PALACES OF CRYSTAL, SANCTUARIES OF LIGHT: WINDOWS, JEWELS AND GLASS IN MEDIEVAL ISLAMIC ARCHITECTURE.

Finbarr Barry Flood.
PALACES OF CRYSTAL, SANCTUARIES OF LIGHT: WINDOWS, JEWELS AND GLASS IN MEDIEVAL ISLAMIC ARCHITECTURE.

Finbarr Barry Flood

Volume I:
Text

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I hereby declare that the work contained within this thesis was entirely composed by myself.

Finbarr Barry Flood.
ABSTRACT.

While the study of medieval European stained glass has gained considerable momentum during the past few decades, its Islamic equivalent remains virtually unknown in the West and largely unstudied in the Islamic world. Where scholars have made reference to windows of coloured glass in the Islamic world, it has frequently been assumed that these appear at a late date and as the result of European influence. Archaeological and textual evidence, however, indicate that window-grilles of stucco and coloured glass were used in early Islamic architecture. The form of these grilles suggests that they are an Umayyad innovation.

This thesis consists of two sections. The first traces the history of coloured glass windows (qamariyyat and shamsiyyat) in the Islamic world up to the beginning of the tenth/sixteenth century. Section two considers the use of vitreous decoration, colour and light in medieval Islamic architecture.

Chapter I focuses on the terminology associated with windows of coloured glass in the Islamic world. The historical usage and etymology of the terms qamariyya and shamsiyya are examined. It is suggested that that the functional and symbolic connections between the sun, the moon, the window and light pre-date Islam.

In Chapter II the evidence for the form, manufacture and use of qamariyyat in Umayyad architecture is considered. Chapters III-VI trace the subsequent history of qamariyyat and shamsiyyat in medieval Islamic architecture. The discussion draws on archaeological, artistic and textual evidence for the use of such windows, and considers the medieval window-grilles still in situ.

Some aspects of the aesthetic and iconographic connotations of colour, light and glass in medieval Islamic palace architecture are considered in Chapter VII. The discussion centres on literary descriptions of a series of glass pavilions built by various Islamic rulers. The significance of these illusionistic structures is considered in the context of the eschatological, cosmological and mythological associations of the glass palace.

The illumination of mosques, and the association between the mihrab and light, are discussed in the penultimate chapter. It is suggested that this association had a transcendental significance even before the image of the lamp hanging in the mihrab became a widespread symbol of divine illumination.

Chapter IX develops the issues raised in Chapter I, and draws the strands of the preceding discussion together. It considers the possibility that the window could assume a symbolic significance in medieval Islamic architecture related to its functional connection with light.
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The majority of my time has been spent in the Department of Fine Art in the University of Edinburgh, and I would like to thank my friends and colleagues there. Professor Robert Hillenbrand in particular has been a constant source of knowledge, encouragement and advice. I am very grateful for his guidance and support over the past few years. My thanks are due also to my colleagues, especially Ulli al-Khamis and Avinoam Shalem for the many enjoyable discussions and dinners which we have shared together. Summer Kennesson and Constance Uzwyshyn have been the perfect office-mates.

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ABBREVIATIONS.
The following abbreviations have been used in the footnotes and bibliography:

ADAJ - Annual of the Department of Antiquities of Jordan.

AIOUN - Annali dell' Istituto Orientale di Napoli.

AJA - American Journal of Archaeology.


EI - Encyclopaedia of Islam.


JWCI - Journal of the Warburg and Courtauld Institutes.

JRAS - Journal of the Royal Asiatic Society.


MCIA - Materiaux pour un Corpus Inscriptionum Arabicarum.

QDAP - Quarterly of the Department of Antiquities of Palestine

RCEA - Répertoire Chronologique d'Épigraphie Arabe.

NOTE

Diacritical marks have been used for most proper names, for the titles of Arabic texts and for quotations from Arabic texts. In the case of the certain words which recur frequently throughout the text diacritical marks have been omitted. They have not been used for the following common nouns: qamārīyāt; shamsīyāt; māshrabīyāt; mihrāb; iwan; khānqāh; sūra; ḥammām; amīr; sultan; shī‘a, sūfī. They have also been omitted from the following proper nouns: Qur‘ān; ‘Abbāsid; Fāṭimid; Ayyūbid, Mamlūk, Tīmūrid; Şafavid; Madiña; Baghdad; Sana‘a; Wādī Nattrūn; Sīmarrā; Qaṣr al-Banāt.

There are three types of illustration accompanying the text; black and white plates (contained in Volume II), colour illustrations and figures (contained in Volume III). For convenience these are referred to in the text as (pls.), (ills.) and (figs.) respectively.
The idea for this project developed from a visit to the Dome of the Rock and the Aqsa Mosque in 1986. Until then I, like most Westerners, had been unaware that anything akin to stained glass existed in the Islamic world. Among the many questions which came to mind was whether the windows in the Haram al-Sharif and the stained glass of medieval cathedrals in Europe were related. On a visit to Sana'a' soon afterwards, I became curious as to the historical connection between the stucco and glass windows in the Haram al-Sharif and those being manufactured in Yemen.

In view of the intricacies of their design, and the profound impact which they had on the interior space, I could not but believe that the windows in Jerusalem had been studied previously. On my return to Europe however I found that this was not the case, and that different scholars held widely divergent views on the origins and history of qamariyyat and shamsiyat. The various articles published by H.G. Franz were an exception, but these were necessarily general, dealt mainly with the Umayyad period and did not take into account new material found in the past three decades. From initial research it became clear that finds of window-glass from Early Islamic sites had often gone unpublished, partly due to the lack of a wider context in which to locate them.

A survey of the literature produced references not only to medieval qamariyyat and shamsiyat, but to a whole series of glass structures which, because they do not survive, have been largely ignored by art historians. This also raised the wider issue of the relationship between literary texts, both sacred and profane, and architectural decoration. It was as a result of a merging of these interests that the project suggested itself.

One of the problems with this topic is the difficulty in dating some of the windows discussed. Many of the buildings in which they are found have remained in continuous use since their foundation, and some of their window-grilles have been repaired, remade, or replaced at various times. The problem is most acute when dealing with Mamluk buildings, which often contained large numbers of qamariyyat, and is discussed in detail in Chapter V. Where qamariyyat of different periods are found together within the one building I have usually discussed each window separately within the relevant chapters, providing cross-references to the discussions of other qamariyyat in the same building. I have not tried to list every window I have encountered, but to provide a terminus post quem and a terminus ante quem for the main types of coloured glass windows.

One useful criterion for dating such windows is the technique of manufacture. There are two main methods of producing stucco and glass windows - sandwiching the glass between two layers of stucco or, alternatively, attaching it to the reverse of a single layer of tracery by means of a thin application of plaster. In most areas of the Islamic world the former method appears to have been replaced by the latter about the middle of the eighth/fourteenth century. There are however finds from three sites - the monastery of Apa Jeremias at Saqqara (see below, p. 44), the Aqsa Mosque in Jerusalem (below, p. 71) and Fustat (below, p. 147) - which might cause one to harbour slight reservations about using this
as a fixed datum. In the case of the finds from the two former sites the published descriptions are sufficiently imprecise as to render it unclear whether the second method has been used, or whether a layer of stucco has merely fallen away from one side of the glass. The fragment from Fustat is a surface find and is therefore of negligible value in establishing a terminus post quem for the introduction of the second method of manufacture. Bearing these reservations in mind, the technical aspects of qamariyyat and shamsiyyat will be taken into account in attempting to date them.

It should be stressed at the outset that I am concentrating on those window-grilles which contained glass; occasional reference is made to open claustra where appropriate. The main focus of the thesis is on pre-Ottoman windows. Although one may point to general stylistic trends in qamariyyat of any one period, the quantity of material which survives is insufficient to permit the establishment of a strict typology. For this reason I have not attempted to compile a catalogue, but have included stylistic descriptions in the body of the text. For ease of reference the main elements of the discussion are summarised in the conclusion at the end of each chapter.

Due to the impossibility of conducting field work in Iran most of the material discussed is from the Levant, Egypt, Yemen, Spain and the Maghrib. However it seems that windows of coloured glass were not widely used in Iran, and the few that survive are Safavid or Qajar. The evidence for the use of such windows in Ilkhanid and Timurid architecture is summarised in Chapter VI. In the same chapter the main characteristics of Safavid and Ottoman windows are outlined briefly in order to show their relationship to earlier qamariyyat and shamsiyyat.

My research suggests that both medieval European stained glass and its Islamic equivalent are parallel offshoots from the aesthetic and decorative traditions of Late Antique art. Physical proximity between European Christians and Muslims in the peripheral areas of the medieval Islamic world often led, however, to the adoption of techniques associated with stained glass for the manufacture of qamariyyat, and vice versa. The study of this lost dimension of Islamic architectural decoration thus serves as a timely reminder of the common heritage of Christendom, Byzantium and the Islamic world, and the rich cultural exchange between them.
SECTION ONE
CHAPTER ONE
LIGHT OF THE SUN AND THE MOON: TERMINOLOGY.

1.1 Introduction.

I have avoided using the term "stained glass" to describe the stucco and glass window-grilles which are the subject of this thesis for two reasons. Firstly, Islamic window-glass is not 'stained' in the same way as Western medieval window-glass. That is, although the glass is usually stained or coloured by the inclusion of certain metallic compounds during its manufacture, unlike much Christian window-glass it is not decorated with vitreous painting fired on the surface of the glass.  

Medieval Islamic painted window-glass makes use instead of "cold" painting, with the pigment left unfired. My second reason for avoiding the term "stained glass" - a measure of the lack of previous research in the field - is that in its general usage the term is inseparably linked with coloured and painted glass held in metal, usually lead, tracery. Since this is rarely the case with Islamic glass windows, the term cannot accurately be used to describe the form of architectural decoration discussed below. A critical additional difference, which heightens the desirability of distinguishing between the Christian and Islamic manifestations of this art form, is the absence in Islamic window-glass, even when painted, of the figurative designs which filled the windows of Medieval Christian churches and cathedrals.

In preference to "stained glass" I have used the terms qamariyyat and shamsiyyat to denote medieval Islamic window-grilles filled with coloured glass. Where technical and stylistic affinities exist between shamsiyyat, qamariyyat and coloured glass windows used in Christian areas on the periphery of the Islamic world, the same terms are used for the latter windows. In Andalusia and the Maghrib one finds window-grilles composed of coloured glass set in lead tracery. Since contemporary descriptions use the same term to denote windows in which either stucco or lead tracery is used, both types are referred to as shamsiyyat. The distinction is made clear in the course of the discussion.

This usage is based on the occurrence of these terms in references to such grilles. In one of the few published discussions of such features, Salim 'Abd al-Haqq took the term shamsiyya as referring to "une cadre de bois rectangulaire", qamariyya as designating "une plaque de plâtre ajourée derrière

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2 Below, p. 22.

3 Where lead tracery does appear in an Islamic context it can almost always be related to Western influence: see below, pp. 85-6, 99.

4 Although in the Iranian world one does find some evidence for the use of window tracery featuring figurative designs; below, pp. 160-2.

5 See below, p. 104.
laquelle des verres de couleurs diverses sont appliqués". In fact usage is rarely so precise with regard to shape and medium, and both terms are often used interchangeably to refer to plaster and glass window-grilles of various forms. In Mamluk Egypt qamariyya referred to an upper opening which could be round, rectangular or square. Just as in English one rarely distinguishes between a window-opening and its filling, so too qamariyya could refer either to the opening or to the lattice which filled it. A parallel exists in the metal grille behind which the Abbasid and Fatimid Caliph appeared. This was known as the shūbbak, a term more properly applied to the window which it filled.

The earliest descriptions of window-tracery filled with polychrome glass do not use the terms qamariyyat and shamsiyyat. Ibn al-Faqīh describes the windows of the Dome of the Rock as bihān muzajjajatān. Ibn Rustah uses the same word for the windows in the Mosque of the Prophet at Madīn. Similarly Ibn Bassām, describing what appear to be shamsiyyat in the Dhi'l-Nūmid palace in Toledo, writes of buhīrūn muntazimatun min al-zujajīt. It is possible therefore that the terms shamsiyyat and qamariyyat came into usage only after the fifth/eleventh century. However, even in later periods, when these terms were commonly used, a writer such as al-'Umarī could describe qamariyyat without using this term.

1.2 Qamariyya.

The earliest use which I have found of the term qamariyyat to designate stucco and glass window-grilles is in a description of the Ashrafiyya Madrasa in Jerusalem which dates from the last quarter of the eighth/fourteenth century. Describing the decoration of the east iwan of the madrasa, the author states: wa-‘ulwuhā qamariyya’tun min al-zujajī al-‘afrānjiyyī fī ghāiyatī al-bahjati wa al-

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6 S. ‘Abd al-Haq, Contribution à l’Étude de la verrerie Musulmane du VIIIe au XVIIe siècle, Les Annales Archéologiques de Syrie (VIII-IX, 1958-9), p. 9. See also R. Dozy, Supplement aux Dictionnaire Arabe second edition, Paris, 1927), Volume I, p. 786, Volume II, p. 404. In fact this usage is likely to be specific to the situation in Syria, since rectangular grilles are more common in Damascus than in Cairo during the Ayyubid and Mamluk periods. Furthermore, while stucco window-grilles are often set in a wooden frame, according to the surviving evidence grilles composed entirely of coloured glass set in a wooden matrix are not found before the Ottoman period.


8 M.M. Amin & I.A. Ibrahim, Architectural Terms in Mamluk Documents (Cairo, 1990), p. 91.


12 Ibn Bassām, al-Dhakhīra, Volume IV, part i (Cairo, 1945), p. 103.

13 Below, p. 120.
1.3 **Shamsiyyat.**

The use of the term *shamsiyyat* to denote window-grilles can be traced at least as far back as the sixth/seventh century. Ibn Jubayr uses the term to describe stucco and glass window-grilles,¹⁹ while in the eighth/nineteenth century Ibn Battuta describes the windows in the Great Mosque of Damascus as *shamsīti al-zujāji al-malawunni.*²⁰ The term continued in use in succeeding periods; it appears in a fifteenth-century description of the Great Mosque of Ceuta where it is used to describe coloured glass windows in the *qibla,*²¹ and *shamsiyyāti al-zujāji* are among the architectural embellishments in the Kutubiya of Marrakesh described by al-Maqquir.²² The same word was also used in connection with the stucco window-fillings which appeared in the Marinid and Saʿaddān palaces of Fes²³, and elsewhere in the Maghrib.²⁴ From this is derived the term *shamasīyyat,* used in Morocco until the

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¹⁴ M. van Berchem, MCIA, Deuxième Partie: Syrie du Sud. Volume I (Cairo, 1922), p. 369, n.5.
¹⁶ Amin & Ibrahim, Architectural Terms, p. 91. The geographers frequently specify *shamsīyyat min al-zujāji,* which also suggests that *shamsiyyat* were not always filled with glass.
¹⁸ E. W. Lane, An Account of the Manners and Customs in Modern Egypt (London, 1860), p. 18; M.S. Briggs, Muhammadan Architecture in Egypt and Palestine (Oxford, 1927), p. 227. Lane's suggestion that the term *qamariyya* derives from the name of a Tulunid prince is highly improbable given that the material evidence suggests that window-grilles using coloured glass first appeared in Egypt only during the Fatimid period.
²⁴ A. Zouari, Le Dar Jalluli et le Dar Hintat à Sfax, l'habitat traditionnel dans les pays Musulmans autour de la Méditerranée, Volume 1 (Cairo, 1988), p. 163.
present day to refer to blind *claustra* or stucco grilles with or without glass.25

1.4 Other

A Persian term, *jamha*, occurs in a Timurid text, the *Tārīkh-i Yazd*, where it refers to windows of coloured glass set in a garden pavilion.26 In his account of the windows in the Qubbat al-Miṣāq in Jerusalem, written before the middle of the eighth/fourteenth century, al-'Umārī states that, "there are three half-windows similar to the plaster variety called *al-mukandaj*, and four of glass*.27 This term is obscure but occurs much earlier in a Fatimid text describing the decoration of al-Azhar, where it appears to refer to the relief stucco decoration covering the interior walls of the mosque.28 Given the distinction between *al-mukandaj* and windows filled with glass, it is likely that the term refers to blind windows similar to those which appear in al-Azhar.29 Since this thesis concerns itself primarily with those window-grilles in which coloured glass is employed, and I have found no further occurrences of the term, I have not used it in the course of my discussion.

1.5 Usage.

Although the terms *qamariyyat* and *shamsiyat* were in use in the medieval Islamic world simultaneously, they were specific to different parts of that world. The available evidence indicates that *shamsiyat* was the term used to designate windows-grilles of stucco and glass in Spain and the Maghrib, while the same features were commonly known as *qamariyyat* in Egypt and lands further East.

Where the term *shamsiyat* does appear in connection with the window-grilles of Egypt and the Levant it is highly significant that it is usually employed by a writer of Occidental, that is Maghribi or Andalusian, origin.30 While the terminology is not specific to size or shape, one must conclude that there is a geographical bias to the use of the terms *shamsiyat* and *qamariyyat*. For these reasons I have used *shamsiyat* in the text to refer to the window-grilles of the Western Islamic world, and

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29 *MAE* I, pl. 9b.

30 The term *shamsiyat* was occasionally used in Cairo during the Ottoman period to refer to window-grilles but was less common than *qamariyyat*, which is still the popular Cairene name for such grilles; Maury et al, *Palais et Maisons*, glossary.
qamarīyyat to those of Egypt, the Levant, Iran and Yemen. The terminology applied to stucco and glass grilles is thus another indication that "the architectural terminology was much more regional than was the circulation of the literary works in which ... [architectural] descriptions appeared." It remains to offer a suggestion as to how such terms as "moon-like" and "sun-like" which are, at least to a Western observer, far from self-evident, came to be used to refer to coloured glass windows.

1.6 Etymology.

1.6.1 The alabaster windows of Yemen.

A clue is to be sought in the architectural tradition of northern Yemen and its associated terminology. The tradition of using thin slabs of alabaster as window-fillings survived in areas of northern and central Yemen until recently. Pellucid materials such as marble, mica, agate and onyx were occasionally used as window-fillings in Roman and Byzantine architecture, depending on their local availability. A fine source of alabaster existed at al-Harra, 30 kms. north of Sana’ā’, from where the panes of alabaster used in the capital were quarried. The use of alabaster in the windows of Yemeni houses appear to be of considerable antiquity. A Sabaean alabaster window-embrasure in the National Museum of San’a’ (pl. 1) is similar to another reused in a building near Zafar. An alabaster window-filling of slightly different form, consisting of rectangular openings, possibly filled originally with thin sheets of alabaster, were excavated at the Temple of Huqq. A text dated 457 AD describing the palace of HRGB built by the Himyarite king Sharahbil Yafūr at Zafar appears to indicate that the windows of the palace were filled with alabaster. A particularly fine example of an alabaster window-frame decorated in relief with vines and sea monsters is now in the museum at Zafar. It has been suggested that the windows of Axumite buildings were similarly filled with panes.

32 Below, p. 31. Alabaster slabs were also used in the windows of medieval Iranian mosques; below, p. 327, pl. 207.
34 W. Radt, Katalog der Staatlichen Antikensammlung von San’a’ und anderer Antiken im Jemen (Berlin, 1973), No. 31, pl. 11.
35 P. Costa, Antiquities from Zafar (Yemen) II, AIOUN (XXXVI, 1976), pl. XXIX.
36 A. Grohmann, Kulturgeschichte des Alten Oriens: Arabien (Munich, 1963), p. 203, fig. 86. The form of this embrasure recalls that of the sixty-four windows depicted in stone on the facade of the fourth-century Temple of Awam at Marib. F.P. Albright, Archaeological Discoveries in South Arabia (Baltimore, 1958), p. 223, figs. 165-6. In Byzantine architecture similar lattices were filled with panes of glass; below, pp. 33-5.
of alabaster. An unlikely, and untapped, source for Arabian architectural history is Pliny who, in his Natural History, remarks:

"According to Juba, there exists in Arabia too a stone that is transparent like glass, and is used as window panes."  

Although alabaster is translucent and not transparent, this passing reference suggests that slabs of alabaster were used in the windows of Yemeni houses as early as the first century AD. It seems likely that the use, until recently, of the same stone in the same context represents a survival of pre-Islamic modes of fenestration. Rectangular panes of alabaster decorated on their surface were used in the windows of the sixth/twelfth-century Mosque of al-'Abbās at Haulān (figs. 2-3). Barbara Finster has suggested that these come from an earlier building on the site and date from the 'Abbasid period. The stucco frames surrounding the windows of the mosque consist of a series of receding rectangular panels executed in relief. The appearance of these 'embrasures' with a central pane of alabaster is almost identical to that of the Sabean and Himyaritic windows just mentioned, suggesting that this type of fenestration continues a pre-Islamic tradition. Analogous rectangular panes of alabaster bearing elaborate painted decoration were used later in the Qubbat al-Sinānī, a small mausoleum at Jihāna near San'a' which appears to date from the ninth/fifteenth century (ill. 1).

