bishtāk.....	29
3. Khushqadam al-Ahmadī.....	31
4. Sarghatmish.....	35

5. Ahmad Bey Kohya.....	35
Technical Analysis.....	37
1. Type 1: The 'beamed covered with planks ceilings.....	38
2. Type 2: The flat octagonal-patterned ceiling.....	40
3. Type 3: The octagonal-patterned ceiling with incorporated hemispherical domes.....	41
4. Type 4: The flat ceiling.....	42
 Chapter 4.....	45
Catalogue.....	45
Cat. no.1 The Complex of Sultān Qalā'ūn.....	46
Cat. no.2 The Mosque and Mausoleum of al-Nāsir Muhammad.....	50
Cat. no.3 Mosque of Ahmad Bey Kuhya	51
Cat. no.4 The Madrasa of the Amīr Almalik al-Jūkandār...	53
Cat. no.5 Dayr al-Banāt.....	56
Cat. no.6 The Sabil of al-Malik al-Nāsir Muhammad.....	58
Cat. no.7 The Mosque of Ulmas.....	59
Cat. no.8 The Mosque of al-Nāsir Muhammad at the Citadel.....	60
Cat. no.9 The Qā'a (mosque) of Sharaf al-Dīn.....	62
Cat. no.10 The Palace of Bishtāk.....	64
Cat. no.11 The Mosque of Altinburghā al-Māridānī.....	66
Cat. no.12 The Qā'a of Muhibb al-Dīn	68
Cat. no.13 The Mausoleum and Mosque of Tatar al- Higāziyya.....	70
Cat. no.14 The Palace of Amir Tāz.....	71

Cat. no.15 The Madrasa of Amīr Sābiq al-Dīn Mithqāl al-Anūki.....	71
Cat. no.16 The Mosque of Khushqadam al-Ahmadī.....	75
Cat. no.17 The Madrasa of Umm al-Sultān Sha‘bān.....	76
Cat. no.18 The Madrasa of Sultan al-Malik al-Zāhir Barquq.....	77
 Chapter 5.....	 81
Conclusion.....	81
 Bibliography.....	 90

Figures and Illustrations

Fig. 1 Temple of Bacchus at Baalbek (after Ragette)

Fig. 2 Ceiling over the Peristyle, Temple of Bacchus at Baalbek (after Ragette)

Fig. 3, 4 Ceiling of the Northern Chapel of the Cella, Temple of Bel at Palmyra (after Michalowski)

Fig. 5, 6 Ceiling of the Southern Chapel of the Cella, Temple of Bel at Palmyra (after Creswell)

Fig. 7 Part of Ceiling, Great Mosque of San'ā' in Yemen (after Allan)

Fig. 8 Ceiling, Mosque of Zafār Dhībīn in Yemen (after Finster)

Fig. 9 Ceiling east of minbar, Mosque of Zafār Dhībīn in Yemen (after Allan)

Fig. 10 Roof of Hypostyle Hall, Karnak (after Arnold)

Fig. 11 Schematic drawing of corbelled roof (after Arnold)

Fig. 12 Saddle Roof (after Arnold)

Fig. 13 Vaulted Ceiling (after Arnold)

Fig. 14,15,16 Details of Roofs and Ceilings, Malkata Palace, Dynasty XVIII (after Smith)

Fig. 17 Decorated Ceiling, Kom Ombo (after Jéquier)

Fig. 18 Wooden Door Panel, Church of St Barbara, Old Cairo 16th century AD (Dict. Of Art)

Fig. 19 Sanctuary Screen, St Barbara, Now in Coptic Museum in Cairo (after Habib)

Fig. 20 Ceiling under the minaret, Madrasa of Sultan Sālih Nagm al-Dīn (after Creswell)

Fig. 21 Decorated round coffers, ceiling of the Madrasa of Sultan Sālih Negm al-Dīn (after Hampikian)

Fig. 22 Fatimid planks reused as ordinary planks placed above palm trunks carrying the hanging ceiling (after Hampikian)

Fig. 23 Design 23 of the ceiling of the Western Fatimid palace (after Meineke-Berg)

Fig. 24 Stone ceiling, Burg al-Za'far (after Creswell)

Fig. 25 Façade, Mosque of Sultan Baybars (after Creswell)

Fig. 26 Façade, Madrasa of Sālih Negm al-Dīn (after Creswell)

Fig. 27 Canteen, mid 13th century (after Atil)

Fig. 28 Penbox, mid 14th century (after Ward)

Fig. 29 Windows, Complex of Sultan Qalā'ūn (after Creswell)

Fig. 30 Drawing of ceiling by Bourgoin, Mosque of al-Nāsir Muhammad, Citadel (after Bourgoin)

Fig. 31 Panel from the Fatimid palace (Album du Musée)

Fig. 32 Blazon, Ceiling of Vestibule, Mosque of Khushqaddam (after Meinecke)

Fig. 33 Blazon, Corridor, mosque of Khushqaddam

Fig. 34 Window Niche, Complex of Sarghatmish (after Meinecke)

Fig. 35 Ceiling, Type 1

Fig. 36 Ceiling, Type 1

Fig. 37 Ceiling, Type 2

Fig. 38 Ceiling, Type 3

Fig. 39 Ceiling, Type 4

List of Plates

- Pl. 1** Mosque of Ibn Tulun
- Pl. 2-4** Mausoleum of Imam al-Shafi'ī
- Pl. 5-11** Complex of Sultan Qalā'ūn
- Pl. 12-13** Complex of al-Nāsir Muhammad
- Pl. 14-15** Mosque of Ahmad Kuhya
- Pl. 16-21** Madrasa of al-Jukandār
- Pl. 22-24** Dayr al-Banāt
- Pl. 25** Sabil of al-Nāsir Muhammad
- Pl. 26** Mosque of Ulmas
- Pl. 27-29** Mosque of al-Nāsir Muhammad / Citadel
- Pl. 30-34** Mosque of Sharaf al-Dīn
- Pl. 35-38** Palace of Bishtāk
- Pl. 39-42** Mosque of Al-Maridāni
- Pl. 43-47** Qā'a of Muhibb al-Dīn
- Pl. 48-50** Madrasa of Tatar al-Higaziyya
- Pl. 51** Palace of Amir Tāz
- Pl. 52-57** Madrasa of Mithqāl
- Pl. 58-62** Mosque of Khushqadam
- Pl. 63-64** Madrasa of Umm Sultan Sha'bān
- Pl. 65-68** Madrasa of Sultan Barquq
- Pl. 69** Qur'anic Frontispiece
- Pl. 70** Mosque of Shaykhu
- Pl. 71** Khanqah of Shaikhu

Introduction

Coffered wooden ceilings were a popular feature in Bahri Mamluk architecture. Despite the fact that wood has always been scarce in Egypt and was mostly imported, it was used extensively for coffered ceilings and such other architectural elements as beams, doors, friezes and screens. Surprisingly the ceilings, despite consuming large quantities of wood, did not attract the attention of travelers and historians.

Chapter one deals with Pre-Mamluk ceilings to examine a possible origin. Wood sources are briefly researched to provide information on the raw material of the subject discussed. It is followed by decorative and technical analysis of Bahri Mamluk ceilings. In chapter three the Bahri Mamluk ceilings are documented and catalogued through illustrations and analysis. This is the main aim of the thesis. Since most of the ceilings have been heavily restored and in some cases replaced by new structures, the analysis tries to differentiate between original structures and later additions. Another important aspect is to examine whether the ceilings are based on foreign influences or rather on a local tradition and whether a decline started at the end of the Bahri Mamluk period.

Chapter 1

Origin and development of coffered ceilings

1. In general

Wooden ceilings are not an Islamic invention. In the Near East, Greco-Roman and early Christian ceilings existed, but unfortunately only their stone forerunners survived. The simplest kind of flat ceilings usually consists of long beams interspersed with short crossbeams made of stone or wood. The space between the beams is occupied by coffers, which are likely to be decorated.

Information on the earliest wooden ceilings is delivered only through literary sources, as in the accounts of the Erechtheion at Athens and the temples on Delos. According to the sources, they consisted of beams decorated with astragal moldings bearing coffers adorned with stars, acanthus motifs and figures of gods and heroes¹. From the 5th century BC onwards the same shapes were basically translated into stone ceilings. Some of them, or at least some fragments of them, survived until today. The Temple of Apollo Epicurius at Bassae had a stone coffered

¹Roux, "Architectural Materials and Construction," 389-90.

ceiling². It was begun in the 5th century BC but probably not finished until the 4th century BC. The temple is the first of its kind combining Doric, Ionic and Corinthian elements. The ceilings over the pronaos, the opisthodomos and the short sides of the ambulatory have marble carving. The cella had a stone coffered ceiling. It consists of cross beams, which support the longitudinal coffers. It is framed by a carved frieze. Many Mamluk ceilings are based on the same concept covering corridors, entrances and iwans such as the corridors of Qalā'ūn's (plate 5 and 6) and al-Nāsir Muhammad's complexes (plate 12) situated in Shari' al-Mu'izz.

Roman sites in Greater Syria must have had an impact on Islamic ceilings. The temple of Bacchus in Baalbek, dating to ca. 150 AD is built in a Roman Corinthian style. The ceiling of the area in front of the adytum was originally roofed with huge cedar trusses. Small square coffers are formed by crossbeams (fig. 1)³. The ceiling over the peristyle is the masterpiece of the temple: its design is based on interlocking pentagons and rhomboids (fig. 2). They are decorated with foliated scrolls surrounding busts of divinities such as Mars, Victory, Diana etc⁴.

²Fletcher, *History of Architecture*, 123-25.

³Ragette, *Baalbek*, 48-49.

⁴ Ibid, 111-13.

The Temple of Bel at Palmyra, dating from about 36 AD, has monolithic ceilings⁵. The cella consists of two open chapels facing each other. Their ceilings are made from single slabs of stone. One of them is richly decorated with the signs of the Zodiac (fig. 3 and 4) and the other one has very fine geometric designs (fig. 5 and 6). When the temple was modified by the Arabs in 1132 AD and converted into a mosque these ceilings no doubt exerted influence. An astonishing similarity connects the ceiling of the Temple of Bel at Palmyra with the ceiling of Sultan Qalā'ūn's mausoleum in Sharia al-Mu'izz in Cairo (plate 9-11): almost the same design is used where octagons are treated as coffers⁶. The main difference between the designs of the two ceilings is that the space between the octagons in Qalā'ūn's mausoleum is occupied by a little octagon (plate 10) whereas at Palmyra a square is used (fig. 6). The design of the ceiling in the mausoleum of Imam al-Shaf'ī (1211 AD) is also based on similar octagons (plate 2).

It is now evident that early Muslim society came in contact with pre-Islamic models. As the influence of Byzantine and Roman building traditions is obvious in architecture it can be applied also to ceilings⁷.

⁵Michalowski, *Palmyre*, 113-116.

⁶Creswell, *EMA* 1, 202-05.

⁷Sasanian influence on wooden ceilings can not be considered seriously since most Sasanian monuments had vaulted stone ceilings.

The Prophet's mosque at Madina, when being rebuilt in 88-90 H (707-9 AD), had carved and gilded ceilings⁸. Al-Samhūdī describes the ceiling as being a double structure⁹. It had a decorated ceiling of gilded teak below and a lead covered roof above. In front of the mihrab was a light shallow dome of wood. This is the first instance of a dome in front of the mihrab, which will become a common feature in Muslim architecture¹⁰. Unfortunately nothing of it survived.

The earliest preserved Islamic wooden ceiling is in the ambulatory of the Dome of the Rock¹¹. The ceiling of the outer ambulatory visible to the visitor nowadays is a later addition, but the beams which have painted decoration on the underside are original. This leads to the assumption that originally there was a wooden ceiling whose composition is unfortunately lost.

A number of very well preserved and early dated (9th century) Islamic examples are the wooden ceilings in the Great Mosque of San'ā' in Yemen. The southern and northern parts are different from those of the

⁸ Creswell, *EMA* 1, 148-49.

⁹ Samhūdī, *Khulāsa*, 148, quoted in Sauvaget, *La Mosquée Umeyyade de Médine*, 74.

¹⁰ Creswell, *Short Account of EMA*, 45-6.

¹¹ Creswell believes that there originally was no roof covering the outer ambulatory, linking it to basilicas of the 4th to the 8th centuries: *Short Account*, 30.

western and eastern parts¹². They consist of beams (ca. 20 cm square in cross - section), which support small cross-beams (fig. 7). The square spaces that are thereby created are filled with wooden panels. Some of these are decorated, probably originally all of them were. The decoration consists of vegetal and geometrical motifs; circles within squares turned in a 45-degree angle to the beams, creating in this way a diamond-shaped inset (fig. 7). The beams themselves are carved with vegetal motifs, geometrical patterns and painted with Kufic inscriptions as well¹³. Allan relates this ceiling as structurally being very close to Byzantine models and suggests that al-Walid I brought craftsmen from Umayyad Syria, though the decorations (carving and painting) are in an Abbasid-Iraqi tradition that is apparent from the motifs. The first bay in front of the qibla wall differs slightly and has flattened domes. In addition, the ceiling in front of the mihrab has a special feature: a flattened dome of ancient alabaster rests on the beams. With time it has turned black and is now covered by plaster, but originally it had the function of pouring light on the mihrab. None of the other still extant ceilings examined has this

¹² Allan, "Transmission," 5.

¹³ Creswell, *Short account*, 84-86. Also see Allan, "Transmission," 1-34 and Finster, "Grosse Moschee," 197- 211.

feature, but the idea of lighting the mihrab area can be seen in many examples using wooden domed structures with openings¹⁴.

There are several other examples of early Islamic wooden ceilings in Yemen such as the ceilings present at the mosque of al-Abbās south-east of Sana'a' and the mosque of Zafār Dhībīn (early 13th century) (fig. 8)¹⁵. The ceiling of the nave to the east of the mihrab (fig. 9) has a kind of stalactite structure with incorporated round coffers that can be related to the ceiling in Sultan Qalā'ūn's complex (plate 9-11). Probably there were other examples in early Islamic architecture in different areas which unfortunately have not survived.

¹⁴ Finster, "Cubical Yemeni Mosques," 54-55.

When the Ka'aba was reconstructed by Ibn al-Zubayr in 64-5 /684, it also had five alabaster slabs inserted in its ceiling. They were brought from Sana'a'. Its present shape is completely different. Creswell, *EMA* 1, 62-63.

¹⁵ Finster, "Survey," 253-69.

2. Pre-Mamluk Egypt

In Egypt many Pharaonic monuments survive. They are amazing, sophisticated buildings. There were basically four types of roofs: the flat roof, the corbelled roof, the pointed roof and the true vault¹⁶. The earliest flat roofs were made of limestone, then granite ceilings became popular since the material allowed for the covering of larger areas, as in the crypt of Cheops, which is 5.25 meters wide. But granite was not always available in sufficient sizes and quantities and only the introduction of sandstone in the Eleventh Dynasty made lofty constructions possible as in the hypostyle hall and ambulatory of the Mentuhotep temple. In the New Kingdom spans of 6 to 7 meters were achieved. The roofing slabs of the hypostyle hall of Karnak were 9 meters long and bridged an aisle of 6.7 meters (fig. 10)¹⁷.

Corbelled roofs consist of overhanging block courses. Gradually they approach the center of the area to be covered (fig. 11). This kind of roofing was popular for covering spaces inside pyramids since the pressure of the masonry on top of the room is thereby relieved¹⁸.

¹⁶ Arnold, *Building*, 183-236.

¹⁷ Ibid, 184.

¹⁸ Ibid, 184-191.

Examples are found in the pyramids of Dahshur, Giza and in the Hatshepsut temple at Deir el-Bahari¹⁹.

Pointed (saddle) roofs consist of pairs of roof beams leaning against each other at the top (fig. 12)²⁰. They were a common feature in pyramids and burial chambers.

The true vault was not a popular roofing feature, probably because of the wood shortage²¹. Only some late Pharaonic examples (after 750 BC) with vaulted ceilings exist as in the burial chamber of Shepenwepet I (fig. 13) and the crypts of Neferibra-sa-Neith at Saqqara²².

Wooden ceilings were common in domestic architecture, though some examples in religious architecture existed as well²³. The simplest kind of roofing was by palm-trunks placed side by side. A more sophisticated technique was using rough timbers covered by a cross layer of sticks and poles. Brushwood and matting was laid on top then covered by a layer of mud²⁴. In the workmen's village at Amarna this kind of roofing was used (fig. 14) which shows that it was a common technique.

¹⁹ Ibid, 186-89.

²⁰ Ibid, 191-200.

²¹ Wood is necessary for the construction of stone vaults.

²² Ibid, 200-01.

²³ Helck and Westendorf, *Lexikon der Aegyptologie*, 1270.

²⁴ Petrie, *Egyptian Architecture*, 17-18.

Similar roofing was used for some areas in palaces as well, yet the underside of the matting was plastered, in order to be painted. Important rooms, such as reception halls and bedrooms, were treated with more care. In order to achieve a large flat area for paintings, light mats were fixed to the underside of the rafters and then plastered and painted (fig. 15 and 16)²⁵.

Wooden ceilings were not carved. As described above, the decoration was painted preferably on flat, or very slightly carved in relief, plastered surfaces. In the case of stone ceilings, they were either left plain or carved and painted. The ceiling in Pharaonic architecture represents the sky. Therefore the designs consist of elements of the sky, such as stars on a blue background creating a "carpet design", or other astronomical themes like zodiacs and birds with outspread wings (fig. 17)²⁶.

Any parallels to Islamic architecture are not obvious; neither structurally, nor decoratively. The interior of pyramids and tombs was not accessible and domestic architecture was mostly destroyed by the time of the Mamluks. The only possible influence could have been by temple architecture. Their ceilings are of the flat stone type and in most cases plain without any coffering. Islamic architecture in general rarely adapted

²⁵ Stevenson-Smith, *Art and Architecture*, 293-95.

any Pharaonic decorative elements or specific motifs in its repertoire²⁷.

The same holds true for ceilings.

The Ancient Egyptian period was followed by the Greco-Roman period that lasted from 332 BC until 395 AD. In Alexandria several tombs have painted coffers on the ceiling. The old church of Dayr Abā Antūniyūs has a coffered ceiling, curved as a barrel vault, with a series of octagonal openings. They were certainly filled²⁸. A number of wooden boards, originating from the Roman and early Byzantine period and preserved in the Coptic Museum in Cairo, were part of coffered ceilings. Some of them have a richly bordered painted surface.

The Greco-Roman art and architecture had a very strong impact on the so-called "Coptic" style. The term "Coptic" is confusing. It has not been really defined. One hypothesis sees in the word Copt the equivalent of the Greek word *Aigyp̄tos*, which was, in turn, derived from *Hikaptah*, one of the names for Memphis, the first capital of Ancient Egypt²⁹.

According to the Coptic Encyclopedia the Coptic period in Egypt lasted

²⁶ Jéquier, *Manuel de l'Archéologie*, 289-95.

²⁷ One of the few exceptions is a part of the minaret of Qalā'ūn at Shāri'a al-Mu'izz which is definitely inspired by Pharaonic elements (lotus shape) and the maqa'ad of Māmay which shows lotus-shaped capitals.

²⁸ Grossmann, "Architectural Elements of Churches," 203.

²⁹ "Copt," *Coptic Encyclopedia* 2: 599.

from the second century BC to the middle of the 7th century AD. Its terminus a quo is justified by the beginning of the formation of the Coptic language³⁰. The *New Encyclopedia Britannica* gives a different range: *Coptic Art* is associated with the Greek- and Egyptian-speaking Christian people of Egypt from about the 3rd to the 12th century AD³¹.

Anyhow, Coptic art drew inspiration from many sources: the forms and motifs of ancient Egypt (classical and Hellenistic), from Near Eastern art and from the local Nilotic tradition. Unfortunately early Coptic wooden ceilings did not survive in situ, but some architectural elements, such as doors, screens, lintels, panels and friezes are preserved in the Coptic Museum in Cairo. Their carvings display a wide range of animal and floral motifs, including specific Nilotic scenes³². Several examples from the church of St Barbara in Old Cairo are now in the Coptic Museum in Cairo. The two-leaved door (fig. 18) has two rectangular panels at the top, dated 6th century AD. Each shows a bust of Christ flanked by angels. Stylistically they may be compared to Byzantine ivories³³.

Another example is the sanctuary screen of sycamore wood (fig. 19), which is datable to the 10th/11th century. It consists of 45 panels.

³⁰ Ibid, 600.

³¹ "Coptic Art," *New Encyclopedia Britannica* 3: 65.

³² Hunt, "Woodwork, Coptic Art," 828-29.

³³ Ibid, 828.

Hunting scenes, animals, birds and musical ceremonies ornament them³⁴.

Similar carvings can be found on Fatimid woodwork.

Finally we turn to early Islamic Egypt. The mosque of Amr (641-2 AD), which is completely different nowadays from its original structure, had a low roof of split palm-trunks and thatching palm-leaves covered with mud³⁵. This was the traditional way of roofing and can be traced as far back as Ancient Egypt³⁶. The house of the Prophet at Medina also had a similar roof³⁷.

The first sophisticated Islamic roofing in Egypt dates from the mosque of Ibn Tulun (876-9 AD)³⁸. That now present is the restoration work of the Comité based on the original structure (plate 1). Palm logs are boxed in by wooden panels. Some few parts are decorated by geometrical patterns. In accordance with the architectural style of the mosque as a whole the ceiling is in an Abbasid style from Iraq.

The mausoleum of Imam al-Shaf'ī (1211 AD) has several interesting aspects for this study. First, it has the carved wooden cenotaph

³⁴ Habib, *Coptic Churches*, 106.

³⁵ Creswell, *EMA* 1, 36-37.

³⁶ Discussed above, 12-13.

³⁷ Idem, *MAE* 1, 6-11.

³⁸ Fattal, *Ibn Tulun's Mosque*, 29-30.

of Imam al-Shaf'ī that is made of Indian teak. It bears an inscription which states that it was made by 'Ubayd ibn Ma'ali in 1178-9³⁹. This is important, because it gives an exact date and also because names of craftsmen are very rare in Egypt. Second, there is a wooden frieze with decorated Kufic running along the walls⁴⁰. Eight beams are set in this frieze, which project from the walls to support a frame for suspended lamps. The beams are carved with decorated Kufic inscriptions on a foliated background (plate 3b). Finally, there is the ceiling of the vestibule of the northeast side (plate 2); this no longer serves as the main entrance, but was certainly the original one⁴¹. This bay is 2 m wide, 2,79 m high and 2,56 m deep⁴². Twenty octagonal coffers niche the ceiling. This is the earliest example of this type in Islamic Egypt. Only the ceiling in the church of Dayr Abā Antūniyūs, mentioned above, is of an earlier date. Similar ceilings will be seen in the madrasa of Salih Nagm al-Dīn Ayyub (1242-4 AD) (fig. 20 - 22) and in several Mamluk buildings to be discussed.

³⁹ He belonged to a woodworker family originating from Aleppo. Creswell, *MAE* 2, 64.

⁴⁰ Ibid, 68-9.

⁴¹ Ibid, 68.

⁴² Ibid, 68.

Chapter 2

The wood sources and trade

Wood is commonly known to be a scarce commodity in Egypt. Nevertheless we find that it was used extensively for construction, decorative elements in buildings and shipbuilding. The origin of the woods used is only mentioned fragmentary in literary sources and thus the matter needs to be investigated.

1. The local woods

Egypt seems to have possessed large amounts of forests in the early Middle Ages and therefore was able to provide a great deal of wood that was required for the state as well as private needs⁴³. A special administration was responsible for regulating and controlling the amounts of wood that were cut by individuals for sale to merchants.

The plantation of forests is assumed to have originated in the times of the early Fatimid caliphes. Ibn Mamati who lived during the late Fatimid / early Ayyubid period mentions the existence of forests in Upper

⁴³ Bahgat, "Les Forêts," 141.

Egypt⁴⁴. They were placed in the governorate of Bahnasa, Saft-Rashin, Mimbal and Astal. There were also forests in the provinces of al-Ashnonain, Assyut, Akhmin and Qus. After the historian Abu al-Fadl Ga'far the forests that were situated on the two sides of the Nile from Girgaih to Aswan covered about 20,000 feddans⁴⁵. However, shortages in wood were no novelty to Egypt, dating back to the pharaonic period⁴⁶ and reached their peak between the 4th and 7th centuries AD. During this period afforestation diminished and more wood was imported especially along the coast of the Mediterranean⁴⁷.

The main kinds of wood found in Egypt were tamarisk, the Egyptian sycamore and the acacia. Tamarisk was used for producing personal goods made out of wood, like pots and seals. The sycamore was often carved and painted and the acacia yielded big beams⁴⁸.

During the Fatimid and Ayyubid period the forests were given great importance due to their necessity for building warships. People needed special authorizations for cutting down wood from the forests and they

⁴⁴ *Qawan īn al-Dawāw īn*, in Bahgat, "Les Forêts," 142.

⁴⁵ Bahgat, "Les Forêts," 142.

⁴⁶ For detailed information about wood types used in the Pharaonic era, see Lucas, *Egyptian Materials*, 376-393.

⁴⁷ Rutschowskaya, "Woodwork, Coptic," 2326.

⁴⁸ *Ibid*, 2326.

were only allowed to cut woods that were not suitable for building ships or other governmental construction. Foresters were assigned to make sure that people in the villages would cut down only the amount needed in the construction of their houses. Also merchants were allowed limited quantities of wood. Another responsibility of the central administration was to cut down the amount of wood needed for state projects⁴⁹.

The officials or foresters delivered the wood that was cut in Upper Egypt to the merchants. When their ships reached Cairo the merchandise was checked by the central administration. If any wood was found that could be suitable for the construction of ships, it would be confiscated and the rest left to the merchants. The wood from the forest of al-Bahnasa, situated close to the city of Cairo, was easier to transport. It also contained wood of a higher quality and was more expensive and in great demand⁵⁰.

Maqrizi mentions gardens including large amounts of trees in Cairo during the time of Badr al-Gamali. But these seem to have served only private and decorative purposes⁵¹.

⁴⁹ Bahgat, "Les Forêts," 146-7.

⁵⁰ Ibid, 147.

⁵¹ He mentions for example a promenade starting at Bab al-Futuh and ending in Matariyya (Heliopolis): ibid 151.

When the Mamluks had real control of Egypt Sultan Baibars laid the foundations of the great Mamluk Empire. During his reign the army was reorganized and the navy rebuilt. Communication and urban renewal were under the Sultan's surveillance. In order to construct the buildings and ships, large amounts of wood were required. Baibars ordered the necessary wood to be cut from the Egyptian forests. He gave the order to forbid the public completely from cutting any wood. All of the resources were exhausted to build the city and construct the fleet. Later few Mamluk sultans except Khalil and Malik al-Nāsir, made any effort to protect the forests⁵².

By the mid 14th century, the forests were neglected and slowly destroyed completely. People were allowed to cut down the quantities they wanted without supervision thus a great number of people took this opportunity to profit from governmental negligence⁵³.

2. Imported woods

The fact that woods from earlier monuments were reused proves that wood was relatively scarce and not always available. For example, the Fatimid wooden friezes, now in the Islamic Museum in Cairo (inv. no.

⁵² Ibid, 153.

⁵³ Ibid, 153.

3470, 1, 2) were reused in the Great Corridor of Qalā'ūn's complex⁵⁴. Another example is a tabut also in the Islamic Museum in Cairo (inv. no. 437) dated 631/1216 but has Tulunid carvings at the back. The mihrab of Sayyida Ruqayya (1154-60), now in the Islamic Museum in Cairo (inv. no. 446), has Fatimid panels reused on its back⁵⁵.

Unfortunately very little is known about the wood trade of Medieval Egypt. The main wood imports must have been from Europe. Disorders in southern Mesopotamia and increasing insecurity in the Persian Gulf in the eleventh century were used by the Fatimid rulers. Their intensified shipbuilding programs and increasing influence in the Red Sea let the Egyptian ports and commerce flourish⁵⁶.

Medieval Europe was largely self-contained until the first crusade in 1096-99⁵⁷. Ironically this opened new political and commercial communications for the Muslim world and their markets. Trade with Europe added greatly to the Burgi Mamluks' prosperity. The importance of trade with the Mamluks becomes apparent when the Pope

⁵⁴ Prisse d'Avennes drew them: *Monuments* III, 67 and Lane-Poole considered them Mamluk: *Art of the Saracens*, 123-7. Obviously they originate from the destroyed Fatimid palace.

⁵⁵ Wiet, *Album*, 24-5.

⁵⁶ Cook, *Studies*, 67.

⁵⁷ "European Colonization," *New Encyclopaedia Britannica* 18: 737.

unsuccessfully tried to stop trade connections with the Mamluks in 1291⁵⁸.

In spite of restrictions trade was never interrupted.

A biography of an Arabian merchant, Abu'l 'Abbas al-Hijazi, tells us about the situation in the 12th century. He possessed 12 commercial ships. Merchandise from China (among it aloe wood), India, Ceylon and the Indonesian Islands was traded by his ships to Europe via Egypt⁵⁹.

The Rasulid rulers played an important part in Yemen.

Theoretically they were representatives of the Mamluk sultans, but disputes arose, partly because of the tribute payments to Egypt. The Karimi merchants played the part of the middlemen and made the eastern traffic through Aden possible.

⁵⁸ Ashtor, *Social and Economical History*, 298.

⁵⁹ Cook, *Studies*, 70-71.

Motival Analysis

1. In general

The ceilings of the Bahri Mamluk period are decorated with a wide range of motifs. They are carved on the beams and panels and then highlighted by color. Gold and blue are the most dominant colors used, followed by red. Unfortunately only few traces of original paint survived and all the ceilings have been repainted, hopefully in most cases according to their original appearance.

The ceilings share a stylistic vocabulary in common with contemporary objects in other materials. Some elements can be matched in stucco or stone, others in metalwork. The bosses, decorating part of the octagonal-patterned ceiling in the mausoleum of Qalā'ūn for example (plate 9-11), can be found earlier on the façade of the mosque of al-Zāhir Baibars (fig. 25) and on the madrasa of Salih Nagm al-Dīn (fig. 26). Marble cannot serve as a comparative media since its technique demands different types of motifs (except for carved marble).

Under the Fatimids the first 'local style' developed⁶⁰. Elements of Sasanian, Byzantine, Tulunid and Coptic origin can be found, but they are

⁶⁰ For the development and style of Fatimid woodwork see Lamm, "Fatimid Woodwork," 59-91. For Byzantine elements in the Fatimid style see Cutler, "Parallel Universes," 635-48.

all incorporated into the distinctive Fatimid style⁶¹. The Fatimid woodwork tradition continued during the Ayyubid period but new palmette forms were developed, interlaced designs became more complex and figural representations were gradually abandoned⁶².

Foliated or axial arabesques are the commonly used motifs for the decoration of the beams⁶³. However, the beams of the vestibule in the mosque of al-Jukandār (719/1319-20) (plate 21) do not fit into this repertoire. The only similar pattern is found on the beams of the iwan in Dayr al-Banāt (plate 22). This fact implies that they were done at about the same time. Since Dayr al-Banāt is not attributed to an exact date, an approximate dating, beginning of the 14th century, is hence made possible. This early dating is enforced by examining the other motifs used in this building. The center panel of the ceilings in the niches, flanking the *majlis* (plate 24b), shows early carvings very similar to Fatimid ones (fig. 31).

In many cases the beams, which are decorated with arabesques based on floral elements, are contrasted by geometrical patterns decorating the panels. These panels were all carved. Only after the Bahri Mamluk

⁶¹ Hayward Gallery, *Arts*, 276-7.

⁶² Ibid, 278.

⁶³ For a detailed study of motifs their origin and development, see Abdel-Wahab, *Terminological Analysis*; and Shafi'ī, *Simple Calyx*.

period did strapwork, executed by attaching tiny little sticks of wood to the surface of the ceiling, replace the carving⁶⁴.

As on minbars⁶⁵, the ceilings show their best carvings at the beginning of the Bahri Mamluk period and start to decline by the mid- 14th century. Exceptions are the ceilings in the madrasa of Umm al-Sultan Sha'bān (plates 63-4) where for the last time very delicate carving was executed.

2. Blazons

The occurrence of blazons in the ceilings discussed demands a full analysis. As will be shown below they are informative and decorative.

2. a) Basic Information on Blazons and Heraldry

Blazons are a form of heraldry used to distinguish individuals and they were originally placed on shields. Heraldic forms have been found in ancient civilizations. Some designs have been found on Babylonian seals

⁶⁴ This kind of strapwork has to be differentiated from the technique of inlaid strapwork, which involves small polygonal pieces connected by tenon and mortise joints. These were mainly used in vertical orientated constructions such as in minbars. For detailed study of geometrical patterns and strapwork see Kuehnel, "Kasettenstil," 55-71.

⁶⁵ See Karnouk, *Minbars*.

that are very similar to European heraldic designs. In the 12th century heraldic designs were common in Western Europe and Japan⁶⁶. The designs developed from very simple, to more complicated and artistic designs. In the Dark and Middle Ages, it was very important for people to differentiate between individuals, especially at time of war, to avoid killing one's own countrymen. People, literate and illiterate, were capable of distinguishing between symbols straight away.

In the beginning, the use of symbols was strictly for individuals and was later developed to differentiate between institutions and associations. By time more and more institutions started to use heraldry. Also craftsmen started to use heraldic symbols for denoting their guilds. Most of these guilds in Europe still use them until today⁶⁷.

Nowadays heraldry gives us the chance to go back in history and to trace the origins and the relations of families. In some cases heraldic devices even can be useful for dating monuments or objects⁶⁸.

2. b) Mamluk Blazons

⁶⁶ "Heraldry," *Encyclopedia Britannica* 20: 503.

⁶⁷ Ibid, 503-518.

⁶⁸ Some problems occur when using blazons for dating; these will be discussed below.

The origins of Mamluk blazons remain a controversial issue.

Mayer⁶⁹ excluded a Turkish-Mamluk origin because he attributed the first blazon to the Ayyubid period. The oldest Islamic blazon known is the three-petalled lily which Balog⁷⁰ and Mayer⁷¹ attributed to Nūr al-Dīn Mahmūd who reigned in Damascus from 541/1146 to 569/1174. The blazon appears on Nūr al-Dīn Mahmūd's maristan in Damascus which was erected in 549/1154. Meinecke proved that the blazon is of a later date, not contemporary with the construction of the building. It is part of restoration works carried out more than a decade later (682/1283)⁷². Meinecke has similar proofs for the other blazons that were thought to be pre-Mamluk⁷³. For him blazons spring from a Mamluk tradition originating the place of origin of the Mamluks.

Blazons were one of the prerogatives of the sultans and amīrs in Mamluk society and only they were allowed to use them. Basically the blazon symbolizes the office held by the Amīr, for example the polo-sticks

⁶⁹ Mayer, *Saracenic*.

⁷⁰ Balog, *Coinage*, 19.

⁷¹ Mayer, *Saracenic*, 22.

⁷² Meinecke, "Heraldik," 215.

⁷³ e. g. the eagle on the Citadel in Cairo and the lion attributed to Salāh el Dīn. Ibid, 216.

of the polomaster (jūkandār), the sword of the armor bearer (silahdār), the cup of the cupbearer (sāqī) etc⁷⁴.

When the amīr changed his career, he did not change his emblem. Normally, once granted his blazon by the Sultan, after completing his education, he would keep it until his death. Thus confusion can occur when using blazons for dating. They could be inherited from father to son, who did not necessarily hold the same office and wives could use the blazons of their husbands⁷⁵. Composite blazons start to appear after the end of the 14th century. They cannot be explained as easily as the single motif ones mentioned above⁷⁶.

The sultans usually used non-epigraphic emblems on coins, but not on their monuments⁷⁷. Instead they used medallions divided into three parts, which contained inscriptions, praising the sultan. A typical motto is “‘izz li-mawlānā al-sultān”. At the beginning the upper and lower fields were left plain and the inscription placed in the middle field only. By time

⁷⁴For the signs see Ibid, 239-52; and Mayer, *Saracenic*, 10-18.

⁷⁵ Meinecke, “Heraldik,” 214-15.

⁷⁶ For information on this topic see Mayer, *Saracenic*, 29-33; and Meinecke, “Heraldik,” 252-78.

⁷⁷ Exceptions are Baibars, Qalā‘ūn and al-Nāsir Muhammad. Meinecke, “Heraldik,” 223.

the texts became more complex and therefore cover all three compartments of the medallion⁷⁸.

2. c) The Blazons of the Bahri Mamluk Wooden Ceilings

1. Qalā'ūn

The earliest blazon appearing on Mamluk ceilings is in the mausoleum of Sultan Qalā'un (plate 10). It has not been recognized as a blazon and simply been considered an inscription. Could it not, in this early stage of development of blazons, be considered one? The design was carved and then painted. In the center of the medallion is a floral design. It is circled by a golden naskhi inscription, on a blue background, stating: "'izz li mawlānā al-sultān al-'a'zam al-malik al-mansūr sayf al-dunyā wa'l-dīn Qalā'ūn al-sālihī" (glory to our greatest Sultan, the victorious king, sword of the world and the faith, Qalā'ūn the good)⁷⁹.

Mayer claims that medallions with inscriptions start to appear only from the late Bahri Mamluk period, when the three-fielded shield had

⁷⁸ Mayer, *Saracenic*, 34-40.

⁷⁹ For the uses of Qalā'ūn's titles see Blair, *Inscriptions*, 35-40.

already been in use. Anyhow, he deals with all inscribed shields with care and does not necessarily consider them blazons⁸⁰.

Let us at this point take a closer look at Qalā'un's case. His blazons are not known. They are not found on monuments, or on other objects, but literary sources definitely prove that he had one⁸¹. Balog noticed emblems inherited in the family of Qalā'ūn and minted on coins. The three-petalled lily occurs in five and the six-petalled rosette in four examples⁸². This leads to the assumption that Qalā'ūn probably used both emblems⁸³.

Another possible blazon used by Qalā'ūn is the whirling rosette. It appears on the walls of his mausoleum beside the mihrab. Again, Mayer thinks of them only as a decorative element⁸⁴. On coins the whirling rosette appears several times⁸⁵. Its location in Qalā'ūn's mausoleum (beside the mihrab) is another interesting aspect. Later⁸⁶, inscribed blazons are often placed in

⁸⁰ Mayer, *Saracenic*, 34.

⁸¹ One of al-Nāsir Muhammad's sons was granted the blazon of his grandfather Qalā'un. Unfortunately it is not found on any building or object. Meinecke, "Heraldik," 221.

⁸² Balog, *Coinage*, 24.

⁸³ For further evidence see Meinecke, "Heraldik," 221-22.

⁸⁴ Meier, *Saracenic*, 25.

⁸⁵ See Balog, *Coinage*, 23.

⁸⁶ As in the mosque of Farag Ibn Barqūq (811/1408).

this spot. Therefore it might be assumed that the whirling rosette is an early heraldic emblem used by Qalā'ūn.

If we accept that in the early Bahri period the system of blazons was not yet fully developed but rather in a kind of experimental phase⁸⁷, then recognizing the epigraphic medallion on the ceiling of Qalā'ūn's mausoleum as a blazon becomes possible. The last argument supporting this theory is the text of the roundel itself (quoted above). It is similar to the epigraphy used in later inscribed blazons⁸⁸ praising the sultan. This leaves us only one difference: Qalā'ūn's roundel is inscribed circularly, while the others are horizontally. Therefore, in this early stage, I consider it an epigraphic blazon, or at least a forerunner of the later inscribed blazons.

2. Bishtāk

In the palace of Bishtāk, blazons are found on two coffered ceilings. In the main iwan (plate 36a), four coffers are occupied by Bishtāk's blazon (plate 38b). It shows a red napkin on a white middle field, the upper and

⁸⁷ Sometimes the emblem was placed inside a roundel, sometimes not, as in the case of "Baibar's lion";

⁸⁸ See Mayer, *Saracenic*, 34-40.

lower fields are reddish. The same blazon⁸⁹ is applied to four coffers of the ceiling in the room beside the iwan (plate 38a and 38c). Here the blazon is over painted with an inscription that reads: “‘izz li mawlānā al-sultān” (glory to our master, the Sultan)⁹⁰.

Probably all his blazons were painted over, because after Muhammad b. Qalā‘ūn’s death, Bishtāk fell into disgrace and was executed⁹¹. The recent German Institute’s restoration tried to preserve both versions, since both are of Mamluk origin⁹².

The last item in Bishtāk’s palace is the inscribed roundel that appears four times on the ceiling of the main iwan (plate 36a and 38d). It reads: “Mimma ‘umila bīrasm al-maqarr, al-ashraf, al-‘ālī, al-maulawī, al-amīrī, al-saifī Bishtāk al-malakī, al-nāsirī.” (This is among what was ordered by his most noble and high Excellency the loftly, the lordly amir Saif (al-Dīn) Bashtāk, (officer) of al-Malik al-Nāsir)⁹³.

⁸⁹ Bishtak’s blazon is also found on a bath in Shāri‘a Bishtāk and on several mosque lamps, see Mayer, *Saracenic*, 104-05.

⁹⁰ This phrase was inscribed in the middle register of the blazon belonging to al-Nāsir Muhammad who died in 741/1341. Blair, *Inscriptions*, 109-10. Maybe it was also used by a successor of al-Nāsir.

⁹¹ Meinecke, “Heraldik,” 247.

⁹² Speiser, “Restauration,” 809-826.

⁹³ Mayer, *Saracenic*, 263.

This roundel cannot be considered a blazon since Bashtāk was an amir. And by the time of construction of this building (completed in 738/1337-38 or 740/1339) inscribed blazons had been in use for quite some time but were reserved for the Sultan only. A possible exception, allowing Bishtāk to use such a special device, could be his very special relation with the Sultan⁹⁴.

3. Khushqadam al Ahmadi

The mosque of Khushqadam al Ahmadi was originally a house. It is dated 768/1366 or 778/1376-7 according to an inscription over the entrance⁹⁵, is very interesting for the study of blazons, since it holds three different blazons, attributed to different persons and periods.

The blazon of Khushqadam al-Ahmadi, who became chief of the corps of cup-bearers in 873/1468-9 and held several other offices until he was dismissed from the vizierate in 889/1484⁹⁶, is depicted on the ceiling of the corridor leading to the ablution area⁹⁷. The blazon is divided into three registers. The upper one shows a white napkin on a red background,

⁹⁴ On this topic see Behrens-Abouseif, "Waqf as Remuneration," 58-60.

⁹⁵ He is not the original founder of the building, but he was one of its owners.

⁹⁶ Mayer, *Saracenic*, 142.

⁹⁷ The blazon is also found on an inscribed lunch box, Ibid, 142.

the middle one a black cup placed between a red *pair of trousers* with white openings on a white background and the lower register shows a white cup on a black background (plate 60)⁹⁸. This blazon can be clearly seen, since it is located on a low ceiling ca. three meters above the floor level and repeated several times.

Investigating how exactly the symbols of the blazon depict the offices held by Khushqadam al-Ahmadi illustrates the development of blazons at this late stage. Khushqadam was the chief of the corps of cup-bearers and the sign of this office appears twice in his blazon (middle and lower field). In 879/1474 he replaced Yashbak, the dawādār, as vizier but no pen-box is included in his blazon. In 882/1477 he was appointed khāzindār (great treasurer) and zimām (warden of the princess)⁹⁹, but again their signs of office are not found on Khushqadam's blazon. The other signs depicted actually on the blazon, which are the napkin (sign worn by the master of the robes, jamdār) and the pair of trousers or horns¹⁰⁰ stand in no connection with his duties. Conclusively this example illustrates that in

⁹⁸ Artin's illustration of the blazon is wrong. The colors are different and the openings of the trousers are illustrated in a wrongly manner: *Contribution*, No. 85, 118.

⁹⁹ Mayer, *Saracenic*, 142.

¹⁰⁰ This badge is not yet attributed to a specific office and does not resemble any badge described in Arabic literature as symbol of office. *Ibid*, 20-22.

the last quarter of the 15th century blazons did not actually refer to the duties held by their owners.

The other blazon in this monument appears twice and belongs to Tashtimūr al-Dawādār who died in 787/1385-6. It is placed on the ceiling of a niche in the vestibule (fig. 32) and the on the ceiling of the corridor leading to the entrance of mosque (fig. 33). An inscription identifying Tashtamur as the founder of the building accompanies the blazon. It reads: “... amara bi-īnshā’ hātha al-makān al-mubārak...al-maqarr al-‘ālī... al-amīr saif al-dīn Tashtamur al-dawādār al-malakī al-ashrafī...” (...ordered the construction of this blessed place...his high excellency...the amīr Saif al-Dīn Tashtamur, the dawādār of al-Malik al-Ashraf...) ¹⁰¹.

Tashtamur’s blazon is divided into three registers. The lower and upper plain registers are red and a pen-box is painted in the yellow middle register. This is how it appears on a bowl of brass, now in the Victoria and Albert Museum ¹⁰².

In the mosque of Khushqadam underneath this blazon another blazon is visible: a white plain napkin drawn on an undivided shield. It is the blazon of a jamdār, a master of robes. Two different explanations can be given. Similar to the case of Bishtāk mentioned above, here again a

¹⁰¹ see Ibid, 225.

¹⁰² No. 857-1901, Ibid. 225.

blazon was painted over an already existing one, without erasing the original one. Since the style of the 'napkin-blazon' leads to a much earlier date (latest possible date would be mid 14th century AD), it could be evidence for attributing the construction of this building to an earlier period, maybe early 14th century. But since the foundation inscription identifying Tashtamur as the patron seems original, this early date does not seem convincing. Therefore it could be assumed, that Tashtamur had two blazons. At first he was granted the napkin-blazon and later on his blazon emblem was changed. In this case the pen-box over the napkin has to be considered as one blazon and not two painted one above the other¹⁰³.

Anyhow, the three different blazons depicted in this building, which was originally a house and then converted into a mosque, demonstrate the change of ownership and lead to possible speculation for an earlier dating¹⁰⁴.

¹⁰³ Meinecke, "*Heraldik*," 251.

¹⁰⁴ The rest of the ceiling will be discussed below in the catalog.

4. Sarghatmish¹⁰⁵

The ceilings of the two window-niches opening to the northern facade have a geometrical star pattern. Each center of the stars is filled by a blazon, which is attributed to Sarghatmish (fig. 34)¹⁰⁶. It is divided into three registers; the lower and upper ones are left plain, while the middle field shows a white napkin. The blazon is incorporated into the star pattern design and fully integrated, thus informative and decorative at the same time.

5. Ahmad Bey Kuhya

The mosque commonly known under the name Ahmad Bey Kuhya (plate 14b) shows the blazon of a taster (*jāshnigīr*)¹⁰⁷. It is divided into three registers, only the middle one having a circle, the “table”, on a white background (fig. 14c). The date of the original construction of the monument is not clear. Until now only three amīrs carrying this blazon are known: Aibak al-Mawsulī (died in 698/1298), Turgay min al-Tabbāhī

¹⁰⁵ Unfortunately this monument is not included in the catalogue. Restoration works were carried out by “Wadi al-Nil” company while I was doing my fieldwork. They would not let me inside the building although I had a permission.

¹⁰⁶ Ibid, 249

¹⁰⁷ Mayer, *Saracenic*, 15-16.

(died in 744/1344) and Baktūt al-Qaramānī (died in 749/1348)¹⁰⁸. Thus using the blazon we can attribute the building to the end of the 13th or first half of 14th century.

The examples above show that only a fragment of the decorative repertoire, e. g. the blazon, can give various kinds of information.

¹⁰⁸ Meinecke, "Heraldik," 242.

II. Technical Analysis

The techniques used for the construction of Mamluk wooden ceilings are very traditional and did not change much over time. They are very similar to the techniques used today. The basic tools employed by the carpenter are well known since antiquity. They are adzes, axes, bow drills, chisels and saws. They also represent the tools used today.

For three of the four structures described below the 'post- and lintel-principal' is used which means that the elements are merely stacked one on top of another¹⁰⁹. The lower ends of the principal rafters rest on the building's wall. The elements of such ceilings are subject only to vertical pressure and they are held in place simply by means of superimposition. The greatest strength of wood lies in the direction of the grain. Therefore the beams have to be cut in alignment with the direction of the grain.

Different kinds of joints can be used to hold the structure together. Mortises and tenons are the most common means of assembling panels. In some cases they are replaced by grooves and tongues that strengthen the whole object. Iron nails are used as well.

Structurally the Bahri Mamluk ceilings can be divided into four types as follows.

¹⁰⁹ Coptic Encyclopedia 7: 2327.

1. Type 1: The 'beamed covered with planks' ceilings

(figs. 35 and 36)

This is the most commonly used structure and has many variations. It consists mainly of two elements: the beams and the planks. The beams are carved first and then fixed on top of the walls. They are covered by transverse planks (fig. 35a and b). In order to decorate these planks, they have to be carved after being fixed to the ceiling or, more likely, to be laid out one plank beside the other in the workshop. Then, the area that will be visible on the actual ceiling and not be hidden by the beams has to be defined and carved (fig. 35)¹¹⁰. Finally the planks are reconstructed according to their decoration in the monument and the whole ceiling is painted.

In some cases, in order to create a more complex and three dimensional design, several layers of planks were stacked on top of each other (fig. 36d)¹¹¹.

In some other cases (for example in the ceiling of Umm al-Sultan Sha'bān) short crossbeams subdivide the space between the large beams

¹¹⁰ The design is not in the direction of each plank but perpendicular to it. In general these designs are simple and only show outlines. They show no deep or beveled carving.

and thus create square and rectangular panels (ill. 2a, c). The panels, in most cases consisting of a single piece of wood, are carved first, then assembled into a frame and finally incorporated into the ceiling. This structure is quite solid and the carving of the panels is of high quality.

Type 1 is found in:

- Qalā'ūn (cat. no. 1), corridor and rectangular areas of mausoleum
- Nāsir Muhammad / citadel (cat. no. 2), corridor
- Kohya (cat. no. 3), iwan
- Jukandār (cat. no. 4), vestibule
- Dayr al-Banāt (cat. no. 5), iwan
- Ulmas (cat. no. 7), *riwaqs*
- Sharaf al-Dīn (cat. no. 9), niches
- Bishtāk (cat. no. 10), entrance vestibule
- Maridānī (cat. no. 11), *riwaqs*
- Tatār al-Higāziyya (cat. no. 13), iwans
- Mithqāl (cat. no. 15), all ceilings
- Khushqaddam (cat. no. 16), vestibule and iwan
- Umm al-Sultān Sha'bān (cat. no. 17), iwan

¹¹¹ The first layer has openings which are covered by another layer of wood.

2. Type 2: The flat octagonal-patterned ceiling

(fig. 37)

Since Ayyubid times (or even earlier) this very decorative type, based on geometrical patterns, has been applied to ceilings. Surprisingly it is constructed in a quite simple manner. The structural beams that support the ceiling are assembled in a way forming a square-grid-pattern (ill. 3a). It is fixed to the space to be covered in an angle of ca. 45 degrees to the walls. This structure only becomes visible when the ceiling is taken down (for restoration purpose) and one can take a look at the backside of the ceiling. Small pieces of wood are added to this grid pattern in order to create the geometrical octagonal pattern. Planks cover the whole from above (ill. 3b).¹¹²

Type 2 is found in:

- Imam al-Shāf'ī, vestibule
- Sālih Negm al-Dīn, under minaret
- Dayr al-Banāt (cat. no. 5), side niches of *majlis*

¹¹² Nairy Hampikian, who has worked on the restoration of the madrasa of Sālih Negm al-Dīn, has pointed out the simplicity of structure out to me. The ceiling under the minaret of Sālih Negm al-Dīn revealed some interesting aspects. Reused Fatimid panels became visible from above the ceiling (fig. 21 and 22) (normally not visible). They were cut independently of their carvings and served only as filling material for covering the empty spaces of the geometrical design.

-Tatār al-Higāziya (cat. no. 13), entrance vestibule

3. Type 3: The octagonal-patterned ceiling with incorporated hemispherical domes

(fig. 38)

The basic design of this type which is composed by an octagonal star pattern is related closely to the above-mentioned type 2 (flat octagonal-patterned ceiling), but in closer examination it turns out to be of a completely different structure and demands high quality craftsmanship. Structurally this is the most complex type of ceiling used in the Bahri Mamluk period.

Similar to the structure mentioned above a skeleton in form of a square-grid-pattern is constructed. Little pieces of wood are added to this structure in order to create the octagons (fig. 38c). This framework is fixed in alignment with the walls (see fig. 38a). Tiny planks of wood construct each hemispherical dome. These miniature domes are attached on top of the described above frame work, each dome above an octagonal opening (fig. 3). Finally the ceiling is painted.

Type 3 is found in:

-Qalā'un (cat. no. 1), mausoleum

-Nāsir Muhammad / Citadel (cat. no. 4), riwāqs

-Bishtāk (cat. no. 4), iwan and side room

-Amir Tāz (cat. no. 14)

4. Type 4: The flat ceiling (in some cases with additional strapwork) (fig. 39)

This type consists of plain planks that are fastened to the beams by the use of nails (fig. 39). In most cases an additional frame, running along the walls, supports them. The planks are often decorated by paint only, which demonstrates the ceiling's inferior quality. Structurally this type is not very solid because it is not based on the principal of superimposition. The nails are subject to corrosion, which consequently leads to the collapsing of the planks.

In ceilings of later date (Circassian Mamluk and Ottoman date) this structure is decorated by strapwork in order to imitate ceilings of type 2.

Type 4 is found in:

-Sabil of al-Malik al-Nāsir (cat. no. 6)

-Mithqāl (cat. no. 15), side niches

-Khushqaddam (cat. no. 16), corridor

-Muhibb al-Dīn (cat. no. 12), side niches (with strapwork)

-Barquq (cat. no. 18), iwan¹¹³ (with additional elements)

These are the basic types of ceilings used in the Bahri Mamluk period¹¹⁴. Some variations were achieved by combining several techniques.

Except for the ceiling consisting of hemispherical domes (type 3) all the above types could be found before and after the Bahri Mamluk period. This extraordinary hemispherical-dome-ceiling type was developed under Qalā'ūn who set the decorative base for several centuries to come. This kind of ceiling needed high standards of craftsmanship. It was used in sophisticated buildings only, founded by the sultan himself or privileged amirs.

The flat octagonal patterned ceiling (type 2), the oldest surviving example still visible in Imam al-Shaf'ī, gave inspiration for the hemispherical-domed ceiling (type 3). Both types (2 and 3) were gradually

¹¹³ With some variations

¹¹⁴ An additional type are the ceilings resembling muqarnases as in the case of the side aisles of the courtyard in the palace of Bishtāk and in the aisles flanking the iwan of Barquq's complex.

replaced by the simpler and cheaper technique of type 4 (flat planks) with the addition of strapwork attached to the planks.

The beamed coffered ceiling (type 1) is the most traditional way of roofing. Its many variations (see above) lead to very different range of quality. This becomes apparent when comparing for example the ceiling of the corridor of Qalā'ūn with the ceiling of Ulmas. In the case of Qalā'ūn several layers of planks create a complex design (fig. 36d), in contrast to the ceiling of Ulmas (fig. 35b) where the beams support only one layer of planks. Even in the Ottoman period this was a frequently used technique, but the beams and the panels were rarely carved and instead simply painted.

However, the most important achievement of the Bahri Mamluks that reflects the high standard in design and craftsmanship are the ceilings consisting of hemispherical domes as in the mausoleum of Sultan Qalā'ūn. They could only be produced under royal patronage and during a time of wealth and prosperity.

Chapter 4

Catalogue

While assembling the catalog several problems occurred. It is difficult to reach absolute certainty when trying to analyze the genuineness of the ceilings. Unlike with metalwork, changes in the original ceiling cannot always be detected. From the original Mamluk ceiling, a panel could be removed and newly carved, thus changing only elements of the ceiling and leaving the rest unchanged. Whether a ceiling has new elements incorporated can only be verified definitely through laboratory tests. If not Mamluk, the elements could be Ottoman but definitely post-Mamluk.

The catalog is organized chronologically, except for maybe some overlapping or for uncertainty in the exact dates of the ceilings. They could not be analyzed by laboratory techniques, but analyzed according to stylistic criteria of composition and decoration. The first item dealt with is the ceiling of the complex of Sultan Qalā'ūn. The catalog ends with the ceiling of the complex of the first Circassian Mamluk, Sultan Barquq. Whether a development leading from ceilings of the early Bahri Mamluks to the Circassian Mamluks can be found, shall be examined. The analysis however is based on some speculation due to the problems mentioned above.

No. 1

The Complex of Sultān Qalā'ūn

(plates 5-11)

The complex of Qalā'ūn (683-4/1284-5) is one of the most splendid works built during the Bahri Mamluk period and reflects the patron's ambitions. It definitely set the style for many later buildings. It was constructed in a very short time and was completed in only thirteen months¹¹⁵.

Two different kinds of ceilings are used. The corridor is covered by transverse beams supporting planks, whereas the mausoleum has a more complex design incorporating round coffers. These two kinds are the basic structures dominating wooden ceilings during the whole Bahri period and even later.

1) The Great Corridor (plates 5-7a)

The entrance corridor of the complex is about 4 meters wide and 35 meters deep. It is covered by a wooden ceiling which is approximately 10 meters above the pavement¹¹⁶. Basically, it consists of beams running perpendicular to the side walls. They support wooden planks which are in

¹¹⁵ Creswell, *MAE* 2, 190-92.

¹¹⁶ *Ibid*, 192.

alignement with the corridor's sidewalls. A cornice frames the whole ceiling and serves at the same time as a transitional zone between walls and ceiling (plate 6a and 7a). The transverse beams are connected with each other by a shell-shaped structure and are engraved with an interlaced arabesque (plate 7a). The beams are narrower in the middle to avoid a monotonous appearance (plate 6b) and are connected with the wider part of the beams by rolled in ends. Octagons which are the same width as the wider parts of the beams are centered in the middle of each beam. The area between the beams is decorated by seven eight-pointed stars placed on an interlaced geometrical star pattern. The empty spaces of the star pattern are filled with circles. All designs are carved in low relief and then highlighted by colour, however few traces of colour remain. Some white paint inside the stars and a blueish frame surrounding the rectangular panels can be traced¹¹⁷.

2) The Mausoleum (plates 7b-11a)

The ceilings in the mausoleum are of the most beautiful coffered ceilings surviving from the Bahri Mamluk period. They rise to 15 meters above the pavement¹¹⁸. A dome¹¹⁹ covers the center of the mausoleum and arches divide the rest of the space into eight parts.

¹¹⁷ These remains of color might date from a post-Mamluk date.

¹¹⁸ Ibid, 193.

Two different types of roofing are used:

- a) The four rectangle areas (above the entrance, qibla area and the two middle parts of side walls) are covered by beams which support transverse planks (plate 7b and 8). This structure is identical to the ceiling of the great corridor. As a result of the Comité's work it appears more vivid, as it is painted with blue for the background color and gold for the patterns. Probably the colouring was based on some original traces¹²⁰.
- b) The four pentagonal ceilings (plates 9-11a) occupying the corner parts of the mausoleum are based on an geometrical eight-pointed star pattern. All have been restored in 1905 and painted in 1909¹²¹, except for the one in the north corner (plate 9b)¹²². The Comité only repaired the latter's missing parts and did not add any colour in order to preserve the original traces.

Little dome-shaped coffers are inserted in the larger octagonal spaces (plate 10). They contain two different kinds of designs: the first

¹¹⁹ Restoration work of 1903, original dome collapsed in 1776, Herz, *Baugruppe*, 21.

¹²⁰ However, no traces of gold are apparent in the corridor (see plate 6, 7).

¹²¹ Ibid, 23, 24.

¹²² Creswell, *MAE* 2, 193.

being epigraphic (blazons)¹²³ and the second being arabesque. Little bosses decorated by an arabesque pattern fill the smaller octagons of the star pattern. The whole design is highlighted by red, blue and a great amount of gold.

3) The Madrasa (plate 11b)

The ceiling of the madrasa (plate 11b) above the two aisles is a new structure. It has completely no relation to the original one which unfortunately is lost completely. Herz stated that the roof was not original and was removed. He planned a simple roof for protection high enough to cover all the stucco ornament of the walls, but until 1914 it had not been achieved.¹²⁴ Therefore the present ceiling must have been done after 1914.

According to Ibn Iyās, the madrasa was restored by Amir Azbak in 899/1493-4.¹²⁵ Probably the mausoleum was restored as well.

¹²³ Whether or not this inscription can be considered a blazon is discussed in detail above, chapter 3, 27-9.

¹²⁴ Herz, *Baugruppe*, 31.

¹²⁵ Ibn Ayās, *Bada'ī' al-zuhūr* 3: 301.

The Mosque and Mausoleum of al-Nāsir Muhammad

(plates 12 and 13)

This complex was started by al-‘Ādil Kitbughā and was finished by al-Nāsir Mohammad ibn Qalā‘ūn in 703/1304.

Only remains of an original ceiling can be traced in the entrance corridor that is about 13 meters in length and three meters in width.¹²⁶ The remains of the ceiling consist of transverse beams with narrow coffers in between, the whole resting on a cornice of shallow niches. The whole structure is very similar to the one in Qalā‘ūn’s corridor just beside this monument. The only difference is the pattern decorating the narrow coffers. Whereas in Qalā‘ūn’s corridor little circles occupy the empty spaces of the geometrical pattern and appear as dots (plate 6b), here the geometrical pattern is set on a floral arabesque based on palmettes (plate 13).

The Comité found only fragments of this ceiling in 1890 and decided that pictures of them should be taken. Only “urgent” restorations were done at that time¹²⁷. Unfortunately no other ceiling in this complex survived. The north-west iwan of the madrasa was erroneously roofed over by the

¹²⁶ Dimensions are taken from Creswell, *MAE* 2, 235.

¹²⁷ A total of twenty LE was spent on the whole complex. Comité (1890), 46.

Comité¹²⁸. Also the flat wooden ceiling in the mausoleum, executed in 1901¹²⁹, is not based on any original structure.

No. 3

Mosque of Ahmad Bey Kuhya¹³⁰

(plates 14-5)

The so-called mosque of Ahmad Bey Kuhya was originally part of a palace that was transformed into a mosque in 1153/1740¹³¹. Its founder is unknown. According to the blazon painted on the ceiling (plate 14) it can be attributed to the late 13th century or first half of the 14th century¹³².

Kessler dated it 710/1310¹³³. An early Mamluk date seems appropriate, especially after investigating its ceilings, as follows:

¹²⁸ Originally a wind-catcher hood may have existed there. Creswell, *MAE* 2, 237.

¹²⁹ The original dome disappeared about 1870. Comité (1901), 148.

¹³⁰ Dr. O'Kane directed my attention to this building and supplied me with photographs. Unfortunately the building has been closed for several years now, due to its very bad condition.

¹³¹ Meinecke, "Heraldik," 243.

¹³² On this topic see above: chapter 3, 35.

¹³³ Kessler, *Index*, 4.

The ceiling of the eastern iwan (plate 14a) consists of carved beams decorated by a simple arabesque pattern based on half palmettes. The narrow coffers are divided into square and hexagonal areas. The squares areas show three different kinds of decoration, all set in roundels (plate 14):

- a) the first being a blazon which is divided into three registers, the middle field depicting a "table"¹³⁴
- b) the second being a strange rosette
- c) the third being the word *Alī*, repeated three times¹³⁵.

Some of the hexagonal panels are carved and painted with a floral arabesque, while others are decorated with a floral design appearing to be more Ottoman than early Mamluk. They were probably painted over during Ottoman restoration works. The same design appears on some beams as well. There are also some pharaonic lotuses decorating some panels and beams.

On the door soffit opening up to the *majlis* there are indications where once the door was hinged (plate 15). The soffit also shows incorporated

¹³⁴ It is discussed in chapter 3, 35.

¹³⁵ The ceiling is not attributed to the Fatimid period, but the same roundel appears earlier on the facade of Zain al-Dīn Yusuf. The Comité mentioned this roundel: "... *sur une des voussures du jolie plafond qui se voit, on lit très clairement le mot 'd ā r' (maison ou palais)...* ": Comité (1901), 109. But I do not support this reading. At first I thought it is

panels. They are reused parts of Fatimid or Ayyubid origin, similar to panels from the Fatimid Palace (fig. 31). The traces of paint can be attributed to the Ottoman period.

The *majlis* was surmounted by a new floor in the Ottoman period¹³⁶ and its ceiling is obviously of an Ottoman date.

No. 4

The Madrasa of the Amīr Almalik al-Jūkandār

(plates 16-21)

According to an inscription to the right and left of the doorway this madrasa, also called a mosque, was built in 719/1319-20. It was situated opposite the founder's house (*dār*), which is unfortunately lost¹³⁷.

As the photographs show (plate 16-20a), there is not much left of the original ceiling. The only untouched and very interesting ceiling is found in the vestibule of the original entrance (plate 20b and 21)¹³⁸. The rectangular space is covered by three beams, which divide the ceiling into narrow rectangular panels. They are decorated with geometrical patterns based on

a geometrical design resembling swastikas found on contemporary metalwork (see fig. 27 and 28)

¹³⁶ Lézine, "Salles Nobles," 88.

¹³⁷ Meinecke, *Mamluk* 2, 124.

octagonal stars. The outer panels (near the walls) can be compared to the ceiling of the mausoleum of Qalā'ūn (plate 10) where the octagons have hemispherical domes. In the Jūkandār ceiling however flat panels are inserted into the octagons instead of hemispherical domes. Also different are the circles in the Jūkandār ceiling, which are replacements of the bosses in Qalā'ūn's ceiling. This is interesting because two different concepts, design and structure, have been incorporated: the octagonal patterned ceiling filling the rectangular panels of the beamed ceiling¹³⁹. The two middle panels (plate 20a and 21a) are based on the same design, however here two octagons are stretched, creating elongated octagonal fields. This achieves similarity to Qalā'ūn's beamed corridor and can be considered a mixture of both earlier used structural designs (the beamed and the hemispherical domed ceilings).

Another interesting feature is the carved pattern in the frame of this ceiling (plate 21b). A similar pattern could be traced on the frame of the

¹³⁸ Now the mosque is accessed by a new entrance, through one of the iwans.

¹³⁹ All other earlier examples as Imam al-Shaf'ī, Sālih Nagm al-Dīn (under the minaret) and Qalā'ūn where an octagonal patterned ceiling is found use this design applying it to the whole space uninterruptedly.

ceiling of Dayr al-Banāt (plate 22), and thereby enforces a probable date for the latter close to that of the mosque of al-Jūkandār.¹⁴⁰

The building was in a very bad state before the Comité's restoration works¹⁴¹. Patricolo mentions that the ceiling of the sahn and its octagonal lattern were restored after "*les traces retrouvées sur les boiseries subsistantes*"¹⁴². He also states that parts of the turned wood of the southern iwan, bearing traces of gilding and paint, were cleaned and repaired¹⁴³. However the actual ceilings seem to be completely new structures, probably some few original pieces were inserted into the new ceiling (see plate 18b).

¹⁴⁰ Dayr al-Banāt is not yet attributed to an exact date. Dr. O'Kane gives it a date between 1275-1325: "Domestic," 153-5. The subject will be discussed *supra*, dealing with the ceilings of Dayr al-Banāt, 56-7.

¹⁴¹ Comité (1915-9), 82-4, plates LXXXV, XC.

¹⁴² Ibid, 83.

¹⁴³ Ibid, 82-84.

No. 5

Dayr al-Banāt¹⁴⁴

(plates 22-24)

The qā'a of Dayr al-Banāt, part of the Convent of St. George within the Roman fortress in Old Cairo, is not yet connected to an exact date. Sayed, according to the layout of the building (*majlis*-iwan configuration), dates it between 1250 and 1350¹⁴⁵. Dr. O'Kane proposes a date between 1275-1325¹⁴⁶. Maybe by investigating the ceiling a more specific date can be proposed.

There are three ceilings in this building worth investigating. One covers the iwan and the other two, which are identical, cover the side niches of the *majlis*. It is not clear to what extent these have been restored; hence they could be in their original condition.

The roof of the iwan is divided by carved beams into narrow rectangular panels (plate 23). The beams resemble those used in the corridor of Qalā'ūn's complex and in the vestibule of the madrasa of al-Jūkandār.

¹⁴⁴ Dr. O'Kane led my interest to this building and provided me with most of the photographs since mine were of poor quality.

¹⁴⁵ Sayed, "Development," 45-8.

¹⁴⁶ O'Kane, "Domestic," 153-5.

The overall appearance of the ceiling is very much in the same tradition as that of Jūkandār's vestibule-ceiling, only on a larger scale: The design of the narrow panels is the same and even the outer borders of the two ceilings are almost identical (compare plate 21b and 22). Their pattern is only found in these two ceilings. Therefore, one is tempted to speculate whether they could be the work of the same workshop. These observations lead to a date very close to that of al-Jūkandār, which is 719/1319-20. A plausible date could range between 1310 and 1330, giving ten years on either side of the date of al-Jūkandār. Taking the ceiling beside the *majlis* into consideration (plate 24), which shows a structure very similar to Ayyubid ceilings (fig.29) I would rather propose an early date about 1310.

The design of the two small ceilings covering the side areas of the *majlis* (plate 24b) support this proposed date. It is inspired by the octagonal based type with the inserted hemispherical coffers as the mausoleum of Qalā'ūn. But here, in order to break the monotony of the design, the central octagons are combined and formed into an elongated octagon. This center part is flat, lightly carved with spiral arabesques, whereas the other coffers are slightly concave and only painted. Some traces of gold and blue can be recorded. They must have dominated the design.

No. 6

The Sabil of al-Malik al-Nāsir Mohammad

(plates 25)

This little sabil is attached to the north-east corner of the Madrasa of Qalā'ūn's complex in shāri'a al-Mu'izz. Creswell mentions in his '*Brief Chronology*' that it has the name of al-Nāsir Mohammed and therefore proposes a probable date of 703/ 1303-4, relating it to al-Nāsir's complex near by¹⁴⁷. Meinecke attributes the sabil to a date of 726/1326, basing his date on al-Maqrīzī¹⁴⁸.

However, the sabil is in a very poor condition and almost no decoration is visible. It has a *shukhshaikha* with a wooden grill in open latticework. The ceiling is paneled by wooden planks which are painted. The paint has faded to an extent that renders an analysis of the decoration impossible (see plate 25).

May al-Ibrāshī, who was working on the sabil's recent restoration program, informed me of some very interesting facts. The residue paint of the ceiling showed three different kinds of layers on top of each other. The oldest layer seems to date to the period of al-Nāsir, the latest layer seems to

¹⁴⁷ Creswell, *Chronology*, .

¹⁴⁸ al-Maqrīzī, *al-suluk* 2/1,274:1-3; Ibid, *al-khitat* 2, 97: 16-19; in Meinecke, *Architektur* 2, 206.

have been added in the time of Qaitbay, and the intermediate one seems to have been added sometime between both periods. Fortunately no layers were added after the date of Qaitbay.

This is a good example that illustrates one of the problems occurring while analyzing the ceilings. With the bare eye and without a detailed study including the analysis of the materials (paints) some ceilings cannot be analyzed appropriately.

No. 7

The Mosque of Ulmas

(plate 26)

The mosque of Ulmas, built in 730/1329-30, is one of the few remaining Friday mosques built during Sultān al-Nāsir Muhammad's third reign. In spite of restorations carried out between 1910 and 1912¹⁴⁹, 1927 and 1928 the mosque is in a very bad condition¹⁵⁰.

¹⁴⁹ The prayer hall was almost entirely rebuilt by the Comité in 1911: Comité (1911), 102; and the wooden ceiling of the riwaqs restored in 1901: Comité (1910), 33, 103.

¹⁵⁰ As Dr. Chahinda Karim reports in her recent article: "Ulmas," 123-47. Due to the rising ground water I could not photograph the ceiling. Fortunately Dr. Karim had previously taken some photos and I received them via Dr. O'Kane.

The ceiling over the *riwaqs* (plate 26) is composed of longitudinally carved beams covered by wooden planks. The carving of the beams consists of a polylobed interlaced design. It is a very dense design, especially when compared to the panels, which show a simple geometrical pattern. The decoration of the panels appears to be uncommon. It is a very abstract design composed of aligned circles interlaced with a simple geometrical pattern. Empty spaces are filled with dots and a six-petted rosette is placed in the center of each circle. A similar design appears in the panels of the ceiling of the mosque of al-Maridānī and they are probably of Ottoman origin, perhaps dating to the time when the minaret of Ulmas was added in 1125/1713. This would mean, that the beams are of Mamluk origin, whereas the planks were renewed in an intermediate phase.

No. 8

The Mosque of al-Nāsir Mohammad at the Citadel

(plates 27-29)

On the old structure of the mosque (718/1318) al-Nāsir Mohammad built a new enlarged structure in 735/1335¹⁵¹. This ceiling is the **only** one mentioned by al-Maqrīzī¹⁵²:

¹⁵¹ The first *khutba* was held in 736/1336. Meinecke, *Architektur* 2, 167.

“...مفروش الارض بالرخام مبطن السقف بالذهب...”¹⁵³ (...the floor is covered by marble, the ceiling gilded...)

The ceiling of the arcades (plate 27 and 28) is based on an octagonal geometrical design following the structure of the ceiling in Qalā‘ūn’s mausoleum. Casanova describes the ceiling as being relatively intact, only missing the dome (it had fallen in 928)¹⁵⁴. Major parts of the ceiling covering the sanctuary were restored in 1947¹⁵⁵ and all ceilings were restored in 1948-1949 (see photograph of Comité: plate 29)¹⁵⁶.

Fortunately only the missing coffers were added, some others repaired and no new paint added. This is supported by comparing the actual ceiling (plate 27 and 28) with Bourgoïn’s drawing¹⁵⁷ (fig. 30) and description¹⁵⁸. The drawing matches with the existent ceiling. The hemispherical domes

¹⁵² I searched extensively in al-Maqrīzī and this is the only part which mentioned a wooden ceiling.

¹⁵³ al-Maqrīzī, *Khitat* 2, 213.

¹⁵⁴ Casanova, *Citadelle*, 620-25.

¹⁵⁵ Comité (1946-1953), 116.

¹⁵⁶ *Ibid*, 117.

¹⁵⁷ However, Bourgoïn draw the two different designs of the coffers alternating with each other, thus leading to a wrong perception. By looking at the actual ceiling it is obvious that this rhythm does not exist in the way he recorded it.

¹⁵⁸ Bourgoïn, *Précis*, III 17, plate III 67.

are not carved, only painted with two different designs: a golden arabesque pattern on a blue background and a 'non Mamluk' design. Thus, the ceiling probably was restored in an intermediate period, before Bourgoïn saw it.

The arabesque pattern could be original, whereas the other design appears to be very 'baroque'. The basic structure of the ceiling remains Mamluk, since it fits al-Maqrīzī's description and is typical for the period.

No. 9

The Qā'a (mosque) of Sharaf al-Dīn

(plates 30-34)

The qā'a of Muhibb al-Dīn is commonly known nowadays under the name of Sharaf al-Dīn, who transformed it into a mosque during the 17th century¹⁵⁹. Creswell dates it to 713/1314-5¹⁶⁰, while Lézine is more careful and ascribes it to the period of 1317-1337¹⁶¹. Only the northern iwan and the side niches have old coffered ceilings, all other parts are modern structures.

¹⁵⁹ Lézine, "Salles Nobles," 92.

¹⁶⁰ Creswell, *MAE* 2, 263.

¹⁶¹ Lézine, "Salles Nobles," 89-93.

The ceilings basically consist of beams dividing the ceiling into narrow panels. Small beams divide the latter into square and rectangular carved areas. All beams are painted with floral cartouches, definitely dating from an Ottoman period, probably the 17th century when the qā'a was transformed into a mosque.

Some panels are carved with geometrical designs, others with interlaced patterns including floral elements. These designs (plates 31-33) appear to be different from those seen in other Mamluk ceilings. The geometrical design that has a circle as its center (plate 31) appears also in the mosques of al-Maridānī and Ulmas. They are all subject to possible later Ottoman additions.

After closely examining the whole ceiling it becomes very likely that not only the paint, which could have been added in Ottoman restoration works, but the whole ceiling might very well date to an Ottoman period of the 17th century. Maybe the original Mamluk ceiling had a similar structure and influenced the new 17th century construction¹⁶².

Restoration works have been done between 1913 and 1917¹⁶³.

¹⁶² Lézine proposes a similar idea: "Salles Nobles," 92.

¹⁶³ Ibid, 90-1.

No. 10

The Palace of Bishtāk

(plates 35-38)

The construction of the palace of Bishtāk was finished in 740/1339¹⁶⁴. It is located on the area of the old eastern Fatimid palace and must have been originally a very huge complex. It went through different kinds of modifications until it reached its present shape¹⁶⁵.

The first ceiling being discussed is located in the entrance vestibule. It consists of two parts; the first one occupies the area near the entrance (plate 35b) while the one attached to it is slightly narrower and lower (plate 35a). The beams, supporting transverse wooden planks, are carved with an arabesque pattern. Some parts of this pattern still show their original coloring while other parts are painted with a completely different pattern, not following the lines of the carving. The latter is definitely late Ottoman painting. The same is applicable for the panels. They show a carved geometrical star pattern but some parts are covered by later Ottoman painting. It remains in question whether any elements of this ceiling are of Mamluk origin.

¹⁶⁴ Meinecke, *Architektur* 2, 171.