Although rectangular window-openings are often found in medieval Yemeni mosques, in private

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39 D. Krencker, Denkmäler Nordabessiniens, DAE Volume II (Berlin, 1913), p. 93, fig. 224. This suggestion is made on the basis of the windows on the famous Axumite stelai and a fragmentary alabaster relief on which a rectangular window appears. The windows depicted on the stelai are, like the Yemeni window-embrasures, rectangular in form and surrounded by a series of stepped recesses. Similar windows are found on models of Axumite domestic dwellings; H. de Contenson, Les Fouilles à Axum en 1957, Annales d'Ethiopie (III, 1959), p. 31, pl. XIX, fig. 8. Occasionally more elaborate tracery is visible in the windows of the stelai (fig 1), and it has been suggested that this imitates grilles of stone or stucco; G. van Beek, Monuments of Axum in the light of South Arabian Archaeology, JAOS (LXXXVII, 1986), p. 118.

40 In Arabia quoque esse lapidem vitri; Nat. Hist. XXXVI:46. It is to be noted that Juba, later ruler of Mauretania, was a prolific writer and may therefore have had access to sources dealing with the area. Since the mining of alabaster in Arabia is confined to northern Yemen it seems probable that this is the area indicated.

41 B. Finster, Die Masjid al-'Abbās im Haulān, Archäologische Berichte aus dem Yemen (III, 1986), pp. 163, 179-80, figs. 60-1. Recently a fragment of another rectangular pane of alabaster was recovered from the same mosque. The slab, which has not yet been published, has a border consisting of an incised double line and bears the remains of an inscription executed in red paint.

42 Unfortunately these also await publication, but are known to me from photographs which Bernard Maury was kind enough to show me. A similar form of decoration surrounds the window-openings in the early seventh/thirteenth-century mosques at Dhibin and Zafar Dhibin; B. Finster, Survey Islamischer Bau- und Kunstdenkmaler im Yemen. Erster Vorläufiger Bericht, Archäologische Berichte aus dem Yemen (I, 1982), pl. 124c.

43 Alabaster panes with palmettes painted on their surface remain in the windows at the centre of the eastern and western walls. The use of red paint and an incised double line around the outer edge of the panes recalls the unpublished alabaster slab from the mosque at Haulān. The windows in the Qubbat al-Sinānī are unpublished, but one is visible in a photograph published by an Italian team surveying medieval Yemeni buildings; A. Majigret, G.M. Bulgarelli, F.G. Fedele, B. Marcolongo, V. Scevola & G. Ventrono, East and West (XXXIV, 4, 1984), p. 450, fig. 38. A photograph of the interior of the Qubba Shams al-Din at Kawkaban shows a similar use of rectangular panes of alabaster surrounded by a stucco frieze; ibid., fig. 37.
houses alabaster panes were usually used to fill oculi occurring singly, or arranged in vertical pairs (pls. 2-3). This is the case with the oldest house in Sana’a for which documentation survives, and which dates from the sixth/twelfth century. Circular windows are not known in the pre-Islamic architecture of Yemen, although a fragment of a stone window-frame from Zafar contains part of the circumference of a circular opening. The distinction between rectangular and circular window may be connected with the distinction between the sacred and the profane, although it is not clear from whence the latter type of window arises.

In the contemporary architecture of Sana’a and Northern Yemen the thin sheets of alabaster which fill window-openings are known as qamariyyat. The term is derived from the dialect word for alabaster, qamari. Such windows may be described as "moon-like" in at least two ways. Firstly, although the stone is opaque, alabaster windows glow with a warm attenuated light which closely resembles strong moonlight. This attractive property undoubtedly explains why alabaster was traditionally used for Yemeni lamps (pl. 4). In addition the surface of the alabaster panes is crystalline and veined, like the appearance of the moon itself. The resemblance extends to the second moon-like qualities of such windows, namely their circular or semi-circular form. In many respects therefore the alabaster windows of Sana’a are aptly named for their resemblance to full- or half-moons. For similar reasons the term qamariyya was used in Syria to designate a circular opening filled with coloured glass, either in a wall or in the dome of a hammam. In medieval Arabic poetry the same openings are frequently compared to moons.


45 Costa, Zafar II, No. 162. It is not clear whether this opening was arched or circular. Some of the Axumite stelai show semi-circular grilles; R. Plant, Architecture of the Tigre, Ethiopia (London, 1985), p. 17.


48 The manufacture of such lamps appears to predate Islam, for an inscribed Axumite alabaster lamp has been found in Yemen: Y.M. Kobischanov, Asmar (London, 1979), p. 223.

49 In medieval texts the moon is often compared to glass; E.A. Wallis Budge, The Life and Exploits of Alexander the Great (London, 1896), p. 13.

50 G. and P. Bonnenfant, Les Vitraux de Sanaa (Paris, 1981), pp. 60-3. Slabs of alabaster were sometimes used to fill arched lunettes above rectangular windows closed with wooden shutters; M. Pillet, Les Gratte-Ciel Orientaux; Urbanisme (LIX, 9, 1937), p. 240. The role of such translucent slabs may be compared to the Byzantine phengilies which were used in conjunction with wooden shutters; below, p. 35.

Recently however alabaster windows have been superseded by windows of stucco and coloured glass, similar to those with which this thesis is concerned. Traditionally, coloured glass was used very sparingly in Yemeni architecture. The material began to appear in the windows of Sana'a in the eighteenth century, and was used with great frequency in the characteristic stucco lattices of the city only from the nineteenth century, when it began to supersede alabaster.\(^{53}\) Ironically, this florescence of what is possibly the most characteristic of all the forms of Islamic architectural decoration ended a tradition stretching back almost two millennia, and occurred at a time when the manufacture of qamarīyyat and shamsiyyat was in decline throughout the rest of the Islamic world. In the windows of Sana'a it is possible to trace the evolution of decorative window-fillings from sheets of locally-quarried alabaster used to fill simple openings, through the combination of this material with small quantities of imported coloured glass. Finally window-grilles composed entirely of coloured glass set in stucco lattices of sophisticated form were introduced and are still being produced (ill. 150).\(^{54}\) The surface of the traditional alabaster panes used in medieval mosques occasionally bore painted or carved decoration (ill. 1, figs. 2-3).\(^{55}\) This consisted of scrolling vegetal ornament or axially-branching 'trees of life'. The use of such ornament finds a parallel in the vegetal tracery and axial arabesques of medieval Islamic qamarīyyat,\(^{56}\) and suggests that, although the medium changed, the stucco and glass lattices of Sana'a continue earlier decorative traditions.

The Yemeni evolutionary model suggests one possible route by which the term qamarīyyat came to be applied to window-grilles of stucco and coloured glass. Since the use of alabaster window-panes is of such great antiquity in the Yemen, it is possible that the term qamarīyya has a similarly ancient history. The characteristic stucco and glass lunette fillings used above rectangular window-openings in contemporary Yemeni buildings are called 'aqd (pl. 'uqud), after the arched openings which they fill.\(^{57}\) Smaller arched grilles of plaster and coloured glass are however known as qamarīyyat or shamsiyyat, and the head of the workshop producing such grilles is known as mu'allam 'ala

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52 E. Grotzfeld, Das Bad im Arabische-Islamischen Mittelalter (Wiesbaden, 1970), pp. 43, 84.

53 Carsten Niebuhr saw only one palace in Sana'a with windows of glass, the remainder being filled with "verre de muscovie"; C. Niebuhr, Voyage en Arabie, Volume 1 (Berne, 1780), p. 390. The latter term, which usually refers to the translucent sheets of mica formerly used in the West in place of glass, is here used erroneously in connection with alabaster panes. Coloured glass windows became common during the Ottoman occupation; Rathjens, Jewish Domestic Architecture, pp. 32, 41.


55 Above, p. 6.

56 Below, pp. 81-2.

It is difficult to know whether the terminology was transferred from alabaster to stucco and glass grilles, or introduced along with the latter window-grilles from other parts of the Arab world. Traditionally alabaster windows tended to be small, and the exclusive use of qamariyyat and shamsiyat for smaller arched grilles might support the view that the terminology was transferred from the ancient medium to stucco and glass. Given the evidence from the Yemen, is it possible that in certain areas of the medieval Islamic world the term came to be applied to stucco and glass window-grilles either appearing for the first time or replacing earlier panes of alabaster or some such translucent material? We do in fact possess a model for just such a change in fenestration during the medieval period, in no less illustrious a building than the Ka'ba itself.

1.6.2 The Ka'ba.

Al-Azraqf and Ibn Rustah both note that in the third/ninth century the ceiling of the Ka'ba was pierced with four rectangular openings (rauzân) filled with alabaster (balaq) brought by the Caliph Ibn al-Zubayr (64-73/683-92) from Sana'a.59 The use of such alabaster skylights, like that of alabaster windows, continues a tradition established in the pre-Islamic palaces and churches of Yemen. By the time Nasir-i Khusrau visited the Ka'ba in the middle of the fifth/eleventh century the alabaster sheets had been replaced by panes of glass.61 It is possible that the transition from one medium to another was prompted by a more widespread use of qamariyyat under the Fatimids, during whose reign stucco and glass window-grilles appear in Egypt for the first time.62 By the last quarter of the sixth/twelfth century Ibn Jubayr testifies to five openings, each filled with decorated Iraqi glass (zujajun 'iraqiyyun badi'û min al-naqshi).63 These panes may be the same as those seen by the Persian traveller one hundred and fifty years earlier, or may be more elaborate replacements installed at the same time as the new opening was pierced in the ceiling.

One wonders if it was the glass itself or the (unmentioned) tracery in which it may have been held which was incised. According to reconstructions based on medieval accounts (figs. 4-5) the openings

58 In the workshop studied by Golvin the 'aqd was usually around 1.25m in diameter, the qamariyya 0.87m; Golvin, Aperçu sur les Techniques, pp. 95-6.


60 The term balaq is also used in connection with the translucent panel of marble or alabaster set in the dome of al-Qaṣr, the Ethiopian cathedral of Sana'a. Similar lights were used in the Sabaean palace at Shabwa; below pp. 245-6.


62 See below, pp. 69-71.

63 Wright, Travels, p. 83; Broadhurst, Travels, p. 79.
in the roof are likely to have had sides of five metres or more, requiring a pane of glass of a size unparalleled in the medieval Islamic world. While I know of no example of Islamic window-glass bearing incised decoration, in other parts of the Islamic world incised and moulded decoration sometimes appeared on the surface of plaster window-tracery. Moreover, in modern Yemeni the design required for the tracery of a window is first incised on, and then excised from, a plaster surface by a worker known as al-naqqash. One wonders therefore if the panes of glass seen by Ibn Jubayr were in fact qamariyyat or shamsiyyat. Although the latter term is used by the same author in connection with the stucco and glass grilles in the windows of the Great Mosque of Damascus, it is usually used for openings in a wall. Given the slight functional difference between a window and a skylight, it is conceivable, if far from certain, that the skylights of the Ka'ba were filled with qamariyyat.

It may be significant that the transition from alabaster to glass occurs before the earliest recorded use of the term qamariyyat to describe stucco and glass windows which I have found. The change-over from alabaster to stucco and glass suggests a historical model to explain how the term might have continued to be applied to newly-installed windows or sky-lights of coloured glass. Once established in such a context, qamariyyat might well have been used to designate such features even in areas such as Egypt, where there appears to have been little or no tradition of alabaster windows, but where coloured glass windows proliferated from the Fatimid period onwards. As Bonnenfant comments;

"Is it by chance that stained glass windows in Egypt are called qamariyyat, a term which, in Yemen, designates the alabaster plaques which fill the openings in the ancient houses?".

It seems equally significant that the area in which we can document such changes in architectural decoration is at the geographical and spiritual heart of the region in which qamariyyat came into general usage to signify the window-grilles under discussion. In view of the fact that the use of alabaster windows in Arabia - and the terminology associated with it - is of some antiquity, it seems likely that the origins of the term qamariyyat are to be sought there.

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64 Jairazbhoy, History of the Shrines, figs. 11b, IV.
65 In the madrasa of Jamāl al-Dīn Majmūd al-Ustādīr in Cairo (97/1394-5), below, p. 137.
66 Golvin, Aperçu sur les techniques, p. 97.
67 After Bonnenfant, Les Vitraux, p. 73. The suggestion of a connection between Egypt and Yemen finds further support in the shared use of specific terms associated with certain types of window-opening. For example, the qamariyyat qandils mentioned in Mamluk documents (Amin & Ibrahim, Architectural Terms, p. 91) finds a parallel in the qandils, the narrow vertical openings for ventilation which flank the larger arched window-openings on the facades of Yemeni houses, and which are frequently decorated to look like candles (not, as one might imagine, lamps), Bonnenfant, Les Vitraux, p. 16, pl. 2. In the Jazira a certain type of multilobed arched opening is known as a maqandil, from its resemblance to a hanging lamp; E. Herzfeld, Damascus: Studies in Architecture II, Ars Islamica (X, 1943), pp. 61-2. It should be borne in mind, however, that the techniques employed in the manufacture of the Yemeni windows are closer to those of Ottoman Turkey than Mamluk Egypt, below, p. 175.
1.6.3 The radiant screen.

Having suggested an evolutionary model for one of the terms associated with stucco and glass window-grilles, it remains to consider the associations of the term shamsiyya. The term often occurs in accounts which describe the dramatic impact of sunlight piercing the coloured glass of windows, accounts which give a self-evident explanation for the significance of the term "sun-like". The term shamsat is sometimes used for windows of coloured glass, and its derivatives, including shamsiyya, are usually used in connection with objects which reflect light, permit the passage of light, or, by their form, suggest the emanation of light. The use of the term in connection with such objects appears to pre-date Islam.

Shamsiyya could denote a barrier to, or screen from, the sun. In Egypt the term denotes a blind or window-shutter, that is, a shield from the sun's rays. The parasol associated with 'Abbasid and Fatimid ceremonial, which can be considered as a sort of portable royal baldachin, was also known as the shamsiyya. The shamsiyya was composed of rich brocades stretched on gilded ribs. At its summit were two golden and jewelled spheres, one in the form of a pomegranate. The main cupola in the Great Mosque of Damascus was also topped with a golden pomegranate, and similar spheres appeared atop other domes and minarets. These were also known as shamsas, and this, as much as the screening function of the parasol, may be the source of the latter's name.

The coloured glass qubba built by al-Ma'mun, the Dhu'l-Nunid ruler of Toledo is also described as a shamsiyya. In this case the qubba is both a royal baldachin and a screen which permits the passage of light, although in an attenuated form. In structure and function this qubba is closely related to the shamsiyyat which filled the windows of the Dhu'l-Nunid palace and other western Islamic buildings. One must conclude that even where shamsiyya is used in connection with a screen, this

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68 See below, pp. 303.


70 Canard, Ceremoniale fatimite (p. 389, n.3). Jonathan Bloom suggests that Canard confused the muzalla and the shamsa; J.M. Bloom, The Origins of Fatimid Art, Muzarnas (III, 1985), n.47. However, a sufficiently large numbers of examples are cited by Quatremère to suggest that the term was indeed used for the royal parasol; M. Quatremère, Histoire des Sultans Mamlouks d'Égypte, Volume III (Paris, 1842), pp. 280-1, n.2, 2°.


73 Quatremère, Histoire II i, p. 281, n. 2.

74 Dozy et al., Annalectes I, p. 348. See also below, p. 185.

75 Below, pp. 99-100, 188-9.
screen can be diaphanous and translucent, a radiant barrier transforming the light of the sun.

1.6.4 The golden sun.

The term *shamsa* was also used to describe various types of ornament which resembled the sun. Golden suns, or *shamsas*, were sent to the Ka'ba by Umayyad.76 Abbasid and Fatimid Caliphs.77 The *shamsa* sent by al-Mu'izz in 362/973 was composed of golden crescents filled with pearls and red, yellow and blue precious stones;78 it was thus a glittering source of reflected light in the image of the sun. Votive offerings of gold were dedicated at the Haram in the pre-Islamic period,79 and while it is not known if suns were among them, golden suns were offered as votives elsewhere in pre-Islamic Arabia and Palestine.80 The dedication of such artificial suns thus appears to continue a pre-Islamic tradition, perhaps connected with the astral cult which formerly held sway at Mecca.81

*Shamsa* was also the term used to denote the ornaments which occur in the margins of illuminated Qur'ans (ill. 108).82 Gilded, and often with "rays" streaming from them, these glittering sources of reflected brilliance recall the sun and its light.83 The *shamsas* were fixed to the page, just as the monumental *shamsa* was attached to the *kiswa* covering the Ka'ba, surrounded by verses written in silver and gold, even as the Meccan *shamsa* was surrounded by appropriate Qur'anic quotations worked in jewels.84 The gilded globes at the top of minaret finials, like those atop the


78 Idem. Quatremère confused this with the *kiswa* to which it was attached, concluding erroneously that the latter was a *shamsa*; Quatremère, *Histoire III*, p. 281 n. The same error was made by Canard; *Cérémoniales Fatimite*, p. 389, n.3.


81 E1, Ka'ba. It has been suggested that the red colour of the Fatimid *kiswa* also represented a survival of earlier traditions, for red was traditionally the colour of the rising sun; H. Romberg, *The Fatimid Treasury: Content and Function*, unpublished M.Phil. thesis (Oxford University, 1985), p. 64.


83 A circular medallion at the centre of a garden carpet is described in a *saifa* poem, written about 906/1500, as "the all-powerful sun"; SPA XIV, p. 3185.

84 The *shamsa* sent by al-Mu'izz was surrounded by verses from the Sura al-Hajj, written in emeralds with pearls in the spaces between the letters; Bloom, *Mosque of al-Hakim*, p. 27.
calliphal parasol, could also be described as shamsas, presumably on account of their spherical shape and reflected glitter.

1.7 Light of the sun and the moon.

It is conceivable that some connection exists between the terminology under discussion and the pre-Islamic astral cults prevalent in the Arabian peninsula and neighbouring areas. The connection between the shamsas dedicated at the Ka'ba and the astral cults of pre-Islamic Arabia has been mentioned above. One can also point to more specific connections between the window, the sun and the moon in the pre-Islamic architecture of the region.

Windows in the medieval rock-cut churches of Ethiopia assume similar forms to the summits of the Axumite stelai. The latter are thought to have borne solar and lunar emblems at their summits. Window-grilles of similar form to those found in the medieval churches of Tigre are depicted on certain of the Axumite stele (fig. 1). If the appropriation of the formal characteristics of Axumite art in the later churches also implies a continuation of iconographic traditions, the actual light shining through the windows may be seen as the graphic equivalent of the symbolic allusions to light on the stelai. Moreover, symbols of the sun and moon frequently appear above the window-openings in the churches of Lalibela (pl. 5), a phenomenon by no means confined to Ethiopia. When Irmgard Bidder visited the Church of Medhane Alem (sixth-seventh/twelfth-thirteenth century) at Lalibela in 1959 a priest informed her that the design of the stucco and glass grilles filling some of the windows was intended to represent the sun, moon and stars. Technically and iconographically the grilles accord well with the qamarîyyat and shamsiyyat of the Islamic world, but from the published photographs they appear to be later additions, probably introduced under Islamic influence. However, the religious architecture of Tigre, like the vernacular architecture of neighbouring Yemen, embodies a conservative tradition which continues many earlier practices. The multiple associations between the sun and moon and the window in the churches of Lalibela must be seen in this context. Given the prominence of the window on the Axumite stelai and the facades of pre-Islamic Yemeni

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85 Quatremère, Histoire III, p. 280, n.2.

86 Certain of these finials could hold oil and were capable of acting as lamps; below, p. 261.


88 Ibid., fig. 10. This is disputed by van Beek, who suggests that the stelai bore Christian symbols at their summits; Monuments of Axum, p. 118.

89 Krencker, Nordabessinien Denkmaler, p. 26, figs. 47-8.


91 See below, pp. 303-4.

92 Bidder, Lalibela, p. 123, pls. 40a & b.
temples, it is conceivable that the window, as an opening for light, had some symbolic significance in the pre-Islamic cultic architecture of the region.

In view of the probability of Syrian influence on the Ethiopian churches it may be significant that similar solar and lunar discs are found on window- and door-lintels in the pre-Islamic architecture of Syria (pls. 6-7). Although such discs sometimes bear Christian insignia, it has been suggested that their iconographic significance and use in such contexts derive from the solar cults formerly prevalent in the Near East. In addition to the use of such symbols above window-openings, motifs with solar and lunar associations such as six-petalled rosettes, star medallions and whirling discs are among the most common motifs used on the pre-Islamic stone window-fillings from the Hauran (pls. 8-9). While the stone plaques themselves are usually square or rectangular, the designs carved upon them are almost always circular, reinforcing the connection with the sun and moon. This phenomenon is similarly evidenced by the rose windows of medieval cathedrals, for which the Syrian plaques are prototypes, and which were often compared to the sun or moon.

The circular designs which appear on the Syrian window-fillings are often pierced so that light streams through the main points of the design. One may detect a certain literalism in the use of such motifs as conduits for the light of the sun which is in keeping with the design and terminology of Islamic window-grilles. Similar stone grilles were undoubtedly one of the sources of inspiration for Umayyad qamariyyat, and were frequently reused in the windows of mosques and mausolea in the Hauran (pl. 50) and Damascus (fig. 6). Similarly, the use of solar and lunar motifs such as rosettes and whirling discs around window-openings continued intermittently in the Islamic world and, in some areas, persists to the present day (pl. 197).

93 See note 36 above.
94 On the symbolic use of the window in Jewish, Christian and Zoroastrian cultic architecture see below, pp. 300-1.
96 See below, pp. 303-4.
99 Openings in windows and window-grilles from pre-Islamic Egypt and Palestine were frequently circular; below, p. 50.
100 A seventh/thirteenth-century description of Lincoln Cathedral compares the windows of the nave to stars, its two rose windows to the sun and moon; H.J. Dow, The Rose-Window, JWCI (XX, 1957), p. 250.
101 On the use of punning designs in qamariyyat and shamsiyyat see pp. 309-12 below.
102 Below, pp. 49-50.
103 E. Herzfeld, Damascus: Studies in Architecture III, Ars Islamica (XI-XII, 1946), figs. 84-5.
104 Below, pp. 303-4.
The idea that the terminology associated with *shamsas* and other star patterns originates in pre-Islamic cults and their associated iconography has been suggested by other scholars. Among craftsmen operating in Aleppo in the first half of this century the eight-pointed star was known as a "Star of Venus" (*zuljra*), a star with ten or twelve points or more as a "Sun" (*shamsa*). Herzfeld commented that the names,

"reveal the survival of Babylonian notions: the star of Ishtar has eight points, that of Shamash has twelve."105

Both medallions with twelve-pointed stars and *shamsas* similar to those used in manuscript illumination appear in the central field of many Mamluk window-grilles, punning perhaps on the notion of a window-grille being "sun-like".106 The same term denotes the sun-like pierced copper ornaments used on the door of Mamluk buildings, and the stucco roundels on their walls.107 The use of coloured glass in the stucco window-grilles adds a further dimension to the idea: the glass glowing with colour, like the jewels used on the caliphal *shamsa*.108 Since the term *shamsiyya* appears earlier than the Mamluk period one cannot use the grilles themselves as evidence for the origins of the name.109 It is also true that in Egypt *qamariyyat* is the term most commonly used to denote stucco and glass window-grilles in preference to *shamsiyyat*, although the latter term is known. However paradoxical it seems, it may be that, in practice, the linguistic and iconographic distinctions between sun and moon were not strictly observed. There is, for example, a certain paradox in the fact that the *shamsa* sent to the Ka'ba by al-Mu'tazz was composed of crescents, the traditional symbol of the moon; golden moons were also dedicated at the Ka'ba.110

In view of the survival of such pre-Islamic traditions, it is conceivable that the origins of the connection between the window, its filling and the light of the heavenly luminaries, are to be sought in pre-Islamic iconographic traditions.


106 See below, pp. 311-2.

107 Amin & Ibrahim, Architectural Terms, p. 71.

108 On the relationship between glass and jewels see below, pp. 290-7.

109 Although astral motifs, usually stars, were prominent in the design of window-grilles as early as the 'Abbasid period (fig. 22).

110 Golden moons looted from Ctesiphon were sent by Umar to be suspended in the Ka'ba, Wüstenfeld, Geschichte der Stadt Mekka, p. 121; Ibn al-Faqih, Abriégé, p. 26.
1.9 Conclusion.

A name captures the essence how a thing is perceived, and the stucco and glass window-grilles under discussion may be said to be "sun-like" or "moon-like" in at least three ways. Firstly the shape of the openings which they fill, often circular, recalls that of the sun and moon. Secondly, the properties of the materials used to fill the windows, whether alabaster or coloured glass, may bring to mind the glow of the moon or the brilliance of the sun. Finally, at least from the Mamluk period onwards, the tracery in which such glass is set contains motifs which, formally and linguistically, evoke the notion of radiant sun-light.

One may discern a certain love of artifice in the creation of symbolic suns and moons which, by their form and the materials from which they are composed, act as symbols of the natural luminary from which they derive their reflected glory. A similar aura of metaphorical anti-naturalism is apparent in the Qur'anic comparison between the natural luminaries and the man-made lamp. The use of screens of stucco and glass which admit, but transform, natural light, becoming "sun-" and "moon-like" in the process, may be seen as a further manifestation of the same phenomenon. The aesthetic and iconographic implications of this tendency are explored in more detail Chapters VII and IX.

111 Qur'an XXV:61; XLVII:5; LXXI:15-6; LXXVIII:12-3.
CHAPTER TWO
UMAYYAD QAMARIYYAT AND THEIR ANTECEDENTS.

2.1 Introduction.

The state of our knowledge regarding the use of stucco and glass window-grilles in Early Islamic architecture has been considerably advanced by recent archaeological investigations of Umayyad sites. The evidence suggests that qamariyyat were used in the most important religious buildings and royal residences. These grilles are of a form previously unknown and appear to be a genuine innovation, resulting from a combination of styles, materials and techniques used in the fenestration of pre-Islamic buildings.

2.2 Umayyad Qamariyyat.

2.2.1 The Dome of the Rock.

That the earliest surviving Umayyad monument had windows of coloured glass is clear from Ibn al-Faqlīh's account of the Dome of the Rock (72/691), written in 291/903:

"in its walls and high in [the drum] are fifty-six windows (bāb) glazed with glass of various hues; each measures six cubits high and six spans across."1

The number of windows indicated corresponds to the sixteen windows in the drum of the dome and the five in each of the walls of the octagon.2 Felix Fabri, who saw the monument in 888/1483, mentions windows with glass.3 However, some of the qamariyyat in the dome were replaced in the Mamluk period,4 and it is not certain that the windows which the European traveller saw date from the time of 'Abd al-Malik. Richmond has shown that the Umayyad windows were 15 cm thick and were set back by an appreciable distance from the internal and external wall faces.5 The internal jambs were lined with slabs of green and white marble. Al-'Umarī mentions outer grilles of iron,6 but these may also be Mamluk additions.

Creswell suggested that the windows were filled with pierced stone slabs, in the openings of

2 G. Le Strange, Palestine Under the Moslems (Boston 1890, reprint New York, 1975), p. 121.
3 In muro exteriori (sic) per circuitum sunt fenestrae magnae, oblongae, vietræae, sicut in ecclesiis; EMA II, p. 79.
4 Below, pp. 120-2.
6 EMA Ii, p. 79.
which glass appeared. This is unlikely, although similar modes of fenestration were known in Byzantine architecture, and marble claustra were used in the Great Mosque of Damascus (pl. 40). However, all the fragments of Umayyad qamariyyat recovered so far were of stucco, and this is also likely to have been the case with those in the Dome of the Rock. Support for such a suggestion comes from the find of part of a stucco grille, pierced with rows of circular apertures 1cm in diameter (pl. 11), in an Umayyad bath house outside the southern wall of the Haram al-Sharif.10 The piece was found with fragments of coloured panes of both flat and circular window-glass.

2.2.2 The Great Mosque of Damascus.

Ibn Jubayr, who visited the Great Mosque of Damascus (88/706) in 580/1184, describes its windows as follows:

"The number of gilt and stained-glass windows (shamsiyyat) is seventy-four. In the cupola beneath the Lead Dome are ten; in the cupola adjoining the mihrāb and the adjacent wall, fourteen; along the length of the wall right and left of the mihrāb, forty-four; in the cupola adjoining the wall on the court, six, and on the outside of the wall towards the court, forty-seven."11

It is not certain that these shamsiyyat date from the foundation of the mosque; the writer specifically mentions that although the mosque had twice been damaged by fire, and had undergone several restorations, the shamsiyyat which he saw were located in the best preserved part. Grilles of stucco or marble similar to the four marble claustra still in situ in the western riwaq (pl. 40) were visible in the windows above the prayer-hall prior to the fire of 1311/1893 (pl. 10).12 Whether the former were filled with glass is not known. The surviving marble grilles show no signs of having been filled with glass.13 The figure of seventy-four shamsiyyat given by Ibn Jubayr does not appear to include the forty-seven windows in the northern wall of the mosque, which also suggests that these

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7 Ibid., p. 79.
8 Below, pp. 36-40.
10 A. Engle, Light, Lamps and Windows in Antiquity, Readings in Glass History (XX, 1987), pp. 82-3, figs. 54-9.
11 Broadhurst, Travels, p. 275; Wright, Travels, pp. 264-5.
12 EMA ii, figs. 381, 416, 419. These grilles apparently survived the fire, for they are visible in a post-incendiary photograph; R. Dussaud, Le Temple Jupiter Damascenien et ses transformations aux époques chrétienne et musulmane, Syria (III, 1922), pl. LIV. See also R.A. Jairazbhoy, An Outline of Islamic Architecture (Bombay, 1972), p. 41; F.B. Flood, The earliest Islamic windows as architectural decoration: some Iranian influences on Umayyad iconography, observations and speculations, Persiea (forthcoming).
13 It seems unlikely that grilles of this type ever held glass, despite suggestions to the contrary; L. Golvin, Essai sur l'Architecture religieuse Musulmane II; L'Art religieux des Umayyades de Syrie (Paris, 1971), p. 176. In general one can distinguish between Umayyad qamariyyat and claustra by the presence or absence of incised lines on the tracery of the grilles. These are never present on grilles which held glass.
were not filled with coloured glass.

2.2.3 Khirbat al-Minya.

Qamariyyat were also used extensively in the windows of Umayyad palaces. Khirbat al-Minya produced several fragments of window-glass. The colours of this glass were yellow, blue, maroon and two shades of green (ill. 3). The fragments all appear to be from crown glass, that is, slightly concave circular panes of window-glass which, in this case, had folded rims. Some pieces of this glass have been attached to the rear of a reconstructed portion of a stucco claustrum from the site in the Museum für Islamische Kunst, Berlin (pl. 12). This is an erroneous reconstruction, since in Umayyad qamariyyat the glass was held between two layers of stucco. Despite this, it seems likely that, as was the case in other Umayyad buildings, the coloured glass from Khirbat al-Minya was originally held in stucco tracery.

2.2.4 Qusayr 'Amra.

Window-grilles containing coloured glass were also used at Qusayr 'Amra. The material from which these were constructed is not mentioned, but the glass was opaque blue, translucent blueish and transparent dark maroon. Although the glass is said to have been "flat", it is more probable that it was cut from concave discs of crown glass, perhaps from the edge, where the amount of curvature would have been negligible. Window-grilles filled with such glass are said to have been used in windows of the throne-room and in the caldarium and tepidarium. The use of glass windows in a bath continues a Roman tradition which presumably arose from the desire to minimise the amount of heat escaping while maximising the degree of light entering. The importance attached to the provision of windows in the domed chamber at Qusayr 'Amra is shown by the fact that they were introduced in spite of the distortion which they caused in the star map of the dome.

Qamariyyat and stucco claustra were also used in the windows of Umayyad bath-houses at Jerusalem, Qasr al-Hayr East and West and Khirbat al-Mafjar. While the use of such grilles

14 A. Schneider & O. Putrich-Reignard, Ein Frühislamischer Bau am See Genasareth (Berlin, 1937), p. 33. Some of the window-glass is now kept in the Museum für Islamische Kunst, Berlin. The remainder is in the Israel Museum in West Jerusalem, to where it has been removed from the Rockefeller Museum in East Jerusalem. I am grateful to Dr. Naama Brosch for allowing me to examine the glass from Khirbat al-Minya.

15 As confirmed by a personal communication from Dr. Almut von Gladiss.


17 See note 60 below.

18 EMA liii, p. 439.

19 Engle, Lamps p. 87.
may have solved the problem of fenestration, stucco is hardly the most serviceable medium to use in the humid atmosphere of a hammam. This may explain why the domes of later baths were pierced with circular apertures filled with concave discs of coloured glass.23

2.2.5 Qaṣr al-Ḥayr al-Sharqī

The excavations of Grabar at Qaṣr al-Ḥayr al-Sharqī produced further evidence for the use of qamariyyat in Umayyad architecture. Several hundred fragments of window-glass were recovered from two locations; a trial trench in the Large Enclosure and a bath house, both of which date from the earliest period of the site.24 Most of the glass pieces were from larger panes of crown glass. The colours of the glass were light blue, light green, yellow-green, and purple. The finds include the largest corpus of purple window-glass from an Umayyad site.25

The overall thickness of the qamariyyat was between 2 and 2.9 cm. The upper layer of plaster was thinnest, usually about 0.6 cm thick. The glass was used to fill both square and rectangular apertures. Circular apertures were also used, and these ranged in diameter from 3 to 4.5 cm. Square or rectangular pieces of glass were used to fill circular apertures, the excess glass being hidden between the superimposed layers plaster tracery. Moulded lines and faint traces of black paint were visible on the upper surface of some of the tracery fragments.

2.2.6 Qaṣr al-Ḥayr al-Gharbī

The number of fragments of window-glass found at Qaṣr al-Ḥayr al-Gharbī exceeded one hundred and fifty. Unfortunately these have never been published and are known only from a brief account

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23 See below, pp. 233-6.
24 Grabar, City in the Desert, pp. 144-5.
25 Ibid., p. 144.
published by Jean Lafond, who visited the site while it was being excavated.26 The fragments were similar in colour to those found at Qaṣr al-Ḥayr al-Sharqī, varying in colour from greenish to blueish white, cobalt blue, yellow, deep and light green, brown and purple. The different shades may have resulted from the fact that the pieces were cut from different parts of circular panes of crown glass which varied in thickness. The pieces themselves ranged in thickness from 0.1 to 0.5 cm. Similarly the "greenish" and "blueish" white glass is likely to have been colourless, since such glass frequently had a greenish-blue hue in antiquity due to the presence of impurities such as iron oxides.27 The diameters of the circular panes of glass which had served as quarries varied between 19.4 and 38.4 cm. Many of the cut pieces showed the characteristic bullion where the pontil was attached during the manufacture of the glass. It is reported that some of the fragments were decorated on their surface with black painting,28 a practice known from other finds of Umayyad window glass.

Recently a single fragment of a qamarîyyâ from the site has been published (pl. 15).29 Although no details are given, this consists of part of a thick plaster frame with a curving edge, which suggests that it may have come from an arched grille or lunette-filling. The remains of square or rectangular apertures are visible, and these were filled with glass sandwiched between two layers of stucco, a practice which Lafond also noted.

2.2.7 Khirbat al-Mafjar.

Of all the finds of window-glass from Umayyad sites, only those from Khirbat al-Mafjar (before 132/749) have been published in any detail. Baramki found broken window-glass in rooms Vīa and VIIa, in the south-eastern corner of the complex, stacked against walls which had apparently been systematically dismantled.30 More details of the window-glass are given in a recent publication by Naama Brosch.31 The colours of the glass are blueish, yellow-green, bottle green and purple (ills. 4-7). The latter is the most common colour, as was the case at Qaṣr al-Ḥayr East. Many of the pieces are intact, and have clearly been cut from large discs of crown glass to fit different-shaped apertures in stucco tracery. Some of the glass preserves the marks of this tracery along their outer edges. The shapes of the glass are described as follows:

26 J. Lafond, Le Vitrail (Paris, 1966), pp. 13-4. I have tried to locate the material, but its present whereabouts is not known.


29 D. Schlumberger, Qasr el-Heir al-Gharbi (Paris, 1986), pl. 66b.


"...ten bottle-green pieces in triangular, square and leaf shapes; nine pieces of pale blue glass and eight pieces of turquoise, all in triangular, rectangular and circular shapes; forty-four greenish-yellow pieces in the shape of arches and elongated leaves. The most common however, was purple glass; fifty-nine pieces in the shape of elongated rectangles, squares, circular domes (sic) and leaves."32

The suggested reconstructions (ills. 5-6) give some idea of how the qamariyyat may have appeared, although they are somewhat unconvincing. While most of the glass pieces assume simple shapes, the finds of a star and narrow angled pieces of glass suggests that stucco lattices of more complex form, similar perhaps to the stucco claustra from the site, were also filled with coloured glass. Three fragments of qamariyyat with glass still in place were found at the site. The two published by Baramki (pl. 16) make use of circular and elliptical apertures,33 while a third contains an irregular trapezoidal opening.34 Like the qamariyyat used at other Umayyad sites, the grilles consisted of two superimposed perforated stucco with the glass sandwiched between. The upper layer of stucco was 1 cm thick, the lower up to 5 cm. Like the stucco claustra also used in the building, the surface of the qamariyyat was painted black or brownish-red.

Examples of the painted ornament mentioned in connection with the window-glass from Qasr al-Hayr West survive on some of the pieces from Khirbat al-Mafjar (ills. 4-7, fig. 8). The designs are executed in black paint which is applied "cold" rather than fired, and which is consequently easily removed. The lines of the painting generally follow the shape of the piece on which it appears. The majority of the painting consists of vegetal ornament, which was used to give the glass filling the elliptical apertures the appearance of leaves (ill. 7). Parallel lines similar to those incised on the tracery of the stucco claustra from the site (pl. 17) are painted on narrow angular pieces of glass (fig. 8). Among the designs are rosettes like those which feature elsewhere in the decoration of the palace.35 The finds of qamariyyat were localised; coloured glass was apparently used in the windows of a suite of rooms on the upper floor of the east wing of the palace.36 Wall-paintings and open stucco claustra formed part of the rich decoration of these rooms, which may have served as royal apartments or audience chambers.

2.2.8 Qasr al-Ḥallābāt.

Fragments of window-glass and stucco qamariyyat were found alongside the remains of open stucco claustra at Qasr al-Ḥallābāt.37 The finds of qamariyyat were made in two rooms in the eastern

32 Ibid., p. 248.
33 D.C. Baramki, Excavations at Khirbet el-Mefjer IV, QDAP (X, 1944), p. 158, pl. XXXIV 5.
34 Brosch, Glass window fragments, fig. 1c.
35 See below, p. 29.
36 Brosch, Glass window fragments, p. 254.

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corner of the building. Like that from other Umayyad sites, the window-glass consisted of pieces cut from circular panes of crown glass with folded rims. The glass was colourless, turquoise, light blue and bottle green (ills. 8-9). In addition to the published window-glass, several fragments of qamariyyat which still contained glass were found (pls. 18-9). These consist of two distinct layers of stucco between which pieces of glass were held (figs. 7-8). The upper layer of stucco was thinner than the lower, being 0.5-0.8 cm thick, compared to 3.2-3.5 cm. Apertures of different shapes were placed in juxtaposition and glass of different colours was used to fill adjacent apertures. In one of the fragments colourless glass was used in all of the surviving apertures. The form of the apertures was simple, consisting of circles, squares and triangles. All three shapes were also used in the qamariyyat from Khirbat al-Mafjar. The diameter of the circular apertures was 4-4.5 cm. The width of the tracery dividing the apertures varied between 0.8 and 1.5 cm, while the glass was between 0.1 and 0.15 cm thick. Rectangular pieces of glass were used to fill circular apertures, the excess glass being hidden between the two layers of tracery.

The upper surface of the stucco tracery was painted black and lines running parallel to the direction of the openings were executed in relief upon it. Fragments of window-glass, some still set in tracery, bore the remains of black paint on their upper surface. Like that on the window-glass from other Umayyad sites, the paint does not appear to have been fired on the surface of the glass. The remaining traces were insufficient to permit any reconstruction of the painting, although curved lines were visible.

The qamariyyat from Qaṣr al-Ḥallabat appear to have combined the features of the window-grilles found in the other desert palaces, and which recur in Abbasid qamariyyat. Among such features are the black paint and relief lines on the surface of the stucco tracery, and the painting on the window-glass which fills them.

2.3 Techniques of Manufacture.

Since the techniques used in the manufacture of Umayyad qamariyyat continued to be employed until the seventh/thirteenth century, it is worth describing them in detail. There are three main ways of producing window-glass. The first, and simplest, consists of pouring molten glass into a shallow tray. The surface can sometimes be flattened with a roller, producing a pane of flat, roller-moulded glass.\(^{38}\) The second method involves the production of a glass cylinder which is cut open along its length to produce a pane of muff glass.\(^{39}\) The third method uses a blown sphere of glass which is rotated rapidly until it flashes, or opens out, forming a slightly convex disc of "bull's-eye" or crown

\(^{38}\) P.B. Harden, New light on Roman and Early Medieval window-glass, Glastechnische Berichte (XXXII, 8, 1959), pp. 8-16; G.C. Boon, Roman window glass from Wales, Journal of Glass Studies (VIII, 1966), p. 44.

glass.⁴⁰ Typically the third process gives rise to a disc which is thicker in the centre than at its edges and has a central bullion where the pontil was attached during manufacture. The advantage of this process is that it enables the rapid production of colourful glass panes which are usually highly-polished on both sides.