¹⁶⁵ For a detailed report on this topic see Speiser, "Anmerkungen," 274-77.

The second ceiling (plate 36a) is located in the main iwan flanking the durqā'a¹⁶⁶. It is a coffered ceiling, based on a geometrical octagonal star-pattern, following the 'multi-hemispherical-dome ceiling' of the mausoleum of Qalā'ūn. The transitional zone between ceiling and walls is treated in the exact same manner as in Qalā'ūn's complex. Only the central part shows an innovation: the four central octagons (and their domes) are replaced by one large octagon. It frames an eight petalled rosette. In this way the monotone appearance of the design is eliminated.

The coffers show a different kind of decoration: four have epigraphic designs, four carry the blazon of the founder¹⁶⁷ (a napkin) and the rest have several different arabesque patterns.

The arcades flanking the durqā'a show a ceiling consisting of large wooden muqarnases (plate 37b). It is heavily restored but some traces, probably of Mamluk origin, survive (traces of Ottoman paint are apparent as well).

Finally there is a ceiling in one of the side rooms¹⁶⁸ (plate 38a). It is based on the same design as the ceiling of the iwan with some slight

¹⁶⁶ According to Lézine the durqā'a was covered in a wrong manner. The Comité decided to construct this ceiling in 1936: Comité (1936-40), 42-43. Lézine proposes a lantern with openings: "Salles Nobles," 103.

¹⁶⁷ They are discussed in detail in Chapter 3, 29-31.

¹⁶⁸ South of the main iwan.

variations: it has no central design and little bosses are added to the small octagonal areas (as in the case of Qalā'ūn's ceiling).

Restoration works carried out in this building are well documented by Speiser¹⁶⁹.

No. 11

The Mosque of Altinbughā al-Māridānī

(plates 39-42)

The mosque of Altinbughā al-Māridānī was constructed in 738/1338-740/1340. Al-Nāsir provided wood and marble materials from the state's property for this building¹⁷⁰.

When the Comité inspected the mosque in 1894 it was in a very bad condition. Therefore they decided to include it in their extensive restoration program. Plate 42 illustrates the mosque's condition before restoration works were carried out between 1894 and 1905¹⁷¹.

Before analyzing it should be pointed out that the ceilings of this particular building are a very controversial subject. They underwent extensive restoration and it is not clear whether the 'original traces' found by

¹⁶⁹ Speiser, "Anmerkungen."

¹⁷⁰ Meinecke, *Architektur* 2, 178.

¹⁷¹ Comité (1905), 115-25.

the Comité are of Mamluk or Ottoman (17th century) origin. In the 17th century the mosque underwent some changes, for example a flat roof instead of the dome that disappeared, was added to the area in front of the qibla¹⁷².

The ceiling consists of a wooden beams that are covered by planks. The beams are carved with an arabesque pattern. It is worth mentioning that all beams in all different locations of the mosque (the roof flanking the qibla dome, arcades of sanctuary and arcades around courtyard) show the same design, whereas the panels are treated differently. The interlaced design seems somehow odd (plate 39b), almost resembling baroque elements and therefore could be placed in the Ottoman period (17th century). In addition, the 'original' traces which were not over painted during restoration works (see plate 40) show a good deal of white paint commonly used in the decoration of the Ottoman period¹⁷³.

Two different kinds of treatment of the panels appear. The panels flanking the dome over the qibla area are divided into squares and rectangles by the use of small cross-beams (plate 41a), which support the continuous planks (fig. 35). Octagonal designs dominate the decoration.

All other ceilings of the mosque show plain panels; not divided into squares and rectangles. They are decorated with an abstract geometrical

¹⁷² Ibid, 118.

¹⁷³ As far as I know, the Mamluk repertoire did not include any white color on wooden structures.

design, which rather seems of an Ottoman origin. It seems more plausible to relate the ceiling to a 17th century addition. A similar design decorates one of the panels in the mosque of Sharaf al-Dīn (plate 31), which appeared to be an Ottoman item. In addition, the zig-zag frame of the panels (painted in gray and black, plate 39b) is not of Mamluk origin.

Conclusively, the only Mamluk elements of the ceilings could be the beams and the areas beside the qibla-dome.

No. 12

The Qā'a of Muhibb al-Dīn al-Muwaqqa

(plates 43-47)

This qā'a is commonly dated to 1350¹⁷⁴, based on an inscription in the big hall mentioning the name of Muhibb al-Dīn al-Muwaqqa al-Shafī'ī. It is also known under the name of Uthmān Kathkhuda¹⁷⁵. However, an attribution to a late 15th or early 16th century¹⁷⁶ is more convincing, especially when investigating the ceilings. I included this monument in my catalogue, because it illustrates how difficult a distinction of similar styles and periods can be.

¹⁷⁴ Kessler, *Index*.

¹⁷⁵ Lézine, "Salles Nobles," 124.

¹⁷⁶ As proposed by *ibid* and Pauty: *Palais*, 44-45.

Ceilings, very much in the Bahri tradition, cover several areas of this building. The iwans are covered by ceilings composed of beams and little crossbeams dividing their panels (plate 43). In contrast to the arabesque patterns applied to the beams, geometrical patterns are used to fill the spaces of the panels. The decoration is carved and painted¹⁷⁷. By taking a closer look at the transverse beams (plate 47a) a non-Bahri feature becomes apparent: the beams are rounded in the center parts whereas Bahri Mamluk beams are edged.

Another distinction is well illustrated in the ceilings of the side niches (plate 44-46): they have relatively flat designs based on overall patterns. Tiny wooden sticks are attached to the surface of the ceiling in order to imitate inlaid strapwork. By the end of the Bahri period 'overall-patterns' were not yet commonly used and therefore this ceiling must be post-Mamluk, probably Circassian Mamluk.

¹⁷⁷ In Ottoman decoration, for example, less carving is used and many elements are only added by paint.

No.13

The Mausoleum and Mosque of Tatar al-Higāziyya

(plates 48-50)

This building was constructed between 748/1348 and 761/1360¹⁷⁸.

The ceiling of the vestibule is based on an octagonal geometrical pattern (plate 50). A large octagon with an inscribed epigraphic roundel is located in the center (plate 50b). It is similar to the roundels in the madrasa of Mithqāl (plate 57b and c), which are located in the window recesses. The epigraphic text is Qur'anic¹⁷⁹. Unlike several previously described examples (Qalā'ūn, Bishtāk, Nāsir Muhammad / citadel), miniature domes do not pierce the octagons of the pattern. The areas are flat and painted with three different motifs (plate 50a):

- 1) a six-peteled rosette
- 2) a rather 'non Mamluk' design
- 3) a kind of whirling rosette which also appears in the ceiling of

Ahmad Kuhya (plate 14b and c).

The ceilings of the iwans (plate 48) seem to date to a post-Mamluk period, the beams showing elements of European influence.

¹⁷⁸ Kessler, *Index*.

¹⁷⁹ Qur'ān XVII/84 (beginning). Meinecke, *Restaurierung*, 55.

No. 14

The Palace of Amir Tāz

(plate 51)

This monument was constructed in 753/1352. It has several features in common with the palace of Bishtāk as the arches of the iwan¹⁸⁰. Only one original ceiling was still in situ until some twenty years ago. It was located in one of the recesses of the iwan and it resembles the ceiling discussed infra in the palace of Bishtāk. Similar to the vestibule in the mosque of Tatar al-Higaziyya it had a large octagon in its center.

The ceiling was restored by the Comité¹⁸¹.

No. 15

The Madrasa of Amīr Sābiq al-Dīn Mithqāl al-Anūkī

(plates 52-57)

The madrasa of Mithqāl al-Anūkī, founded in 770/1368-9¹⁸², was originally part of a complex, which included the house of the founder and a

¹⁸⁰ Lézine, "Salle nobles," 106-7.

¹⁸¹ Comité (1946-53), 290.

¹⁸² This date is proposed by Meinecke, *Restaurierung*, 49.

sabil. Around 1409 and again in 1839-40 the complex underwent structural changes¹⁸³. Fortunately the wooden ceilings were left untouched and are in a relatively good condition¹⁸⁴.

Entering the madrasa we find ourselves in a vestibule. A beamed wooden ceiling covers it (plate 52a). All beams are carved and painted with an interlaced arabesque pattern. On top of the beams transverse planks rest; these are decorated with a geometrical star pattern.

The northern part of the vestibule is of an irregular shape and covered by painted wooden planks (plate 52b). Here the wood is only the 'carrier' of the paint; it is not carved and has no paneling. Here a roundel flanked by polylobed cartouches decorates the area. Naturalistic floral elements dominate this design. Unfortunately as a result of the recent low quality painting and by using very bright colors this ceiling appears very 'non-Mamluk'¹⁸⁵.

¹⁸³ Ibid, 61.

¹⁸⁴ I want to mention at this point, that their appearance nowadays is striking due to the vast amount of paint added recently. Between 1973-79 very careful restoration works were done by the German Archaeological Institute. The later added paint destroyed all the effort done in the restoration work, erased many original traces and lead to a deformation of the overall spirit of the ceilings. Compare ceilings before and after restoration (plate 53-6).

¹⁸⁵ Probably it is Ottoman.

A beamed coffered ceiling covers the qibla iwan (plate 57a). The narrow spaces created by the beams are divided into square and rectangle areas by the use of little cross beams. Fortunately no new paint was added to this part of the madrasa and thus some traces of the original decoration are still visible.

Niches, flanking the courtyard, are covered by flat ceilings (plate 53). Their frame is carved and painted with a star pattern, while the recessed central panels are decorated with a "widespread" arabesque pattern. This is an early example showing the tendency of ceilings becoming "designed all over" on a rather flat surface instead of being beamed and paneled.

The original ceiling of the iwan opposite the qibla is lost. The two niches attached to it still have their original decoration (plate 55). A similar type of ceiling, as used in the niches of the courtyard, is applied. However, the decoration is different: an interlaced arabesque frames a geometrical star pattern, whereas in the courtyard recesses a geometrical pattern frames an arabesque. This illustrates the main concept of the design: linear, geometrical elements are always contrasted with curved, vegetal arabesques.

Wooden lintels decorate the top of the recesses on the northern façade (plate 57b and c). They hold an inscribed medallion. Some are partly lost

but enough remains to reconstruct their reading, which is Qur'ānic XVII/84 (beginning)¹⁸⁶.

The ceilings of this madrasa show a rich repertoire of naturalistic arabesques and flowers. This is an important criteria for dating since such naturalistic elements appear only after the construction of the madrasa of Sultān Hasan (757/1356-764/1362)¹⁸⁷. However, the ceilings in this madrasa show several elements of decoration ahead of its time and therefore it remains questionable if they are original.

Restoration works prior to that of the German Archeological Institute were carried out in 1889-90 and between 1911 and 1929 by the Comité. They did not particularly affect the ceilings¹⁸⁸.

¹⁸⁶ Qur'ān XVII/84 (beginning). A very similar inscribed medallion is found in the contemporary madrasa of Tatar al-Higāziya. Meinecke, *Restaurierung*, 55.

¹⁸⁷ Ibid, 49.

¹⁸⁸ Ibid, 62.

No. 16

The Mosque of Khushqadam al-Ahmadi

(plates 58-62)

This structure was originally part of a house and was later transformed into a mosque. According to the inscription over the entrance door within the *durqa'a* it was erected in 768 (778)/1366 (1376-7)¹⁸⁹.

The ceilings of this building illustrate different phases. The oldest parts are in the original *qā'a*. Carved wooden beams divide the ceiling into panels that are again divided into square and rectangular panels by the use of little crossbeams (plate 61). The narrow niches flanking the main iwan are decorated by a polylobed design, filled by naturalistic floral motifs (plate 62).

A beamed ceiling covers the vestibule (plate 58). Its panels and beams are only painted and not carved. Plain planks cover the corridor attached (plate 59). Their decoration is painted and illustrates a wide range of naturalistic floral motifs. Based on stylistic grounds this part could be attributed to the late Bahri period. Analysis of the blazon as part of the design enforces this date¹⁹⁰.

¹⁸⁹ Creswell, *Chronology*, 111.

¹⁹⁰ See chapter 3, 31-4.

The ceiling of the corridor leading to the ablution area is painted in a different manner (plate 60). Its execution is of a lower quality. Roundels, which are set on a floral background, dominate the design. They contain different designs, the most important being the blazon of Khushqadam al-Ahmadi¹⁹¹. It indicates a definite 15th century date for this ceiling.

No. 17

The Madrasa of Umm al-Sultān Sha'bān

(plates 63 and 64)

This madrasa was built in 770/1368-9. The original ceilings of the two main iwans (qibla and opposite) are unfortunately completely lost. One of the small side iwans has a ceiling, which is in a very good condition (plate 63 and 64a). It consists of carved beams that divide the ceiling into six narrow panels. The latter are divided into square and rectangle areas by the use of small crossbeams, which are also carved. A narrow outer frame completes each panel.

¹⁹¹ Ibid, 31-4.

Structurally the ceiling is very similar to that of the Great Corridor of Qalā'ūn's complex¹⁹² (plate 5-7). Variation is only apparent in the use of the decorative motifs. The square panels are decorated with geometrical star patterns, while the rectangular ones show arabesques.

The ceiling of the opposite iwan is identical. It is in a poor condition (plate 59b), but illustrates very clearly the structure of the ceiling.¹⁹³

No. 18

The madrasa of Sultan al-Malik al-Zāhir Barquq

(plates 65-68)

This complex was finished in 788/1386¹⁹⁴. It was attached to the madrasa of al-Nāsir Muhammad. Sultan Barquq definitely wanted to construct a monument to compete with the glorious attendant of the area: the madrasa of Sālih Nagm al-Dīn, Qalā'ūn's complex, the palace of Bishtāk etc.

¹⁹² It has the same transitional zone between wall and ceiling, the beams show shell-shaped carvings (plate 63b) etc.

¹⁹³ Restoration works were done by the Comité (1946-53), 202-3.

¹⁹⁴ Creswell, *Chronology*, 116.

The wooden ceiling of the qibla iwan is often referred to as a masterpiece. Whether or not this is really the case has to be analyzed. It differs in style and construction from the previous examples. Its present shape is almost an entire reconstruction of the Comité, partly based on original fragments with additional inspiration by contemporary Mamluk frontispieces¹⁹⁵. In 1889 this ceiling was reconstructed but not yet painted. The enormous amount of 405 LE was requested for the painting of the ceiling alone¹⁹⁶. Unfortunately no pictures of the ceiling prior to the Comité's work are available¹⁹⁷. Therefore we have to accept the image delivered to us by the Comité.

The iwan is divided into three parts: two narrow side aisles and the wide central aisle. The ceilings of the side aisles are composed of a design based on roundels (plate 66). Structurally they are related closely to a muqarnas composition. A similar wooden ceiling is found earlier in the palace of Bishtāk (plate 37) flanking the courtyard. Here however, a large central medallion is surrounded by smaller ones. All are heavily decorated with arabesques, with the absence of geometrical patterns.

¹⁹⁵ Herz, *Grand, Comité* (1889), 101-106.

¹⁹⁶ *Ibid*, 106.

¹⁹⁷ There are no photographs at all of the discussed monument published in the 'Exercises' of the Comité.

The ceiling of the central part of the iwan is basically a flat area pierced with five intersunk polylobed circles (plate 66). The largest one is located in the center (plate 67a) and the four inferior ones are located in the corner areas (plate 66b and 68a). Four epigraphic roundels are placed in each corner. The whirling inscription (plate 62b) is repeated four times and reads:

قل كل يعمل على شاكلته (Qur'ān 17: 84)

It is a frequently used extract of the Qur'ān, previously painted on the ceilings of the madrasa of Tatar al-Higaziyya and the madrasa of Mithqāl.

The items of the ceiling mentioned above are incorporated into an overall pattern, consisting mainly of rosettes, palmettes and arabesques. A geometrical border frames the whole ceiling composition. Obviously, the design of this ceiling is closely related to contemporary (or slightly earlier) illustrated Qur'ānic frontispieces, especially to those done by Ibrahīm al-Amidī (see plate 69). This painter developed a style apart from the traditional 'star-polygon type' and created compositions with a general overall pattern appearance¹⁹⁸.

Another interesting aspect is the structural composition of the ceiling. It does not dominate the design as is the case with most previously discussed examples. Technical solutions were found to enable the execution of this new design. The beams that support the ceiling are not visible. However,

¹⁹⁸ James, *Qur'āns*, 197-214.

the priority of the design might have consequentially affected the stability of the ceiling. Probably this is one of the reasons for its late stage of deterioration in the late 19th century.

Chapter 5

Conclusion

One of the main purposes of this research was to compile a descriptive account of the major Bahri Mamluk ceilings. The race against time as many ceilings are deteriorating or suffering a decline resulting from pollution or other environmental hazards makes their documentation necessary. There are no previous sources dedicated to the documentation of these ceilings, i.e. the *Description de l'Egypte* hardly documents any ceilings and al-Maqrizi barely mentions them or includes a general statement such as "... the floor is covered by marble, the ceiling gilded..."¹⁹⁹. The Comité is the major recent source; however it doesn't document in detail, mainly mentioning the circumstances of restorations they carried out. Thus, the catalogue and the visual illustrations should supply basic data for scholars or other individuals who would like to undertake further studies concerning Bahri Mamluk ceilings.

The major problem faced while writing this thesis was to figure out the originality of the ceilings. With the passing of years wood does not necessarily show that it has been restored or sections completely been replaced and it could not be generally assumed that the ceilings would fit with the foundation date of the monument. In some cases the whole ceiling might

¹⁹⁹ Al-Maqrizi, *Khitat* 2, 213.

be replaced in a later period as in the case of the mosque of Shaikhu (plate 70); in other cases probably only some elements, as the planks covering the beams in the mosque of Ulmas, were renewed. Unlike with metalwork for example these changes in the original ceiling cannot always be easily detected. Additions could date from a wide variety of periods, ranging from Circassian Mamluk, Ottoman to even 19th century neo-Mamluk.

The only basis for deciding whether or not a part has been added and assigning it a date depends on technical and motival analysis of the decoration, as has been the case in this thesis, and on scientifically testing the wood used. The second method, however, is not widely used and is out of the scope of this paper.

In chapter one pre-Mamluk ceilings were studied. Definitely the Bahri Mamluk ceilings were based on forerunners. Despite the fact that wood had been a rare commodity in Egypt it had a long existing woodwork tradition. Greco-Roman, Coptic, Fatimid and Ayyubid woodwork were of high quality and craftsmanship. Fragments originating from these periods still exist²⁰⁰ (now mainly in museums), but unfortunately only very few ceilings survived *in situ*. However, the two remaining ceilings in the original vestibule of Imam

²⁰⁰ Examples for the high craftsmanship are the wooden *mihirabs* of the mausoleums of Sayyida Nafisa and Ruqayya as well as several Ayyubid cenotaphs, among them the *tabut* of Imam al-Shaf'i.

al-Shafī and under the minaret of al-Sālih Negm al-Dīn give reason to attribute the development of the Bahri Mamluk ceilings to a local tradition (as will be explained further below).

Decorative analysis shed light on several aspects. Fatimid and Ayyubid rectangular geometrical patterns were replaced by more complex polygonal star patterns and an important development in Bahri ceilings is in the conformity of pattern and space. The ceilings in the mosque of Kohya are an unique example. They show interesting decorative elements, among them pharaonic lotuses and a blazon indicating an approximate date for the monument. The different blazons found in the mosque of Khushqaddam were of interest as well. They illustrated the change of ownership of the building. In the case of the mosque of Sharaf al-Dīn the overall appearance of the ceilings gave a general Mamluk impression but after closer examination a later date seems more likely²⁰¹. All beamed coffered ceilings (of type 1) originating from the Bahri period are composed of square beams that are narrow in their center to avoid a bold appearance and are extensively carved. This stands in contrast to the rounded beams of later periods that are mainly decorated by paint.

Commonly the ceilings were referred to as 'saqf shāmī'²⁰², Syrian ceilings, implying that there were strong influences from Syria. This may be true in the case of marble work, but cannot be supported in the case of woodwork. Convincingly Meinecke claims that Baibars brought not only marble material, but also artisans from Syria in 1268²⁰³. Again, after Qalā'ūn finished and decorated Baibar's mausoleum in Damascus in 1281 with local workmen, he brought them with him to Cairo in order to work on his own monuments. After this date an obvious decline in marble works in Syria can be noticed²⁰⁴, whereas it just started to flourish in Egypt.

But this theory cannot be supported in the case of the wooden ceilings. As mentioned above Egypt already had a very sophisticated woodwork tradition and thus there was no need to import a building tradition. The ceilings show a gradual development. No abrupt change in style and taste occurs which would be a consequence of imposed structures. Some influences should not be denied. Of course monuments which they saw, and even restored in some cases, impressed the rulers. As early as in 1132 AD

²⁰¹ The beams are only painted and the motifs used in the carved panels seem to from a later period.

²⁰² Mayer, *Woodcarvers*, 14.

²⁰³ Meinecke, "Genese," 59,60.

²⁰⁴ Ibid, 63-7.

when the temple of Bel at Palmyra, dating from about 36AD, was transformed into a mosque its ceilings might have influenced the Ayyubid ceilings²⁰⁵.

Another possible source of influences could be Yemen. Pre-Mamluk ceilings in Yemen survived until today and there was extensive trade between the Mamluks and Yemen at the behest of the Karimi merchants. By comparing the styles of the ceilings and their decoration they show common structures but give different appearances. One could not mistake a Mamluk ceiling for a Yemeni one.

Some influences originating from North Africa and Andalusia might be relevant. As Herz and Creswell²⁰⁶ mention, due to the unstable economic and political situation, workmen from Andalusia and North Africa moved to Egypt, especially between 1085 and 1248. Thus, the stucco arches in the mausoleum of Qalā 'ūn for example show these strong influences. Many motifs found on wooden ceilings are found in stucco as well. Therefore, more or less indirectly, Andalusian and North African motival influences might be present.

However, all these possible influences can only be considered fragments that were added to the repertoire and incorporated to form the distinguished Mamluk style.

²⁰⁵ This is discussed in chapter one.

²⁰⁶ Herz, *Baugruppe*, 14; Creswell, *MAE* 2, 228-9.

The development of the ceilings during the Bahri Mamluk period can be traced. Under Sultan Qalā 'ūn the peak of ceiling structure was developed. It is based on an octagonal star pattern with incorporated hemispherical domes, each dome covering an octagonal opening. Probably it was inspired by the earlier Ayyubid models but its technique is completely different and much more complex. In addition, the Ayyubid ceilings [Imam al-Shaf'ī (plate 2) and Salih Nagm al-Dīn (fig.20)] were not well planned for their space. This is obvious at the border parts where the pattern is simply cut off upon reaching the walls. It is only in the ceiling of the mausoleum of Qalā'ūn (plate 11) that the borders of the star pattern are well developed and terminate in the transitional zone between wall and ceiling. This type was only used for a short period of time, a time of economic prosperity and wealth. And even during that period only the sultan himself or privileged amirs could afford it²⁰⁷.

The beamed coffered ceilings were the most commonly used structures. Their beams, consisting of high quality wood, were carved in a sophisticated manner with arabesques. The panels, mainly consisting of planks were carved as well. All ceilings were painted and gilded at their finishing stage. No

²⁰⁷ Therefore this type of ceiling is found only in Qalā 'ūn's complex, Nasir Muhammad's mosque at the citadel, the palace of Bishtāk and the palace of Amir Tāz.

differentiation in domestic and religious architecture can be traced. Both used extensively the same types of ceilings executed in similar craftsmanship.

By the time sultan Barquq came to the throne a steady decline began. This was due to the economic crises that resulted in the shortage of good wood and raw materials in general (such as metals). In the mosque of Barquq a new approach was taken in designing the ceiling of the iwan (plate 66), probably in order to find a solution for the wood shortage. The first impression of the ceiling is very pleasing, as it resembles a Qur'anic frontispiece. But on closer examination several less laudatory aspects are revealed. Probably, in order to hide the inferior quality of the structural beams they were completely covered by wooden planks. This sharply contrasts with other Mamluk monuments before the reign of Barquq in which the beams were uncovered. The beams might have been unsuitable for carving. Technically this ceiling indicates a decline as well. The carving is neither as sophisticated nor as skilled as before. The beams in Qalā 'un's complex (plate 6 and 7) and in al-Nāsir Muhammad's madrasa (plate 12 and 13) and even in the madrasa of Umm Sultan Sha'bān (plate 63 and 64) show more sophisticated three-dimensional interlaced carving while that of Barquq is barely two-dimensional and not as deep. Furthermore the border design around the main panel of the ceiling is made of strapwork (plate 61b). This technique, where tiny sticks of wood are glued or attached by nails, was

introduced in this period in order to exploit every tiny piece of wood²⁰⁸. Additionally it did not need high craftsmanship. However, despite inferior materials and an obvious decline in craftsmanship the ceiling of Barquq creates a stunning effect and can be considered an innovative model for 'overall-based designs' to follow. Though, all periods to come did not reach the same level in quality and perfection as was attained in the classical Bahri Mamluk era.

A final note has to be added on the recent restoration programs. While doing the fieldwork for this thesis several buildings were being restored. Some of the ceilings were completely repainted with bright colors by using large brushes and in an unprofessional manner²⁰⁹ thus destroying the spirit of the original ceiling. The German Archaeological Institute, in the case of the madrasa of Mithqāl for example, carried out (and documented) very careful restoration works during 1973 and 1979. The ceilings were cleaned and repaired without adding new layers of paint (plate 54 and 56). Unfortunately, shortly after these restorations were completed, all the ceilings were repainted

²⁰⁸ An other example is the screen in Barquq's mausoleum in the cemetery.

²⁰⁹ For example in the mosque al-Ghanamiyya. This monument is not included in the catalog, because the ceilings do not represent a Mamluk tradition to me and it was almost impossible to take photographs of the ceilings (due to the restoration work).

in a careless way that resulted in their inappropriate appearance today²¹⁰.

These ignorant methods should be stopped. They only erase the few original traces left. Appropriate restoration is required, a restoration that fits with the building tradition of the monument and conserves its original traces.

²¹⁰ The same is relevant in the case of the *khanqah* of Sheikhu.

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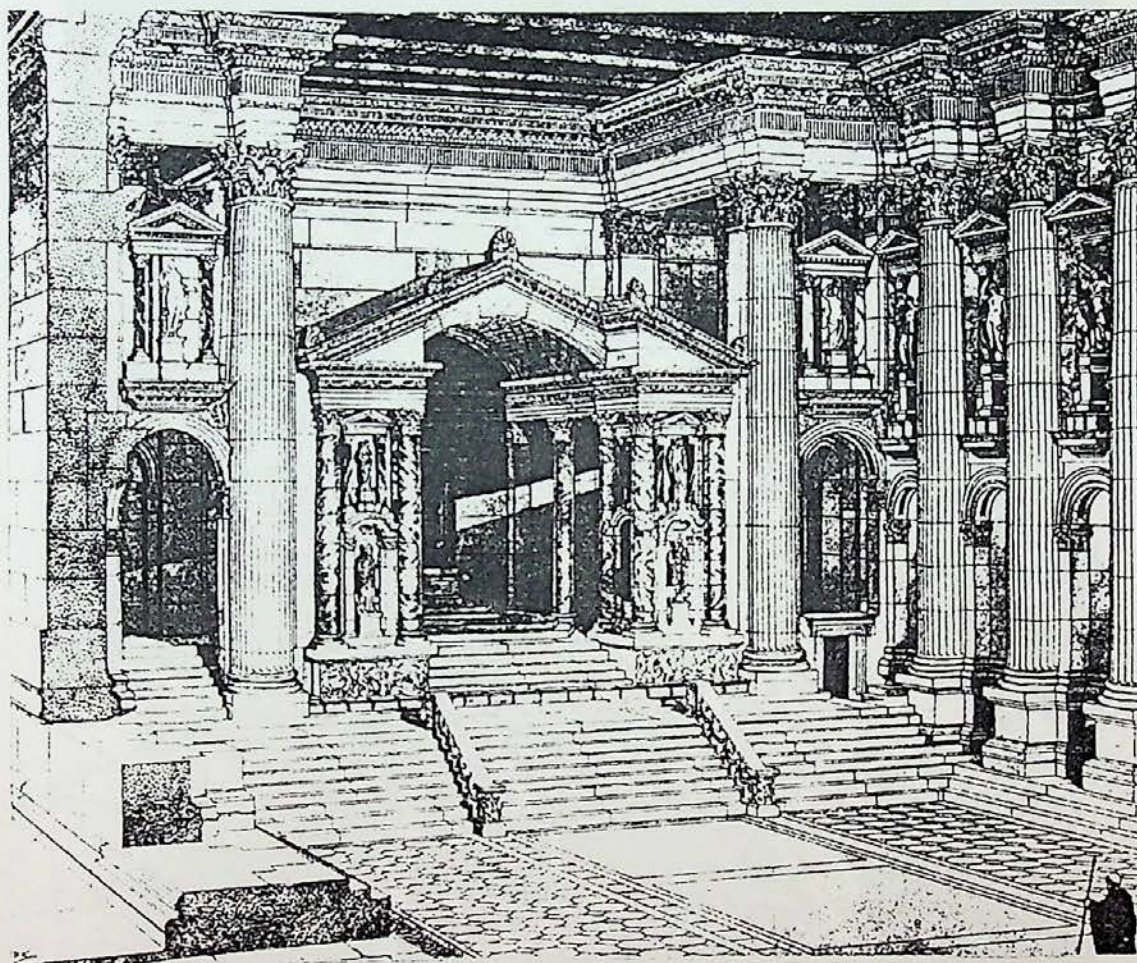


Fig. 1 Temple of Bacchus at Baalbek
(after Ragette, 49)

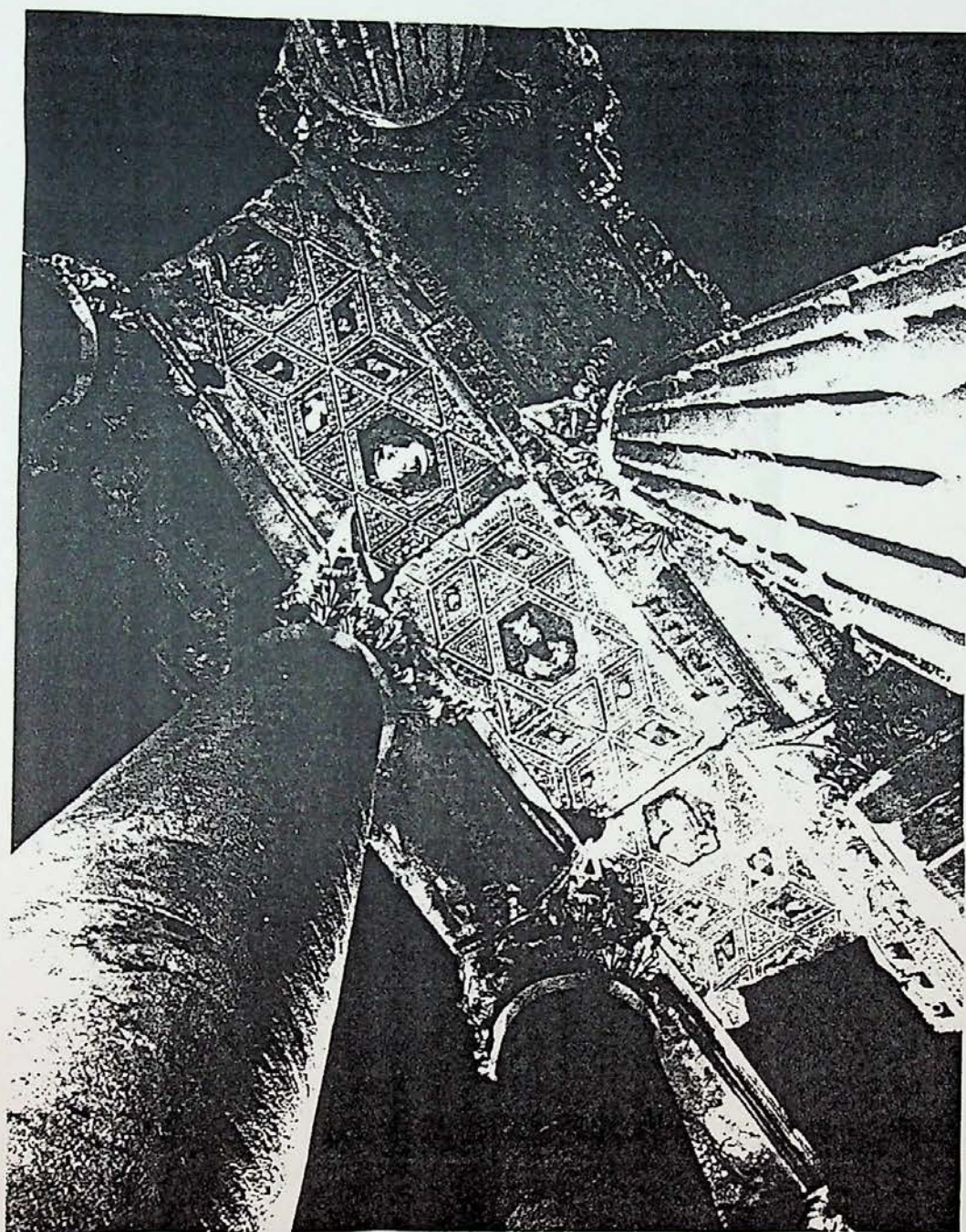


Fig. 2 Ceiling over the Peristyle, Temple of Bacchus
at Baalbek

(after Ragette, 133)

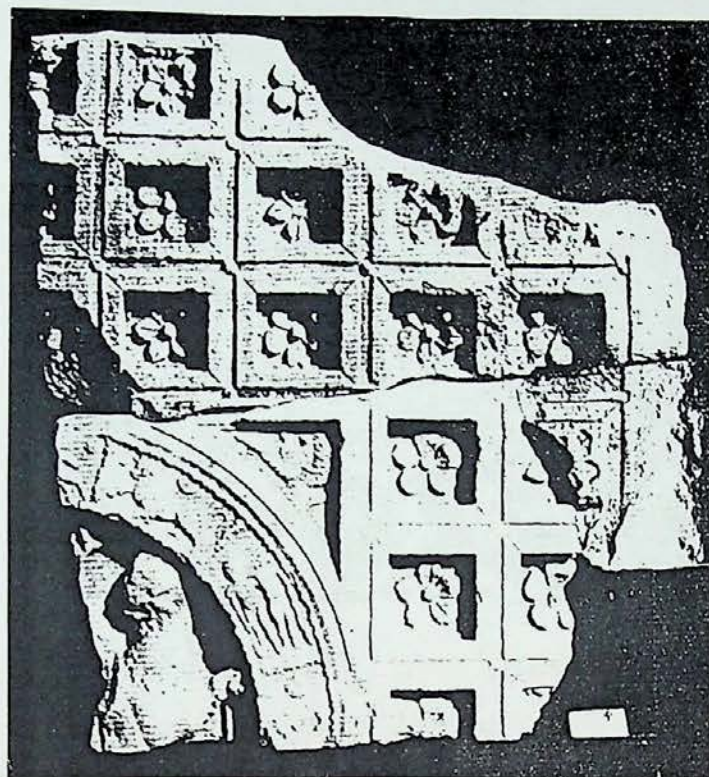


Fig. 3

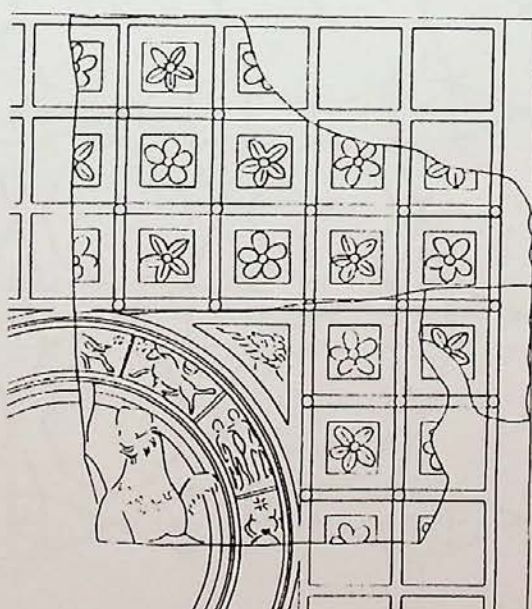


Fig.4

Fig.3,4 Ceiling of the Northern Chapel of the Cella,
 Temple of Bel at Palmyra
 (after Michalowski, 114,115)

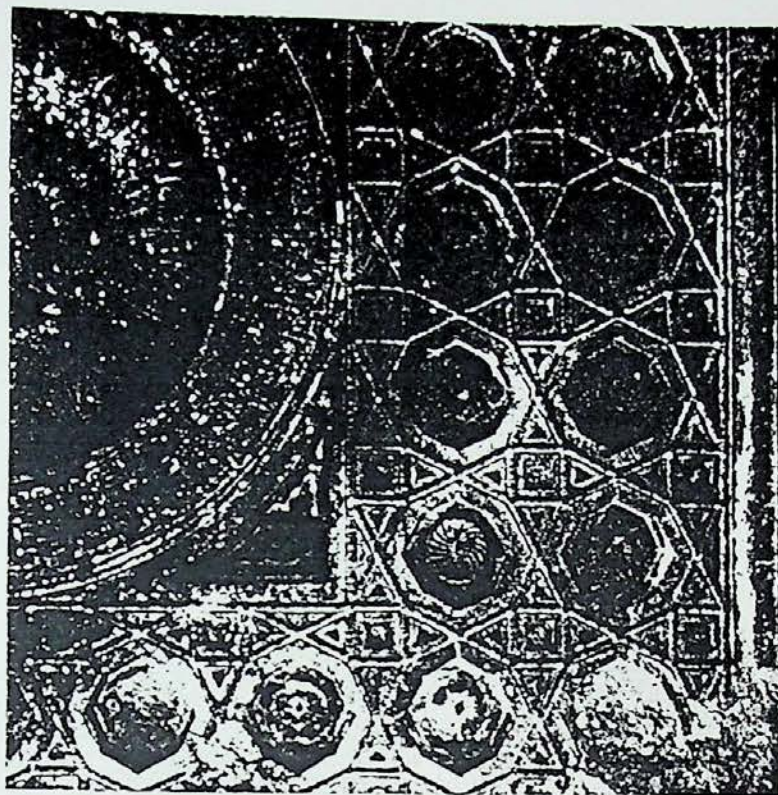


Fig. 5

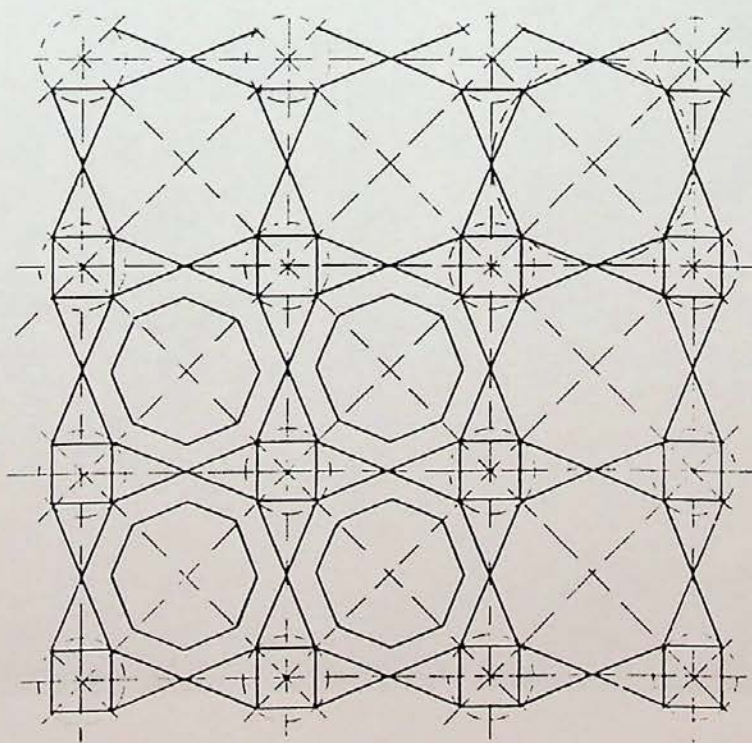


Fig. 6

Fig. 5,6 Ceiling of the Southern Chapel of the Cella,
 Temple of Bel at Palmyra
 (after Creswell, EMA I: 205)