Although flat glass is found on Umayyad sites, it is comparatively rare⁴¹ and all the window-glass used in Umayyad qamariyyat was produced using the third method. The edges of such discs were usually thickened or folded over to strengthen the thin and vulnerable rim. Analytical studies have yet to be undertaken on Umayyad window-glass, but a fragment of Abbasid window-glass from Samarra shows a much higher concentration of silicon dioxide than the glass used in medieval European windows.⁴² The colour of the glass derives from the addition of metal oxides during its manufacture. Deep blue is among the colours of the glass used in Umayyad windows and this is probably due to the use of cobalt, which was imported from the Levant for use in the manufacture of medieval European window-glass.⁴³ The purple window-glass may have been produced by the addition of manganese. It should be pointed out that most medieval glass has a faint greenish hue, due to the residual presence of impurities such as iron oxide.⁴⁴ This is also the case with many of the Umayyad fragments of colourless glass, although deep green glass which was deliberately coloured was also used.

There is no evidence for the use of whole panes of crown glass in Umayyad qamariyyat. Instead the circular panes, which ranged in diameter from 19.4 to 38.4 cm, were used as quarries for smaller pieces of glass. The pieces were cut to a size slightly larger than that of the apertures in the plaster grilles which they were required to fill. Lafond believed that the window-glass used at Qasr al-Ḥayr West had been cut with the aid of a hard stone.⁴⁵ Some pieces were of similar shape to these apertures, but, where an aperture had curved edges, square or rectangular pieces were often used, the

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⁴¹ Some of the glass from Qasr al-Ḥallabah may have been flat; Engle (Lamps, pp. 57-8) mentions flat glass from the excavations outside the Haram in Jerusalem.


⁴³ Frank, Glass and Archeology, p. 11.

⁴⁴ Idem.

extra glass being hidden in the unpierced portion of the grille. This short-cut presumably speeded the process of manufacture. The glass was held between two superimposed layers of stucco. It is not clear whether the painting on the surface of some of the glass was executed before or after the circular pane was cut. The former was the case with the glass used in some 'Abbasid qamariyyat.46

Examination of the qamariyyat fragments from several sites indicates that all were produced by a method which involved several stages (fig. 11). The process appears to have been remarkably similar to that used in the production of coloured glass window-grilles in Yemen until today.47 The first stage entailed piercing the voids of a pattern in a stucco slab 3.2-3.5 cm thick (ills. 145-6). It is not clear whether the design was first incised on the surface of the stucco, as is the case in the production of qamariyyat today (ill. 144),48 or was cut from memory or imagination. The patterns employed are generally quite simple, so it is possible that the latter was the case. On top of the apertures the pieces of cut glass were laid (ill. 147). It may be that a fine application of wet stucco was sometimes used to hold the glass in place.

When all the glass was in position a second layer of stucco was placed on top (ill 148). This layer, 0.5-0.8 cm thick, was much thinner than the first. It is not certain whether the second layer was carved before being set in place or afterwards. In Yemen the plaster is poured on the surface of the lower layer of tracery and its glass, and the voids of the pattern are excised before it is completely dry, exposing the glass beneath.49 This has the advantage of ensuring that the apertures in the upper layer of stucco correspond to the position of the glass beneath. It produces a grille consisting of two layers, with the lower thicker than the upper (fig. 12). The regular raised lines on the surface of the qamariyyat from Qasr al-Ḥayr East and Qasr al-Ḥallābah suggest that either sections of the upper layer of tracery was produced in a mould, or that the surface was decorated with a mould while still wet. Relief ornament on the surface of Byzantine plaster window-grilles (pls. 35-6) was usually produced by a using a mould and, from the duplication of motifs on the surface of such grilles, it appears that the same mould could be used repeatedly.50 Elaborate moulded decoration appeared later on the surface of stucco window-grilles from Nishapūr.51 It seems likely that, in order to ensure that it bonded with the layer below, the upper layer of plaster was laid wet. In the manufacture of later

46 See below, p. 61.

47 P. & G. Bonnenfant, Les artisans du plâtre a Sanaa, Yemen, Revue des Études Islamiques (XLV, 1977), pp. 247-62. This technique is rarely used in the Islamic world after the seventh/thirteenth century, but survived in Ottoman Turkey. It seems likely that the Yemeni windows are derived from Ottoman prototypes.

48 Bonnenfant, Les artisans, p. 255, fig. 5, pl. XIX.

49 Ibid., p. 260, pl. XXIIa.


51 Below, pp. 67-8.
qamarîyyat reeds and other organic matter were sometimes used to bond the two layers together and strengthen the outer frame.52

After this stage was complete a dark pigment was often applied to the surface of the upper layer of plaster. That this was applied after the apertures had been cut in the upper layer is shown by its appearance around their inner edges. The surface of the grille was probably painted black to heighten the impact of the coloured light radiating from the apertures within it.

The stucco claustra from the bath house at Khirbat al-Mafjar had a dark red painted border 3-4 cm wide.53 The same colour was used for the borders of fragmentary stucco claustra found at Fustat (ill. 11), which have been dated to the late first/seventh or early second/eighth century.54 The tracery of the Fustat claustra was painted yellow, a colour which is also found on some of the claustra from Khirbat al-Mafjar.55 It is not clear why these colours were chosen but, according to a hadith, 'Umar forbade the use of any colours except red and yellow in the Mosque of the Prophet at Madina.56 A visitor to the court of Hishâm found the caliph enthroned "under a pavilion of red silk surmounted by a dome of yellow brocade.57 It may be therefore that these colours had some significance at this period. The marble claustra in the Mosque of the Prophet and the Great Mosque of Cordoba were originally gilded,58 which suggests that more colour was used on the surface of Umayyad window-grilles than survives today. Ibn 'Abd Rabbih mentions that the panelling in which the window-grilles of the qibla in the Mosque of the Prophet at Madina were set was painted with a red pigment called khaluq.59 This gives a clue as to what the pigment used on Umayyad window-grilles may have been called.

The appearance of painted decoration on the surface of the glass set in the grilles is indicative of a desire to maximise the their decorative effect. The form of the painting generally follows that of the aperture within which the glass is set. There is however a certain ambiguity in the use of vegetal motifs on pieces of glass which fill apertures in a geometric grid. It is not known how the qamarîyyat

52 Below, p. 56. Reeds were also used to strengthen larger architectonic masses of stucco such as the muqarnas ceilings of the Alhambra; M. J Ghoury & O. Jones, Plans, Elevations, Sections and Details of the Alhambra, Volume I (London, 1842), text accompanying pl. X.
53 Brosch, Glass window fragments, p. 249.
55 These are not mentioned, but are visible on some of the claustra from Khirbat al-Mafjar on display in the Rockefeller Museum, Jerusalem.
59 FMA ii, p. 145.
were held in place, but it is probable that stucco was used. At a later period at least *qamariyyat* were mounted in wooden frames before being set in window-openings.

### 2.4 Function and use.

On the basis of the preceding discussion one may conclude that *qamariyyat* were an integral part of the decoration of the major Umayyad religious monuments and royal residences. The use of *qamariyyat* and stucco *claustra* in the windows of Umayyad bath houses continues a Late Antique tradition. The quantities and location of the window-glass found in the palaces suggests that *qamariyyat* were not used in all windows, but in the windows of the most important rooms. This is partly due to the time and expense involved in the manufacture of such grilles, and partly to the need for open grilles which allowed the free circulation of air. The remainder of the windows were filled with stone or stucco tracery. It should be stressed that most of the marble and stucco grilles used in Umayyad architecture were never filled with glass. As a general rule of thumb, those grilles on which the tracery was decorated with parallel lines did not contain glass.

The precise relationship between the *qamariyyat* and stucco *claustra* is hard to determine. The reverse of many of the *qamariyyat* fragments is rough and undecorated, which suggests that they were designed to be seen from one side only. It may be that *qamariyyat* filled the interior of window-openings, while open *claustra* appeared on the exterior. This method of fenestration was used in later buildings. In the Dome of the Rock however it appears that a single *qamariyya* was set at the centre of each window-opening. When one considers that the walls of the buildings in which *qamariyyat* appeared were frequently more than one meter thick, it seems probable that the use of open grilles in the exterior of window-openings was necessary to permit sufficient light to penetrate the glass of the window. It is possible that more prosaic considerations underlay the development of decorative

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61 The *qamariyyat* from Khirbat al-Mafjar appear to have been used in an upper room in the east wing of the palace; Brosch, *Glass window fragments*, p. 254. Similarly the finds from Qasr al-Halabbi were concentrated in two rooms in the eastern corner of the building; Bisheh, Excavations, p. 73.


63 See below, pp. 92, 167.

64 Above, p. 17. Some of the rectangular *claustra* from Qasr al-Ifayr West were carved on both faces, which suggests that they were designed to be seen from both sides; Schlumberger, *Qasr al-Heir*, pl. 72. These may have been used as balustrades rather than window-grilles.
window-fillings such as the *qamariyya*;

"A special function of a window in hot dry lands, where Summer heat is the main source of discomfort, is to admit light without admitting direct sunshine. It should also exclude hot, dry and dusty winds ... there is a good case for limiting the size of glazing, but too much reduction is likely to conflict with the needs for natural light within the building."65

*Qamariyyat* of the type used in in Umayyad buildings reduce the size of openings within the window, with a consequent reduction in both the area of glazing and the glare associated with light entering from the exterior.66

However, given that the diameter of the apertures in the surviving fragments of *qamariyyat* rarely exceed four centimeters, that these were filled with coloured glass, and that this was often painted, the windows cannot have admitted a great deal of light. The tracery of Umayyad *qamariyyat* does not appear to have been slanted so as to direct the light downwards. Moreover they could not have provided a view, even had they been set at eye level. It seems unlikely therefore that the role of *qamariyyat* was strictly functional. Instead they should be seen as part of a decorative repertoire designed to create an ambience of wealth, luxury, colour and brilliance.

The black paint applied to the surface of the window-grilles and the interior of their apertures served to emphasise the effect of the polychromatic light radiating from the glass within them. The appearance of painted ornament on the surface of the glass itself is indicative of a desire to maximise the decorative aspects of such windows. Since the surface of the plaster grilles was painted black, this could only be achieved by the ornamentation of the glass, or by the use of relief decoration on the painted surface of the grille. At Qaṣr al-Ḥayr East and Qaṣr al-Ḥallābāt both methods were employed simultaneously.

Black painting appears on the surface of almost all the remains of *qamariyyat* from Umayyad sites which I have been able to examine. The remaining finds are inadequately published, and it is possible that black pigment was originally applied to the plaster surface of most, if not all, Umayyad *qamariyyat*. Similarly, the evidence from Qaṣr al-Ḥayr al-Gharbī, Khirbat al-Mafjar, Qaṣr al-Ḥallābāt and elsewhere67 suggests that the use of painted window-glass was more common in Umayyad architecture than one might imagine. In view of the fragility of this painting, it is remarkable that any has survived. It is conceivable therefore that painted window-glass was the rule rather than the exception.

While I am concentrating on a single form of decoration, it should be borne in mind that this was related to a wide range of architectural decoration in various media. Patterns similar to those used in...


67 See above, pp. 21-3.
the stucco claustra of the Umayyad palaces appeared in the mosaics and painted decoration of the same palaces. Simplified versions of these patterns were used in qamariyyat which filled some of their windows. The motifs painted on the window-glass from Khirbat al-Mafjar are repeated in the mosaics and stucco ornament of the palace. For example, a four-petalled rosette painted on a square piece of window-glass (fig. 8) is similar to those which occur in the mosaics and stucco ornament of the palace and which have been discussed at length by Ettinghausen. Similar rosettes appear in the interstices of some of the stucco claustra from the palace (pl. 17). It seems therefore that the various elements in the decoration were designed to function as a unified whole, producing a cumulative impact on the viewer.

Having looked at the evidence for the production and use of qamariyyat in Umayyad architecture, it remains to determine from where these type of coloured glass windows originate and how they relate to the window-grilles used in pre-Islamic architecture. The following discussion focuses on the architectural traditions of five related cultural or geographic entities which were influential in the emergence of Umayyad art: the Late Antique and Early Christian world, Byzantium, Egypt, Syria and the Iranian world.

2.5 The Late Antique and Early Christian World.

2.5.1 Claustra.

Among the most common window-fillings used in Late Antique and Early Christian architecture are metal lattices (pl. 20) and open claustra of stone or terracotta. Latticework screens are frequently mentioned in Roman literature and are depicted in Early Christian Art. Among the

68 For knotted ornament similar to that which appears in the stucco claustra from Khirbat al-Mafjar see Hamilton, Khirbat al-Mafjar, p. 322, fig. 257. On the similarities between the motifs used in some of the claustra from Qasr al-Hayr West and those which appear in other forms of Umayyad decoration see S. Stern, Quelques oeuvres sculptées en bois, os et ivoire de style omeyyade, Ars Orientalis (I, 1954), pp. 121-2, fig. 4.
69 R. Ettinghausen, From Byzantium to Sasanian Iran and the Islamic World, three modes of artistic influence (Leiden, 1972), pp. 36-9. At Qasr al-Hayr West analogous rosettes were used on stucco balustrades; Schlumberger, Qasr el-Heir, pl. 69 bis, 9.
most popular designs used was a fish-scale or imbricated pattern which appeared on both chancel screens and pierced lunette-grilles. Both diagonal lattices and imbricated tracery were used to fill the lunettes above doors (pl. 21). The practice continued into the Umayyad period, for an imbricated grille is still in place above one of the doors in the Dome of the Rock (pl. 22) and the same pattern appears on one of the marble claustra in the Great Mosque of Cordoba. The design of the claustra and lunette-fillings used in Late Antique and Byzantine architecture were evidently influential in the choice of the forms used in Umayyad marble and stucco claustra.

2.5.2 Glass windows.

In addition to such open grilles, finds of window-glass from Pompeii and elsewhere suggest that glass was used sporadically in the windows of public buildings and wealthy public residences from the first century BC. This glass appears to have been used in the rectangular lattices frequently depicted in Late Antique art (ill. 10). A wooden lattice from a rectangular window with an arched head has survived at Ravenna (pl. 23), and similar lattices were in use at Pompeii. That metal lattices were also filled with glass is indicated by the discovery, in the House of the Faun at Pompeii, of four glass panes set in cruciform bars of copper fastened with nuts and screws. Such windows were held in place by rods of bronze or iron which slotted into the vertical rows of circular holes still visible in the

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72 See for example the balustrades consisting of crossbars with attached croisillons on the north-west side of the Obelisk of Theodosius; W.F. Volbach & M. Hirmer, Early Christian Art (London, 1961), fig. 55.


74 G. Matthiae, Le Chiese di Roma dal IV al X secolo (Rome, 1962), fig. 47; P. de Palol, Arte Hispanico de la Epoca Visigoda (Barcelona, 1968), fig. 61.

75 Sourdel-Thomine & Spuler, Kunst des Islam, pl. 18.

76 K. Brisch, Die Fenstergitter und Verwandte Ornamente der Hauptmoschee von Cordoba (Berlin, 1966), pls. 2, 50.


78 Herbig, Das Fenster, pp. 10-5; Volckers, Glas und Fenster, pp. 16-8; R. Günter, Wand, Fenster und Licht in der Trier Palastaula und in Spätantiken Bauten (Munich, 1968), pp. 77-9.

79 Volbach & Hirmer, Early Christian Art, fig. 92.


81 V. Spinazzola, Pompei alla Luce degli scavi nuovi di via dell'Abbondanza (Rome, 1953), p. 70, fig. 76

82 Harden, Domestic Window Glass, n.57; Forbes, Studies in Ancient Technology, n. 242.
pilasters framing the window-openings in the Baths of Ostia.83 Outside Italy window-glass was used in both domestic and public buildings, the most abundant finds being from the well-excavated - and chilly - provinces of Britain and Germany.84

When glass was unavailable, or prohibitively expensive, other translucent materials were used to fill windows. Mica and Selenite, the lapis specularis of the Latin authors, were by far the most common substitutes for window-glass in antiquity.85 Other, less salubrious, substitutes included fish bladders, stomach, cattle horn and dipped parchment.86 Even when glass windows were used later in church windows they remained a luxury, and subsidiary windows continued to be filled with other materials.87

Decorative window-grilles constructed from gypsum filled with mica were used in the windows of the Church of Santa Sabina in Rome (pl. 24).88 Each of the windows of the basilica was divided into three parts by a wooden mullion, between which the gypsum grilles were set. Gypsum grilles, also filled with mica and selenite, were also used in other Roman churches.89 The window-grilles in Santa Sabina have been dated to the third/ninth century, but this view has been challenged by Krautheimer, who dates them to the period of the basilica's foundation in the mid-fifth century.90 The resemblance between the simple patterns used in the gypsum grilles and those used on the stone transennae and window-plaques used in Early Christian architecture would support such a date.

2.5.3 Stained glass.

The building activities associated with the triumph of Christianity undoubtedly acted as a major impetus for the development of coloured glass windows.91 These gradually replaced at least some of

85 E.F. Leon, A Roman Substitute for Window Glass, Journal of the American Institute of Architects (1926), pp. 455-7; Herbig, Das Fenster, pp. 8-9; R. Meiggs, Roman Ostia (Oxford, 1969), p. 239. Philo (Embassy to Caesar XLV:364) mentions windows filled with a transparent stone which admits light. The alabaster windows in the windows of some of the churches at Ravenna were apparently set in place only in the thirteenth/nineteenth century; Günter, Wand, p. 79.
86 Leon, A Roman Substitute; Harden, Domestic window-glass, p. 58; Forbes, Ancient Technology, p. 184.
87 In the church at Monte Cassino, rebuilt at the end of the fifth/eleventh century the windows of the nave and choir were filled with glass, the remainder with mica; Davis-Weyer, Early Medieval Art, p. 138.
89 Nesbitt, Churches of Rome, p. 196, pls. XII 3; Muñoz, Il Restauro, p. 19; Lafond, Le Vitrail, p. 27, n. 31.
91 On the role of church patronage on the proliferation of glass windows see Frank, Glass and Archaeology, p. 22.
the open claustra formerly used to fill the windows of churches. The early references to glass windows in the Christian sources have been gathered elsewhere. On the basis of such references one may conclude that glass windows were in use from the fourth century or earlier. By the early first/seventh century, glass was being used in the windows of churches in Gaul, Saxony and Italy.

For our purposes it is important to determine the form of these windows. Sidonius refers to coloured glass in the windows of a fifth-century church at Lyons. This was undoubtedly flat glass since, apart from some anomalous finds in north-eastern Italy, crown glass was unknown in western Europe until after the sixth/twelfth century. Nowhere is the use of stucco mentioned and, given the climatic conditions prevailing in north-western Europe, it is more likely that other materials were used to hold the glass. The earliest mention of lead tracery is in a fourth/tenth-century text. Despite this, the archaeological evidence suggests that lead tracery was used, perhaps as early as the late fourth century. In a publication seldom referred to, Stylianos Pelekanides discusses finds of polychrome window-glass from a basilica at Philippi in northern Greece which appear to date from the late fourth or early fifth century. White (colourless ?), light olive, light red, deep red and violet glass was found. The pieces, all of flat glass, were carefully cut to form shapes with both linear and curved edges (pl. 37), leading their excavator to suggest that they were held in lead tracery or lead came similar to those used later in medieval Europe. This possibility is strengthened by recent finds of polychrome window-glass and lead tracery in first/seventh-century contexts at Sardis.

The earliest finds of stained glass from western Europe are those from Séry-les-Mézières in northern France, which date from the Merovingian or Carolingian period. The colours of the glass


94 Actual finds of window-glass have come from fourth- or fifth-century levels of the Church of San Lorenzo Fuori le mura in Rome; R. Krautheimer, Corpus Basilicarum Christianarum Romanae, Volume II (Vatican City, 1959), pp. 54, 109, figs. 25, 39. See also S. Pfeilstücker, Spätantiken und germanischen kunst in der Frühangelstuchsischen kunst (Berlin, 1936), pp. 222-3.

95 Grodecki, Vitrail Roman, p. 42.


97 Harden, Domestic window glass, pp. 40-1.

98 Grodecki, Vitrail Roman, p. 43.

99 S. Pelekanides, I exo ton teikon Palaiocristianiki Basiliki ton Phillipon, Archeologiki Ephemeris, Zeitschrift der Archäologischen Gesellschaft in Athen (XCI, 1961), pp. 141-3, fig. 27.

100 See below, pp. 41-2.
were yellow (clear, veined and golden), green and olive. It has been argued that the glass was held in lead tracery, inserted in a wooden frame. The window has been reconstructed to show a cruciform pattern decorated with vegetal ornament and with an alpha and omega suspended from the arms (pl. 25). Some pieces of the glass bore traces of painted palmette ornament, but whether this was fired on the surface of the glass or not is unknown.

Similar finds were made in Britain at the monastic sites of Jarrow and Monkwearmouth.\footnote{102} The former site has a \textit{terminus ante quem} of c. 253/867. Colourless, dark and light blue, turquoise, amber, light green and red glass was found. Some of this was opaque with a veined surface, giving it the appearance of alabaster. The pieces were all quarried from panes of flat glass, and were probably held in lead tracery.\footnote{103} The window may have been attached to a wooden frame with lead spiggots or clamps. The earliest mention of figures in a stained glass window is in a third/ninth-century text,\footnote{104} but it is possible that some of the window-glass from Jarrow comes from a figured window.\footnote{105}

On the basis of this brief survey one must conclude that, apart from the occasional use of gypsum in the windows of Roman churches, the materials and techniques used in the manufacture of coloured glass windows in the West differed considerably from those used in Umayyad Syria. As one might expect, the window-grilles used in Byzantine architecture show more affinities with their Umayyad counterparts.

2.6 Byzantium.

At least two main types of glass windows were used in Byzantine architecture. The first consisted of square or rectangular panes of glass set in marble or wooden lattices, although glass was not necessarily used in all lattices of this type. The second consisted of crown glass panes set in pierced plaster panels. A third, less common, form of window-filling resembled medieval European stained glass.

2.6.1 Glass-filled lattices.

Rectangular lattices of marble were used to fill the windows of Roman buildings in Asia


\footnote{103} Lead tracery was found in a Saxon palace at Kingsbury; Harden, Domestic Window Glass, fig. 3.5.

\footnote{104} Grodecki, \textit{Vitrail Roman}, p. 43.

\footnote{105} For a colour reproduction of this window see D. Klein & W. Lloyd, \textit{The History of Glass} (London, 1984), p. 44. The latter authors mention finds of window-glass of similar date at two churches in Derbyshire.
Minor and continued to be used in Byzantine churches. Many fragments of such grilles were found in the Church of St. Polyeuktos in Istanbul (pl. 26). Most of the openings in the grilles were rectangular, but fragments of grilles with polygonal and circular openings were also found. The mode of attachment for both glass and window-frame is described as follows:

"On the inside the mullions are carefully chamfered ... and each panel has a rebate for the pane of glass. In many cases there was a small drill-hole at the back of the rebate, and in two cases this hole contained a small spigot of lead, evidently for fastening the pane."

Some of the frames did not have spigot holes, suggesting that the panes were also fixed by plaster. The rectangular panes used to fill the grilles were of transparent brown, pale transparent yellow, transparent blue-green, dark olive green, pale olive green and blue-green glass 1.5–2.5 cm thick. These finds were securely dated to first/seventh-century levels. The pieces were all from panes of flat glass, which has also been reported from other Byzantine sites. Fragments of crown glass were found in disturbed contexts, although it is possible that such panes were used to fill circular tracery, of which a single fragment was found. An idea of how these glass windows may have appeared is provided by the depiction of Theodoric's Palace in the sixth-century mosaics of Sant' Appollinare Nuovo, Ravenna (ill. 10). The lower parts of the windows are open, presumably closed by shutters of wood or some other material, while the lunettes are filled with rectangular grids, apparently of wood, like other windows from Ravenna (pl. 23). The wooden lattice is filled with panes of greenish-blue, (probably colourless) glass.

Some of the windows of Hagia Sophia in Istanbul may have been filled with similar lattices of marble. Paul Silentiarius' description of the church mentions the use of glass in the windows of the dome. In some of the windows three types of filling are used; the lower part is closed with a semi-


108 Harrison, Excavations, p. 140.

109 Ibid., pp. 204-6.

110 Ibid., p. 142, Ci. Pierced terracotta grilles set with circular panes held in place with plaster were used in the Monastery of Olympiotissa at Elasmon in Thessaly (seventh/thirteenth century); Bouras, Portes et Fenêtres, pp. 123-4.

111 Volbach & Hirmer, Early Christian Art, p. 152. For a list of depictions or finds of such lattices see Günter, Wand, pp. 79-83. Similar lattices appear in the windows of some of the buildings depicted in the Damascus mosaics; F.B. Flood, The Tree of Life as a decorative device in medieval Islamic window-fillings: mobility of a leitmotif, Oriental Art (XXXVII, 4, 1991/2), fig. 4.

112 It has been suggested that the smaller windows of the apse and conch were originally filled with coloured glass; W.R. Lethaby & H. Swainson, The Church of Santa Sophia, Constantinople (London, 1894), p. 262.

113 C. Mango, The Art of the Byzantine Empire 312-1453 (London, 1986), p. 82. The glass windows are also mentioned in a later
translucent slab of marble, the intermediate section with wooden shutters and the tympanum with marble lattices in which coloured glass was set. The translucent marble panels set in the lower part of such windows are known as phengites (from the Greek phengos, light). The glass in the upper windows of Hagia Sophia is recent, but similar marble lattices provided with grooves for the insertion of glass are found in the Church of Catapoliani on the island of Paros which was also founded in the reign of Justinian.

Important finds of similar window-grilles of wood and plaster have been made in the baths at Umm Qais, Jordan, which date from the period immediately preceding the Islamic conquest. The windows consisted of wooden lattices a few centimeters wide. The lattice rectangles were each constructed separately, adjoining segments being held together by small pieces of wood nailed to their reverse (fig. 13a). A one centimeter gap was left between adjoining units of the lattice. Panes of flat glass with a greenish hue 0.1-0.2 cm thick, and with sides of 20 cm or more, were then laid over the openings (fig. 13b). The method used to attach the glass is of particular interest. A fine white plaster was first poured onto the surface of the lattice, filling the gaps between adjacent sections (fig. 13c). Then, while the plaster was still wet, panes of glass were pressed down upon the apertures. Finally the excess plaster was smoothed over the edges of the glass (fig. 13d). The size of the window-openings filled in this way exceeded one meter. The work was sloppy, and large areas of the glass panes were covered with plaster. A similar use of plaster to hold panes of flat glass in place was made in contemporary Palestinian churches sites in the Levant.

Anonymous text; Trowbridge, Philological Studies, n. 40.

114 Bouras, Portes et Fenêtres, pp. 103-4.

115 This stone is mentioned by Pliny (Nat. Hist., XXXVI: 46, 163) and appear to have been extensively used in Middle Byzantine architecture; R.W. Schultz and G. Wheler, A Journey into Greece (London, 1682), p. 363; S.W. Barnsley, The Monastery of Saint Luke of Stiris at Phocis (London, 1901), pp. 5-6, 24-5.

116 Lethaby & Swainson, Santa Sophia, p. 262.

117 Similar glass and marbles grilles were used in the Church of the Virgin at Nicaea (second/eighth century); Bouras, Portes et Fenêtres, pp. 105, 107-8.

118 S. Holm Nielsen, I. Nielsen & F.G. Andersen, The Excavation of Byzantine Baths in Umm Qais, ADJ (XXX, 1986), p. 229. I owe the following detailed information to a personal communication from Dr. Fleming Gorm Andersen, to whom my thanks are due.

119 The wooden frames did not survive, but left traces on the plaster (fig. 13e). Dr. Andersen thinks that there might be a possibility that the wood served only as a framework while the plaster was drying, the final window being composed exclusively of stucco and glass. This seems unlikely, since there would be great difficulties in detaching the wood without damaging the plaster. The resulting layer of plaster would also be insufficiently thick to support the weight of glass upon it.

120 Some of the windows in the basilica on Mount Nebo had millonions constructed from stacks of tiles which were covered with plaster. Glass panes were held against the millonions by "another layer of plaster placed over the edges of the glass plate; P.S. Saller, The Memorial of Moses on Mount Nebo (Jerusalem, 1941), p. 65. A similar method was used in the windows of a sixth-century monastery near Jerusalem; P. Virgilio Corbo, Gli Scavi di Khirbet Sivar el-Ghanam e il Monastero dei Dintorni (Jerusalem, 1955), p. 74.
2.6.2 Bull's-eye *transennae*.

The windows of the Byzantine churches erected in Palestine were filled with window-grilles of another type, consisting of crown glass panes set in plaster tracery. The fifth/sixth-century Church of St. Euthymius near Jerusalem produced plaster window tracery which contained fragments of colourless glass, among them a pane of crown glass 24 cm in diameter (pl. 27).121 Panes of crown glass 0.2-0.3 cm thick, with folded rims and diameters between 9 and 24 cm, were found in the basilica on Mount Nebo.122 Some of the glass panes were colourless, others were yellow, brown, red, green and black.123 Finds of stucco tracery from the same site showed that the glass discs had been held between two layers of stucco tracery (pl. 28). Grilles of this type were used to fill lunettes, and circular panes of different diameters were apparently used in the same lunette-filling.

Panes of blue, lavender, green, olive and brown crown glass were used in sixth-century churches at Beth-Shan124 and Beth-Shan.125 The panes were 18-26 cm in diameter and had both folded and thickened rims. Much window-glass was found at Jerash, including both crown and muff panes.126 The crown glass panes varied in thickness between 0.2 and 0.15 cm. Among the finds was a fragment of stucco tracery still retaining the fragmentary folded rims of two circular panes (pl. 29). Recent excavations in the North Theatre Byzantine Church have produced panes of blue and green glass with folded rims and diameters which vary between 24 and 30 cm.127 The finds have a *terminus post quem* of the early first/seventh century, and some date to the earliest years of the Umayyad conquest. Finds of window-glass of similar date were made during excavations outside the southern wall of the Haram al-Sharif in Jerusalem. In addition to blue flat glass,128 the excavations at Jerusalem produced parts of green, olive-green and blue crown glass discs.129 A large section of the folded rim of such a pane was still

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122 Saller, *Memorial of Moses*, pp. 65-6, figs. 13, 8, pl. 139.

123 It seems *a priori* unlikely that black glass would have been used in a window, and the glass in question may be thick pieces of a dark colour such as brown or violet.


embedded in a part of the stucco grille in which it had been set.

Donald Harden attributed the invention of crown glass to the Levant, and dated its first appearance to the fourth century.\textsuperscript{130} Recently, after re-evaluating the archaeological evidence, Carol Meyer has argued persuasively that crown glass made its first appearance in the Levant in the sixth century.\textsuperscript{131} The impetus behind its production may lie in the extensive building programmes undertaken in the Holy Land during the reign of Justinian, which led to the need for the rapid production of glass to fill the windows of new churches.

The view that crown glass originated in the Levant is supported by the absence of finds of such glass from western Europe before the eighth/fourteenth century.\textsuperscript{132} An exception to this are fragments of over twenty-five panes of crown glass at Ravenna.\textsuperscript{133} The largest reach a diameter of 25 cm, and the colours of the glass are white (colourless?), yellow, green, pink, blue and violet. The most precisely dated are those from San Vitale, which appear to be contemporary with the foundation of the church (547-8) and to have filled the windows of the apse. Three panes of crown glass, probably of similar date to the finds from Ravenna, are preserved in the Museum of Aquileia.\textsuperscript{134} The largest of these has a diameter of 15.3 cm. Their colours are comparable to those of the window-glass from Ravenna; olive, green and deep purple.

The most remarkable of the San Vitale window-panes is a disc (now in two pieces) 22 cm in diameter, on which the remnants of a polychrome image of Christ flanked by inscriptions survives (pl. 30). The only detail given of this painting is that it was executed on a sulphur base.\textsuperscript{135} However, Cecchelli did not believe that the painting was executed in the manner of the medieval painted window-glass described by Theophilus,\textsuperscript{136} which suggests that it may, like the paint on Umayyad

\textsuperscript{129} Ibid., figs. 54-56a.

\textsuperscript{130} Harden, New light, p. 10; Domestic window glass, p. 40; Ancient Glass III: Post-Roman, Archaeological Journal (CXXVIII, 1971), p. 103.


\textsuperscript{132} Harden, Domestic window glass, p. 41. It has been suggested that crown glass was introduced from the Levant by returning Crusaders; Chambon, L'Evolution, p. 167.


\textsuperscript{134} M.C. Calvi, I vetri Romani del Museo di Aquileia (Aquileia, 1968), pp. 174-5

\textsuperscript{135} Bovini, Gli antichi vetri, p. 99.

\textsuperscript{136} Cecchelli, Gli antichi vetri, p. 16, n.2. Window-glass decorated with cold painting was used in Sicilian window-grilles as late as the eighth/fourteenth century; below, pp. 73-4.
window-glass, have been applied cold.

It is not known whether the panes of crown glass from Ravenna and Aquileia were imported from the East or manufactured locally under Levantine influence. It is not impossible that the panes were produced locally under foreign influence. The mobility of those involved in the glass industry, at least at an earlier date, is shown by the presence of Syrian glass-makers in the Rhineland in the fourth and fifth centuries AD; E. Salin, La Civilisation Mérovingienne, Volume I (Paris, 1950), p. 149, n.7.

137 Bovini, Gli antichi vetri, p. 104.


145 Saller, Memorial of Moses, figure 12.
circular apertures is a simple but effective solution to the problem of providing light and ventilation while keeping out unwanted elements such as intense light, wind and dust. There also appears to have been a particular affinity for circular openings in the fenestration of pre-Islamic Egyptian and Syrian buildings. 148

Another phenomenon which is likely to relate to the emergence of the bull’s-eye transennae, and the crown glass used to fill it, is the reuse of circular bowls and dishes as window-fillings. Panes of crown glass are often confused with shallow glass bowls. 149 Occasionally one finds shallow glass vessels reused to fill circular windows in the windows of pre-Islamic churches and monasteries. 150 Both phenomena provide a clue as to the origins of crown glass. Jewish texts mention the use of the tamhui, a serving bowl used for fruit or cooked food, as a window-filling. In the Mishnah the glass window (aspeclariah) is differentiated from the tamhui used to fill a window, the latter being ritually unclean unless it was specifically manufactured for use to fill a window and was permanently attached to that window. Similarly, the tamhui which had been used to contain food, “did not acquire the [ritual] immunity of a window unless it was attached by nails to a frame of wood or some other material.” 151

This suggests that the practice of using shallow vessels to fill windows is of considerable antiquity in the Near East. 152 The fact that the first panes of crown glass were produced in the Levant, and probably Palestine, is hardly coincidental.

There may also be an aesthetic dimension to the emergence of such glass panes, for raised circular "bull's-eyes" often occur on the exterior of Byzantine glass vessels 153, and the use of circular panes recall the coloured marble intarsia used in Byzantine architectural decoration. 154 In later Byzantine churches coloured enamelled discs with a central bullion were sometimes set into the wall

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148 See below, p. 51.

149 Harden, Domestic window glass, p. 40; Meyer, Crown glass, p. 215.

150 See below, p. 45.

151 Engle, Lamps, p. 80.

152 Even at a much later date, where glass was unavailable circular clay vessels pierced at both ends were used in windows; K. Michalowski, Faras, Centre Artistique de la Nubie Chretienne (Leiden, 1966), p. 24, pl. XX.


154 E.H. Swift, Hagia Sophia (New York, 1940), p. 78. Many of the intarsia in Hagia Sophia are violet or purple, a colour which occurs among the finds of crown glass from Byzantine sites.
around window-openings to serve as decoration (pl. 33). This practice may be related to the use of "bacini" around the windows of churches in the South of France, Italy, Greece and the Balkans. It is almost always glazed bowls which are used, and the use of colourful glazed bowls around windows is not far removed from the setting of shallow glass "bowls" within them.

Although no detailed information on the manufacture of Byzantine bull's-eye transennae is available, it appears that the process used was very similar to that used in the production of Umayyad qamarīyyat. A published piece of window-tracery from the Church of St. Euthymius shows an edge with two distinct layers of stucco, and a groove where glass has been sandwiched between. Similarly, in the fragments from Mount Nebo (pl. 28),

"one can distinctly recognize the two layers of plaster and see between them the glass which closed the small openings in the window."158

The same method was used for the plaster grilles from Khan al-Ahmār (pl. 27) and Jerusalem (pl. 11). A passing reference to the decoration of a house in a sixth/twelfth-century Greek text suggests that such grilles may have been known by the term spatela. Those who manufactured them were known as gupsoplastai.161

It should be noted that this mode of fenestration, however decorative, is, by its nature, essentially a conservative one. The bull's-eye transennae used in Middle Byzantine architecture, and indeed in Orthodox churches today, hardly differ from their Levantine predecessors. Franz suggested, quite plausibly, that the dominance of this inherently conservative form of fenestration in Orthodox churches is related to the conservative aesthetic demands of the tradition. The surface of the grille

156 There is a vast literature on the bacini, but most of it deals with the vessels themselves rather than the origins of this type of architectonic decoration. Among the most important works on the subject are: J. Tavenor-Perry, The marble and ceramic decorations of the Roman Campani, Burlington Magazine (XI, 1907), pp. 209-11; G. Berti & L. Tongiorgi, Aspeti della decorazione con ceramiche invetriate nella architettura bizantina, Atti del XII Convegno Internazionale della Ceramica (Albisola, 1979), pp. 25-36 & I Bacini Ceramici Medievali delle Chiese di Pisa (Rome, 1981); A. Nicolai & L. Vallauri, A propos des ceramiques ornamentales sur les edifices medievaux du Sud de la France, Archéologie du Midi (IV, 1986), pp. 103-11.
157 H.G. Franz, Neue Funde, p. 309, fig. 6.
158 Saller, Memorial of Moses, p. 65.
159 Meimaris, Monastery of Saint Euthymios, fig. 85a.
160 E. Miller & E. Legrand, Trois Poèmes Vulgaires de Théodore Prodrome (Paris, 1875), p. 33, v. 79. Bouras (Portes et Fenêtres, p. 203), takes the term as referring to pierced stucco window-grilles. However, the same term is also used for the lapis specularis (mica) used in windows, E.A. Sophocles, Greek Lexicon of the Roman and Byzantine Periods (Boston, 1870), p. 1003; P. Koukoule, Byzantinos Bios kat Polittmos, Volume III (Athens, 1948), p. 212.
161 Bouras, Portes et Fenêtres, p. 203.
162 H.G. Franz, Stuckfenster, p. 473
could be decorated, or the openings which held the glass cusped (pls. 35-6), but the use of whole panes of crown glass meant that this form of window-grille was incapable of further evolution.

Probably related to this is the fact that, while the optical effects of artificial light and various forms of luminescent decoration such as marble and glass mosaic were consciously explored and developed in Byzantine architecture, the focus was on interior illumination rather than light from without. This was noted by contemporary observers. Procopius remarks of Hagia Sophia:

"You might say that the [interior] space is not illuminated by the sun from the outside, but that the radiance is generated within, so great an abundance bathes this shrine all round."164

Considered along with the formal constraints of the bull's-eye transenna, this may be why the potential of stucco and glass window-grilles was never fully realised in Byzantine architecture. As Bouras concludes:

"It is evident that, in Byzantine churches, one never thought of creating interior lighting effects with the aid of stained glass windows"165

2.6.3 Stained Glass.

Finds of stained glass windows in Greece and Asia Minor might, however, lead one to have slight reservations about this view. Windows of coloured glass mounted in lead tracery were apparently used in a late fourth/early fifth-century basilica at Philippi (pl. 37).166 Finds of flat roller-made or muff window-glass cut into small carefully-shaped pieces have also been made at Sardis.167 The glass is usually light blue or olive, is glossy on both sides, and was held in lead tracery. Excavated fragments of this tracery show it to have had an average thickness of 0.3 mm. It was bent twice at right angles, giving it the profile of a Z. The metal tracery was fastened to the window-openings with plaster.

It is not clear how widespread the use of such metal tracery was in the Byzantine world, but these finds predate any known from western Europe. Some of the flat glass found in the excavations near the Haram al-Sharif have grozed edges and may have been used as window quarries.168 Lead tracery

163 Schultz & Barnes, Monastery, pls. 12, 29.
164 Mango, Art, p. 74.
165 After Bouras, Portes et Fenêtres, pp. 208-9. The same scholar notes that the colours of the glass used in Byzantine church windows was much weaker than that of the mosaics which adorned them.
166 Above, p. 32.
167 Von Saldern, Ancient and Byzantine Glass, pp. 91-2, pl. 16. Von Saldern believes the flat glass to have been produced by the muff process, but others have suggested that it was roller-made; Meyer, Glass from the North Theater, p. 195.
168 Although it has been suggested that these pieces of glass were used as cutting agents; Engle, Windows, pp. 91-4.
was apparently used to hold panes of crown glass in the Monastery of St. Catherine at Sinai, and metal tracery was used in the windows of Hagia Sophia. In both cases it seems likely that the windows were installed later than the Justinianic period. The evidence available suggests that the use of metal tracery was a relatively isolated phenomenon, not part of a continuous tradition as it was in the West. The use of stained and painted window-glass in the Zeyrek Camii and Kariye Camii in Istanbul during the sixth/twelfth century, or probably later, is likely to reflect the influx of western influence during the Latin occupation of the city. On the strength of the latter finds, Megaw detected Byzantine influence in the use of painted window-glass at both Ravenna and Khirbat al-Mafjar. Although the colours of the glass used in the Umayyad windows are similar, this is unlikely. The Byzantine finds belong to a different tradition than the Umayyad windows, are much later in date and, even in their own context, are anomalous.