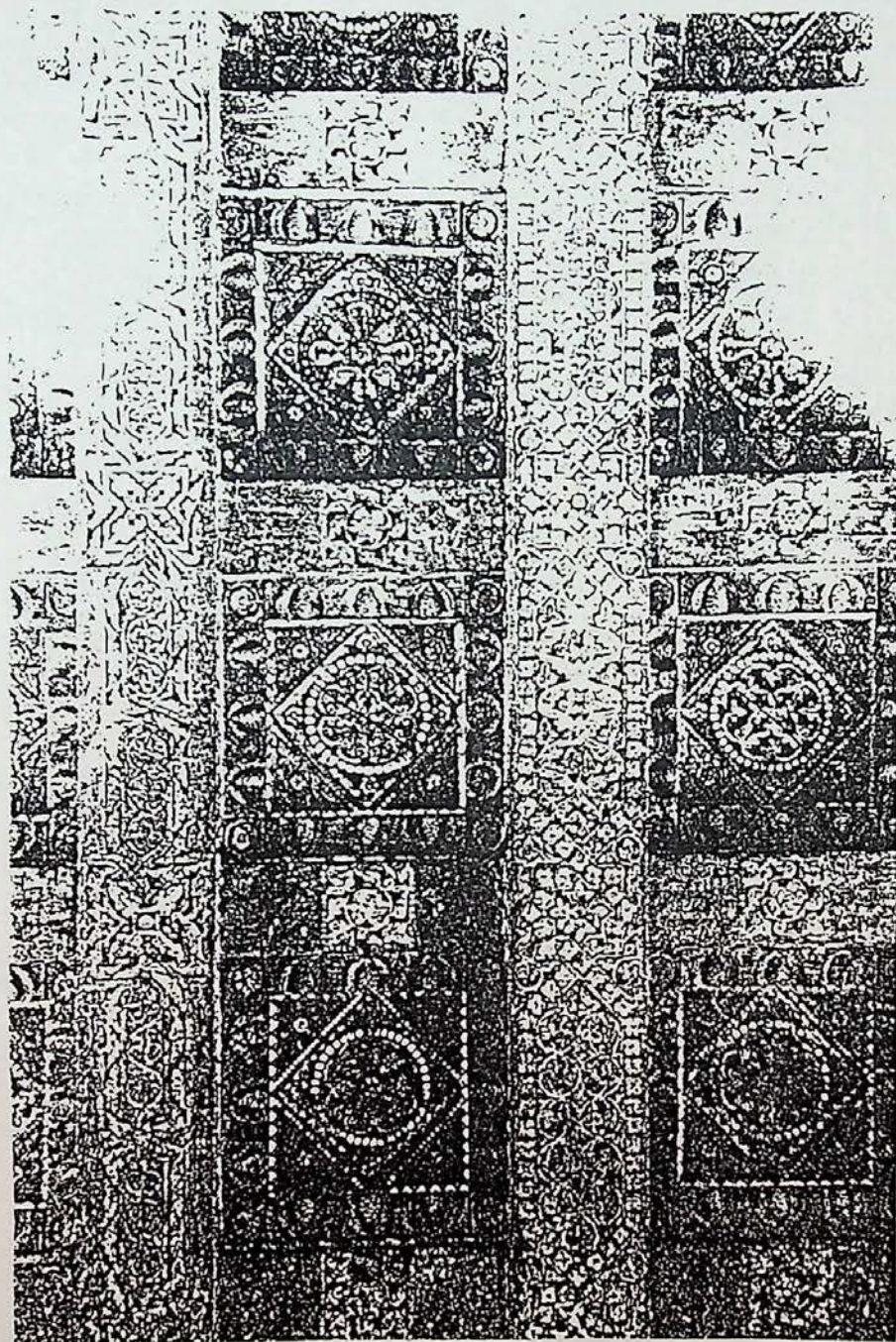


Fig. 7 Part of Ceiling, Great Mosque of San'ā' in
Yemen
(after Allan, "Transmisson," 8)

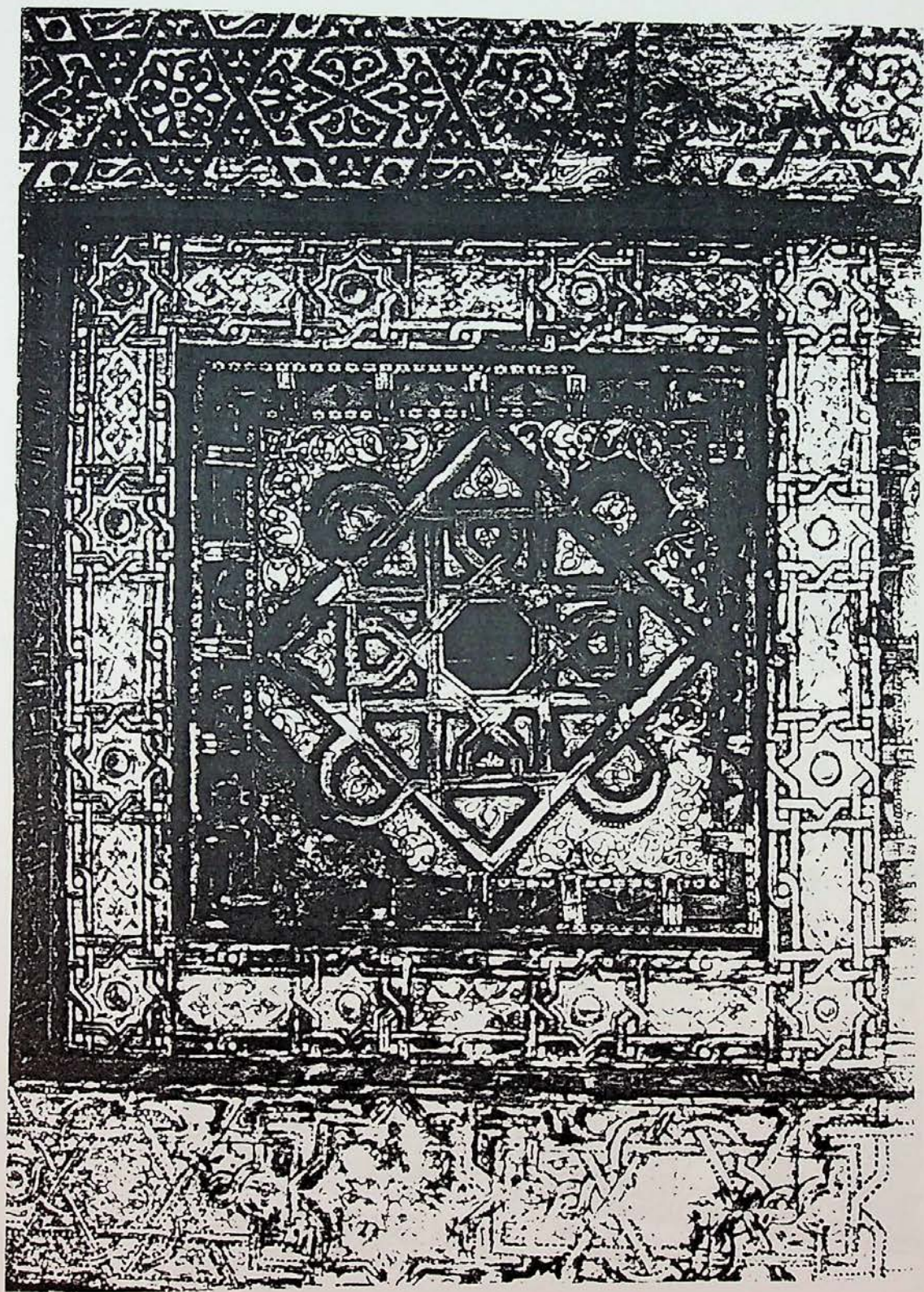


Fig. 8 Ceiling, Mosque of Zafār Dhībīn in Yemen
(after Finster, "Kunstdenkmäler," 9)

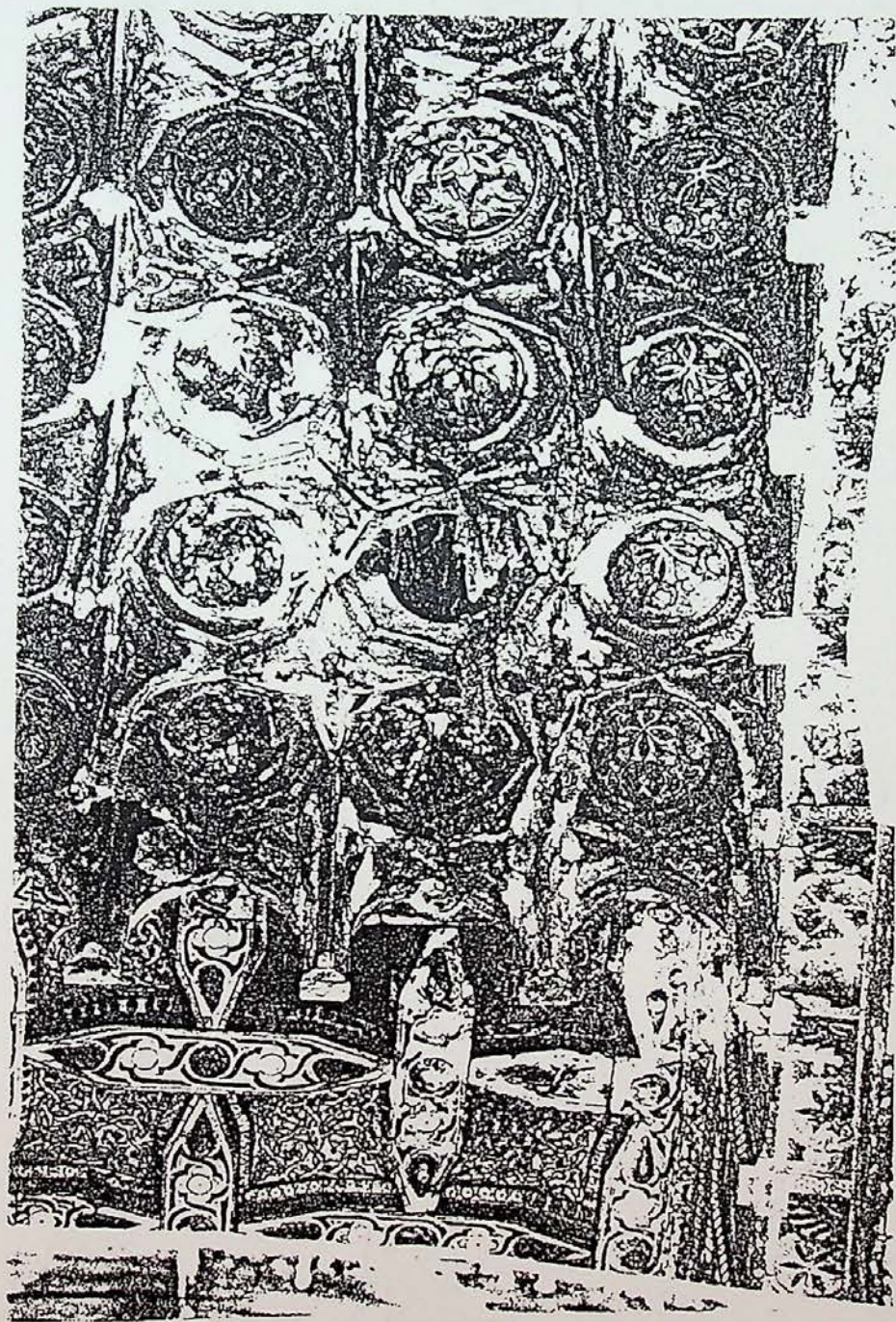


Fig. 9 Ceiling east of mimbar, Mosque of Zafār
Dhībīn in Yemen

(after Allan, "Transmission," 5)

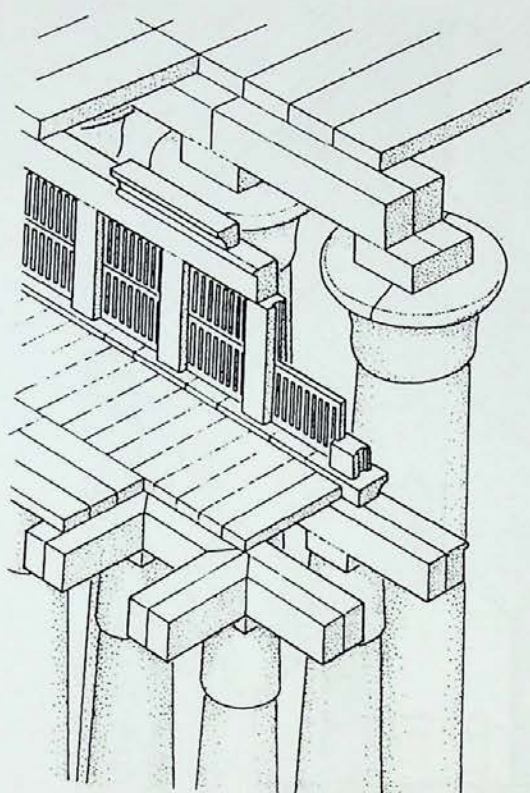


Fig. 10 Roof of Hypostyle Hall, Karnak
 (after Arnold, 185)

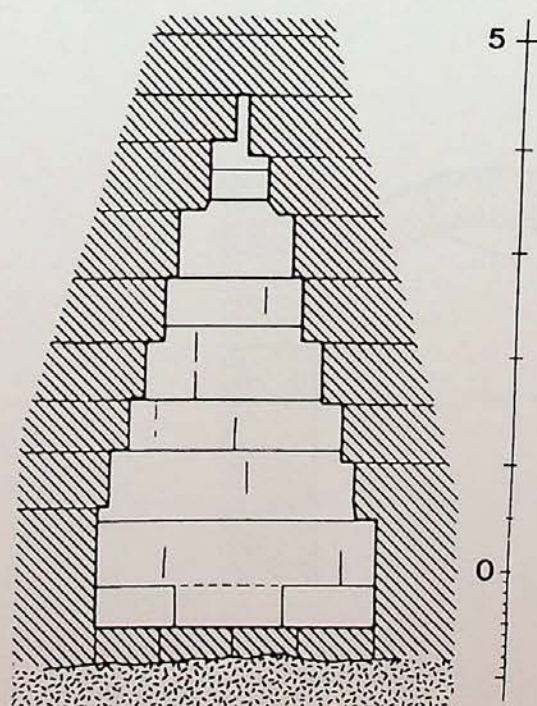


Fig. 11 Schematic drawing of corbelled roof
 (after Arnold, 187)

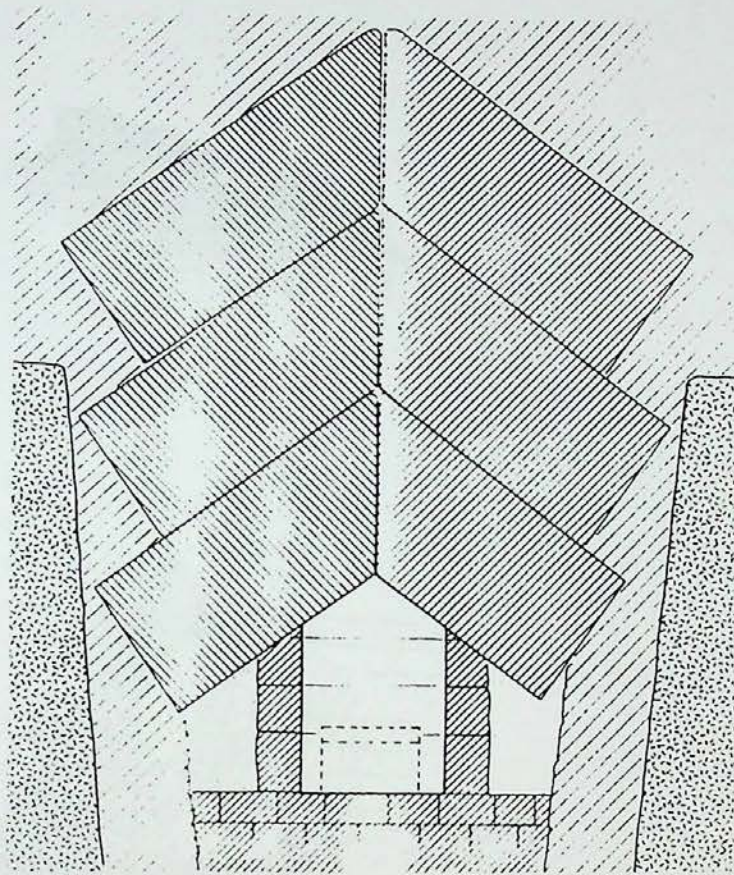


Fig. 12 Saddle Roof

(after Arnold, 192)

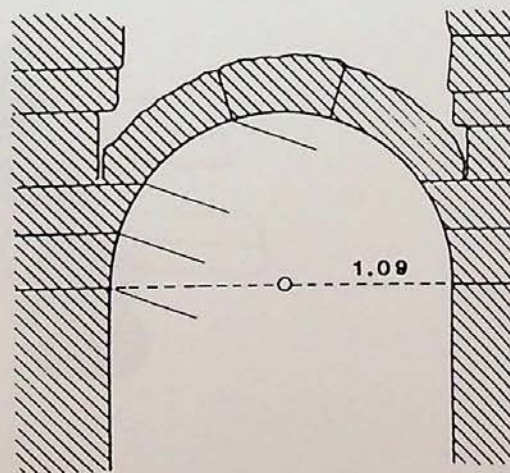


Fig. 13 Vaulted Ceiling

(after Arnold, 200)

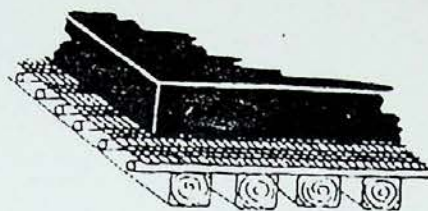


Fig. 14

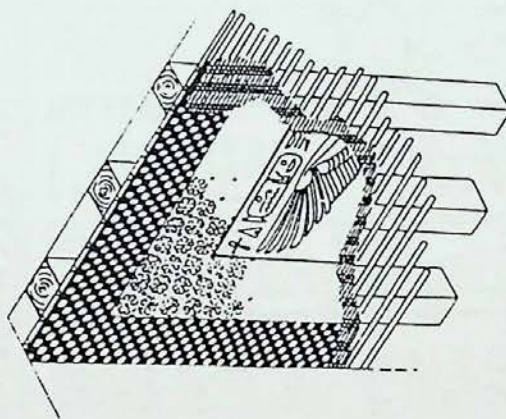


Fig.15

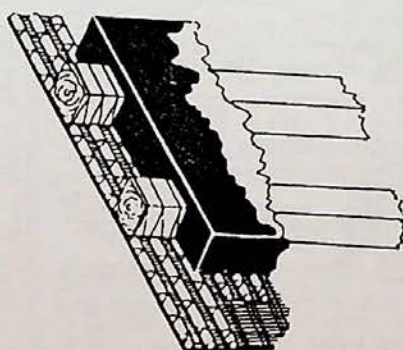


Fig.16

Fig. 14,15,16 Details of Roofs and Ceilings, Malkata
Palace. Dynasty XVIII

(after Stevenson Smith, 294)



Fig. 18 Wooden Door Panel, Church of St Barbara, Old
Cairo 16th century AD

(after Dict. Of Art , 829)

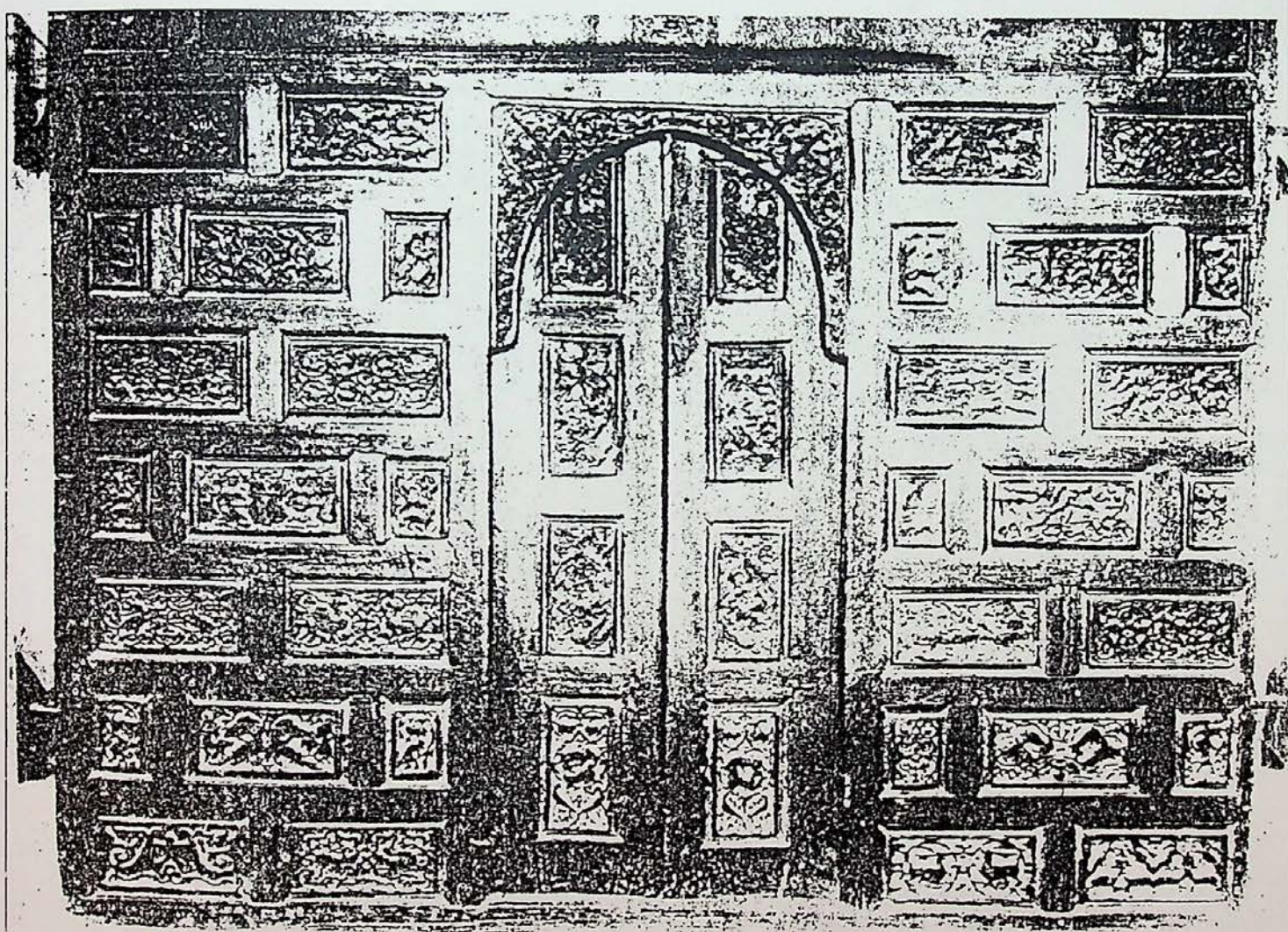


Fig. 19 Sanctuary Screen, St Barbara, Now in Coptic
Museum in Cairo

(after Habib, 208)

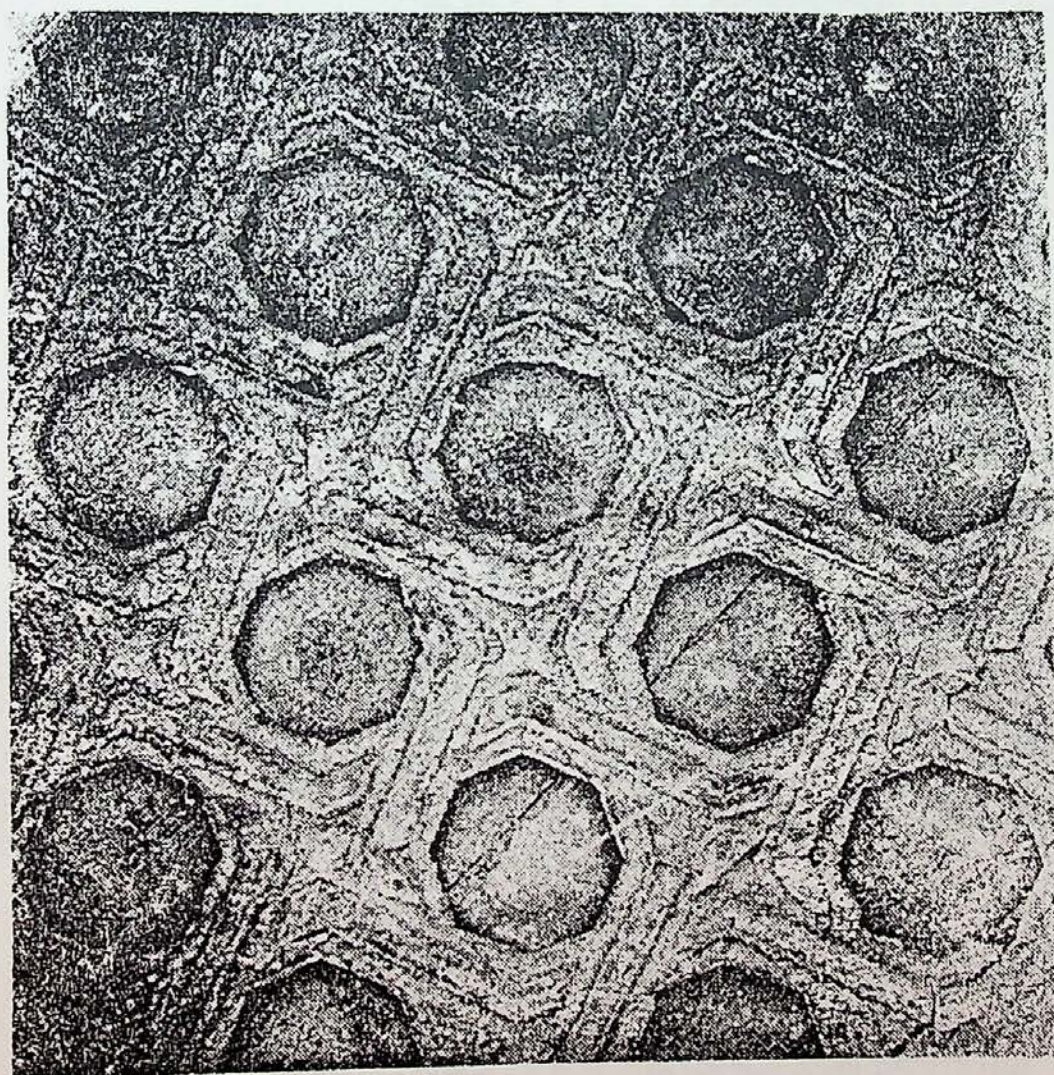


Fig. 20 Ceiling under the minaret, Madrasa of Sultan Sālih
Negm al-Dīn

(after Creswell, Plate 5)

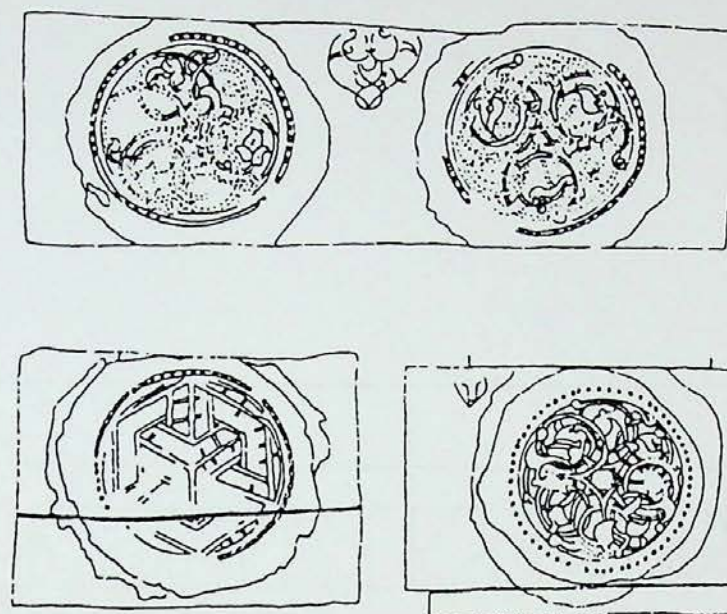


Fig 21 Decorated round coffers, ceiling of the Madrasa of Sultan Sālih Negm al-Dīn

(after Hampikian, in press)



Fig. 22 Fatimid planks reused as ordinary planks placed above palm trunks carrying the hanging ceiling.

(after Hampikian, in press)

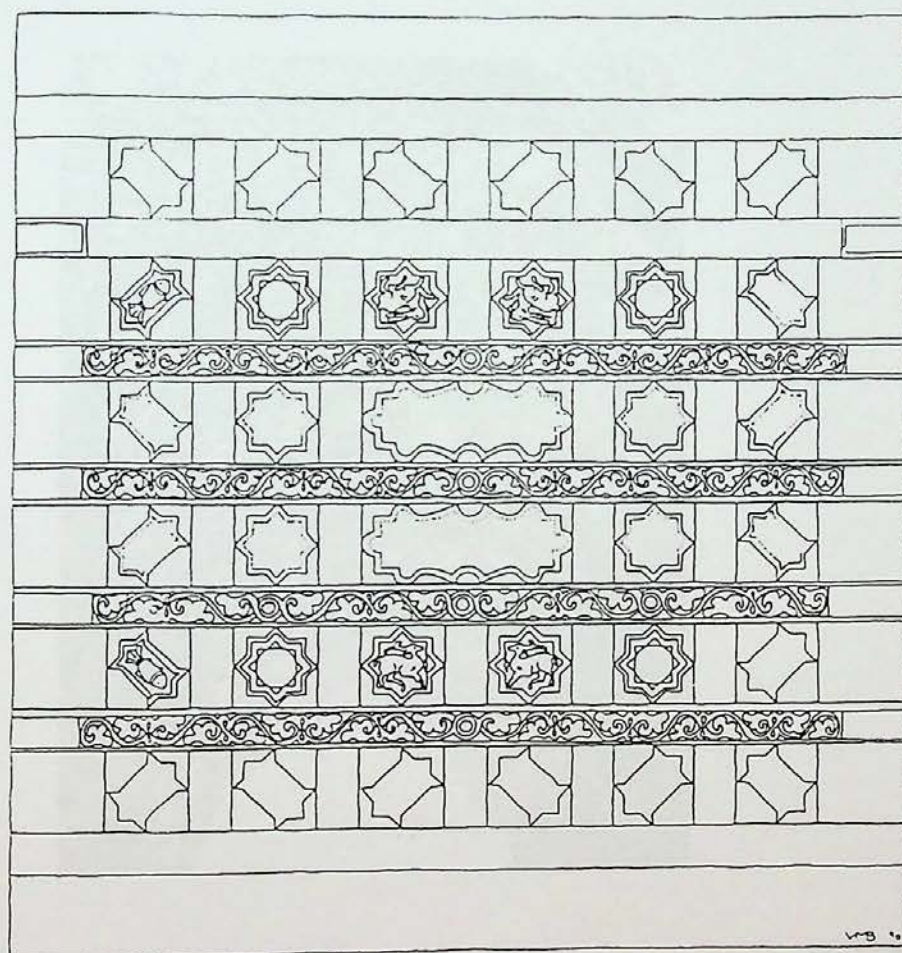


Fig.23
palace

Design 23 of the ceiling of the Western Fatimid
(after Meineke-Berg)

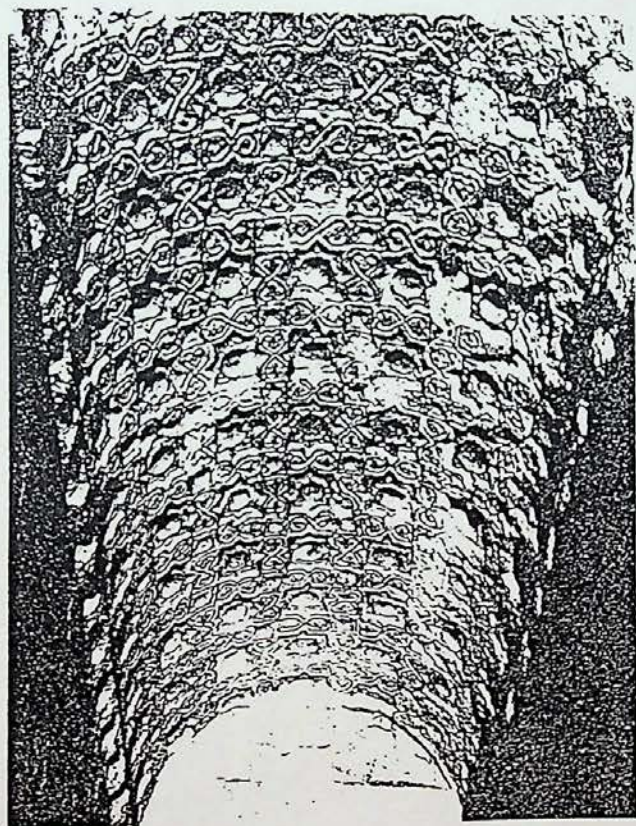


Fig.24 Stone ceiling, Burg al-Za'far
(after Creswell)

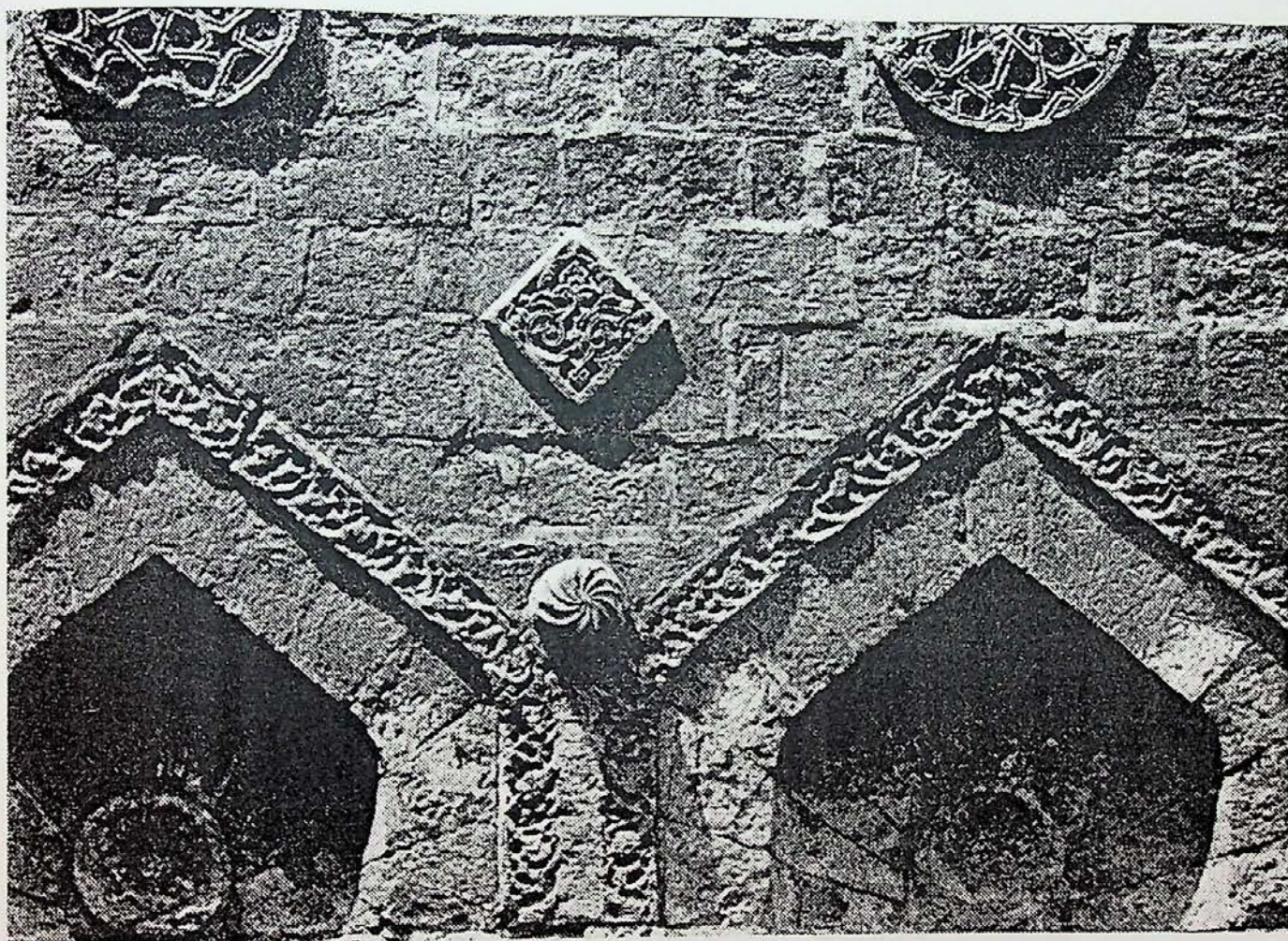


Fig.25 Façade, Mosque of Sultan Baybars
(after Creswell, MAE 2, pl.49)