On the basis of this survey one may conclude that the use of stucco grilles filled with coloured glass in the windows of Byzantine churches and monasteries was widespread in the period immediately preceding the Umayyad conquest. The techniques used in their construction appear to have been pioneered in the Levant, and are very similar to those used later in the manufacture of Umayyad qamarīyyat. The latter however of a complexity unparalleled in the bull's-eye transennae, which did not require the cutting of crown glass panes.

2.7 Egypt.
2.7.1 Claustra.

The use of pierced grilles to fill clerestories and windows is of considerable antiquity in Egypt. Among the materials used for such grilles were marble and other types of stone, metal and wood. The stone grilles could assume surprisingly complex forms; two grilles from the Palace of

169 Bouras, Portes et Fenêtres, p. 106. No mention of this somewhat remarkable fact is made in a recent publication which shows instead the use of plaster grilles pierced with simple shapes which are filled with glass. These appear to be modern; G.H. Fowrth & K. Weitzmann, The Monastery of St. Catherine at Mount Sinai, the Church and Fortress of Justinian (Ann Arbor, 1965), pl. XC.

170 Swift, Hagia Sophia, p. 71, n.149; Bouras, Portes et Fenêtres, p. 104.


173 Megaw, Notes, p.364

174 The suggestion has also been rejected by Grodecki; Vitrail Roman, p. 44.


Rames III at Medinet Habu (early twelfth century BC) use tracery in the form of cartouches, anks and winged figures (pl. 38). The tradition appears to have been particularly strong in Nubia, where fragments of tracery in the form of lotus flowers and animal-headed deities have been found. Similar grilles were found in Meroitic levels at Faras, and continued in use in the Christian period. The rectangular terracotta window-grilles in use in the "Bishop's Palace" at this site are particularly interesting. Their form and decoration suggests an origin in the ubiquitous Early Christian chancel screens and carved balustrades. Two of the published grilles made use of simple diagonal lattices, the remainder of geometric tracery based on interlocking circles. The form of the latter tracery is remarkably similar to that of some Umayyad claustra, and one of the Faras grilles in particular (pl. 39) closely resembles a marble claustrum in the Great Mosque of Damascus (pl. 40). The two incised lines on the strapwork of the Faras claustra appear to imitate marble, and similar lines also occur on Umayyad stucco claustra.

Unfortunately the precise date of the Nubian claustra is unknown, so it is not clear whether they influenced the design of the Umayyad grilles, or whether both share a common heritage in the decorative arts of the post-Hellenistic Near East. There is no reason to why the former should not be the case. Fragments of wooden window-grilles which make use of complex geometric tracery were found at Bawit. A stucco claustrum excavated at Fustat (ill. 11) belongs to the same genre as the Syrian claustra and appears to reflect the influence of Coptic window-grilles.

Similarly, many of the geometric patterns used in Umayyad architectural decoration appear to derive from Coptic sources. Franz has demonstrated the Coptic ancestry of a group of motifs used


181. U. Monneret de Villard, La Nubia Medievale. Volume IV (Cairo, 1957), pl. CXXXIV.

182. K. Michalowski, Nubische Kunst aus Faras (Vienna, 1970), Nos. 83-8. A single stucco grille was also found. Analogous terracotta window-grilles were found in another fourteenth-century Nubian church, P.L. Shinnie & H.N. Chittick, Ghazali - a monastery in the Northern Sudan (Khartoum, 1961), p. 28, pl. XIb & b.

183. Michalowski, Nubische Kunst, No. 86.

184. See below, p. 57.


186. Scanlon, Fustat Expedition, p. 8. Vine ornament similar to that painted on the frame of the Fustat grille was carved on the frames of windows at Saqqara (pl. 48); J.E. Quibell, Excavations at Saqqara 1908-9, 1909-10 (Cairo, 1912), pl. XLIV.
in the stucco ornament of Khirbat al-Mafjar.\textsuperscript{188} Similar patterns, consisting of squares and swastikas with interstitial rosettes, were used on two of the stucco claustra from Khirbat al-Mafjar.\textsuperscript{189} Analogous motifs were used on Coptic pillars,\textsuperscript{190} frescos,\textsuperscript{191} wooden screens,\textsuperscript{192} and window-frames.\textsuperscript{193} Ultimately such patterns derive from the koine of Late Antique art, and their application to a variety of media is typical of such art.\textsuperscript{194}

2.7.2 Glass windows.

The use of glass windows in Egyptian public buildings, particularly baths, was known from the Roman period onwards.\textsuperscript{195} Excavations at the Coptic monastery of Apa Jeremias produced fragments of plaster window-grilles \textsuperscript{4} cm thick pierced with circular apertures.\textsuperscript{196} Panes of colourless, blue and purple crown glass with folded rims were used to fill these apertures. The diameters of the openings is not given but, using the analogy of the Palestinian bull's-eye windows, one may suggest that the circular panes were used whole. Quibell also mentions

"...several fragments of a lattice window of plaster with irregular bits of coloured glass stuck on outside; the technique is exactly that of the mosque windows of later centuries and was evidently learnt by the Arabs from the Copts."\textsuperscript{197}

\textsuperscript{187} For more general Coptic influences on Umayyad architecture see K.A.C. Creswell, Coptic influences on Early Muslim Architecture, Bulletin de la Société d'Archeologie Copte (V, 1939), pp. 29-42.

\textsuperscript{188} H.G. Franz, Wesenszuge Omayyadischer Schmuckkunst, Beiträge zu Kunstgeschichte Asiens in Memoriam Ernst Diez [ed. H. Aslanapa] (Istanbul, 1963), pp. 78-86. It should be noted however that a similar pattern appears on a stucco panel from Ctesiphon; K. Erdmann, Die Kunst Irans zur Zeit der Sassaniden (Mainz, 1969), p. 79, fig. 47. See also Anglade & Rutschowskya, Bois égyptiens, pp. 4-5.

\textsuperscript{189} Hamilton, Khirbat al-Mafjar, pl. CXIX; H.G. Franz, Palast, Moschee und Wüstenschloss (Graz, 1984), fig. 44.

\textsuperscript{190} A. Badawy, Coptic Art and Archaeology (Massachusetts, 1978), p. 152, fig. 3.70.

\textsuperscript{191} J. Clédat, Le Monastère et la Nécropole de Baouit (Cairo, 1904), p. 37, pl. LXIV.

\textsuperscript{192} Quibell, Saqqara 1908-10, pl. XXXIX 7.

\textsuperscript{193} Franz, Transennae, pl. 27, 4.

\textsuperscript{194} The appearance of similar patterns in stucco decoration from Fustat has been attributed to Hellenistic influence mediated via Coptic art; A. Bahgat & A. Gabriel, Les Fouilles d'Al Fustat (Paris, 1921), pp. 108-16, fig. 58.

\textsuperscript{195} G. Husson, Carreaux des fenêtres dans les papyrus grecs, Chronique d’Egypte (XLVII, 1972), pp. 278-82; D. Harden, Roman Glass from Karanis (Ann Arbor, 1936), p. 303.

\textsuperscript{196} J.E. Quibell, Excavations at Saqqara 1906-7 (Cairo, 1908), p. 68; Excavations at Saqqara 1908-10, p. 43.

\textsuperscript{197} J.E. Quibell, Excavations at Saqqara 1907-8 (Cairo, 1909), p. 5. The use of glass "stuck on the outside" is noteworthy, since the latter technique was used in the manufacture of qamar Riyayat only in the Mamluk period. Sometimes the upper layer of tracery comes away, leaving glass exposed on one side of the remaining layer of tracery. This may have been the case at Saqqara.
It is not clear whether the rhombic pieces used to fill the lattice were deliberately cut from panes of crown or, as seems more likely, flat glass. The description of their irregular appearance suggests that they may even have been reused pieces of broken window-glass. Stucco window-grilles in which circular panes of olive-green glass 10-15 cm in diameter were set appeared earlier in a basilica near Ismailia. Crown glass panes were used in the windows of Nubian churches from the first/seventh century onwards.

Excavations at Early Christian sites in the desert near Esna have produced further evidence for the use of glass bull's-eyes in Coptic architecture. The crown glass panes had folded rims and reached a maximum diameter of 28 cms. At Adafina two glass plates with a raised central foot had been reused in windows and were recovered along with numerous fragments of colourless (with a greenish or bluish hue), pale green and deep blue window-glass. Traces of plaster on the edges of the panes showed that they had been set in plaster. Many of the panes were used in the circular windows of an oratory. The window-openings were splayed towards their interior in order to maximise the amount of light entering through them. The area around the window-openings was decorated on the interior and exterior by painted vegetal ornament which emphasised the shape of the opening. On the exterior of some of the windows diagonal stems sprouted from the four corners of the rectangular frame. Similar decoration is found on the corners of a series of monumental limestone window-grilles from Upper Egypt (pl. 41). These in turn are closely related to some of the frescos from Bawit (pl. 42), which suggests that the design of Coptic window tracery was closely related to other forms of decoration.

Among the animals depicted in the monumental window-grilles in the Coptic Museum is a deer or gazelle (pl. 41). A similar animal appears on a circular pane of glass of unknown provenance, now in the Louvre. Shades of black, pink, yellow and green paint are used, but it is not known


203 H.G. Franz, Palast, Moschee und Wustenschloss (Graz, 1984), pl. XVII 34.

204 Clédat, Monastère, pl. XXVI.

205 Franz, Palast, pl. XVII, 34.

whether this was fired on the glass or applied cold. On the basis of the similarities between the painting and the Bawit frescos, a Coptic origin has been suggested, and the piece has been dated variously between the third and second/eighth centuries. This piece has frequently been discussed in connection with the painted crown glass pane from Ravenna. However the use of polychrome painted decoration suggests that the process used was more complex than that used in the decoration of the Ravenna window. It has been suggested that the glass does not belong to a window but is the lid of a pyxis.

Numerous examples of stucco tracery filled with circular panes of glass are to be found in the monasteries of the Wadi Natrun. Many of these grilles use a border of small circular openings similar to those used in qamariyyat from the Umayyad period onwards. Larger round openings, often cusped, contain panes of coloured glass arranged in simple patterns (fig. 26-7). Most of these grilles have a terminus post quem in the second/eighth century, when many of the present monasteries were built, and most are much later. The use of trefoil and quatrefoil ornament on some of the grilles is vaguely reminiscent of the filling ornament used in the corners of some of the marble claustra from Damascus (pl. 40), and certain of the windows in Deir al-Suryani recall the stone tracery used in pre-Islamic Syria. Despite their apparently late date, it seems therefore that the window-grilles in these monasteries derive from an earlier tradition.

The use of such window-grilles in Coptic churches and monasteries was undoubtedly influential in the manufacture of Umayyad window-grilles. The possibility that pieces of glass may have been cut from glass panes for use in Coptic grilles is particularly interesting. The appearance of patterns apparently from Coptic sources in Umayyad stucco claustra suggests that the Egyptian window-grilles may also have been a source of inspiration to those responsible for the creation of the earliest qamariyyat. Quibell's conclusion regarding the source of Egyptian qamariyyat, although oversimplistic, is probably accurate.

207 J. Philippe, Le monde Byzantin dans l'histoire de la Verrerie (Bologna, 1970), p. 92. This author mentions an analogous painted glass disc in the Museum of Toledo, USA, the date of which is also undetermined.

208 Above, pp. 37-8.


211 The arrangement of two touching circular openings (Evelyn-White, Wadi 'N Natrun, pl. LXXXVIII) is similar to that used in stone window-tracery in a pre-Islamic building at Shakka in the Hauran; H.C. Butler, Publications of an American Archaeological Expedition to Syria in 1899-1900, Volume III: Architecture and Other Arts (New York, 1903), p. 373.
2.8 Syria.

2.8.1 Lunette-fillings.

Windows were frequently used above doors in Roman and Late Antique architecture (pl. 20). Such windows served to admit air and light even when the door was closed, and were usually filled with rectangular or arched grilles of stone or metal.\(^{212}\) From the mid-fifth century the relieving arches above doors and rectangular windows in Syrian churches were often left open.\(^{213}\) Both windows and lunettes were usually framed with ornamental mouldings which sometimes formed a continuous ornament joining adjacent windows (pl. 43),\(^{214}\) a practice continued in some Umayyad buildings.\(^{215}\) The use of open lunettes above doorways in Umayyad architecture also follows pre-Islamic practice.\(^{216}\)

The precise nature of the grilles used to fill the Syrian lunettes is not certain. Where the lunettes are solid, carved decoration including crosses, floral and geometric decoration were used in the churches of Syria and elsewhere (pl. 44).\(^{217}\) The piercing of the interstices between the elements of the simple patterns found on Syrian lunettes would produce open grilles. The remains of stone tracery was found in lunettes above the doors in a church at Qasr al-Mudakhin.\(^{218}\) Lunette-fillings composed of stucco were used in certain Early Christian basilicas,\(^{219}\) and some of the Byzantine bull's-eye transennae were used to fill lunettes.\(^{220}\) It is from sources such as these that the geometric claustra used in Umayyad lunettes derive.\(^{221}\)

\(^{212}\) Herbig, Fensterstudien, p. 288, n.3; Demangel, Fenestrarum Imagines, p. 152, n.3; Franz, Stuckfenster. Lattice-filled lunettes are visible above doors in the apse mosaics of S. Pudenziana, Rome (pl. 21).

\(^{213}\) H.C. Butler, Early Churches in Syria (Amsterdam, 1969, reprint of 1929 edition), p. 48, figs. 86, 101-2, 125, 128, 135-6, 152, 156.

\(^{214}\) Ibid., fig. 190.

\(^{215}\) At 'Anjar a continuous wreathed band joined the windows of the facade; M. Chelab, The Umayyad Palace at 'Anjar, Ars Orientalis (V, 1963), p.23, figs. 12-6. Many of the frames around the stucco claustra from Qasr al-Hayr and Khirbat al-Mafjar terminate in "wings" at right angles to the frame itself. The same feature is found in many of the stone frames around the windows of pre-Islamic churches.

\(^{216}\) Franz, Stuckfenster, pp. 467-8.


\(^{218}\) Butler, Early Churches, p. 244, ill. 280.

\(^{219}\) Pelekanides, Philippou, pp. 141-2, fig. 21. These were apparently left open and were not filled with glass. For later example see Bouras, Portes et Fenêtres, pp. 106-9; Franz, Stuckfenster, pp. 474-82.

\(^{220}\) Saller, Memorial of Moses, fig. 13.

\(^{221}\) Franz, Stuckfenster, Transennae.
2.8.2 Stone window-tracery.

In addition to the *claustra* used to fill lunette-openings, pierced plaques of stone, usually basalt, were used in the windows of the Hauran and elsewhere in Syria. Such plaques were usually square, but were decorated with circular medallions containing geometric patterns, parts of which were pierced (pls. 45-6). Among the most common motifs are whirling discs and six-petalled rosettes (pls. 8-9), motifs which also occur on pre-Islamic door- and window-lintels. Similar grilles were used in the Coptic monastery at Saqqara (pl. 48), and in Roman sanctuaries in north-western Syria.

Both the overall shape and the geometric patterns of such stone window-grilles are closely related to the stone chancel screens used in Syrian churches (pl. 47). Indeed the former often appear as perforated versions of the latter (compare plates 46, 47 and 49). The open *transennae* used in Early Christian and Byzantine churches in Syria and elsewhere frequently served a variety of functions, being used as chancel screens, balustrades or window-grilles. The motifs used on such chancel screens were transposed in stucco on the facade of Qasr al-Hayr al-Gharbi, and rectangular *claustra* with geometric tracery were used in the same palace. The balustrades from Khirbat al-Mafjar represent a reworking in stucco of the carved stone chancel screens and *transennae* used in Syrian churches.

Pre-Islamic window-grilles from the Hauran were later reused in the windows of mosques and private houses in the Hauran (pl. 50) and Damascus. On one of the grilles reused in a medieval mausoleum at Damascus, is decorated with an arch supported on slender columns (fig. 6). The same formula was used in the design of the marble *claustra* in the Great Mosque of the same city (pl.

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224 D. Schlumberger, *La Palmyre du Nord-Ouest* (Paris, 1951), pp. 29, 52-3, 99, pls. XLIV 3 & 5, XLVI 1. Some of these grilles have a single circular opening at each of their corners, a feature also found on the grilles from the Hauran.

225 Compare Butler, *Early Churches*, p. 243; fig. 277 with Franz, Fensterrose, fig. 10. A variant of this motif appeared on a pierced *transenna* from Jerash, *Kracing, Jerash*, pl. 1b.

226 Franz, *Transennae*, p. 68. An imbricated *transenna* was reused in one of the windows of the Coptic monastery of Deir al-Suryani; Evelyn-White, *Monasteries*, pls. LVIIb, LVIIIb; Badawy, *Coptic Art*, fig. 2.21; Venturi, *Storia dell’Arte*, p. 536.

227 Schlumberger, *Qasr el-Heir*, pl. 61.

228 Ibid., pls. 69-74. Rectangular grilles are also depicted in the mosaics of the Great Mosque in Damascus; Flood, *Tree of Life*, p. 212, fig. 4.


which suggests that the Hauran plaques may have influenced the form of the Umayyad claustra. Similar stone grilles were occasionally used elsewhere in the medieval Islamic world.

The anomalous monumental stone window-tracery from Khirbat al-Mafjar (pl. 51) may derive from similar pre-Islamic modes of fenestration. The tracery apparently filled a window immediately below a pediment on the western side of the palace. This is reminiscent of the circular windows which appear directly below the gables on the facades of some Syrian churches. In certain cases these were filled with monumental tracery in the form of a cross (pl. 52). It may be that the Umayyad window continues this practice, using a knotted geometric design probably derived from floor mosaics (pl. 53) in place of the highly-charged Christian motif. Others have seen in the Umayyad window-tracery a star, a symbol equally charged with religious and political meaning. The experiment with such monumental tracery at Khirbat al-Mafjar is without issue. Whereas the monumental windows of the Syrian churches served, in context, a practical, aesthetic and symbolic function, transposed to the facade of an Islamic palace they evidently became something of an iconographic white elephant.

While the Syrian chancel screens and window-grilles were the source of inspiration for many of the geometric patterns used in Umayyad claustra, the ultimate sources of such patterns are likely to have been wider. Creswell has shown that the geometric designs used in some of the marble claustra from Damascus and Khirbat al-Mafjar are firmly rooted in the language of Late Antique ornament. Similarly, Brisch has shown the diverse ancestry of the geometric patterns used in the claustra of the Great Mosque of Cordoba. In the decorative arts of the Late Antique and Early Islamic world the same patterns served for mosaics, wall-painting, transeuntes, marble reliefs and smaller objects. The leap from window-tracery to stucco, mosaic, and worked leather is not peculiar to the Late Antique world. In Chaucer's day the phenomenon was sufficiently familiar to contemporaries to render intelligible the poet's description of the Miller as being, "...withe Poules wyndow carven on his

231 Engaged colonettes also flank some of the stucco claustra from Khirbat al-Mafjar; Hamilton, Khirbat al-Mafjar, p. I.III 1.
232 See below, pp. 78-9.
233 Hamilton, Khirbat al-Mafjar, p. 38, fig. 18, pl. XII 5.
234 Butler, Early Churches, p. 244, fig. 281.
236 Ibid., pp. 12-3; V. Strika, La «cattedra» di S. Pietro a Venezia, note sulla simbologia astrale nell'arte Islamica, AION, Supplement No. XV (Naples, 1978), pp. 45-6. The form and location also recalls the large pierced stucco rosettes used on the battlements of Cesipon, SPA, fig. 145.
238 Brisch, Fenstergitter.
239 A. Gonosova, The role of ornament in Late Antique interiors with special reference to intermedia borrowing of patterns, unpublished D.Phil thesis (Harvard, 1981), especially p. 183, figs. 146-8; Flood, Tree of Life.
However, most of the claustra and lunette-fillings used in pre-Islamic architecture appear to have employed simple designs consisting of diagonal lattices, imbrications or designs based on the intersection of four circles along the medians of their radii. The continued "promiscuous transfer of motifs" in Umayyad art, and the adoption of carved stucco as a major decorative medium, enabled claustra of increasingly complex forms to be produced.