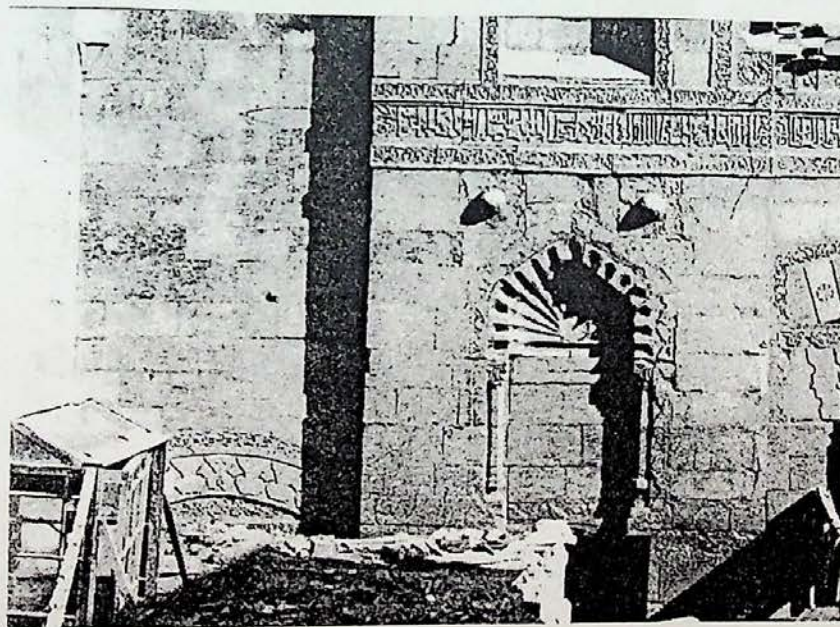


Fig. 26 Façade, Madrasa of Sālih Negm al-Dīn
(after Creswell, MAE 2, pl. 33)



Fig. 27 Canteen, mid 13th century
(after Atil, 127)

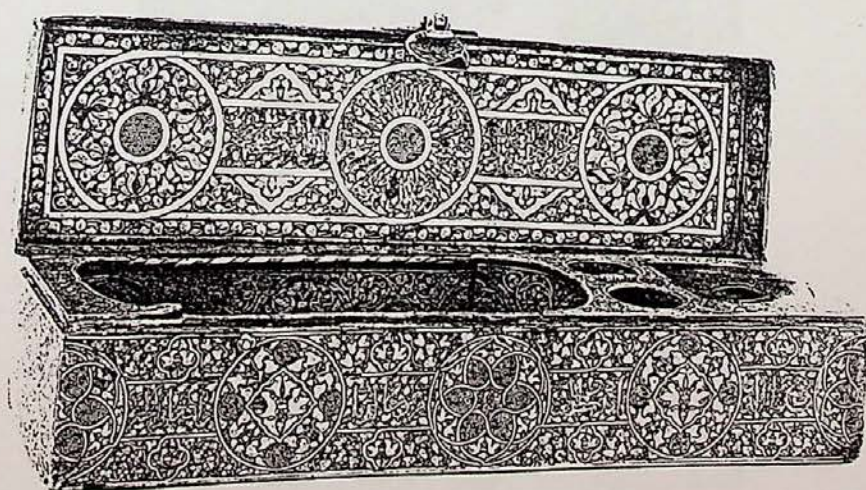


Fig. 28 Penbox, mid 14th century
(after Ward, 207)

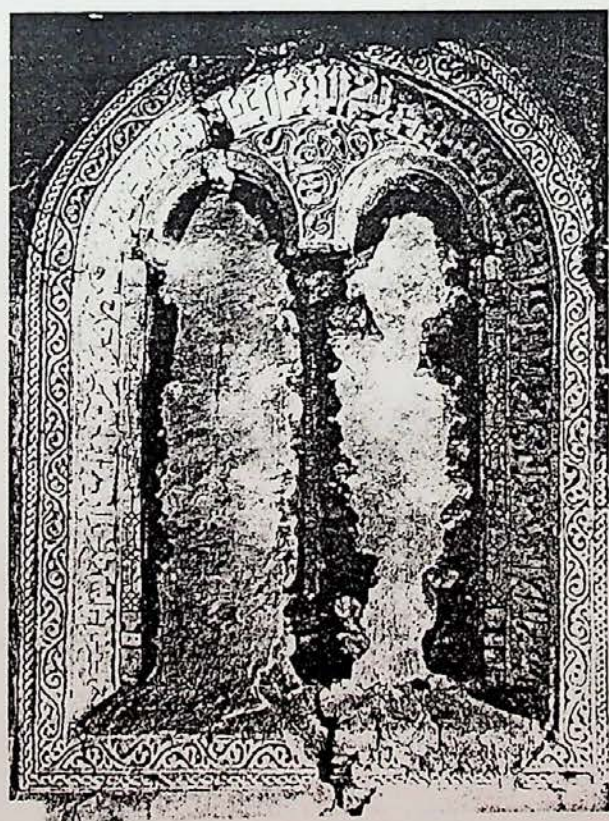


Fig. 29 Window, Complex of Sultan Qalā'ūn
(after Creswell, MAE 2, pl.62)

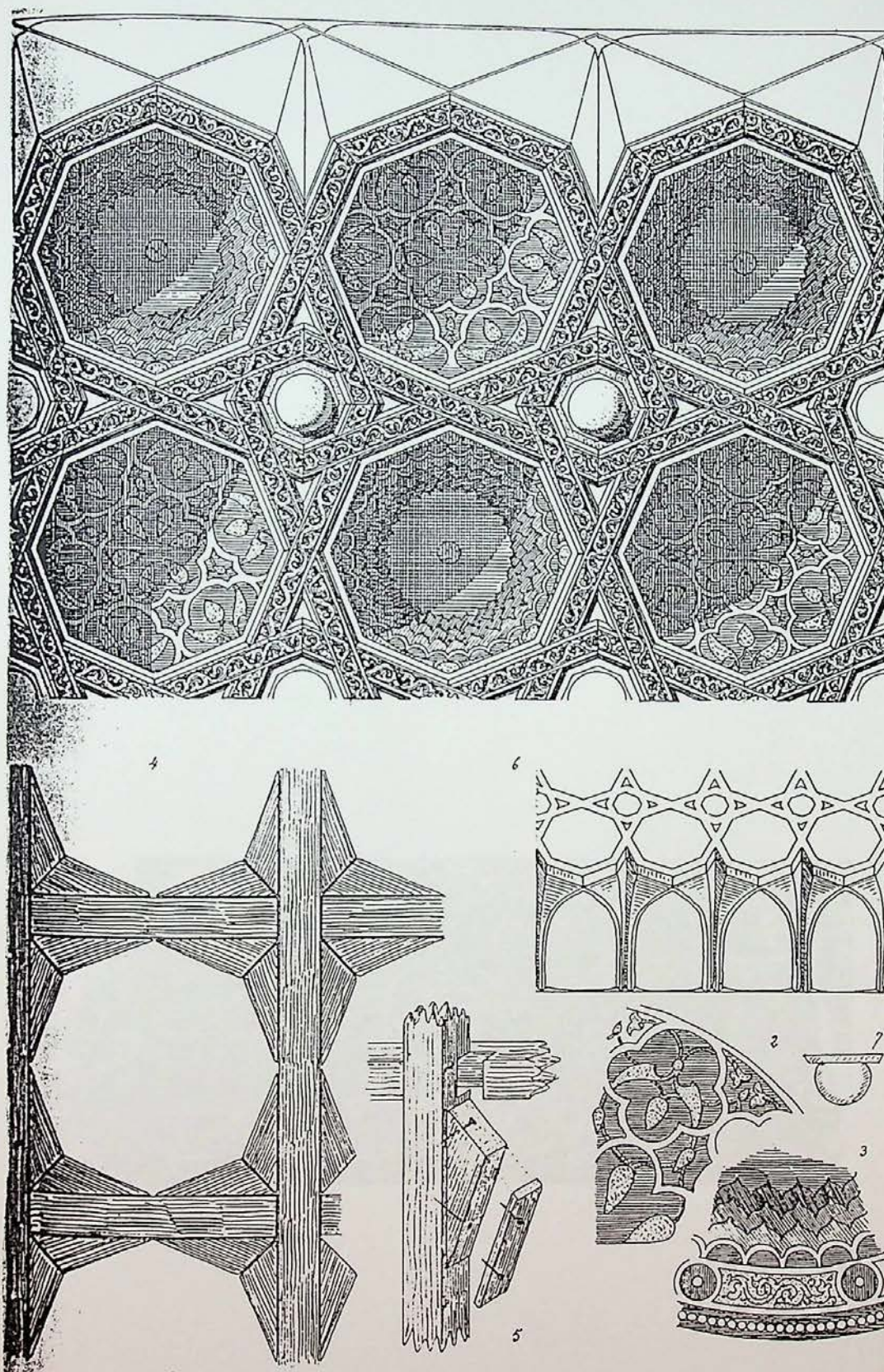


Fig. 30 Drawing of ceiling by Bourgoin, Mosque of al-Nāsir Muhammad, Citadel

(after Bourgoin, III pl.67)

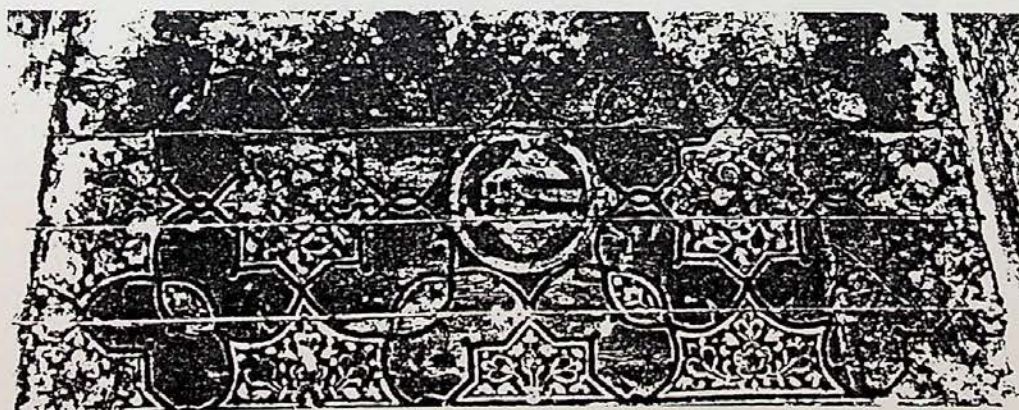


Fig. 32 Blazon, Ceiling of Vestibule, Mosque of
Khushqaddam
(after Meinecke, "Heraldik")



Fig. 31 Panel from the Fatimid palace
(Album du Musée, 20)



Fig. 33 Blazon, Corridor, mosque of Khushqaddam

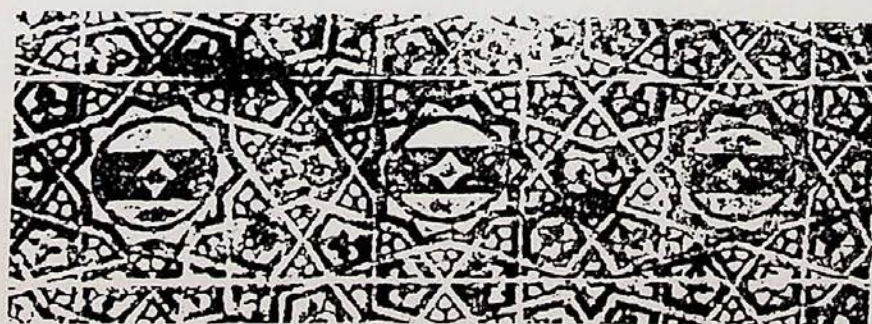
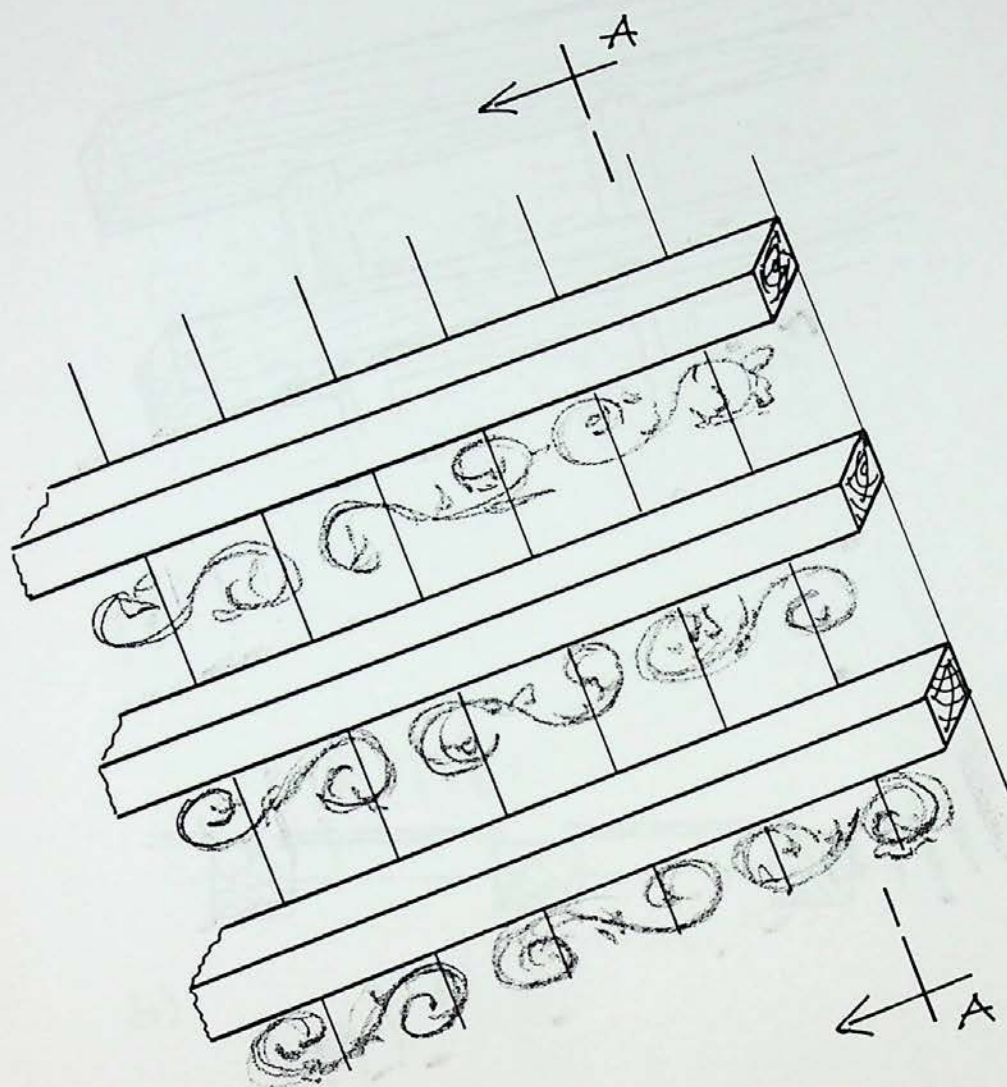


Fig. 34 Window Niche, Complex of Sarghatmish
(after Meinecke, "Heraldik," 60b)



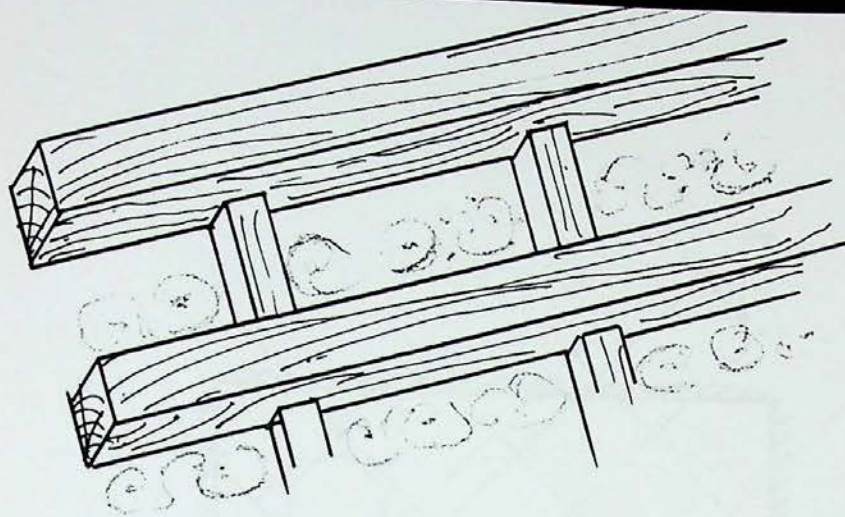
a)



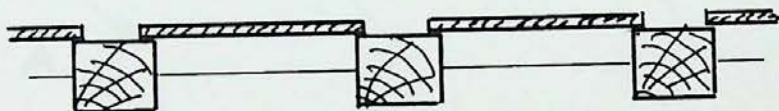
b)

section A-A

Fig. 35 Ceiling, Type 1



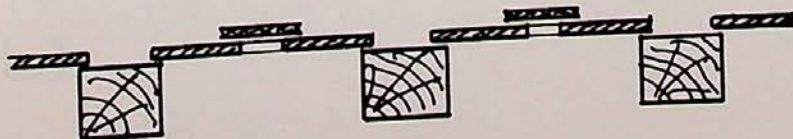
a)



b)

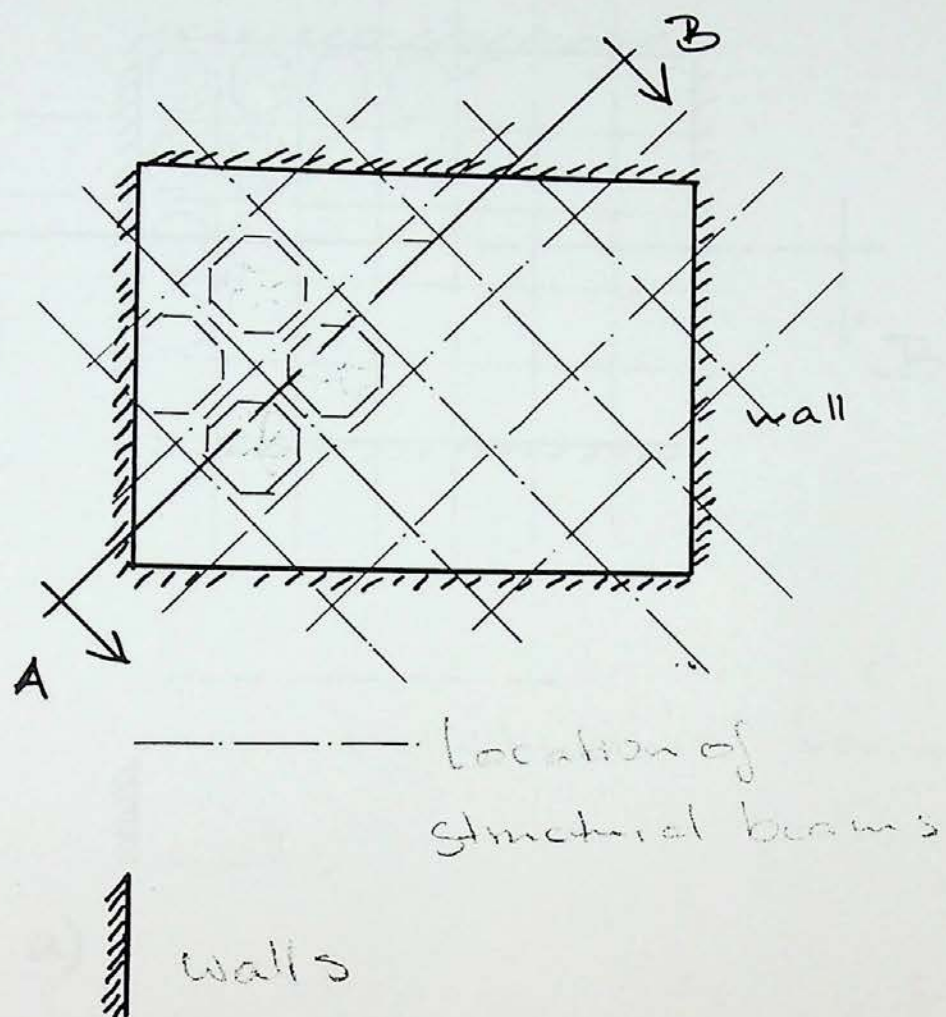


c)

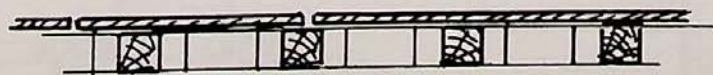


d)

Fig. 36 Ceiling, Type 1



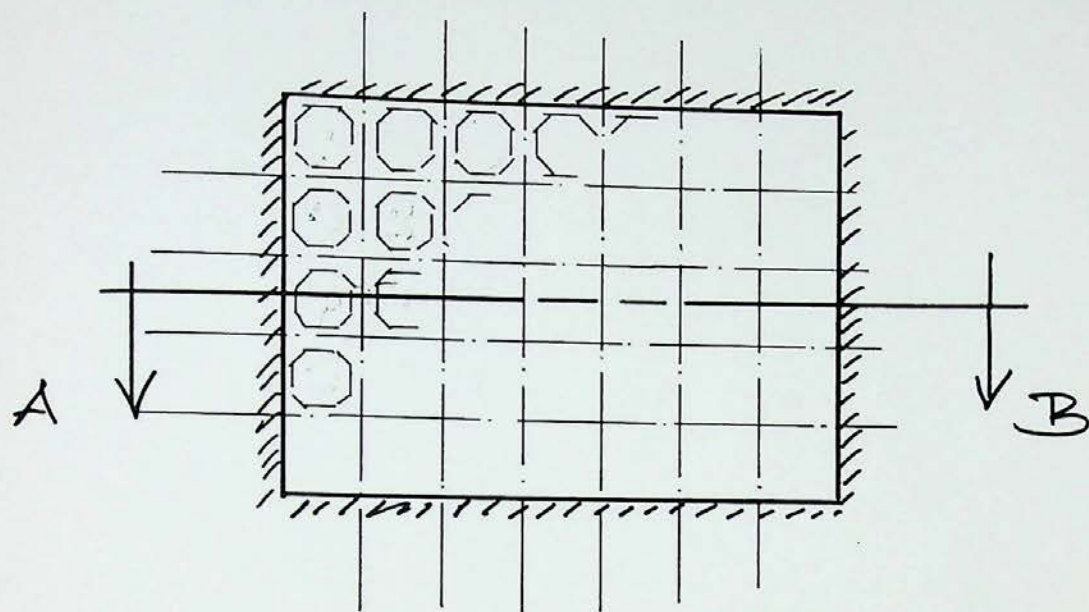
a)



b)

Section A-B

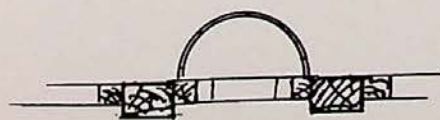
Fig. 37 Ceiling, Type 2



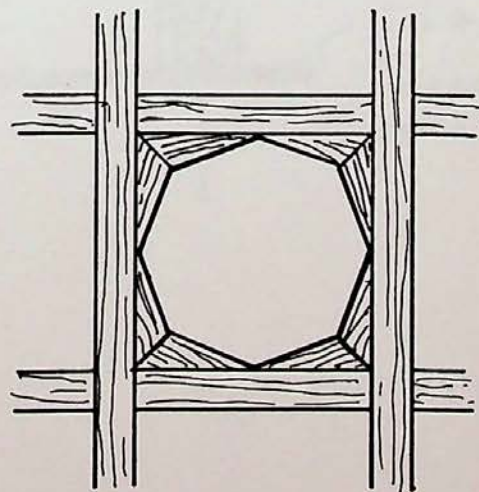
----- location of structural beams

||| walls

a)



b)



c)

Fig. 38 Ceiling, Type 3

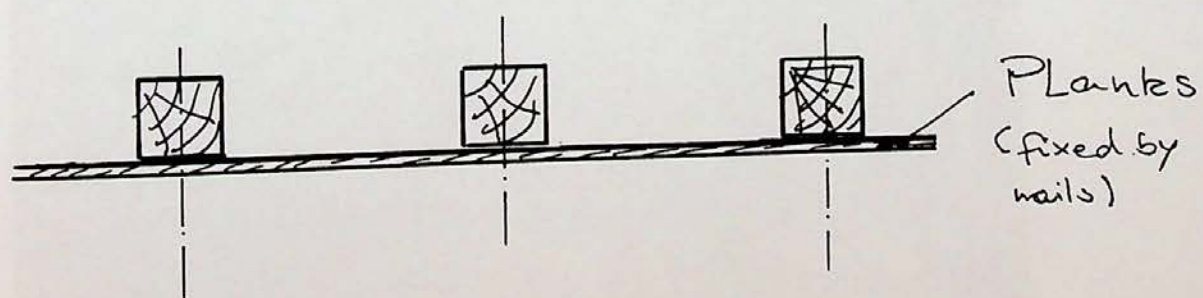


Fig. 39 Ceiling, Type 4

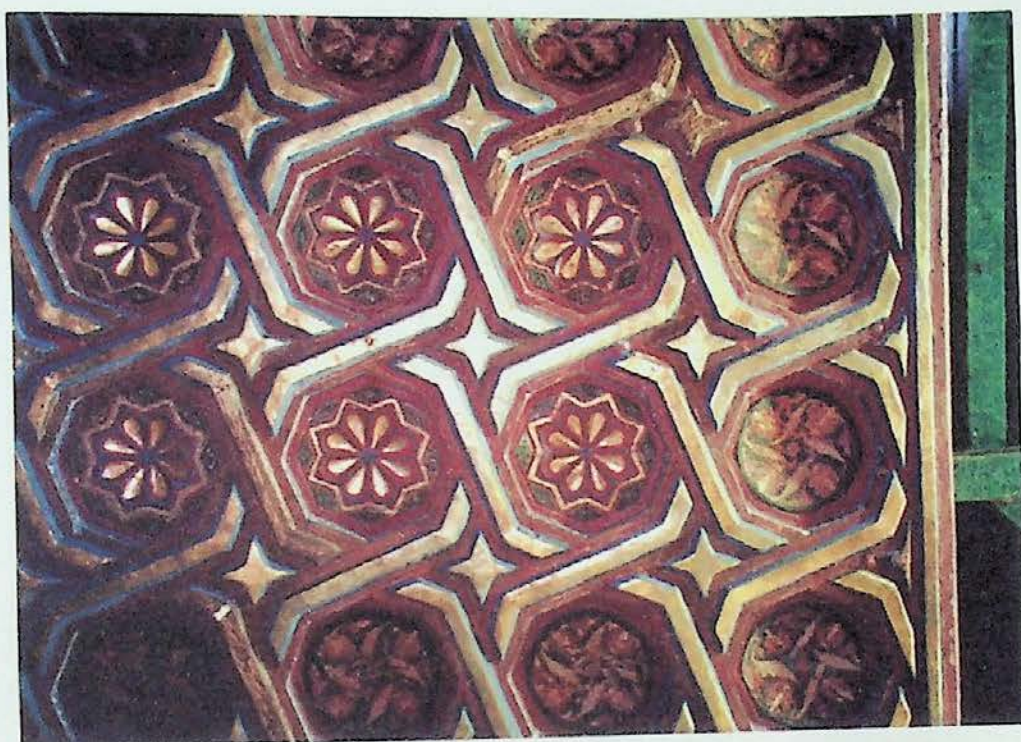


a)



b)

Mosque of Ibn Tulun



a)



b)

Mausoleum of Imam al-Shafi'i



a)



b)

Mausoleum of Imam al-Shafi'i



a)



b)

Mausoleum of Imam al-Shafi'ī



a)



b)

Complex of Sultan Qalā'ūn



a)



b)

Complex of Sultan Qalā'ūn

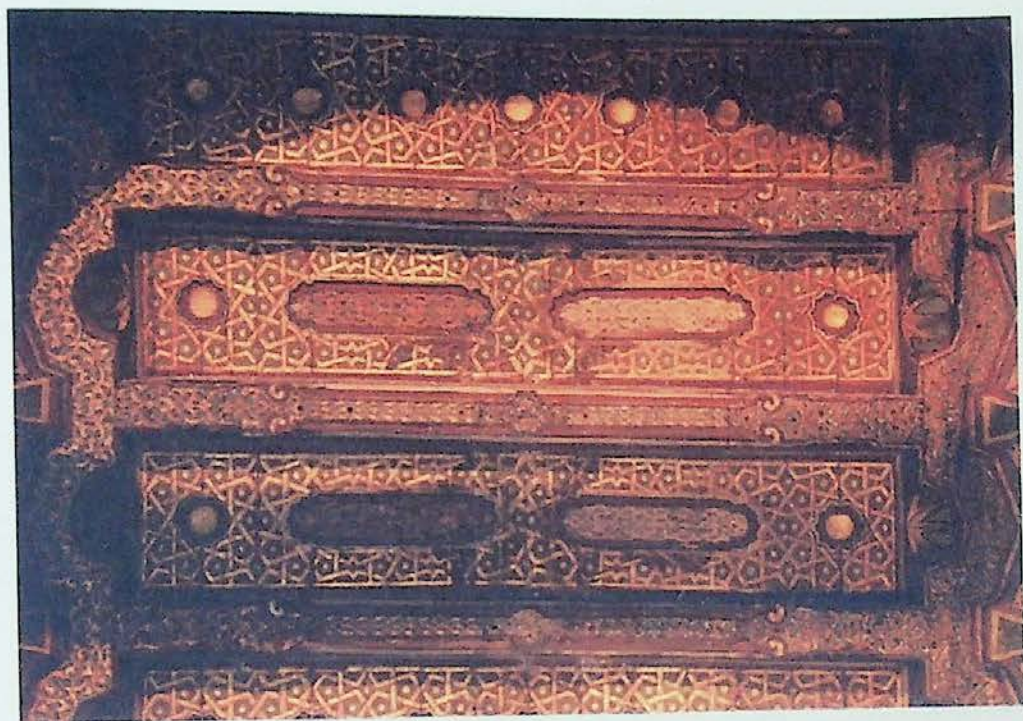


a)



b)

Complex of Sultan Qalā'ūn



a)

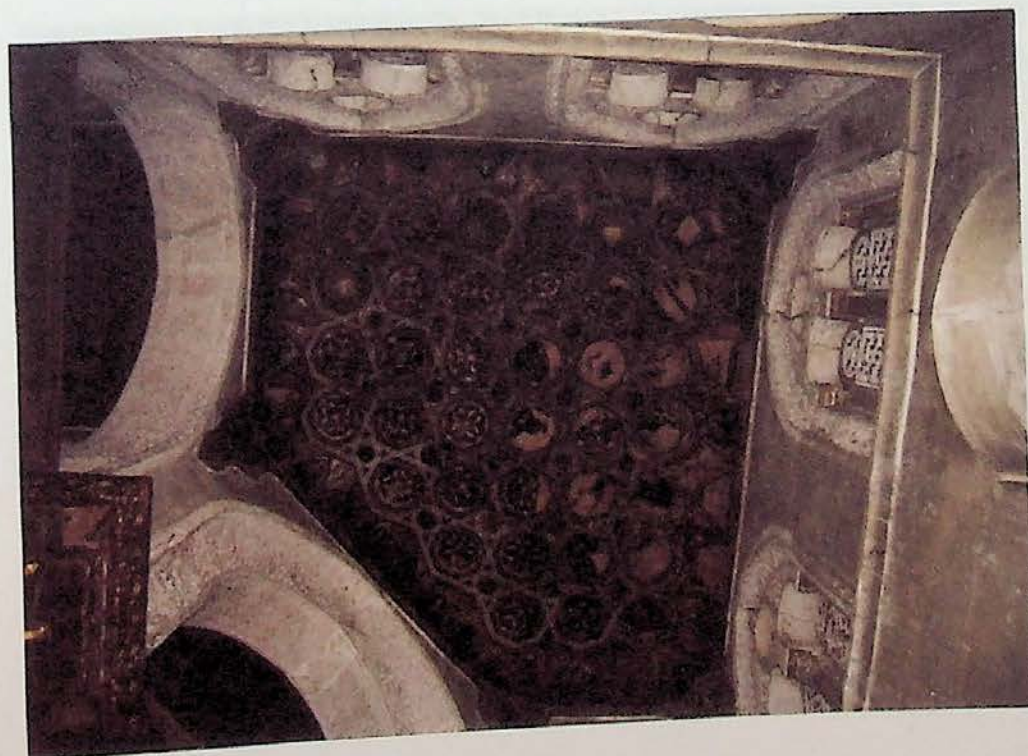


b)

Complex of Sultan Qalā'ūn

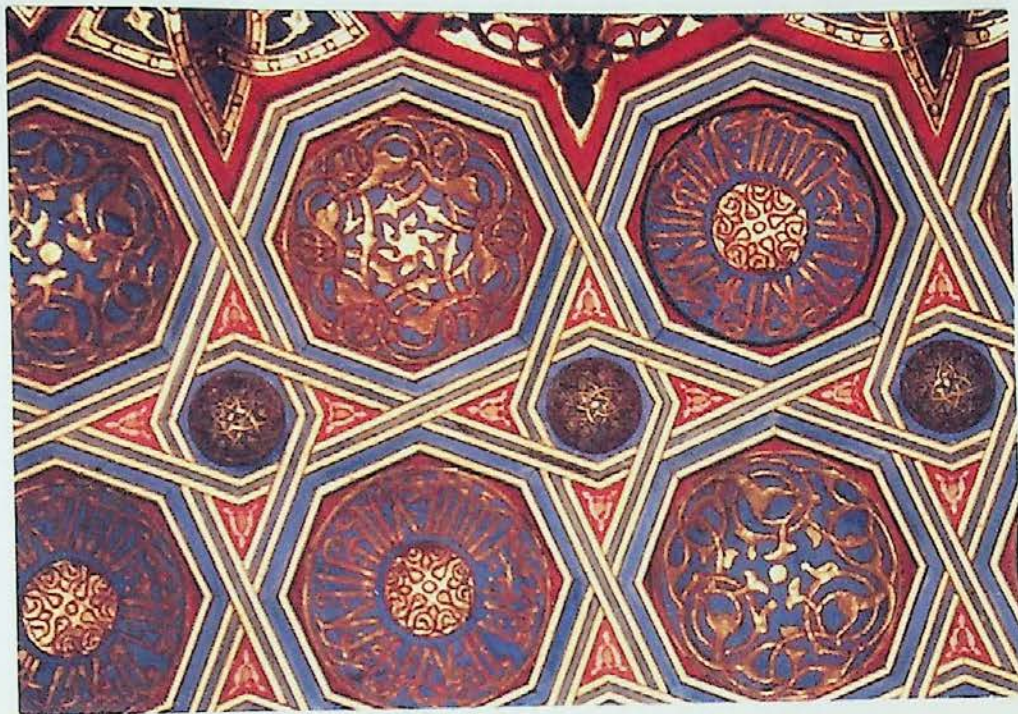


a)

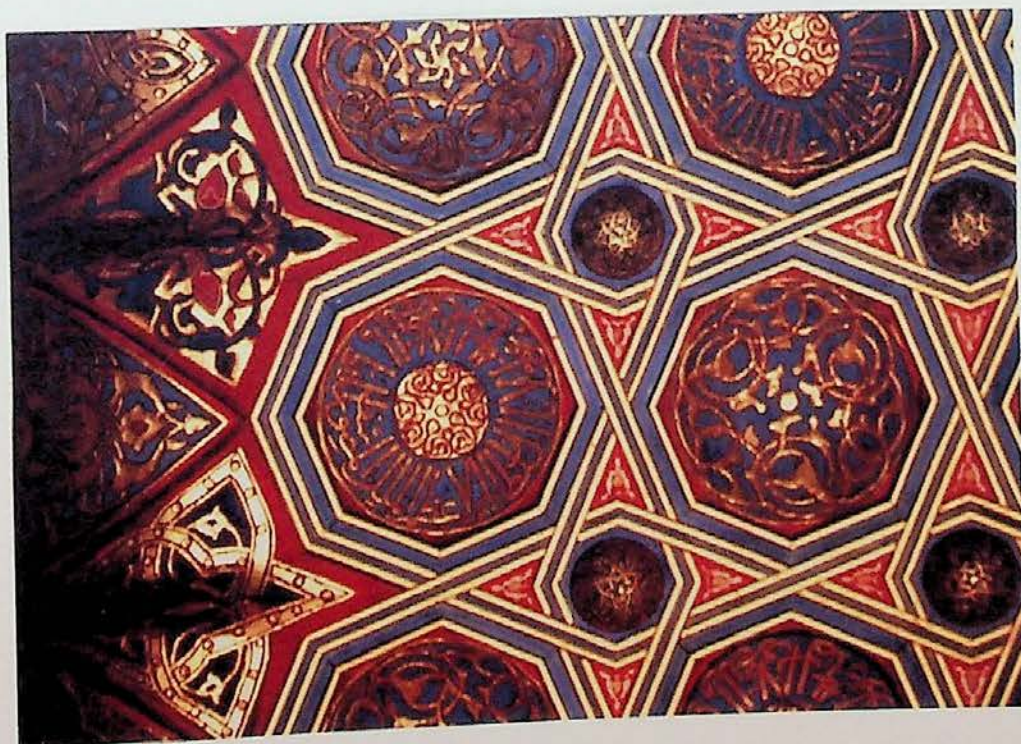


b)

Complex of Sultan Qalā'ūn

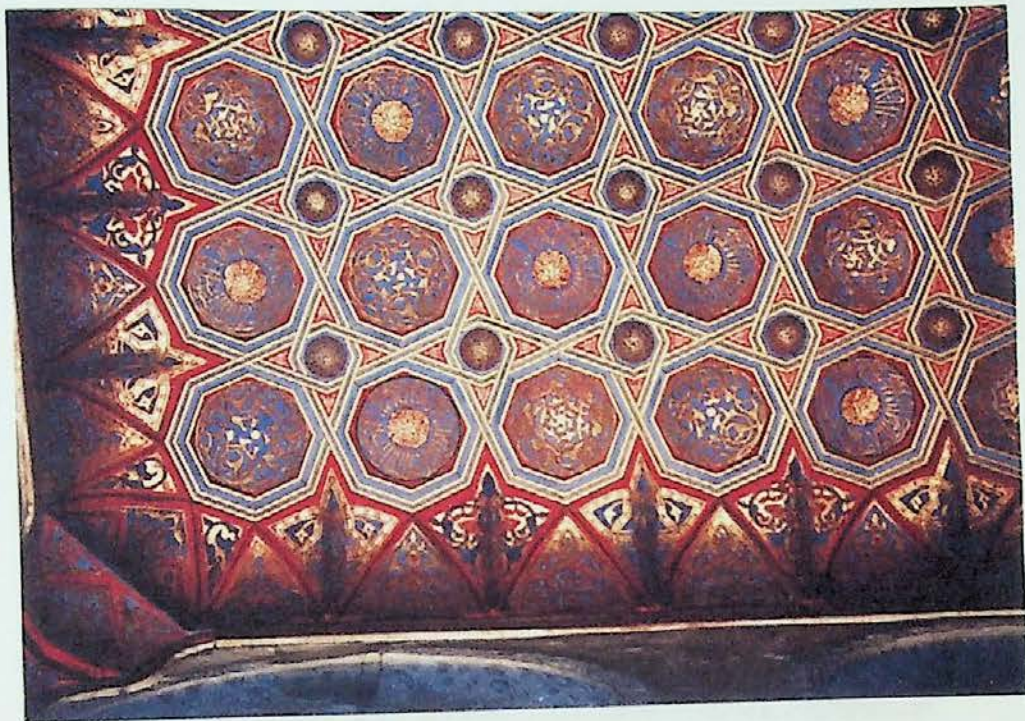


a)



b)

Complex of Sultan Qalā'ūn



a)

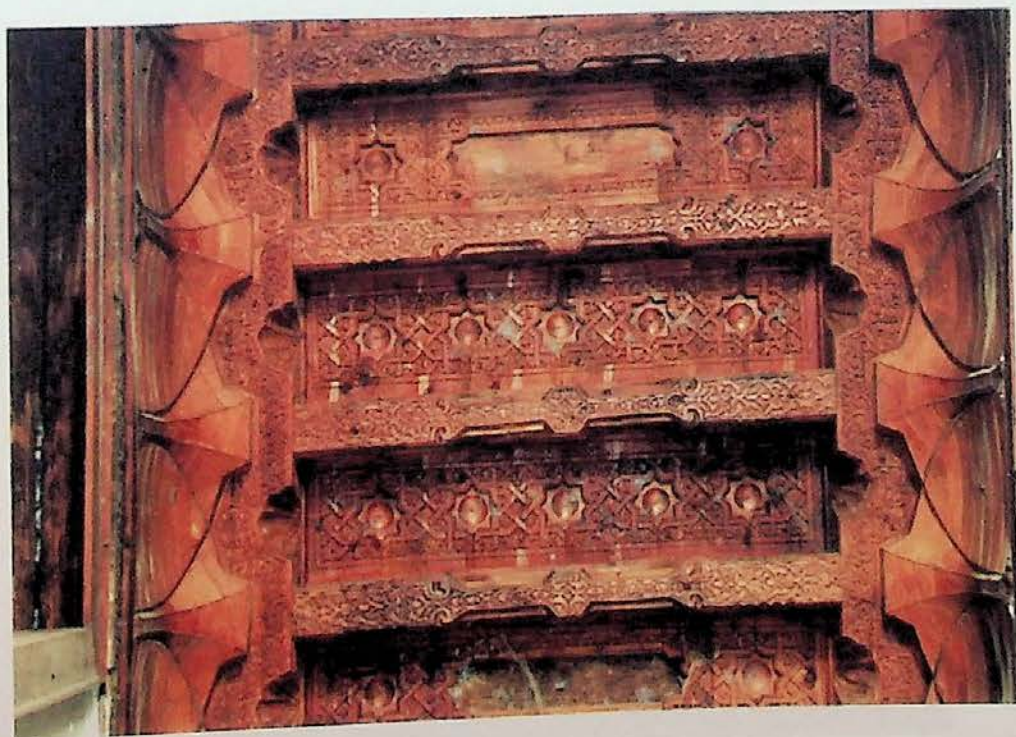


b)

Complex of Sultan Qalā'ūn



a)

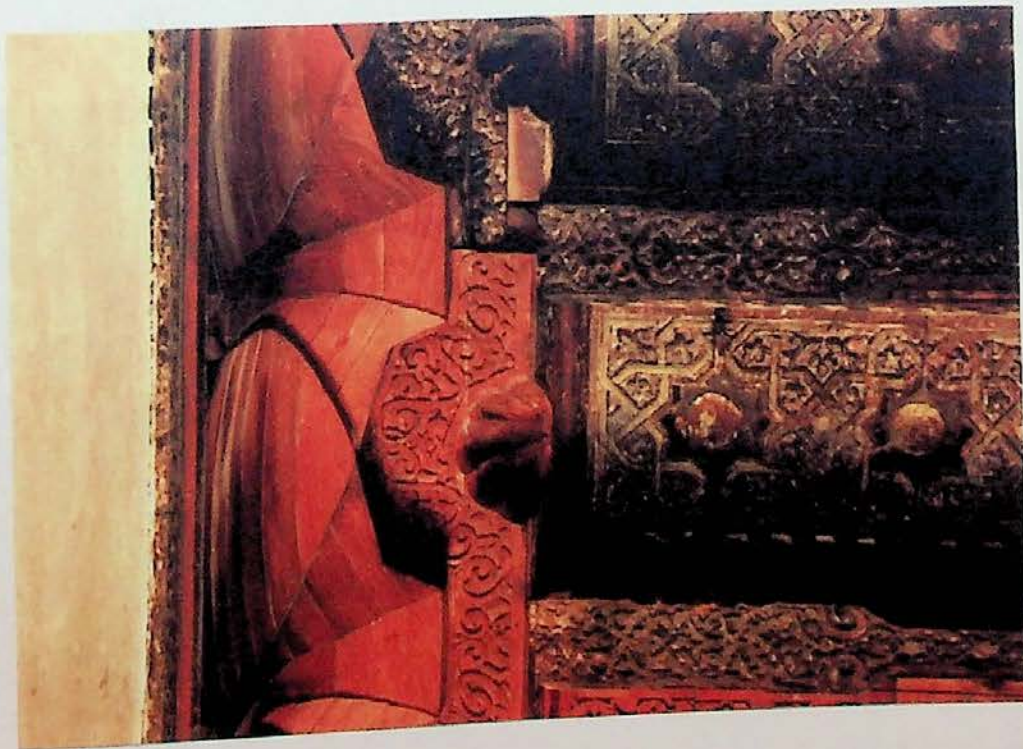


b)

Complex of al-Nāsir Muhammad



a)



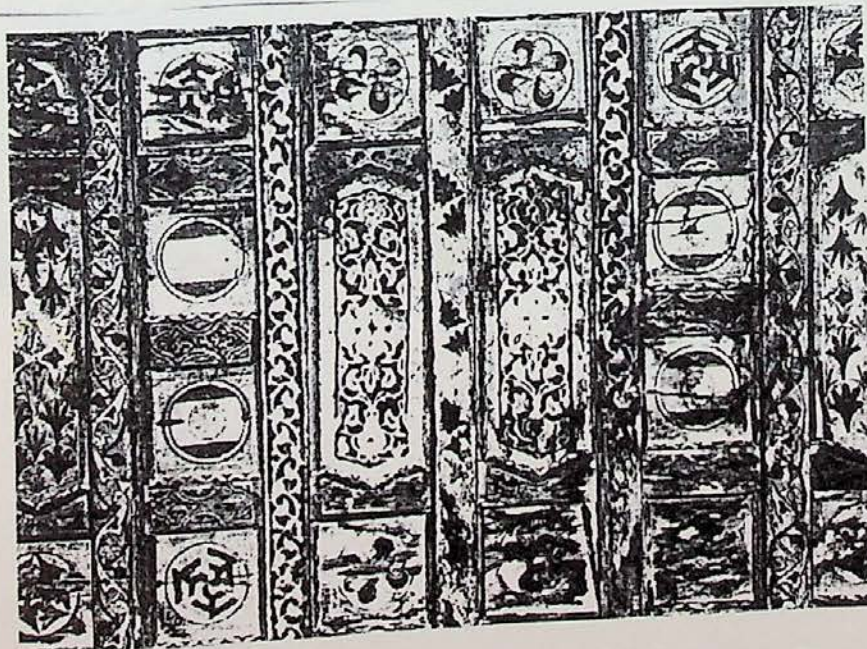
b)

Complex of al-Nāsir Muhammad

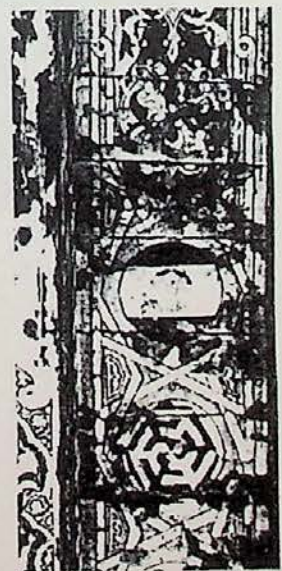


a)

(after O'Kane)



b)



c)

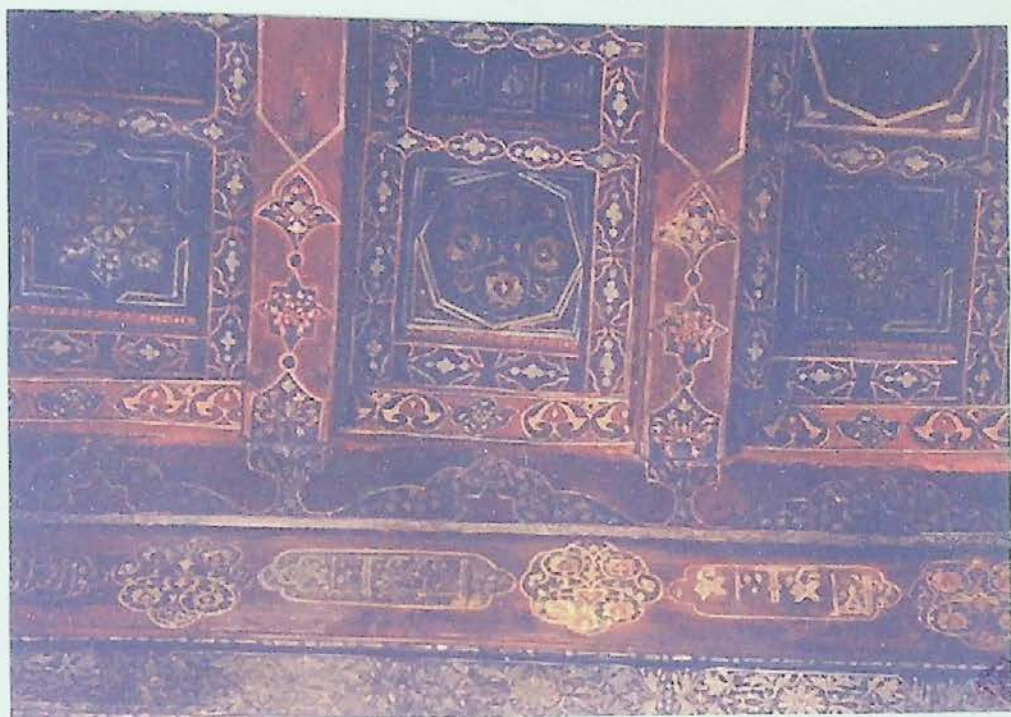
(after Meinecke, "Heraldik," 59)

Mosque of Ahmad Kohya



(after O'Kane)

Mosque of Ahmad Kohya

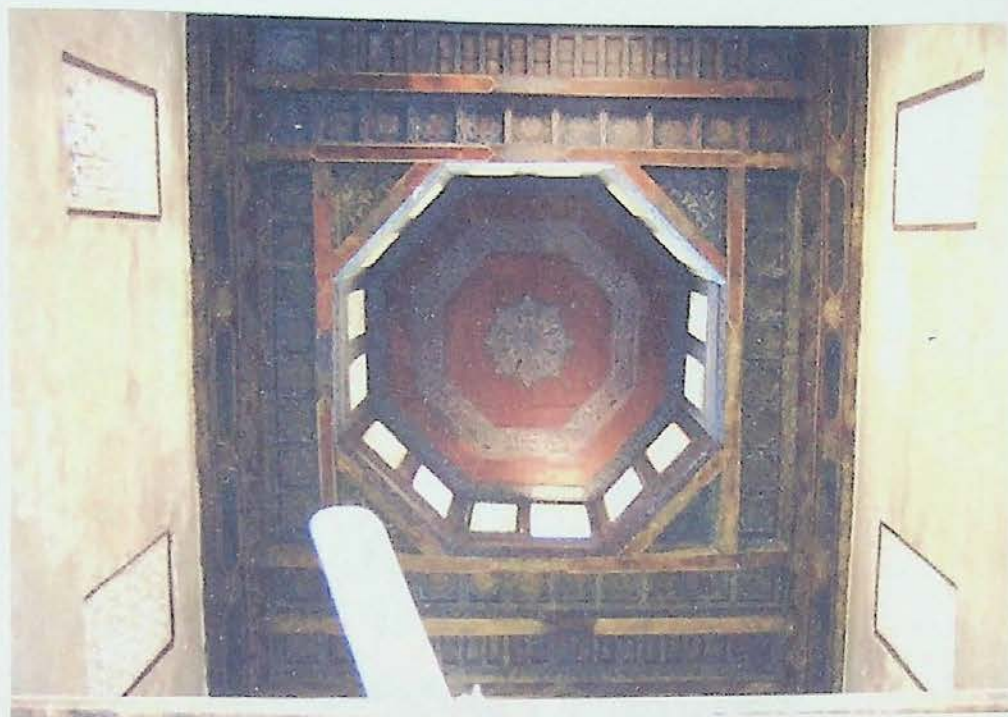


a)



b)

Madrasa of Jukandār



a)



b)

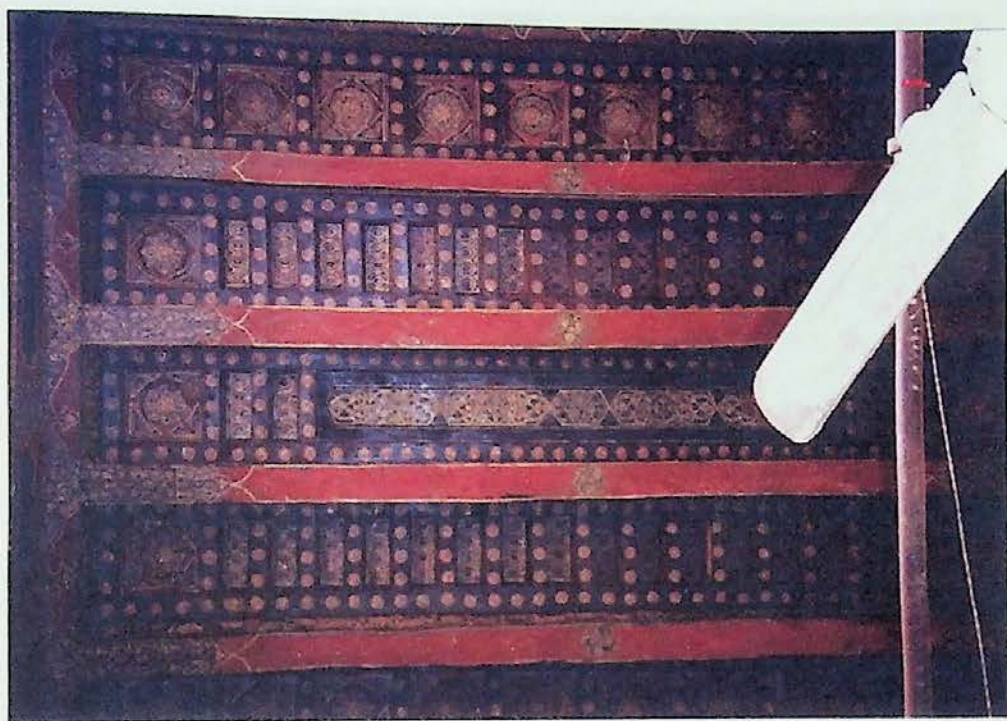
Madrasa of Jukandār

b)



a)



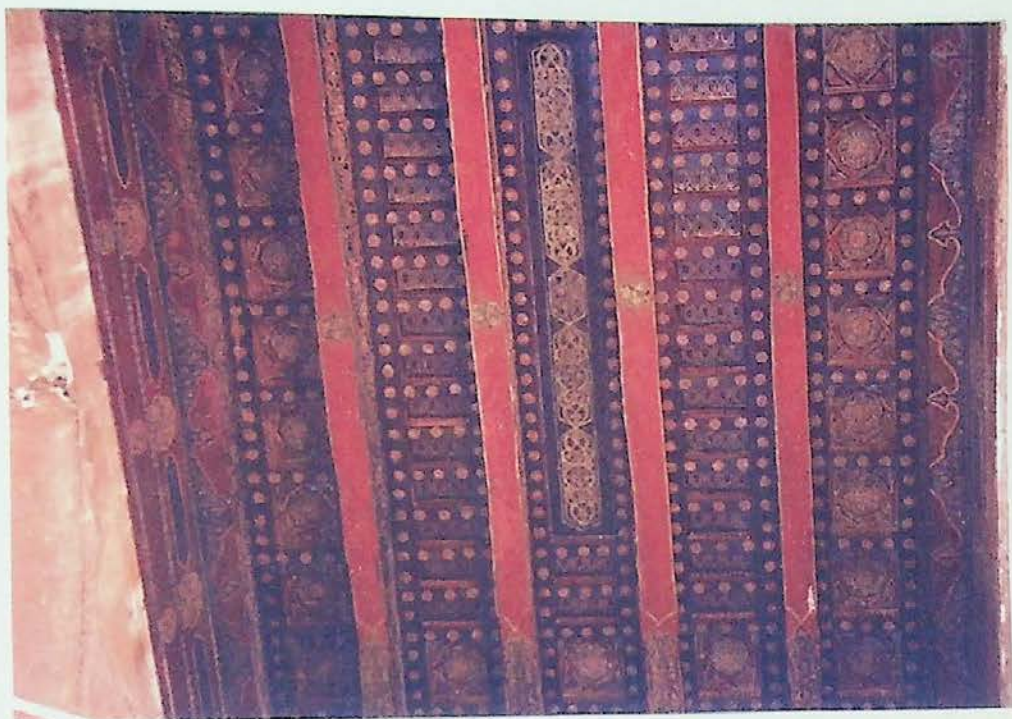


a)



b)

Madrasa of Jukandār

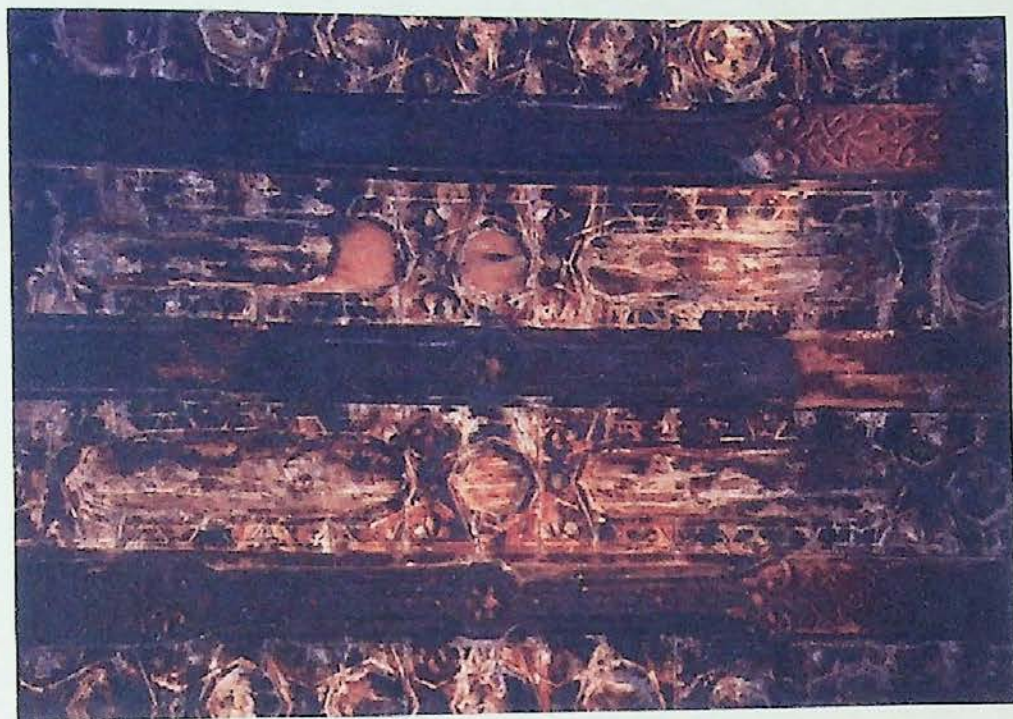


a)



b)

Madrasa of Jukandār

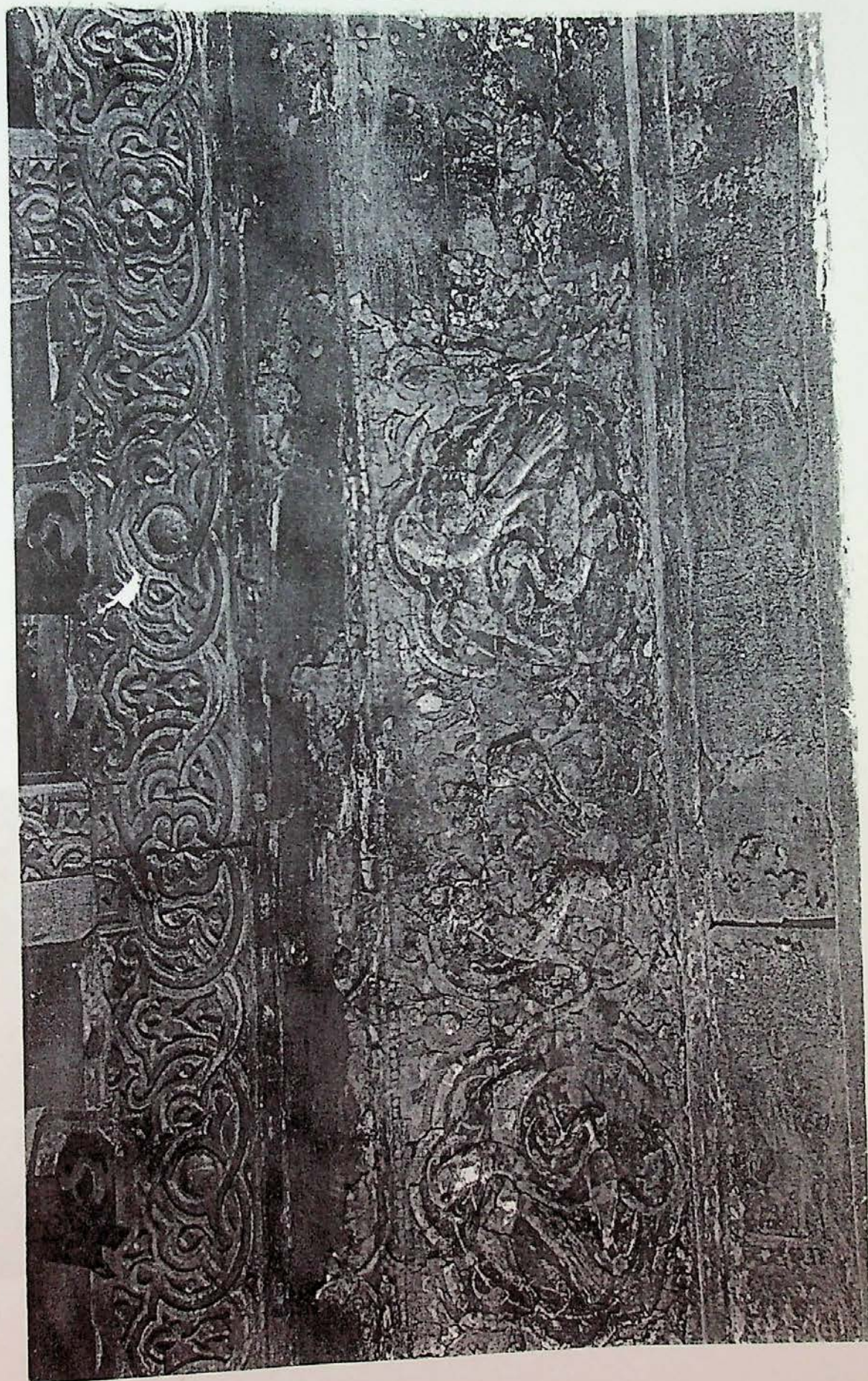


a)



b)

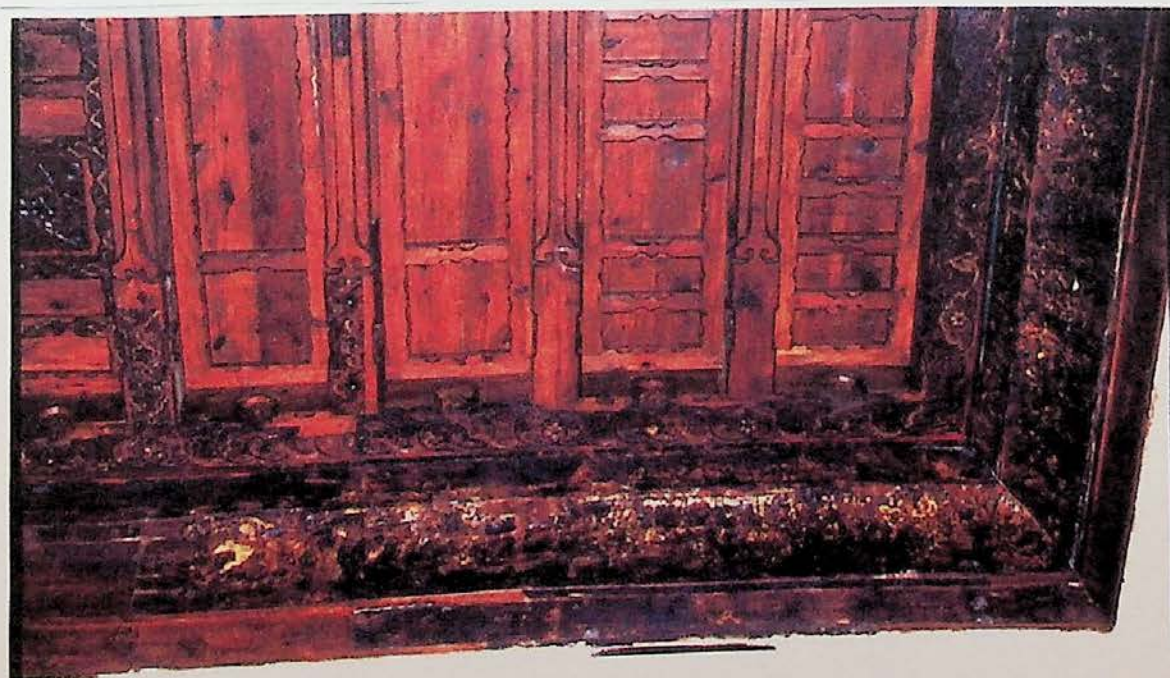
Madrasa of Jukandār



Dayr al-Banāt



a)



b)

Dayr al-Banāt



a)



b)

Dayr al-Banāt

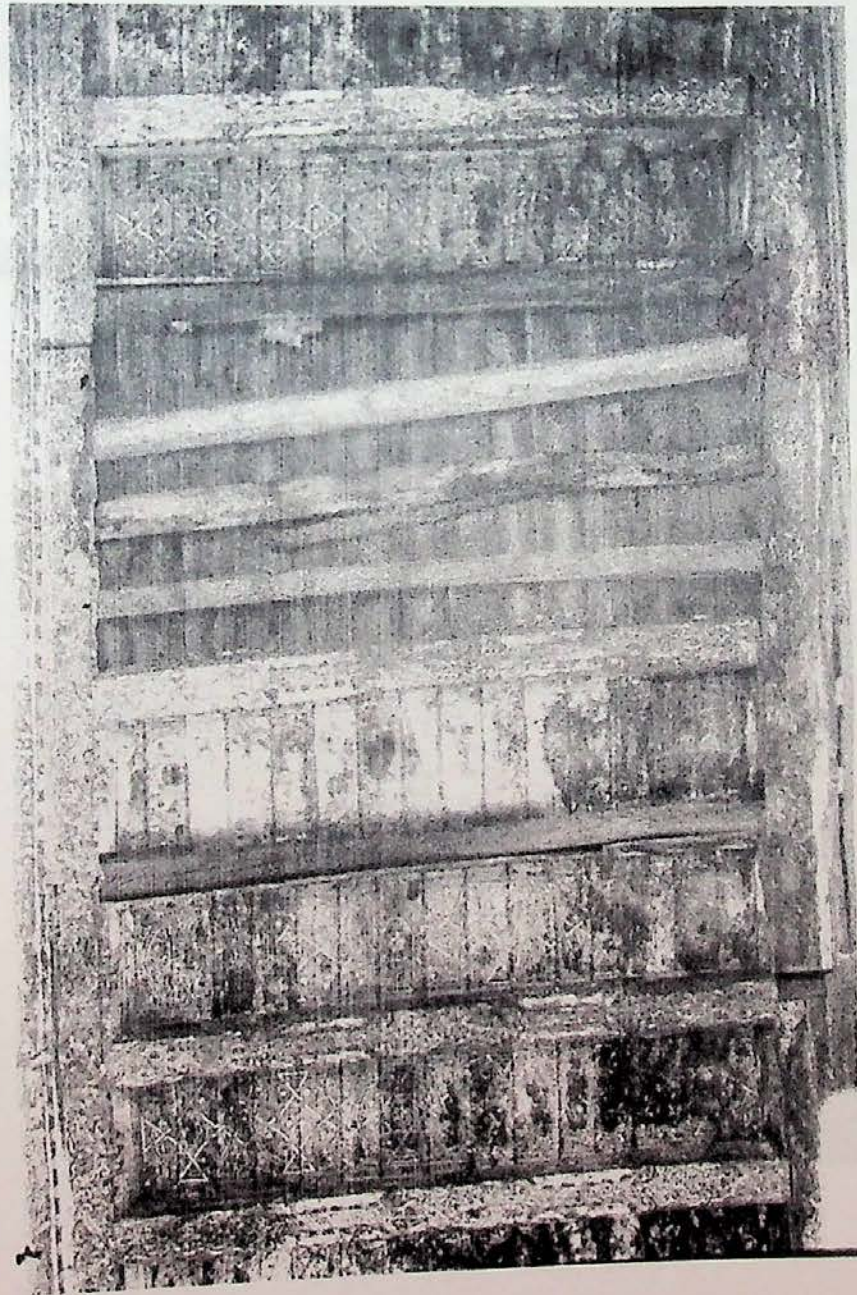


a)



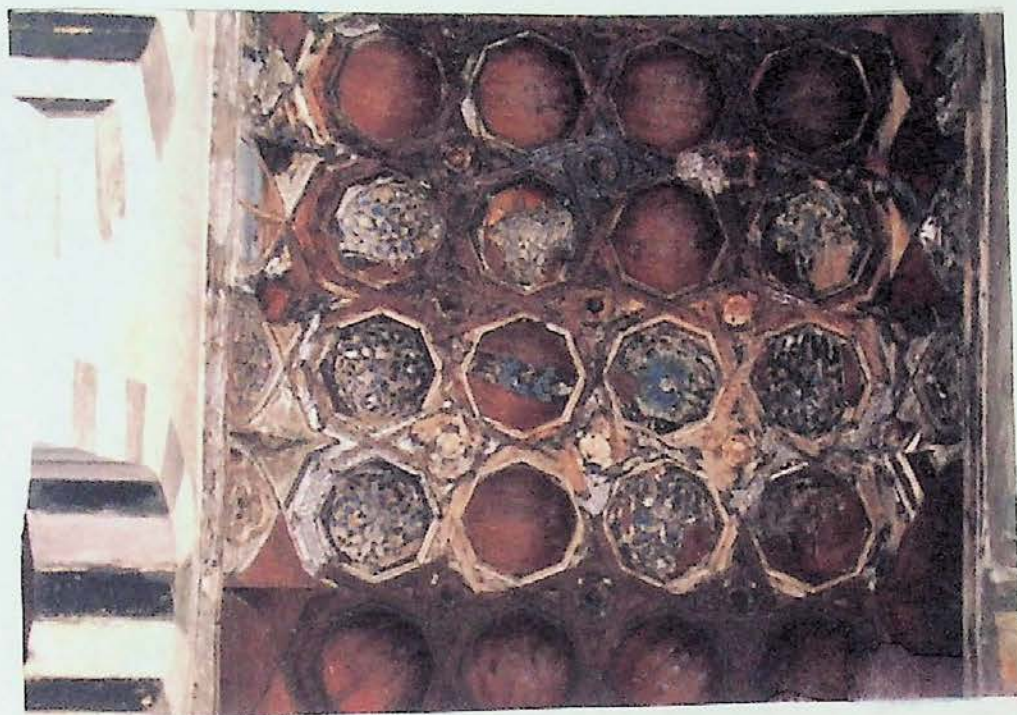
b)

Sabil of al-Nāsir Muhammad

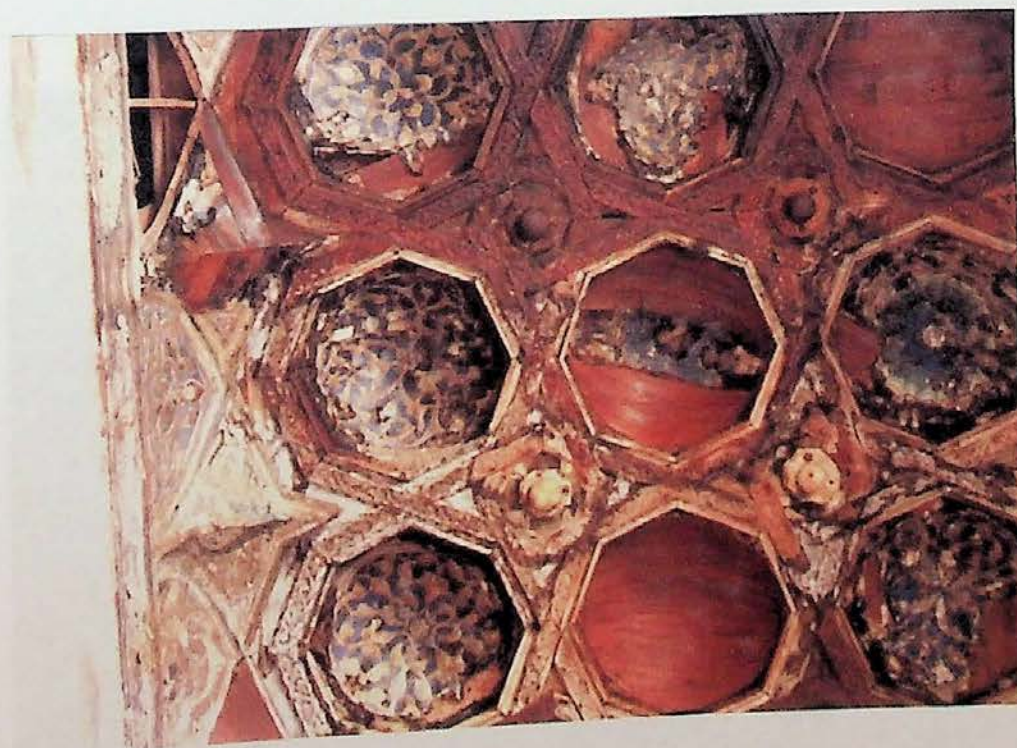


(after Karim)

Mosque of Ulmas



a)

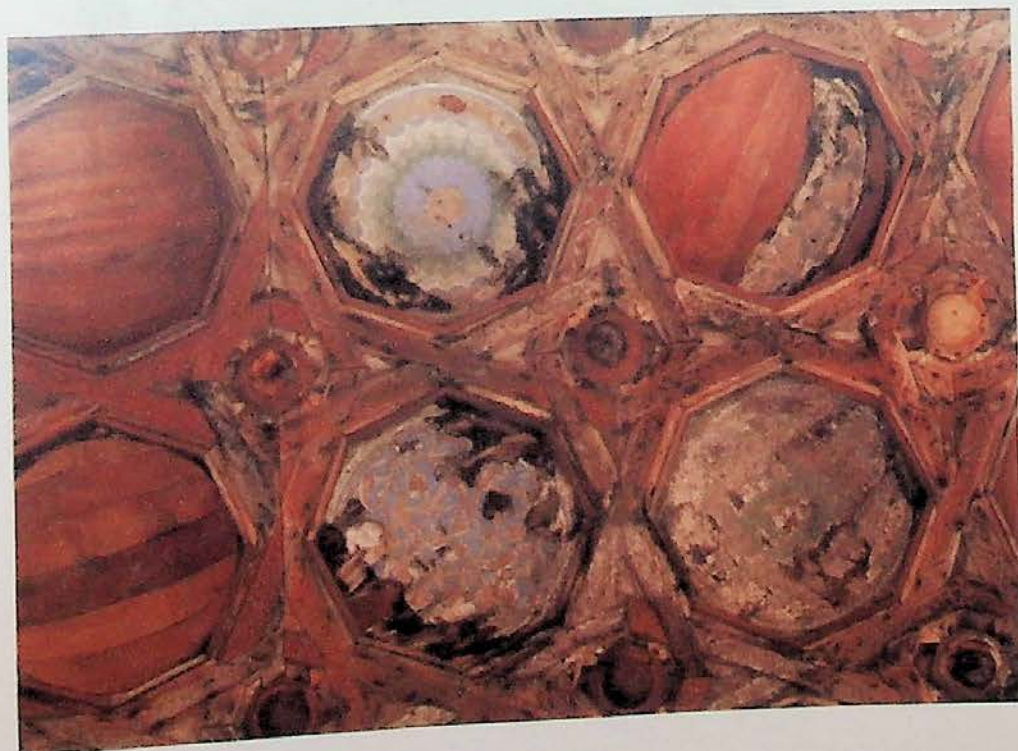


b)

Mosque of al-Nāsir Muhammad / Citadel



a)



b)

Mosque of al-Nāsir Muhammad / Citadel

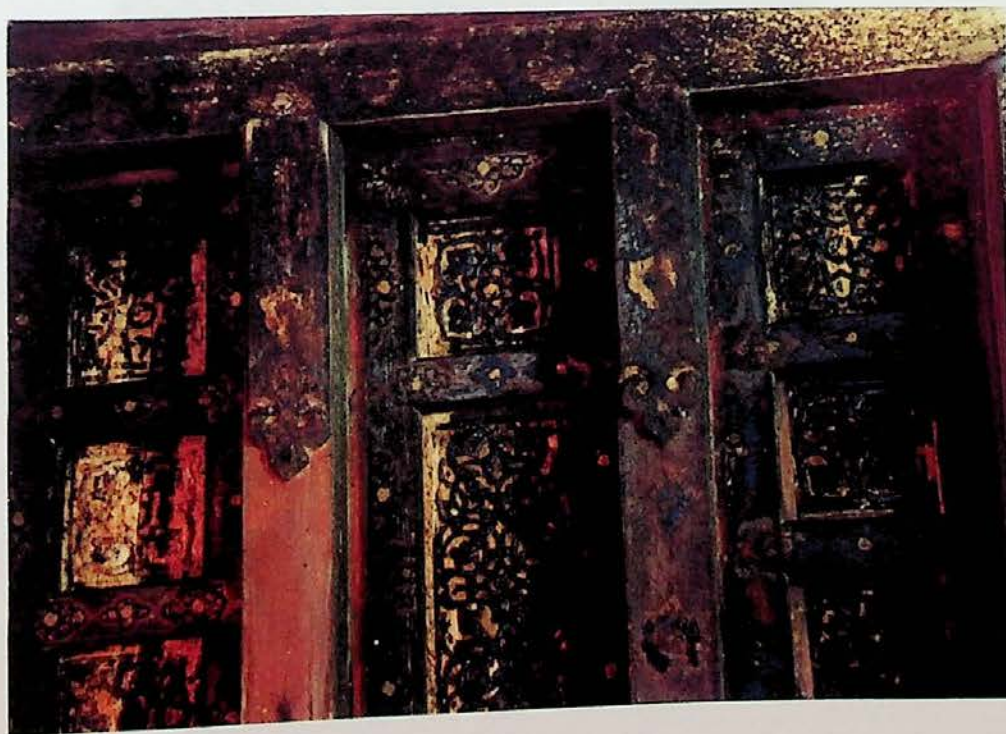


(after Comité, 1946-53, pl.12)