2.8.3 Glass windows.

It should be noted that although stucco and glass window-grilles were common in the pre-Islamic churches of Palestine, the quantities of published window-glass recorded from Syrian churches is negligible. Surface finds of flat window-glass from certain Syrian sites suggest that at least some of the stone window-tracery may have been filled with glass. The stone tracery in the windows of the sixth-century church at Deir Sayta shows grooves for the insertion of glass. The same grooves were used in the marble lattices of Byzantine churches, and stone lattices of this type were found in the windows of a pre-Islamic house at Kafr Ambil.

One may conclude that the chief Syrian contribution to the development of Umayyad fenestration lay in the location of windows, the ornament around them, and the use of certain patterns which were to appear later in Umayyad claustra. The dearth of published finds of window-glass from Syria suggests that the use of glass windows was not widespread in the pre-Islamic architecture of the region. However, the simple perforated geometric patterns used on the basalt window-plaques from the Hauran are likely to have been similar to those used in the first qamariyyat, which made use of less elaborate designs than Umayyad claustra. The occurrence of circular openings on Byzantine transennae, Coptic stone and stucco window-grilles and Syrian stone window-plaques is particularly noteworthy. The repetition of this form indicates that circular window-openings were most commonly associated with decoration in antiquity. It has been suggested that the origins of the European rose window...
window are to be sought in such Syrian grilles.248

2.5 Iran.

Writing over seventy years ago, Strzygowski summarised the evidence for the use of stained glass in Early Christian churches as follows:

"How far the effect of light was heightened by filtration through stained window-glass, we can only surmise in a tentative way from the evidence of Islam and the West. In both of these provinces and especially in the North at a later period, the light on entering the building was transformed into colour by passing through richly coloured glass. The solid framework in which it was set can still be observed in West-Gothic churches in Spain; it was derived from the similar stucco settings sporadically found in Christian churches in the Balkans and, in wider distribution, in the earlier mosques of the Mesopotamian type; it would therefore appear to have originated in Persia."249

A similar conclusion was reached by Jean Lafond;

"It appears therefore that 'Arab' stained glass windows existed since the eighth century. Born probably in Persia, they spread throughout the Byzantine and Muslim world."250

While there is no doubting the Iranian contribution to Umayyad architectural decoration, the evidence does not bear out such conclusions. The sole example of a pre-Islamic stucco claustrum from Iran known to me filled a rectangular window at Qasr-i Abu Nasr.251 Imbricated patterns similar to that of which the tracery of the grille is composed were used extensively in Late Antique and Byzantine grilles.252 The design of the Iranian grille is crudely executed, and it seems likely that it was influenced by western prototypes. Despite the Iranian element in the stucco decoration of the Umayyad palaces,253 most of the patterns used in Umayyad window-grilles appear to derive from Late Antique or Byzantine sources.254 The dearth of comparable material from Iran suggests that this may

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250 After J. Lafond, response to a communication by E. Lambert, Vitraux, p. 54.


252 See above, p. 30.


254 Although Franz (Stuckfenster, p. 465) notes that the peculiar mix of tectonic forms and decorative motifs in the more elaborate window-grilles from Qasr al-Hayr West is essentially Sasanian.

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be due to the lack of an Iranian tradition on which the Umayyad craftsmen could draw.

Similarly, the evidence for the use of glass in Sasanian windows is negligible. The remains of crown glass panes were found in a Sasanian building at Takht-i Suleiman.255 The glass was colourless with a greenish hue, and measured about 24 cm in diameter. A fragment of another pane of colourless crown glass was found at Ctesiphon.256 Two further fragments of glass from the same site may also have been used in windows.257 These came from convex square panes with a bevelled outer edge; one measured 4.5 x 3 x 0.1-0.2 cm, the other 2.8 x 2.9 x 0.5 cm. It is not certain that these were used to fill a window. Their form recalls the pieces of glass inlay used in Byzantine architecture,258 or the concave glasses used later at Samarra.259

It has been suggested that those responsible for the manufacture of Umayyad claustra and qamariyyat may have drawn their inspiration from as far afield as Central Asia.260 Certainly some of the earliest finds of wooden mashrabiyyat come from Central Asia,261 although the relationship between this and the mashrabiyyat used in medieval Islamic architecture remains to be determined. Although it is true that stucco carved with geometric ornament was used extensively in pre-Islamic and Early Islamic buildings at Varaksha,262 Afrasiyab263 and elsewhere,264 not a single qamariyya fragment from these sites has been published. Thus, although the forms of pre-Islamic Central Asian architectural decoration may be related genetically to those of Umayyad Syria,265 one must conclude


256 Ibid., p. 219, No. 314, fig. 142.

257 Ibid., pp. 219-20, Nos. 315-6, figs. 143-4. The finds book from the excavations records the discovery of a further piece of flat window-glass, No. 317 in Dr. Kröger's catalogue.

258 Harrison, Excavations at Sarachane, pp. 172-4.

259 Below, p. 66.


261 A. von le Coq, Bilderdas zur Kunst und Kulturgeschichte Mittel-Asiens (Graz, 1977), p. 33, figs. 250-1. Similar wooden grilles were developed in Egypt before the Islamic period, probably independently, Winlock & Crum, Monastery, p. 57; Grilles depicted on the facade of a third/ninth or fourth/tenth-century lustre vessel have been indentified as early representations of mashrabiyyat; F. Gabrieli & V. Scerrato, Gli Arabi in Italia (Milan, 1979), p. 538.

262 V.A. Shishkin, Varaksha (Moscow, 1963)


264 Similar material dating from the Buyid period or earlier was discovered at Hulbuck in Tajikistan but is not known to me.

265 A carved balustrade panel from Khirbat al-Mafjar with a central medallion containing on which a pentagram appears (Hamilton, Khirbat al-Mafjar, pl. IX) is very similar to a similar panel from Afrasiyab on which a hexagonal star medallion occurs; Rempel, Rempel, fig. 16. The resemblance can hardly be taken to imply the operation of direct influence; instead both should be seen as parallel manifestations of a type of geometric ornament which is rooted in the traditions of Late Antique and Iranian art.

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that the origins of qamariyyat are to be sought elsewhere.

The only published finds of qamariyyat from Iran before the fourth/tenth century come from Chal Tarkhan-Eshqabad near Rayy (pl. 54).\(^{266}\) Two fragments of such grilles were found in a small palace at the site. From the published photograph, it seems that they consisted of pieces of coloured glass sandwiched between two layers of stucco. The stucco was pierced with circular and rectangular openings and was painted black on one side. The glass within the openings was painted red, although it is not clear whether this paint covered the entire surface of the glass or, as seems more likely, only part of it.

The form of the Iranian qamariyyat, the use of painting on their surface and the decoration of the glass all find parallels in the qamariyyat from Umayyad sites in Syria, particularly Khirbat al-Mafjar and Qasr al-Hallabat. The building in which the Iranian qamariyyat fragments were found has been dated to the Umayyad period. From the published photograph, the latter appear to be cruder than their Syrian counterparts.\(^{267}\) It seems likely that the qamariyyat used extensively in Syrian architecture should be considered the prototypes of the grilles used at Chal Tarkhan-Eshqabad. On the basis of the available evidence one must conclude that it is not only unlikely that Umayyad qamariyyat derive from Sasanian sources, but that window-grilles of stucco and glass were introduced to the region only in the Umayyad period.

2.10 Conclusion.

2.10.1 Technical sources.

It should be clear from this survey that, although some traditions may have been more influential than others, it is not possible to point to a single source from which Umayyad qamariyyat derive. While the techniques and materials used in the manufacture of qamariyyat were used in the fenestration of pre-Islamic buildings, both the qamariyyat and the stucco claustra which appeared with them are of a complexity previously unknown. One may conclude that the first qamariyyat arose from a mingling of the techniques, motifs and materials used in the production of window-grilles in the pre-Islamic Near East. The three artistic traditions which exerted most influence on the early qamariyyat are those of Syria, Byzantium and Egypt. Although it has frequently been asserted that qamariyyat were invented in the Iranian world, the archaeological evidence suggests that one can discount this source. Equally, apart from some anomalous finds, the crown glass with which the Umayyad grilles were filled was unknown in Europe before the eighth/fourteenth century. Although some of the window-grilles used in Early Christian basilicas were carved from gypsum, these are isolated instances and not part of a continuous tradition on which Umayyad artisans might have drawn. The adoption of stucco for architectural decoration on a wide scale appears to have been

\(^{266}\) D. Thomson, *Stucco from Chal Tarkhan-Eshqabad near Rayy* (London, 1976), p. 86, Nos. C.446-7, pl. XVI, fig. 7.

\(^{267}\) Although whether the face or reverse is shown is not clear. In the Syrian qamariyyat the reverse is usually left rough and uneven.
inspired not by the Latin West, but by Sasanian Iran.

The glass-filled marble lattices which filled the windows of Byzantine churches bear little resemblance to Umayyad qamarīyyat. However the use of small pieces of coloured glass in lead tracery suggests a source for the techniques required to cut the glass quarries used in qamarīyyat. Although the glass used in lead tracery was flat, panes of coloured crown glass were widely used in the windows of Palestinian churches and monasteries in the period immediately before the Islamic conquest. Indeed crown glass appears to have been invented in the very area where the first Muslim dynasty was centred. Whole panes of this glass were set in pierced stucco panels which were used to fill the windows of pre-Islamic churches and monasteries. Similar window-fillings were used in Coptic architecture, and these may also have influenced the production of early qamarīyyat.

The diameters of the crown glass quarries used in the manufacture of qamarīyyat are analogous to those used in pre-Islamic window-grilles. The average diameter of both Umayyad and pre-Islamic crown glass panes is 24-25 cm, although some of the panes used at Qar al-Ḥayr West were over 38 cm in diameter. The Umayyad panes usually had their rims folded rather than thickened. The colours of the glass used were also similar; colourless, blue, green, yellow, brown and purple. While blue and green are the most common colours of Byzantine crown glass, purple glass is in the majority among the window-glass found in the Umayyad a palaces. This is possibly, though not necessarily, related to the regal associations of the colour in pre-Islamic art.

Although the form of the tracery was more complex, the techniques used in the manufacture of Umayyad qamarīyyat were precisely those which had been used in the production of the bull's-eye transennae. The use of a thick lower layer of plaster (c. 2 cm) with a thinner layer (1.25-1.5 cm) to hold the glass on top is comparable to the Umayyad qamarīyyat. Moreover the use of moulds to impress patterns on the upper source of Byzantine stucco grilles offers a possible source of inspiration for the relief patterning on the surface of some Umayyad qamarīyyat. Similarly, painted decoration occasionally appeared on crown glass panes and may have inspired the Umayyad painted window-glass.

One may conclude that those responsible for the creation of the first qamarīyyat combined many of the materials and techniques previously used in the manufacture of decorative window-grilles. Several steps are likely to have been involved in this process. The earliest Umayyad clastra were of carved marble and employed patterns derived from the koine of Late Antique art. The adoption of stucco as a major decorative medium, probably under Iranian influence, lead to the imitation of such clastra in stucco. Simplified versions of the patterns used in these clastra were then used

268 Bouras, Portes et Fenêtres, p. 204. In certain cases the surface of such grilles was carved; ibid., n. 761.

269 Above, pp. 37-8.

270 Debovoise, Decorative stucco, p. 45; Franz, Stuckfenster, p. 466.

271 Hamilton, Carved stucco, p. 52. Some of the stucco clastra from the Umayyad palaces reproduce the forms of pre-Islamic stone
for qamariyyat. Using materials and techniques employed in the manufacture of earlier, and less complex, glass windows, these were filled with coloured glass. It is unlikely that there were long intervals between these steps; the ubiquitous use of qamariyyat by the early second/eighth century suggests that they appeared suddenly.

Although claustra and transennae on which geometric patterns appeared were widely used in pre-Islamic architecture, pre-Islamic window-grilles of coloured glass were generally conservative in form. By varying the forms of the tracery and the shapes of the apertures a window-grille was produced which was capable of a stylistic evolution rendered impossible by the use of whole discs of glass. Even where circular apertures did appear on Umayyad qamariyyat, these were too small in diameter to be filled with whole panes of glass, and smaller pieces were cut to fill them. While the qamariyyat are more complex than any type of coloured glass window previously known, it should be stressed that the apertures assumed the form of simple shapes, such as circles, squares, triangles and rhomboids, which were often juxtaposed. It seems likely that the designs used were similar to the simple geometric patterns which appear on pre-Islamic stone window-grilles from Syria. The glass star and narrow angled pieces of glass found at Khirbat al-Mafjar (ill. 6) are exceptions, and appear to have come from tracery of more complex form, similar perhaps to that used in the stucco claustra from the site.

2.10.2 Aesthetic influences.

Aesthetically such grilles are closely related to other forms of architectural decoration of which polychromy and luminosity are the dominant characteristics. The most obvious medium is glass mosaic, the tesserae of which may be compared to the glass pieces used in window-grilles. Byzantine marble lattices filled with coloured glass function as mosaics of light, radiating an attenuated coloured light even as the glass decoration on the walls of churches reflected it. Semi-precious stones comparable to the radiant "jewels" used in windows were often included in such mosaics.²⁷² The geometric pieces of cut coloured glass and translucent semi-precious stones used as inlay in Byzantine architecture (pl. 149) are very similar to the glass quarries used in qamariyyat.²⁷³

The origins of both the bull's-eye transennae and the qamariyya may lie therefore in opus inclusorium.²⁷⁴ The use of plaster matrices studded with coloured glass discs easily admits of such a pedigree. The golden plaques depicted in Byzantine mosaics are frequently seen to be encrusted with vertical rows of coloured jewels (ill. 134), just as the bull's-eye transennae held rows of glass discs which glowed with colour. What appear to be panes of crown glass similar to those used in the

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²⁷³ Harrison, Excavations at Sarachane, pp. 172-4.
²⁷⁴ Lafond, Découvertes, p. 236.
windows of San Vitale are among the decoration depicted in the mosaics covering the soffits of the arches in the apse of the same church (pl. 34). The use of enamelled decoration is also relevant, although more to the figurative leaded windows of medieval Europe than the decorative window-fillings of the Near East. In view of these many similarities, it seems likely that the production of both the bull’s-eye window and the qamariyya was governed by aesthetic impulses which inspired other forms of decoration using coloured vitreous or translucent materials.

Almost twenty years ago Oleg Grabar raised the question of whether forms of Early Islamic architectural decoration such as qamariyyat were an Umayyad invention, an eastern import, or evidence for a lost architectural tradition. It is now possible to answer that the qamariyyat used in Umayyad mosques and palaces are a genuine innovation, combining materials, techniques and decorative forms not previously found in combination. One might add that, as with other forms of Umayyad architectural decoration, the whole is more than the sum of its parts.

2.10.3 Qamariyyat and stained glass.

It has often been suggested that the antecedents, or even the origins, of medieval stained glass windows should be sought in the Near East. Apart from the pane from Ravenna, the painted window-glass used in the desert palaces is earlier than any found in Europe. In the earliest European painted window-glass, such as that from Sery-les-Mézières, painting is confined to limited areas of the window. While the Umayyad windows may have been influential in the development of stained glass, the painting was usually fired on the surface of stained glass, whereas in Umayyad Syria it was applied cold.

It is true that coloured glass windows of a complexity unparalleled at this date in Europe were used in Umayyad architecture on a scale apparently unknown in the West. The quarrying of glass from larger panes and the use of stucco, with its inherent flexibility, facilitated this development. However, the use of malleable and ductile lead came in European stained glass meant that the lines of tracery rarely had to conform to those of the stained glass design. Exceptions to the are many grisaille windows, and some stained glass of the seventh/thirteenth century; E. Frodl-Kraft, Le vitrail médiéval, technique et esthétique, Cahiers de Civilisation Médiévale (X, 1967), p. 7, pl. VII.

275 Similar forms of ornament were used on glass vessels; above, p. 39.

276 Grabar, Formation, p. 151.


278 Above, p. 37.

279 For the earliest references to European painted window-glass see Westlake, History of Design, p. 5.

280 For the techniques of stained glass see Lafond, Vitrail, Chapter 2.
wider than its metal equivalent and soon became as important an element in the design of the grille as the glass which filled it. It is perhaps for this reason that while, in stained glass, painting came to play a role of equal or greater importance to that of lead tracery, its use on Islamic window-glass subsequently declined.

The use of painting on Islamic window-glass is superfluous, in the sense that it was barely visible. There is also a certain ambiguity in use of painted vegetal ornament on the glass used in geometric grids, although this may be compared to the use of floral ornament in the interstices of many Umayyad stucco claustra (ill. 17). The presence of parallel lines painted on some of the window-glass from Khirbat al-Mafjar (ill. 6, fig. 8)\(^{282}\) implies a reversal of the positive and negative aspects of qamariyyat, a characteristic of tracery being transferred to the glass which fills it. While such incised or painted lines on stucco tracery obviously imitates marble strapwork,\(^{283}\) they never appear on stucco tracery which held glass, and their appearance on window-glass makes little sense. This may be among the factors which may explain why painting is rarely found on Islamic window-glass after the third/ninth century.

In view of the technical and aesthetic differences, no firm conclusion can be drawn as to the role of Early Islamic qamariyyat in the emergence of medieval stained glass. The early appearance of qamariyyat, the scale on which they were used and their relative complexity suggests that they may well have inspired Western artisans. However, window-grilles of stucco and glass were used in Near Eastern churches before the Islamic conquest. Rather than being directly derived from each other, it seems more likely that qamariyyat, bull’s-eye transennae and stained glass share a common heritage in the technical processes and aesthetic traditions of Late Antique art.\(^{284}\)

The innovations of Umayyad qamariyyat lie in the dexterous use of novel materials to produce complex windows of coloured glass in which technical and aesthetic influences from various realms of the caliphate are united. In view of the diverse ethnic origins of those responsible for the decoration of Umayyad buildings the syncretic blend of Late Antique, Syrian, Coptic and Byzantine traditions in the earliest qamariyyat is hardly surprising. It is a remarkable fact that many of the syncretic features of Umayyad art in general are present in miniature in this lost dimension of architectural decoration. Born of a mixture of continuity and innovation, the qamariyya was to enjoy a rapid evolution in post-Umayyad architecture.

\(^{282}\) Brosch, Glass window fragments, figs. 3, 5.

\(^{283}\) These lines are incised on the tracery of all Umayyad marble and stucco claustra (pls. 12, 17, 40), on the strapwork of the terracotta grilles from Faras (pl. 39), and are painted on the fragments of claustra from Fustat (ill. 11). The ultimate source of this feature is the marble strapwork used in basket capitals and other forms of Byzantine marble carving. Some of the stucco arches and lunette-fillings from Qasr al-Hayr al-Gharbi\(^{2}\) were composed of strapwork which clearly imitates these Byzantine prototypes; Selimberger, Les Fouilles, p. 351, fig. 24; Abd al-Haq, Ḥāla taslyd, p. 19, fig. 2.

\(^{284}\) See the remarks of Grodecki on this subject; Vitrail Roman, p. 39.
CHAPTER THREE
QAMARIYYA IN THE EASTERN ISLAMIC WORLD (132-648/750-1250).

3.1 Introduction.
After the creation of qamariyyat in Umayyad Syria, their use quickly spread to other parts of the Islamic world. The finds from Chal-Tarkhan Eshqabad suggest that they were already being manufactured in Iran during the Umayyad period. Until recently few finds of qamariyyat were recorded before the Ayyubid period, rendering the appearance of fine arabesque tracery in the late sixth/twelfth century somewhat mysterious. The excavations at Raqqa over the past two decades have, however, produced evidence for the use of qamariyyat on such a scale, and of such a quality, that it is possible for the first time to trace the evolution of this fragile art between the Umayyad and Ayyubid periods.

3.2. 'Abbasids.
3.2.1 Palaces B and C, Raqqa.
'Abd al-Haqq mentioned finds of stucco window-grilles filled with white, red, and yellow glass from the excavations conducted between 1370/1950 and 1378/1958 in these palaces. No further details of these qamariyyat are available, but a fragment from Palace B at Raqqa is preserved in the Damascus National Museum (ill. 12). This consists of part of a stucco plaque, ca. 10 cm in length, pierced with regular rows of small circular apertures, 2.1 cm in diameter. The apertures were filled with pieces of yellow and green glass, one of which remains. The edge of the qamariyya fragment has a protruding lip, evidently used to fix the grille in place.

3.2.2 East and West Palaces, Raqqa.
The recent excavations of the Deutsches Archäologisches Institut at Raqqa have produced substantial amounts of window-glass and qamariyyat fragments from several palaces, the majority coming from the two known as the East and West Palaces which were constructed during the city's brief role as imperial capital between 180/796 and 192/808.