Mosque of al-Nāsir Muhammad / Citadel

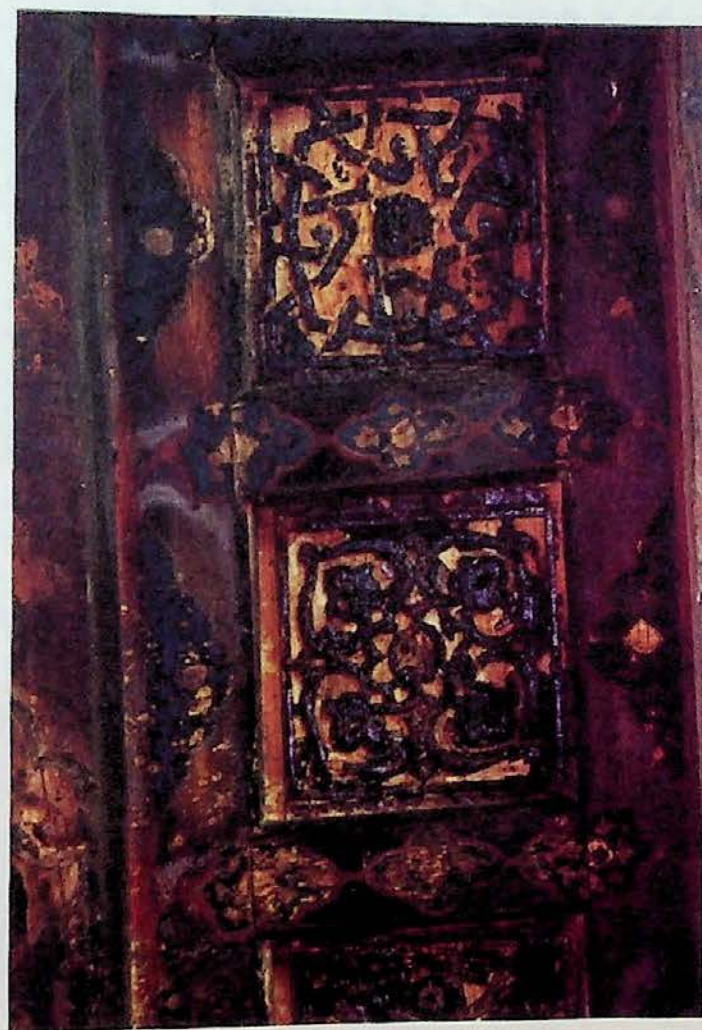


a)



b)

Mosque of Sharaf al-Dīn



Mosque of Sharaf al-Dīn



a)



b)

Mosque of Sharaf al-Din



a)



b)

Mosque of Sharaf al-Dīn



a)

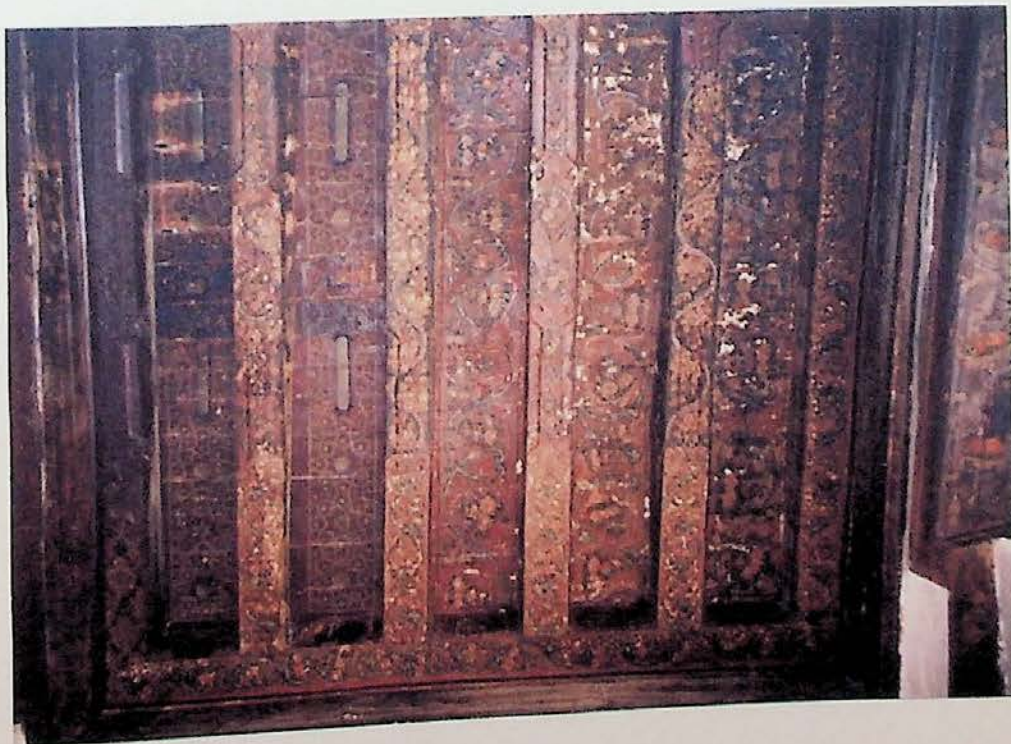


b)

Mosque of Sharaf al-Dīn



a)

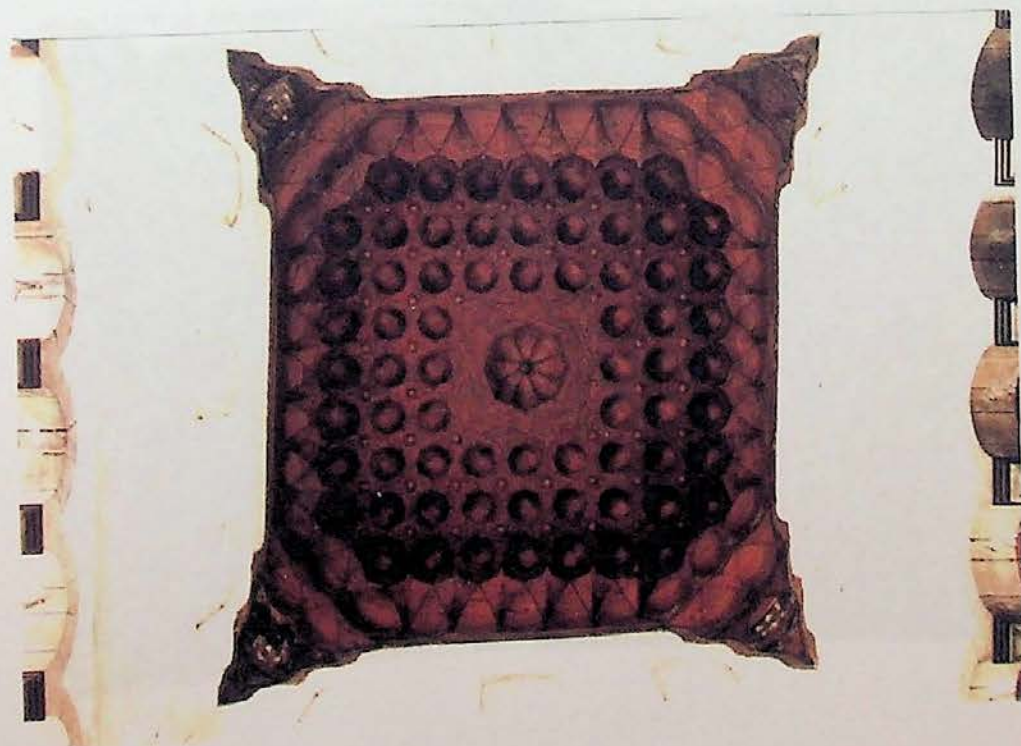


b)

Palace of Bishtāk



a)



b)

Palace of Bishtāk



a)



b)

Palace of Bishtāk



a)



b)



c) (after O'Kane)

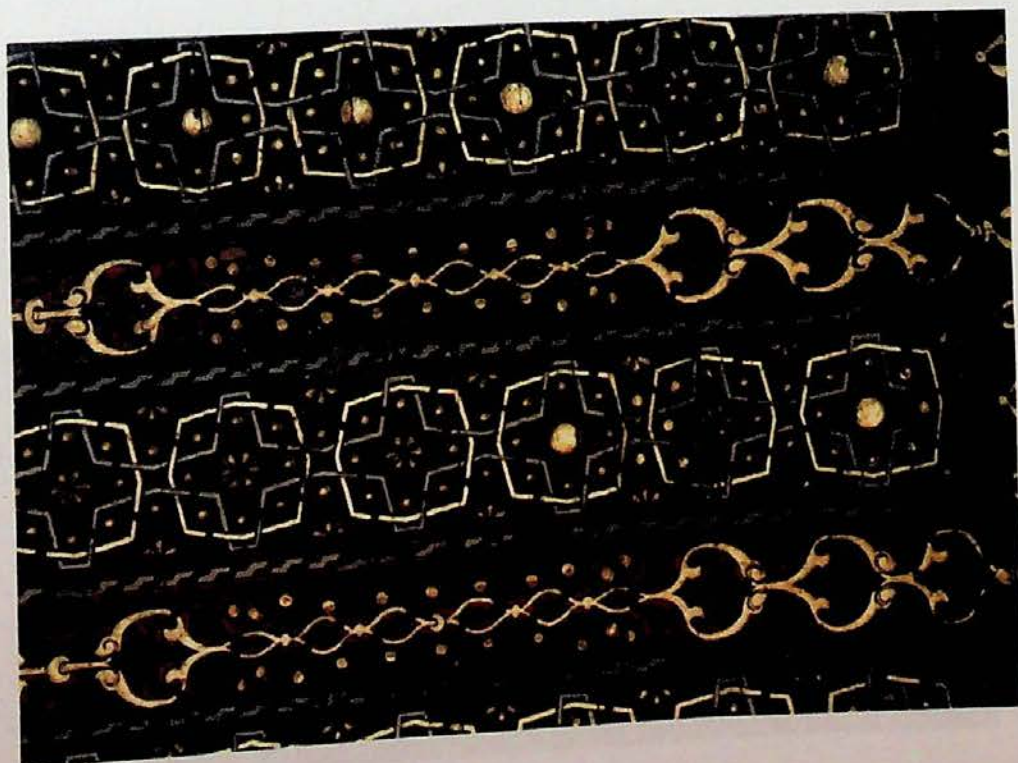


d) (after O'Kane)

Palace of Bishtāk

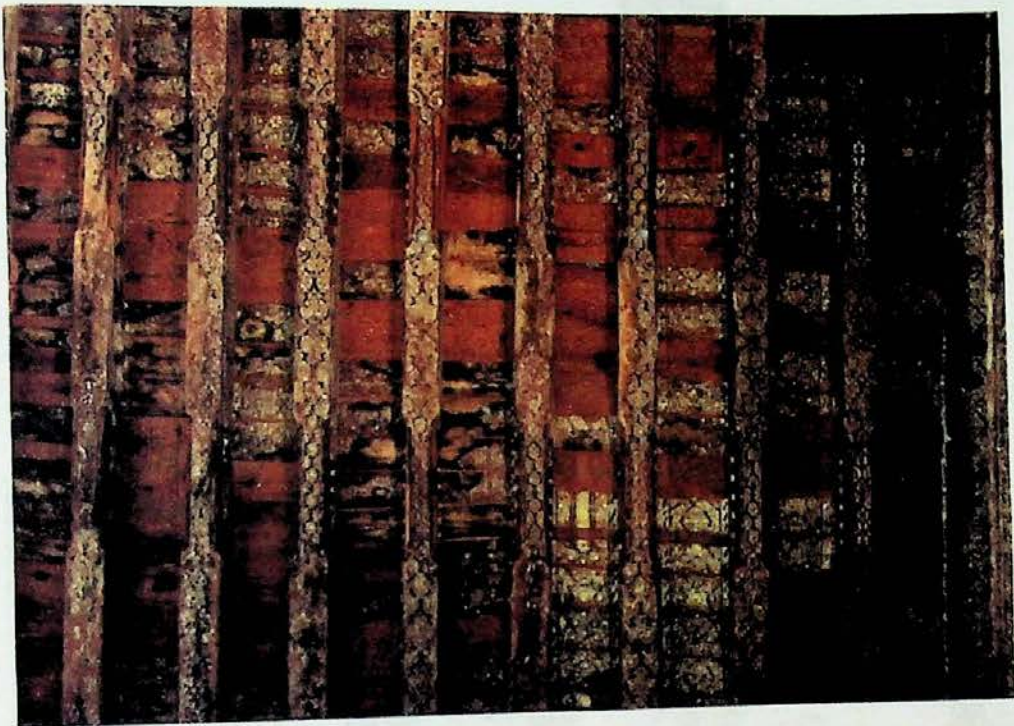


a)



b)

Mosque of Maridani

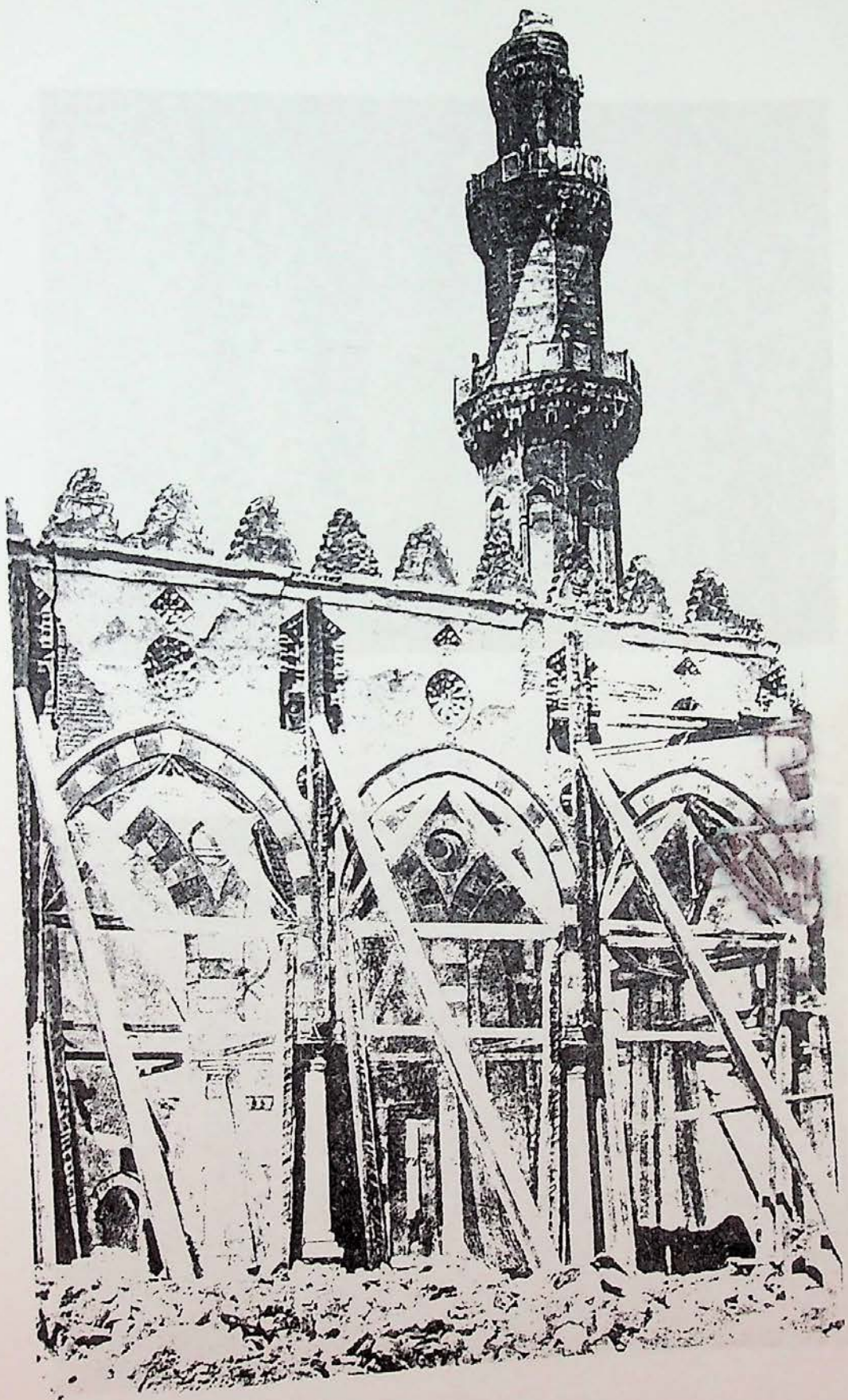


a)



b)

Mosque of Maridani



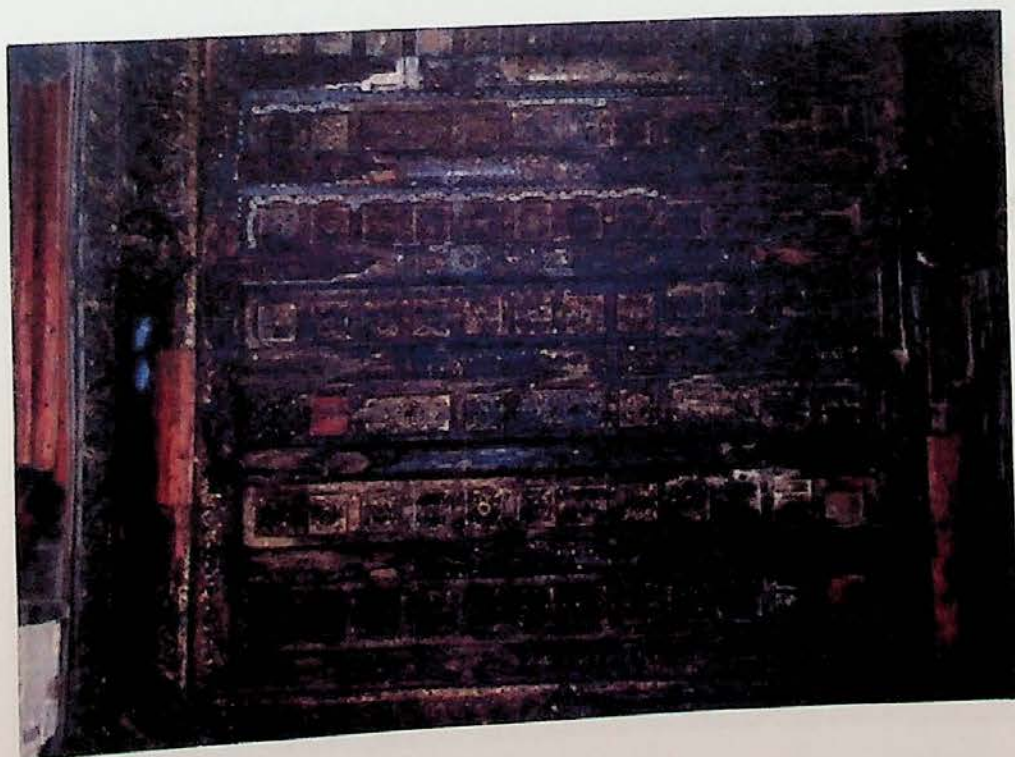
b)

(after Comité, 1905, pl.2)

Mosque of Maridani



a)



b)

Qā'a of Muhib al-Dīn

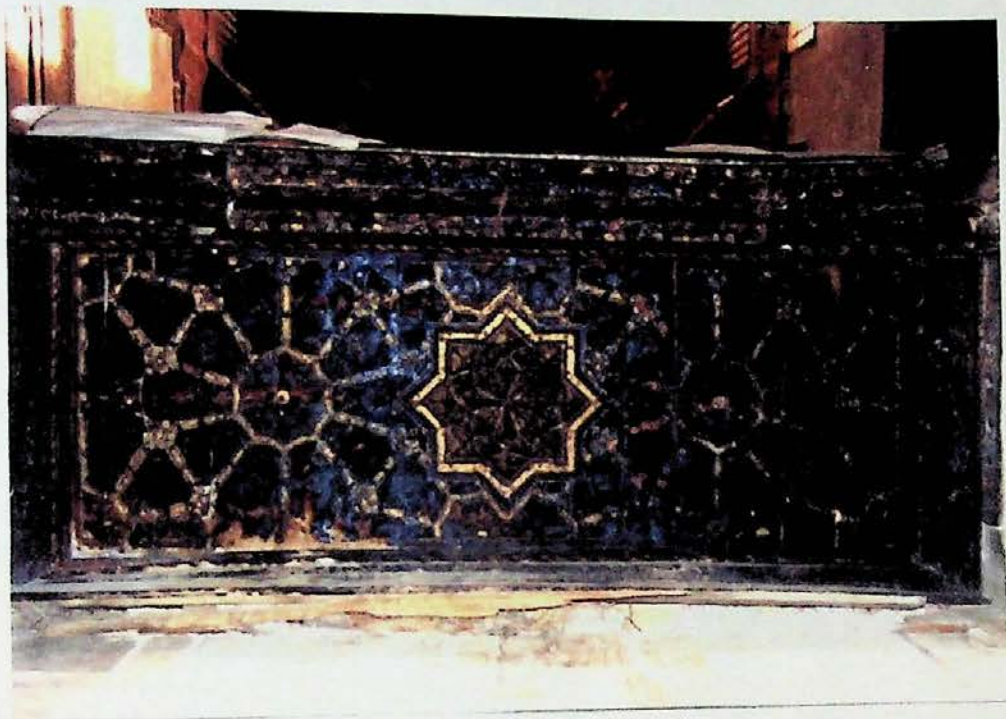


a)



b)

Qā'a of Muhib al-Dīn



a)



b)

Qā'a of Muhib al-Dīn



a)



b)

Qā'a of Muhib al-Dīn

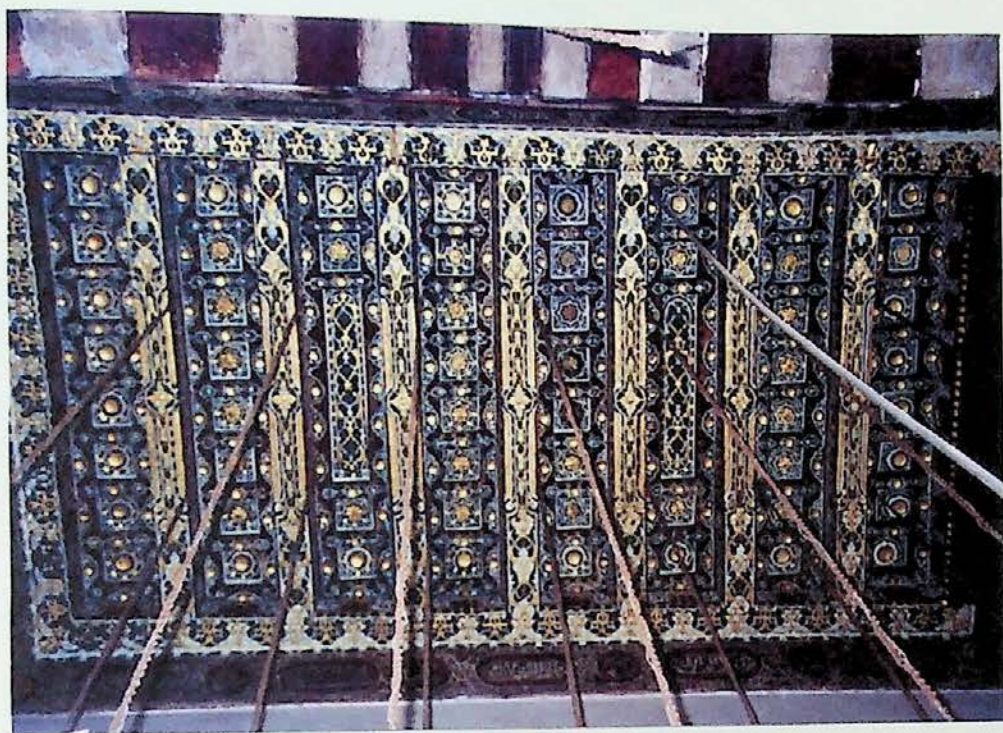


a)



b)

Qā'a of Muhib al-Dīn

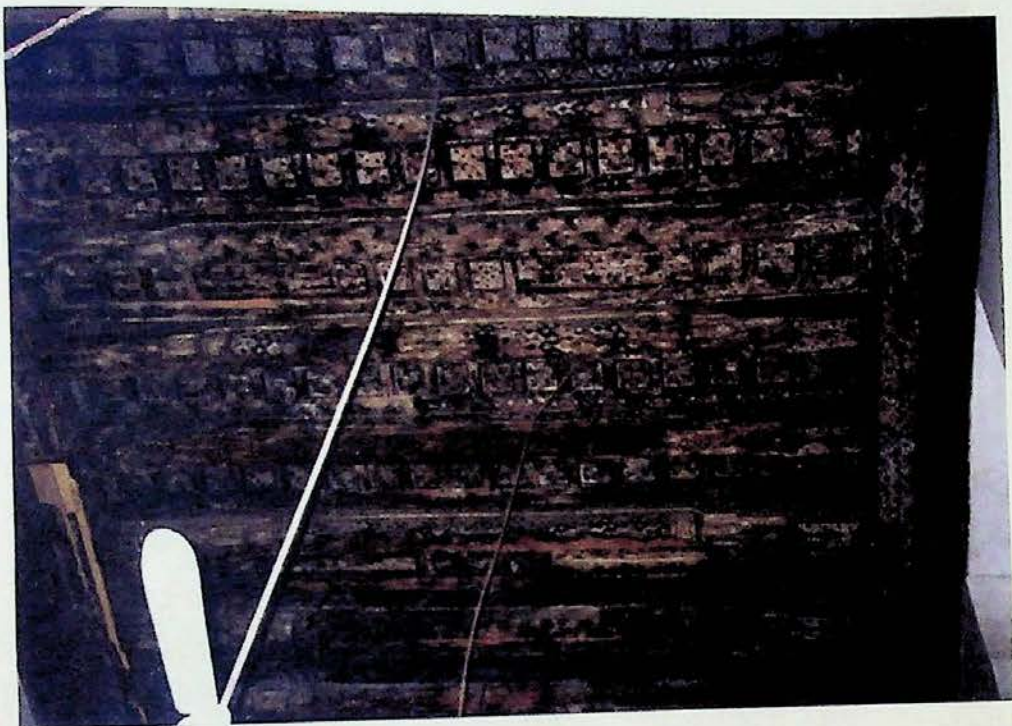


a)



b)

Madrasa of Tatar al-Higaziya



a)



b)

Madrasa of Tatar al-Higaziya

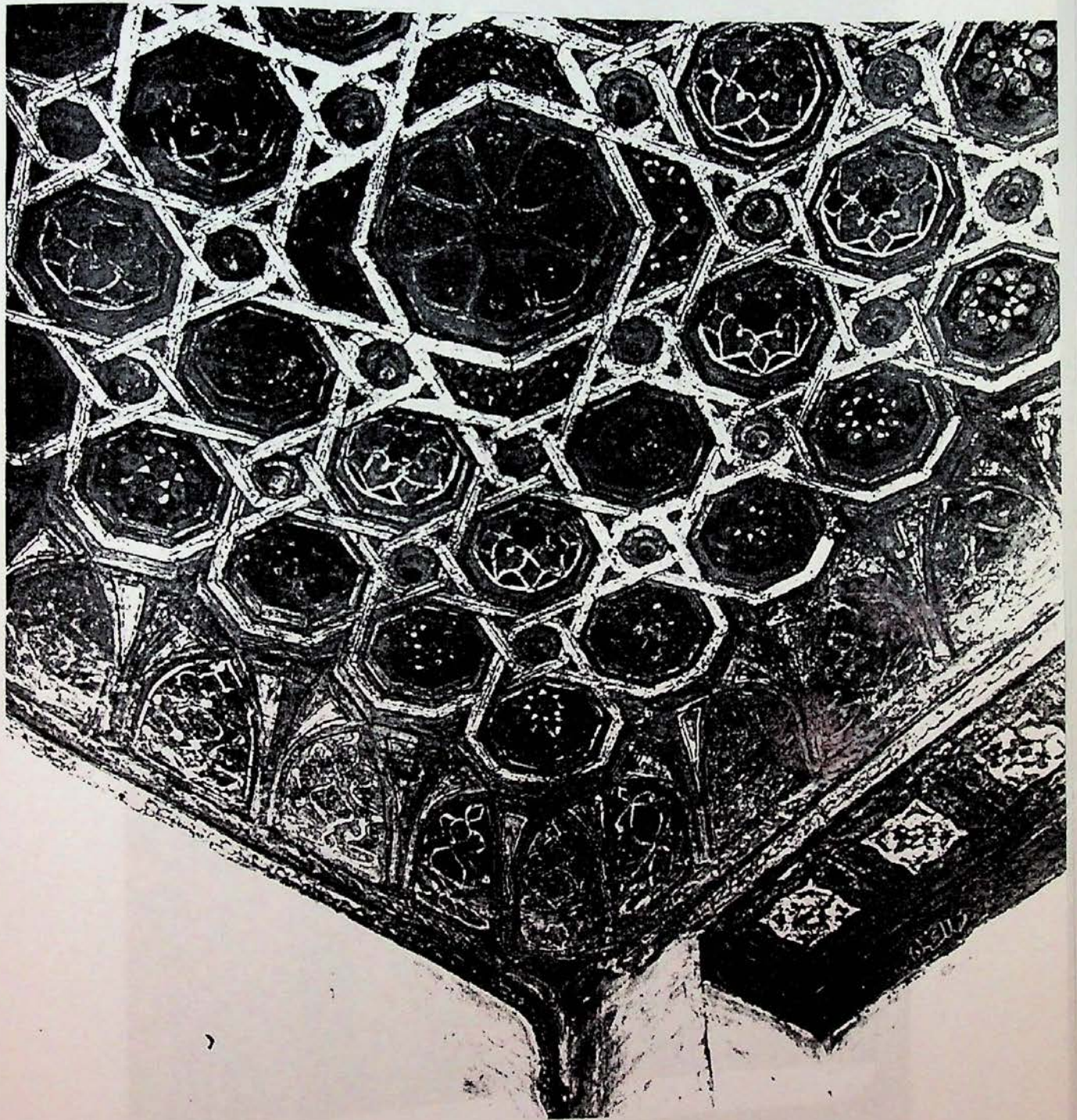


a)



b)

Madrasa of Tatar al-Higaziya



(after Garçin, fig. 15)

Palace of Amir Tāz

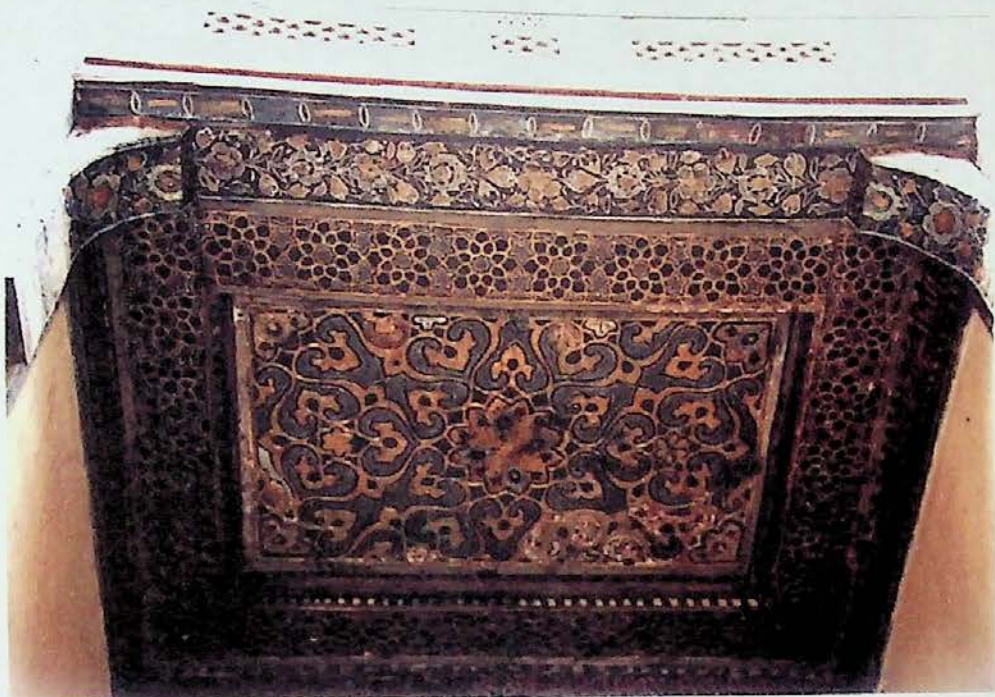


a)



b)

Madrasa of Mithqāl

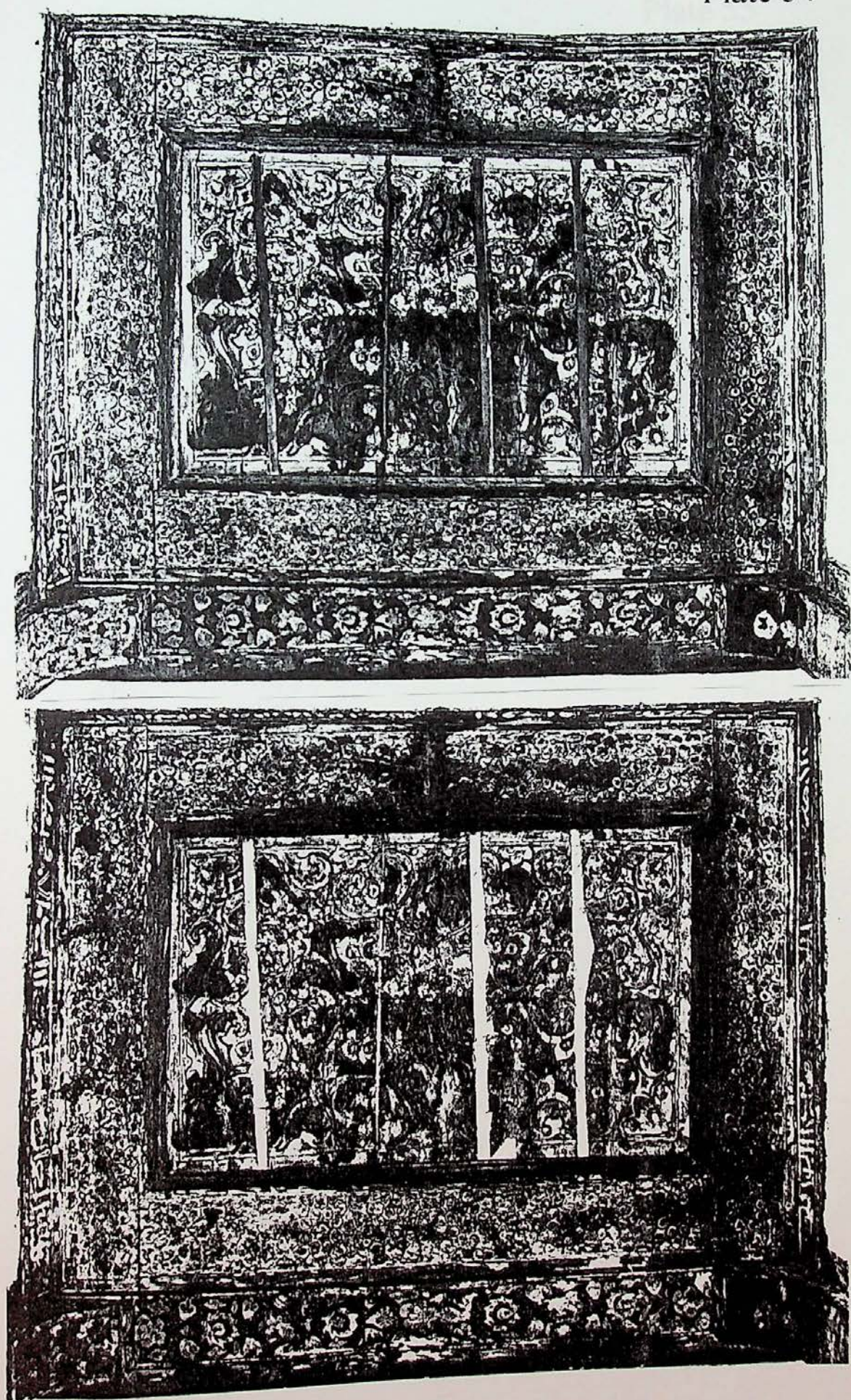


a)



b)

Madrasa of Mithqāl



(after Meinecke, "Restauration," pl. 22)
Madrasa of Mithqāl

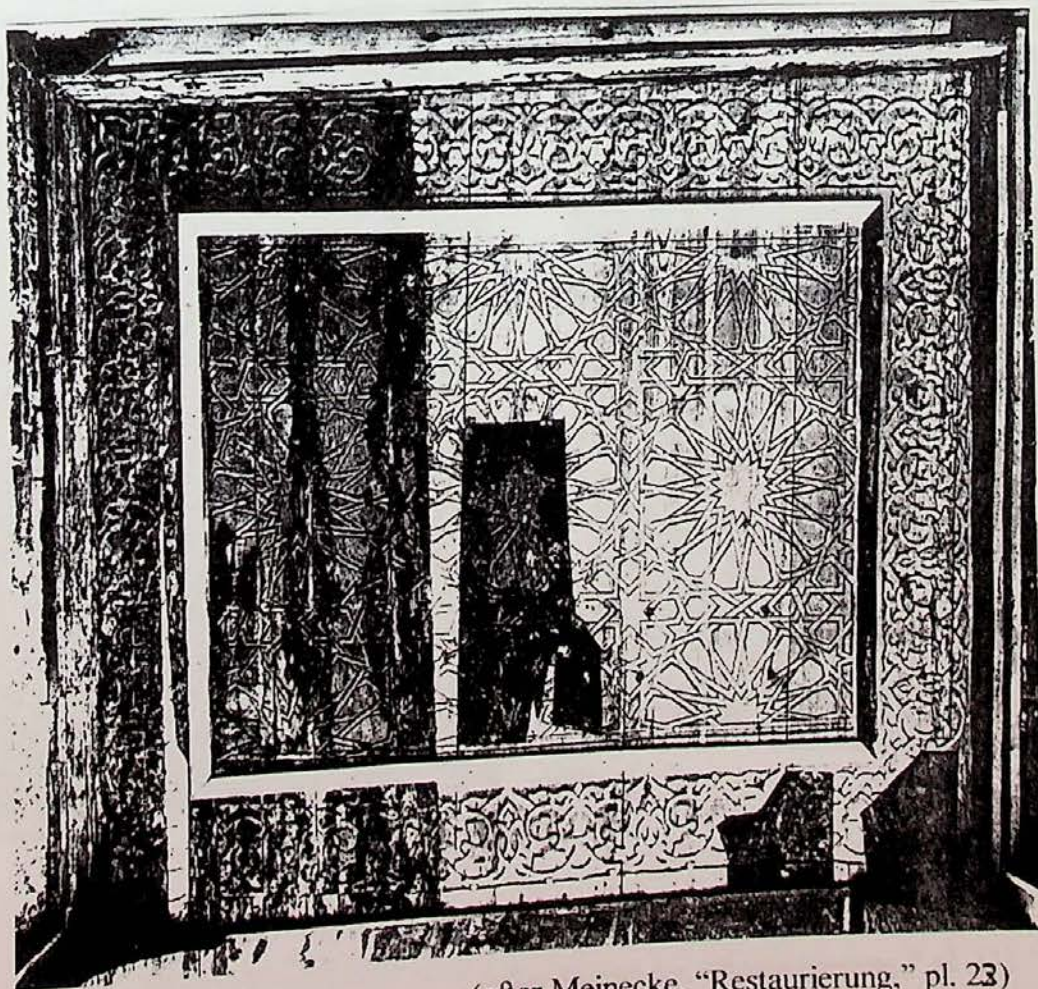
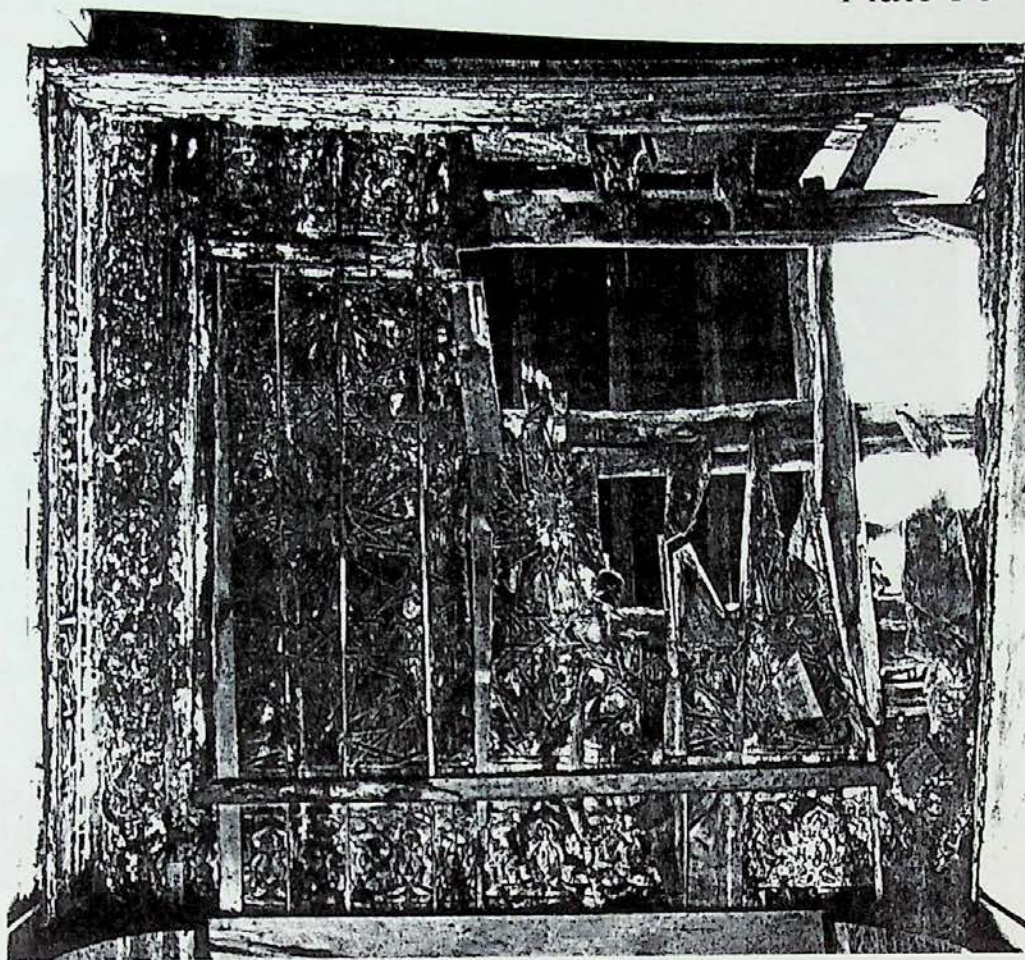


a)



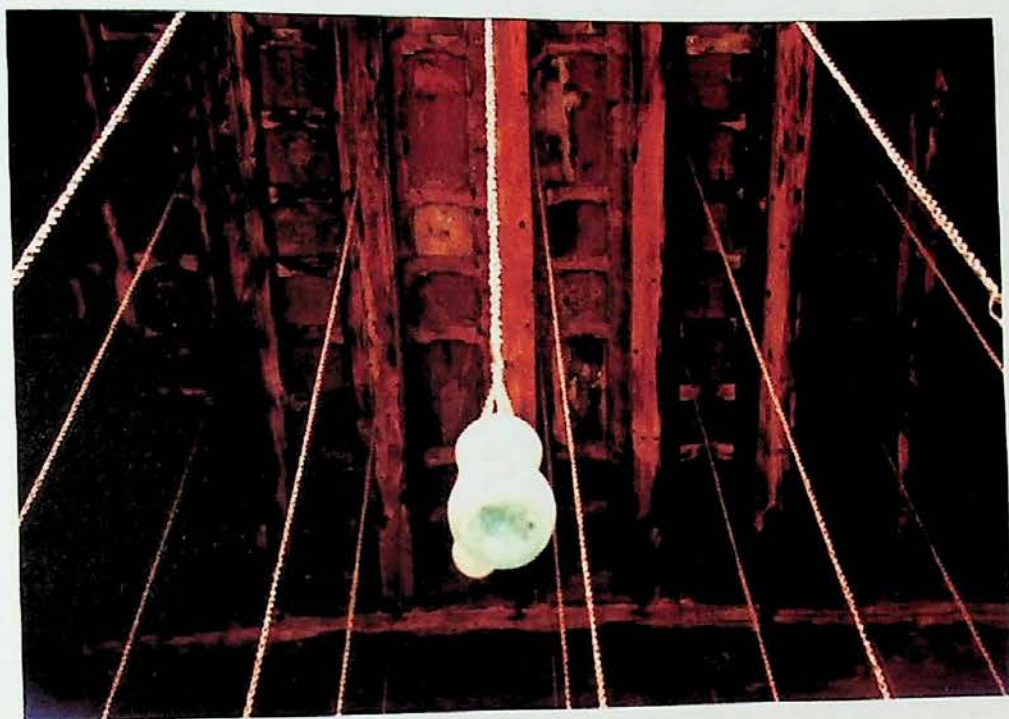
b)

Madrasa of Mithqāl

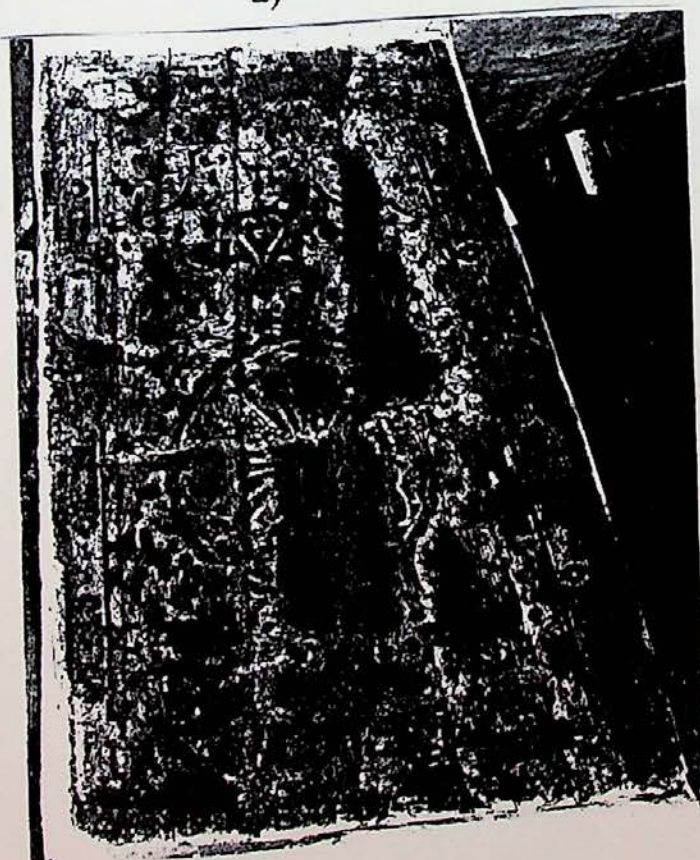


(after Meinecke, "Restaurierung," pl. 23)

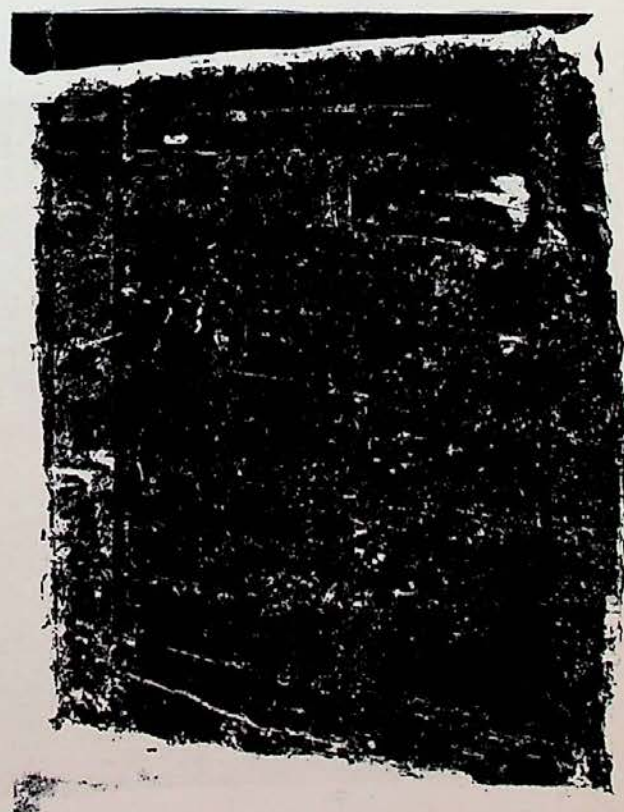
Madrasa of Mithqāl



a)



b)



c)

(after Meinecke, "Restauration," pl. 11)
Madrasa of Mithqal



a)



b)

Mosque of Khushqadam



a)



b)

Mosque of Khushqadam

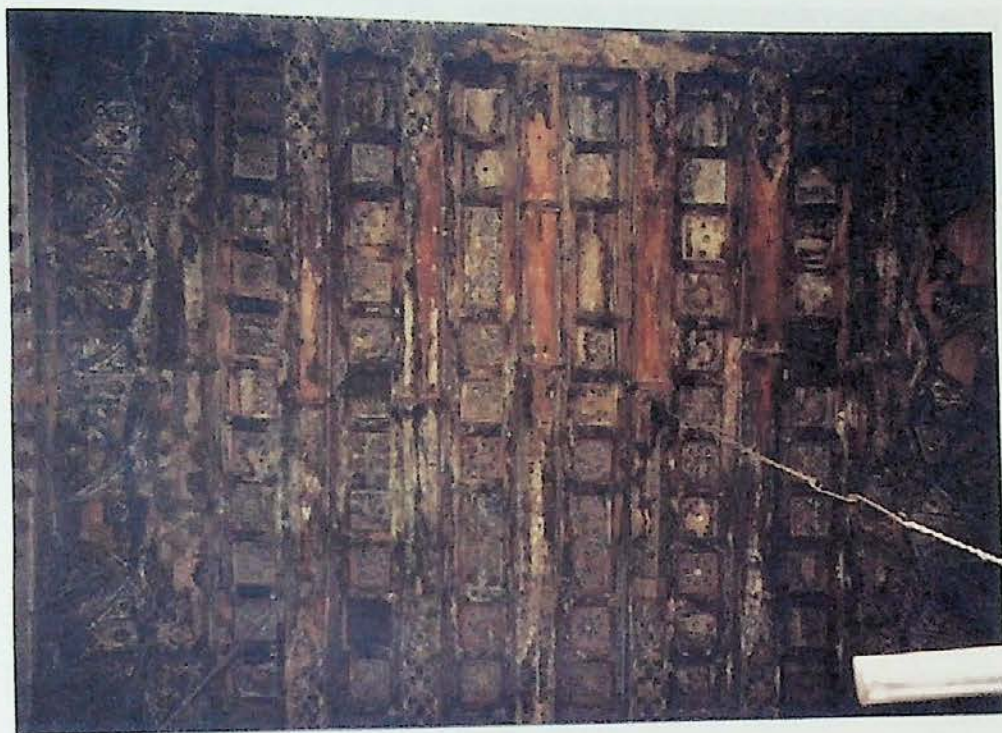


a)

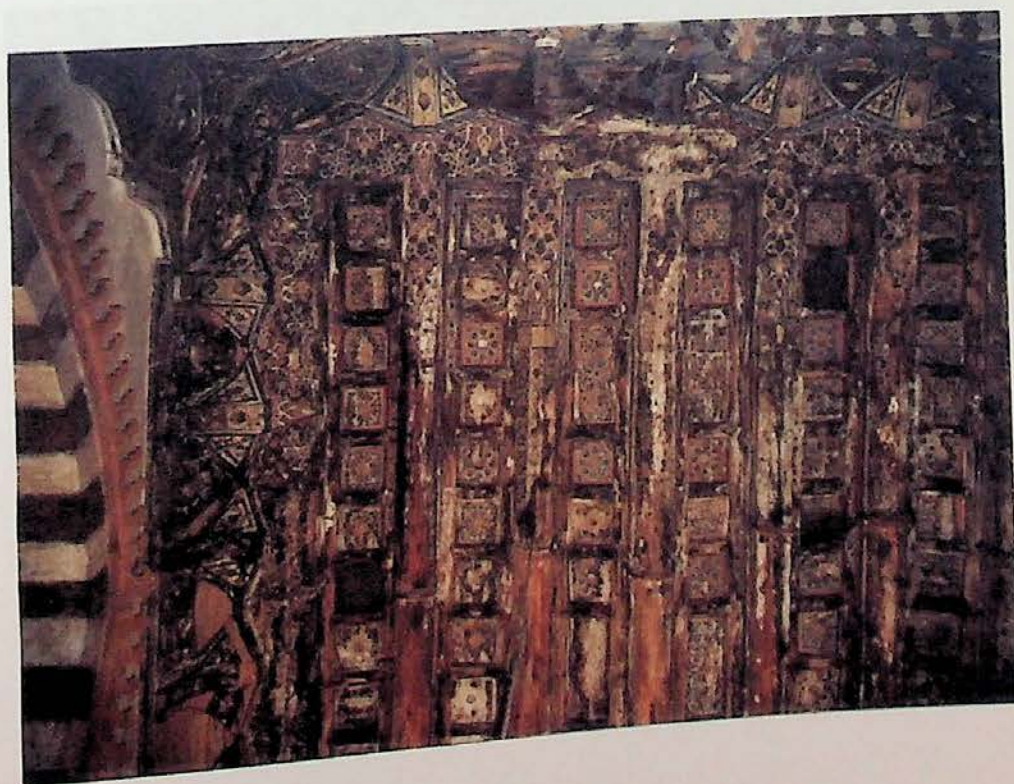


b)

Mosque of Khushqadam



a)



b)

Mosque of Khushqadam



a)



b)

Mosque of Khushqadam

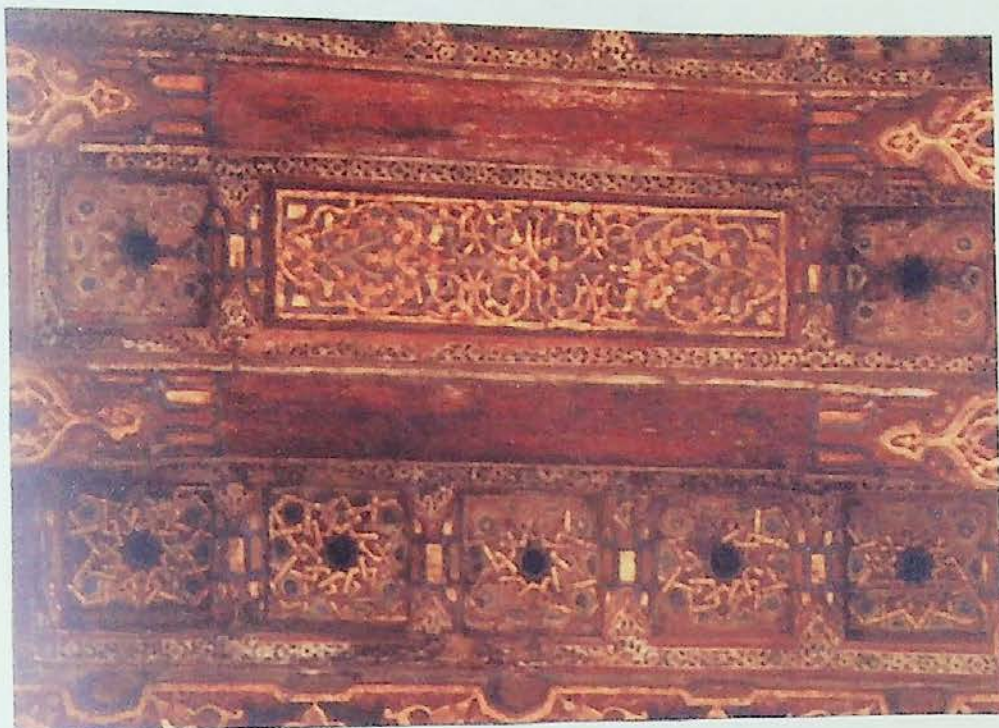


a)

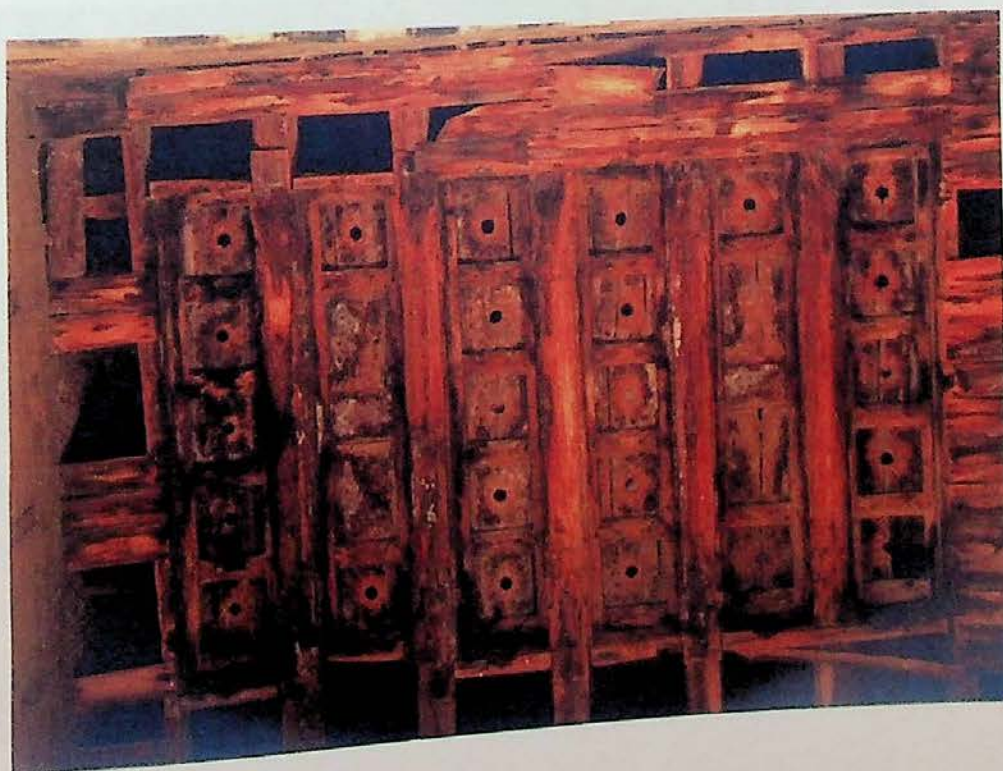


b)

Madrasa of Um Sultan Sha'bān



a)

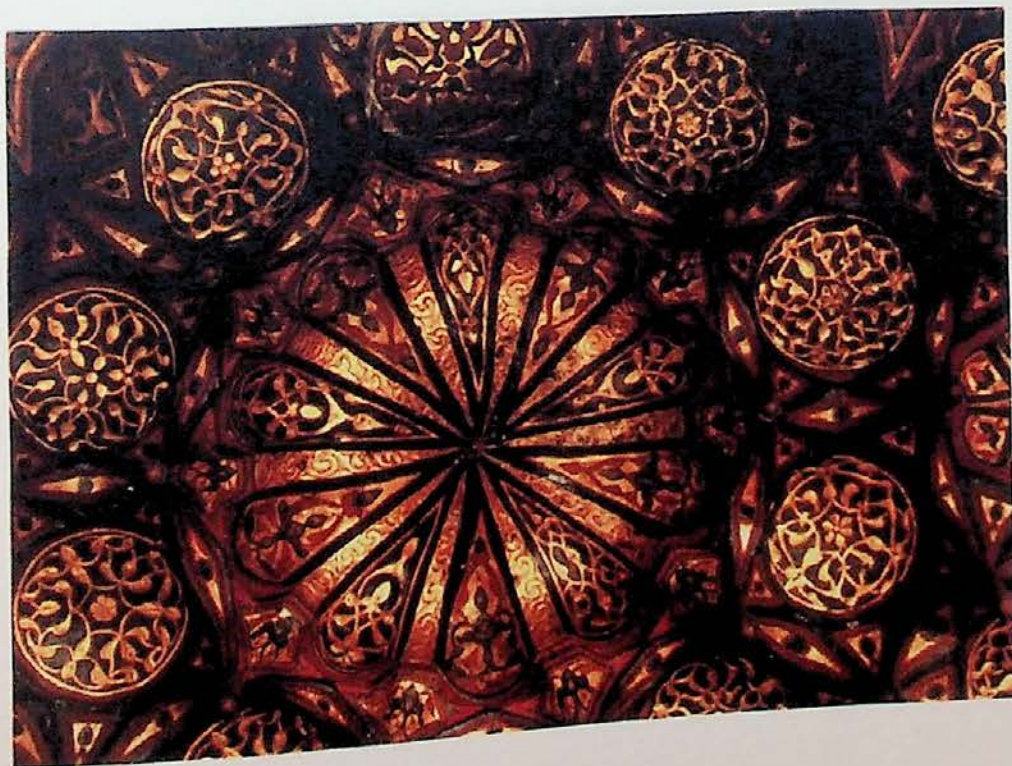


b)

Madrasa of Um Sultan Sha'bān

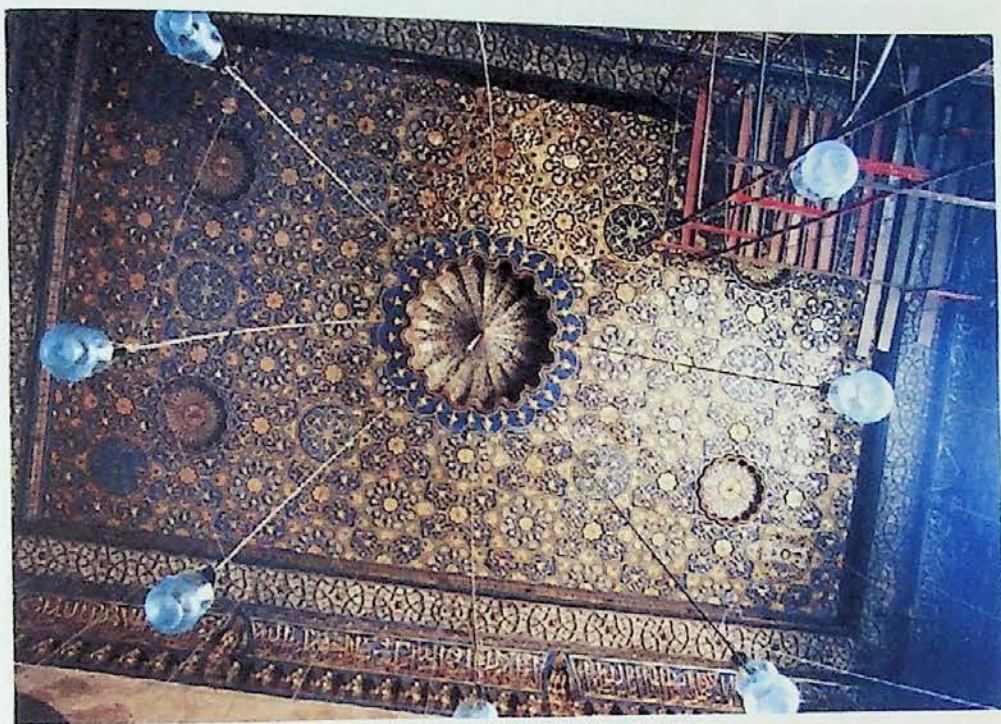


a)



b)

The Madrasa of Sultan Barquq

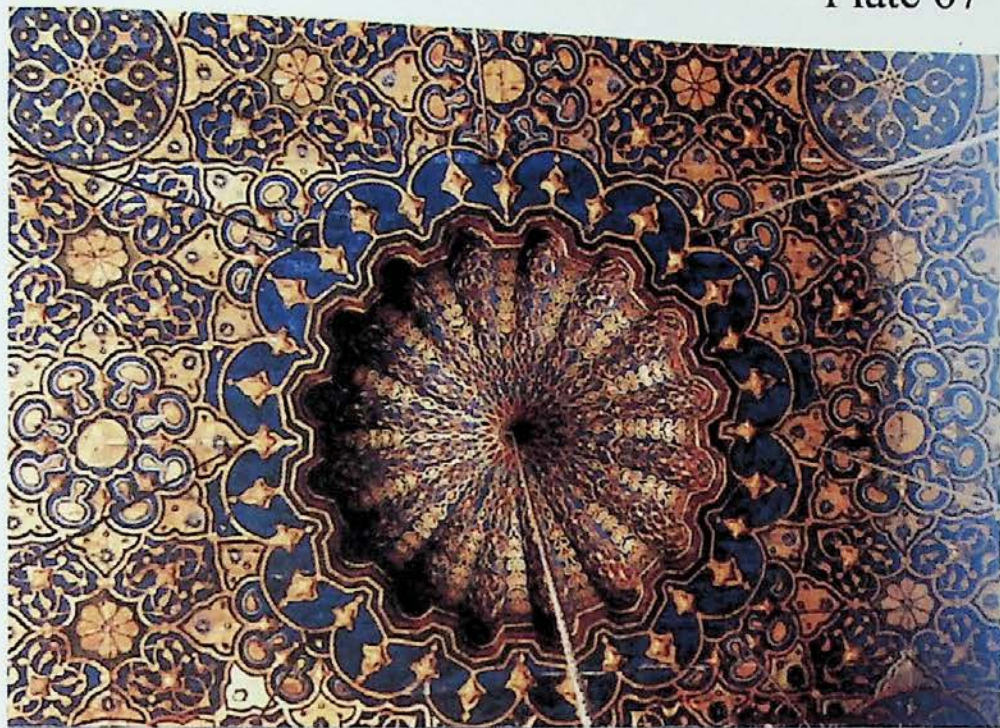


a)



b)

The Madrasa of Sultan Barquq

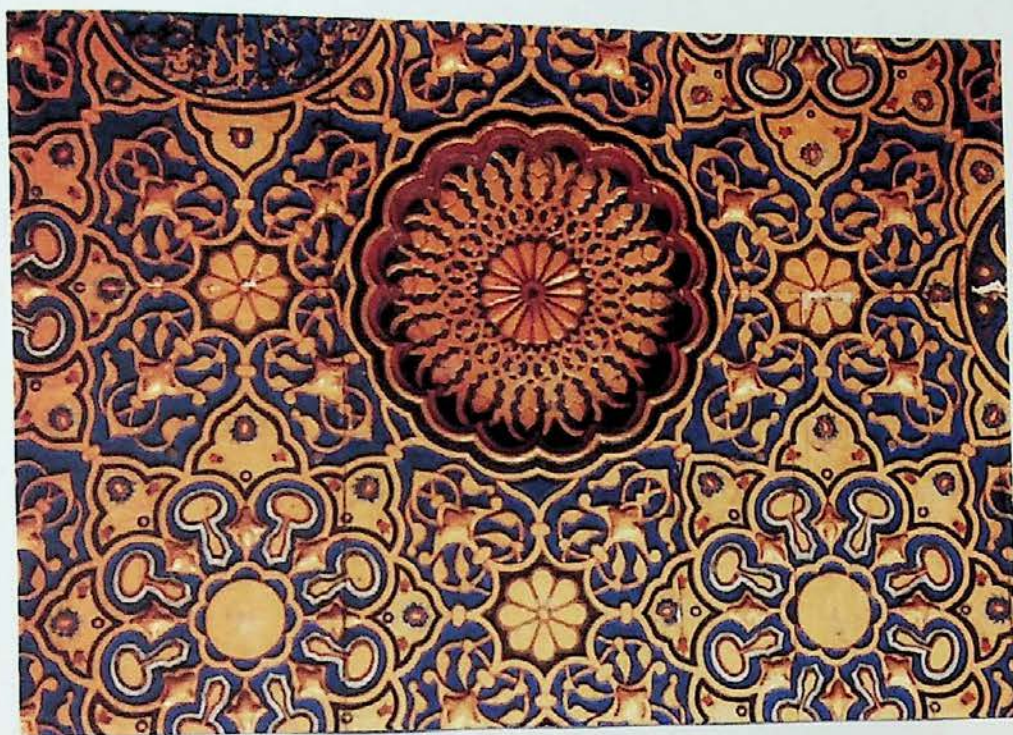


a)

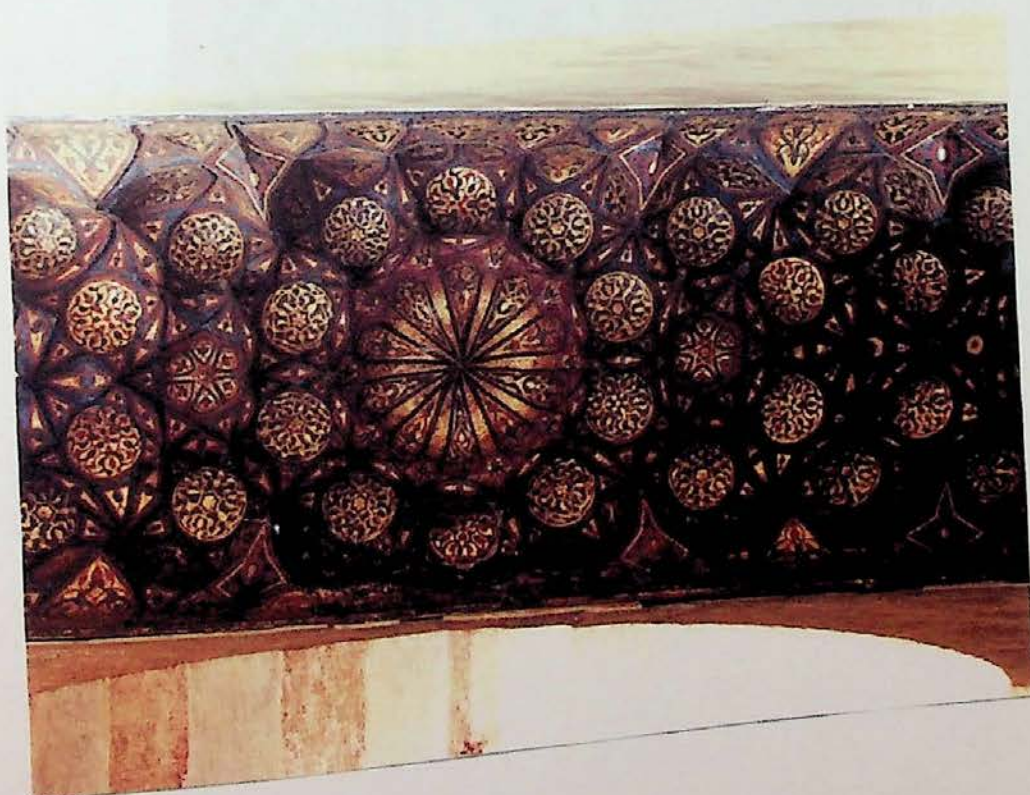


b)

The Madrasa of Sultan Barquq

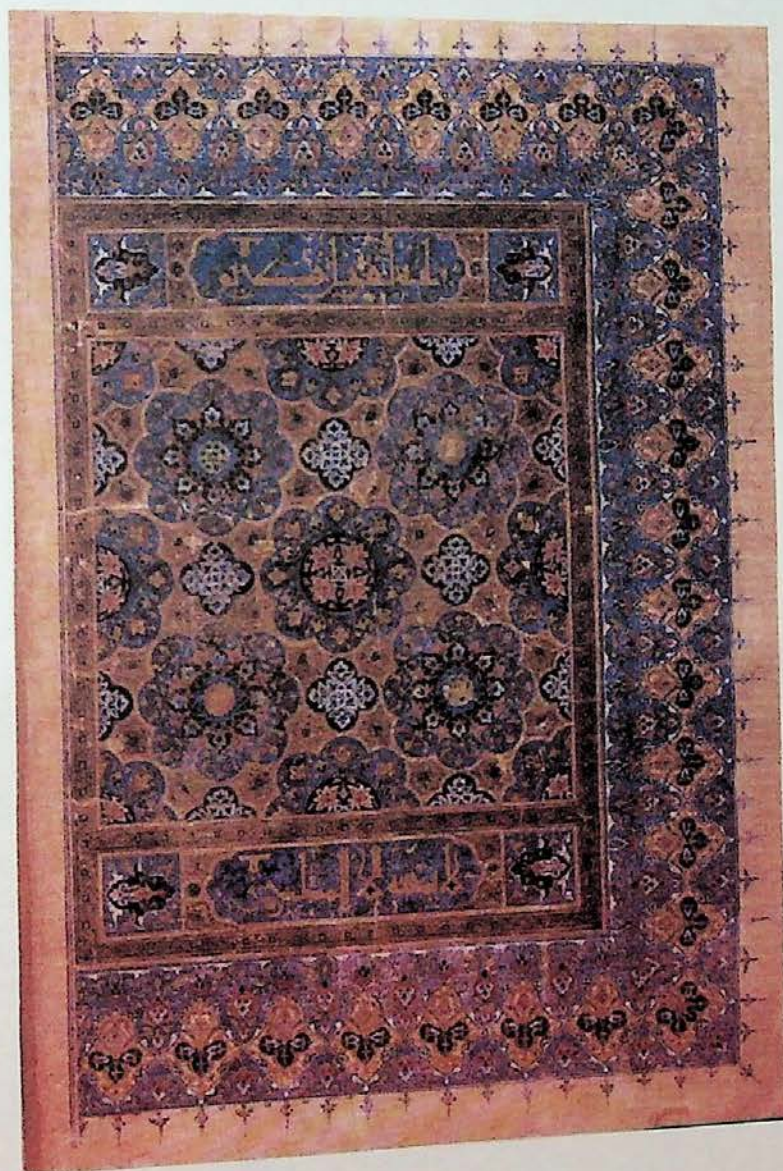


a)



b)

The Madrasa of Sultan Barquq



(after James, 205)

Qur'anic Frontispiece



a)

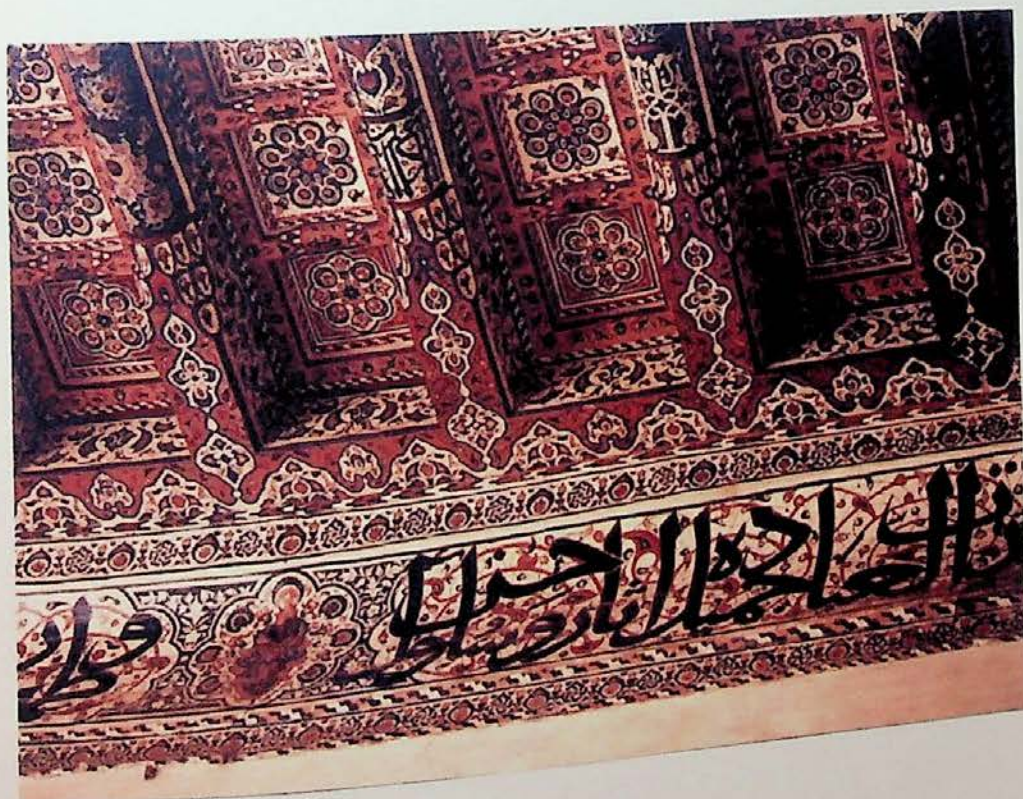


b)

Mosque of Sheikhu (Ottoman Ceiling)



a)



b)

Khanqah of Sheikhu (recent restoration)

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