All the qamariyyat found in these palaces were manufactured by the method described in Chapter II, section 2.3. The surface of the qamariyyat was painted black, and was often decorated with lines

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1 Above, p. 53.
3 This is unpublished, but I am grateful to Mr. Naib Salibi for supplying the details cited above from his excavation notes. The qamariyyat from Raqqa are mentioned by Salam-Liebich in Grabar (ed.), City in the Desert, p. 145, n.70.
4 These are unpublished, but are currently being prepared for publication in the forthcoming Raqqa volumes.
executed in relief. Both forms of surface decoration are found on the earlier qamariyyat fragments from Qaṣr al-Hayr al-Sharqī (pls. 13-4) and Qaṣr al-Ḥallabat (pls. 18-9, ill. 8). In some of the sections of the outer edges the traces of reeds were visible. These had been laid parallel to the outer edge, presumably to strengthen it and to help the two layers bond. Certain of the outer edges bore the remains of a thick projecting lip which had evidently been used to mount the grilles. A thick layer of mortar surrounded some of the outer edges (figs. 14-15), indicating that mortar had also been used to hold the grilles in place.

The glass used to fill the grilles is purple, blue, yellow, light and dark green and colourless (ills. 13-8). The majority of the window-glass is yellow or colourless, with green being the least common colour. Most of the glass pieces were quarried from panes of crown glass with thickened rather than folded rims. These had an average diameter of 20-2 cm, but could be up to 30 cm in diameter. The thickness of the pieces varies, depending on its location on the pane from which it was cut. The cutting of the pieces was not precise; one rarely finds squares or rectangles with sides of equal length. A small amount of colourless flat glass was also used in the qamariyyat.

The tracery fragments are of two different types. The first consists of wide pieces of straight or curving tracery 4-6 cm wide. The interior of such tracery is pierced along its length with small circular apertures similar to those on the fragment from Palace B. Fewer fragments survive of a finer, thinner tracery. Examination of the finds revealed that the wider strapwork was used to form the main lines of the design, while the interior and interstices were filled with the fine linear tracery.

The use of differentiated types of tracery is evidence of a sophistication unparalleled among the surviving fragments of Umayyad qamariyyat. However tracery of different thicknesses appears slightly later in the claustra in the mosque of Aḥmad ibn Tūlūn in Cairo (266/879). The forensic skills of Flury⁵ and Creswell⁶ have demonstrated that only three of the claustra in situ may be identified as original with any certainty. The most elaborate of the three combines strapwork of varying thickness to create geometric patterns of great sophistication (pl. 57).⁷ The use of pearl roundels on the wider strapwork of this grille, in preference to the incised lines found on Umayyad tracery, finds a parallel in the circular "pearls" pierced in the wider tracery of the qamariyyat from Raqqā. Similar roundels are found on the tracery of some fragments of stucco claustra from Palace B at Raqqā.⁸ Since so much of the architecture and decoration of the Tulūnid mosque reflects Abbasid prototypes, it may be assumed that the experimentation with different types of tracery follows Abbasid precedents. The evidence from Raqqā suggests that such developments had occurred by the beginning of the third/ninth century. The use of tracery of varying thickness facilitated the production of

⁵ S. Flury, Samarra und die Ornamentik der Moschee des Ibn Tulun, Der Islam (IV, 1913), pp. 425-6.
⁷ Ibid., p. 347, fig. 255, pl. 112b.
⁸ These are unpublished, but are on display in the Damascus National Museum.
qamariyyat and claustra of greater complexity than those known previously.

The form of the fragments indicates that the designs used in the qamariyyat consisted of circles of different diameters touching along the outer edges of their circumference. These designs were, like those used in Umayyad claustra,9 based on 60° and 90° grids. After a study of the fragments a partial reconstruction diagram of one of the qamariyyat was made (fig. 22). The width of the base was determined by the width of a doorway in the West Palace, below which substantial quantities of qamariyyat fragments were found. It is clear that hexagonal stars filled the large circular medallions of the reconstructed window. However the ten-pointed star filling the central medallion may have belonged to another type of qamariyya, for the reconstructed window is just one of many in which different but related designs were used. It was not clear how some of the interstices were filled, and in the diagram these have been left blank.

The sources of the patterns used in the qamariyyat are likely to have been wide. The grid of touching circles was used in the frescos of Palace B,10 while hexagonal star medallions appeared earlier on Levantine floor mosaics.11 Ten-pointed stars similar to that reconstructed at the centre of one of the medallions are found on a circular stucco grille from Kish (fig. 23),12 and on the stucco balustrades from Qasr al-Ḥayr West.13

Much of the glass which filled the qamariyyat was decorated with black paint which was applied cold. The pieces of glass which filled the small circular apertures in the wider bands of tracery each bore a single four-petalled flower (ill. 16). Small painted circles were used for the same purpose (fig. 16), as they had been at Khirbat al-Mafjar (fig. 8). As was the case with the painting of Umayyad window-glass, vegetal motifs, including stylised lilies, tendrils and leaves, were used extensively. A form of abstract ornament, rows of dots on either side of a single line, is similar to that found on painted glass vessels from the site (fig. 21). It seems that the designs used on such vessels were also applied to the window-glass - compare figures 20 and 21.14 Some of the pieces of yellow glass used in the qamariyyat have a pronounced lip and appear to be reused fragments of vessels. A larger piece of concave glass painted on its outer surface with a palmette (pl. 58) may also have come from a vessel, although it seems to have been used in a window-grille. It should also be noted that some of the vegetal motifs occur in the

10 These are unpublished, but are known to me from a copy of a drawing prepared during the excavations at the palace.
11 Meimaris, Monastery of St. Euthymios, p. 56, fig. 13.
12 SPA, p. 615, fig. 193a.
13 Schlumberger, Qasr al-Ḥayr, pl. 69a.
14 Some of the designs painted on the sixth/twelfth- or seventh/thirteenth-century window-glass from Istanbul are also found on contemporary glass vessels; A.H.S. Megaw, A glass vessel formerly attributed to Syria, Mission Francaise d'Alasie IV, Alasia (Paris, 1971), pp. 141, 144. On the relationship between glass painting and other media see M. Wenzel, Manuscript sources for some motifs in Early Islamic glass painting, JRAS (2, 1986), pp. 214-27.
stucco ornament of the palaces - compare fig. 20 and pl. 59.

There is some correlation between the colours of the glass and the form of the design used: abstract ornament and stylised tendrils appear mainly on yellow glass (fig. 20); single flowerheads are used on colourless glass (fig. 16); stylised lilies occur on dark green and blue glass (figs. 17, 19). A variety of motifs appeared on purple glass (fig. 18). While single flowerheads appeared in the glass filling the apertures in the wide bands of tracery, the interiors of the large medallions were filled with glass painted with the more complex designs. Colourless glass was mainly used to fill the apertures in the thick tracery, although occasionally different colours were set in adjacent apertures along such tracery.

Some, if not all, of the designs were painted when the crown glass discs were still intact, since single motifs have often been truncated or cut in two. This also suggests that the decorative effect of the painting per se was more important than the content. In any case, with the exception of the flowerheads in the main lines of tracery, few of the painted motifs are likely to have been visible once the window was in place. The range of decoration is even more overwhelming than that used in Umayyad qamarīyyat: not only is tracery of two different types used, but one of these types is itself pierced and filled with painted glass; the designs used are filled with coloured glass painted with a range of motifs; the surface of the grille bears moulded ornament; finally, to highlight the effect, the surface of the grille is painted black.

The qamarīyyat used at Raqqa show close affinities with those used earlier at Qaṣr al-Ḥāyr East and Qaṣr al-Ḥallābī. However the combination of both wide and narrow tracery suggests that there has been a refinement of the techniques used in the earlier windows. The development of finer tracery made it possible to create window-grilles of much greater complexity, and was to have profound implications for the subsequent evolution of the qamarīyya.

3.2.3 Great Mosque of Samarra (233-247/847-61).

Fragments of thick flat greenish window-glass were found in the Great Mosque of Samarra. These appear to have come from panes of good quality glass which were probably square or rectangular in form. The window-glass was not blown, but was moulded or poured in rectangular plates, a process which was rarely used in the manufacture of early Islamic window-glass. By contrast, moulded window-glass is commonly found on Roman sites, and has been recovered from Pompeii, Karianis in Egypt and elsewhere.

The thick glass panes were held in glass frames of unusual, if not unique, type, fragments of which were found together with the window-glass. The frames were composed of thick rods of colourless or blueish glass of three different shapes those having a rectangular section

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16 See above, pp. 30, 44.
with rounded edges (ca. 2 cm wide x 0.7 cm thick), those with a mushroom-like section having rounded edges (height ca. 3.5 cm), and others, trapezoidal in section, and lacking a raised foot. It appears that the glass panes were held between such thick glass jambs, or between the wall surface and the lip of those with a mushroom-like section. It may be that the use of such idiosyncratic frames to hold the rectangular panes in place was necessitated both by the thickness of the glass and the polylobed form of the windows of the mosque. Twenty-four such windows were pierced in the qibla, while the two lateral porches of the tripartite entrance vestibule also had upper windows. There was thus a marked concentration of windows along the qibla and the choice of large open areas of good quality glazing in preference to qamariyyat composed of small areas of coloured glass further suggests a desire to maximise the amount of light penetrating the qibla at the expense of polychrome light effects.

There were some further finds of similar glass from the mosque, 3-9 mm thick. The edges of these pieces were filed, the three sides of each triangular piece forming part of the circumference of a circle. Analogous pieces of glass were found in the throne-room of the Jausaq al-Khaqānī. Herzfeld suggested that the pieces formed part of inlaid glass rosettes which decorated the walls of the mosque, a use with many parallels in earlier Mesopotamian architectural decoration. This, or some similar form of vitreous decoration may well have covered the walls of the mosque; al-Muqaddisi, who travelled throughout Iran and Iraq, gives the following account of Samarra:

"And there is a Great Mosque (jāmiʿ) which was preferred to the Mosque of Damascus. Its walls were clothed with glazing (mīnā), and columns of marble were placed in it, and it was carpeted."22

The use of the word mīnā is problematic. In Persian mīnā is used to mean emerald, Paradise, and green glass. In Arabic the word came to be used to describe enamel on metal or, more rarely, faience. Since the same author uses the more common term fusāfīsa for the mosaics of the Umayyad Mosque at Damascus elsewhere in this passage, it is unlikely that the two terms are exactly

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17 Lamm, Das Glas, p. 126, fig. 171; EMA II, p. 256.


19 Ibid., p. 95, fig. 38.

20 Lamm, Das Glas, p. 114, fig. 65.

21 Sarre & Herzfeld, Archaologische Reise, p. 95, n.2.


24 Sarre & Herzfeld, Archaologische Reise, p. 95.
equivalent.\textsuperscript{25} It is therefore highly likely that the term refers to some sort of glazed wall-decoration, of which the carefully-filed glass pieces found by Sarre and Herzfeld are remnants. Some further pieces of thick lead glass used as wall-inlay, possibly in conjunction with mother-of-pearl, were found just outside the Great Mosque.\textsuperscript{26} Furthermore, there are slabs of dark blue glass, too thick to be window-glass, in the Samarra Museum which may have been used to line the walls of the Great Mosque.\textsuperscript{27} In view of the richness and diversity of the glass wall ornament in the Jausaq al-Khaqānī, this seems entirely plausible.

3.2.4 Balkuwārā Palace, Samarra (240-245/854-9).

The rooms of this palace were richly decorated with polychrome ornament, including glass mosaic composed of tesserae with mother-of-pearl inlay, frescoes, and painted woodwork. In addition, the windows of the palace were filled with circular glass panes of "deep blue, light and dark ochre, dark green, madder red or violet, and clear glass".\textsuperscript{28} Certain of these panes bore the characteristic bullion of crown glass at their centres.\textsuperscript{29} Similar windows were used in the private houses of Samarra, the coloured glass bull's-eyes being between 20 and 50 cm in diameter.\textsuperscript{30} House Number VI produced a fragment of yellow-brown glass with a folded rim embedded in its gypsum frame.\textsuperscript{31}

3.2.5 Jausaq al-Khaqānī, Samarra.

Of all the buildings at Samarra which produced evidence for the use of glass as architectural decoration, none appear to have been as spectacularly decorated as the Jausaq al-Khaqānī. The most basic window-fillings in use consisted, once again, of circular panes of crown glass held in pierced plaster frames. Fragments of colourless, red, green, and ochre glass discs were found in the harem, sirdāb, and throne-room of the palace (ills. 19-22).\textsuperscript{32} Many of these fragments had folded rims (fig. 32)

\textsuperscript{25} Although Aga-Oglu (\textit{op cit.}, p. 250), in spite of the evidence to the contrary, concluded that the term does in fact refer to glass mosaics similar to those in Damascus. He based this conclusion on "the absence of any remains of glazed tiles in the mosque". The finds cited above would seem to contradict this, while the use of glass wall-coverings in the Jausaq al-Khaqānī (discussed below) suggest that some sort of glazed wall-decoration might well have appeared alongside the mosaics in the mosque.

\textsuperscript{26} Lamm, \textit{Das Glas}, p. 119.

\textsuperscript{27} I owe this information to a personal communication from Dr. Alistair Northedge.

\textsuperscript{28} Herzfeld, cited in \textit{EMA II}, p. 268.

\textsuperscript{29} Lamm, \textit{Das Glas}, p. 127, fig. 73.

\textsuperscript{30} \textit{EMA II}, p. 283.

\textsuperscript{31} Lamm, \textit{Das Glas}, p. 127, fig. 72.

\textsuperscript{32} Much of the window-glass from Samarra is now held in the British Museum, London. The registration numbers of the pieces are: OA + 11818, 11820-3, 11825, 11830, 11870, 11896-7, 11900, 11903-5, 11908, 11919-20. Among the pieces is a single fragment of a stucco grille still containing a piece of glass; OA + 11784.
The published references to these windows, and this described above, suggest that the panes of crown glass were used whole in the windows of Samarra. The use of entire panes of crown glass is a consistent feature of Byzantine fenestration, but is not recorded in Islamic architecture before this date. It is, however, possible that the panes were not used whole. The find of a rim embedded in plaster does not necessarily prove that the whole pane was used, for the pieces of cut glass used in earlier qamariyyat often have part of a rim remaining. It is true however that some of the fragments of crown glass from Samarra preserve more of the rim than the glass pieces used in the qamariyyat from Raqqa. Furthermore, two panes of crown glass have been recovered from ‘Abbasid levels at Aqaba, so the possibility that such panes were used whole in some ‘Abbasid windows cannot be ruled out.

Windows of this form may reflect Byzantine or Coptic influence, since they were widely used in the churches and monasteries of the Levant and Egypt before the Islamic conquest. Alternatively, the rapid construction of Samarra may have led to the panes which were normally cut into smaller pieces being used whole.

A variant on the bull’s-eye theme involved the use of thick plaster sheets pierced with regular rows of small circular apertures filled with coloured glass to give the impression of a ‘mosaic’ of light. A fragmentary example of such a qamariyya was found in the throne-room of the Jausaq and consisted of a plaster frame, 3.5 cm thick, pierced with horizontal rows of apertures which appeared circular on one side, square on the other (figure 24). Pieces of glass pieces 2 cm in diameter were sandwiched in the centre of the plaster frame. The fragment recovered had one piece of colourless glass still in place. It is likely that the pieces of glass used to fill these small apertures were cut from larger crown glass panes, any excess glass being hidden in the thickness of the surrounding plaster, as was the case with the windows from Raqqa and Qasr al-Hallabat. Subsequent excavations at Samarra produced another fragment of a gypsum grille pierced with circular apertures of small diameter [<5 cm] (pl. 60). In view of the complexity of the ‘Abbasid qamariyyat found at Raqqa, it is conceivable that these ‘mosaic windows’ are all that remains of more sophisticated qamariyyat. The small size of

33 Lamm, Das Glas, pp. 127-8, figs. 74-5.
34 See above, Chapter II, 2.6.2.
35 Registration numbers G8a and E8b-31. One is green with a folded rim and is 17.5 cm in diameter. The other is greenish-blue with a thickened rim and is 20 cm in diameter. I am grateful to Dr. Donald Whitcomb for this information.
36 Yaqül mentions “Byzantine windows” (kīwā ṭumāṭyū) in Baghdad. These windows let in the light while keeping out the rain; G. Le Strange, Baghdad during the Abbasid Caliphate (Oxford, 1900), pp. 25-6. It is not clear what form these windows took, but one can imagine no more obvious candidate for the term kīwā ṭumāṭyū than the bull’s-eye transennae used so widely in Byzantine architecture.
37 Lamm, Das Glas, p. 128, fig. 74.
38 Iraqi Government, Department of Antiquities, Excavations at Samarra (1936-9), Volume II (Baghdad, 1946), p. 8, pl. CXXV. Although the provenance of the piece is not given, it may come from the Qasr al-Jiss.
the apertures is comparable to that of the apertures pierced in the strapwork of the thicker, and more durable, tracery of the qamariyyat from Raqqa.

In addition to the fragments of qamariyyat, painted window-glass was found in the harem, sirdab and throne-room of the palace.\(^{39}\) Several of these fragments have either cut edges or straight, thickened edges, which might indicate that they were moulded like the window-glass from the Great Mosque. However, unlike the window-glass from the mosque, which was flat and thick, the fragments from the Jausaq al-Khaqānī are relatively thin, and many are slightly convex. It is thus more probable that the pieces were cut from the large crown glass panes found elsewhere in the palace (ills. 19-22).\(^{40}\) The black paint was applied to one side of the glass only and left unfired, as was the case with the painting on Umayyad window-glass and on the earlier glass from Raqqa.

The motifs chosen consisted of geometric or vegetal designs analogous to the painted decoration on the earlier window-glass. The vegetal ornament included scroll volutes with central palmettes, and vertical stems with laterally-protruding volutes (fig. 25). Palmettes similar to those on the glass appear on a second/eighth-century lustre-painted glass from Fustat,\(^{41}\) which suggests once again that these designs are derived from the decoration of contemporary glass vessels. The geometric ornament was equally unambitious, consisting of parallel lines, lines with vertical stripes, rhombic shapes, and circles. The motifs were painted on glass of many different hues, including colourless, red, and deep green. A feature worthy of notice is the tendency for the patterns to follow the outlines of the glass pieces on which they appeared,\(^{42}\) a practice which follows an Umayyad precedent very much in keeping with the use of painted decoration on Umayyad window-glass.

In addition to the use of coloured glass in its windows, several types of glass were used as architectural decoration on the walls of the Jausaq al-Khaqānī. Wall tiles of millefiori glass were recovered from the harem and throne-room of the palace.\(^{43}\) These tiles appear to have been used as cladding for the walls of the palace. In the throne-room some fragments of millefiori glass were found in conjunction with pieces of mother-of-pearl,\(^{44}\) indicating that the two had been combined to form a lustrous wall-mosaic.

It also appears that small glass vessels were used to cover the surface area of certain walls in the palace. Hollow vessels of lead glass, circular, oval, or rhomboid in shape, were pressed into stucco,\(^{45}\)

\(^{39}\) Lamm, *Das Glas*, pp. 101-2, figs. 57-60.

\(^{40}\) As suggested by Lamm, ibid., p. 101.

\(^{41}\) Wenzel, Manuscript sources, p. 216, fig. 3.

\(^{42}\) Lamm, *Das Glas*, p. 102, No. 287, fig. 60.

\(^{43}\) Ibid., pp. 109-10, pls. VIII-IX; Sourdel-Thomine & Spuler, *Kunst des Islam* pp. 225-6, figs. 128, XXIX.

\(^{44}\) Lamm, *Das Glas*, p. 110, No. 311.

\(^{45}\) Ibid., pp. 102, 119-21, Nos. 289-91. Later excavations at Samarra produced concave glass rhomboids of analogous form; Iraqi
sometimes being held in place with metal pins, and used to form wall-mosaics, often in conjunction with cut pieces of mother-of-pearl of similar form. This was in addition to the apparently ubiquitous wall-mosaics composed entirely of mother-of-pearl cut into lozenges, circles, squares, and crescents, which also appeared in the palace. The remains of such architectonic glass mosaics were found north of the esplanade of the Jausaq, in the kiosk north-east of the court, in the sirdāb, the harem, and the throne-room. To add to the effect some of the concave glasses were painted red and/or gilded either on their exterior surface, or against the interior of the glass.

While such glass and mother-of-pearl decoration appears to be without known precedents in Umayyad architecture, the indigenous architecture of Mesopotamia suggests a source close at hand to Samarra. In addition to the remnants of glass mosaics, excavations at Ctesiphon in the early part of this century found evidence for the existence of a form of wall-decoration almost identical to that used in the Jausaq al-Khaqānī. This consisted of small, thin plates of marble cut into lozenges, or other shapes with a curving outline. These marble plaques appear to have been combined with "little tablets of coloured glass and small discs of mother-of-pearl". Wall-coverings of this type were used on the upper parts of the walls of the palace and on its vaulted ceiling.

It is possible that Sasanian practice in this regard derives from older Mesopotamian decorative traditions, for wood, glass, mother-of-pearl, and asphalt were all used as elements of wall decoration in the palaces of Babylon and Nineveh. Small plaques of coloured glass and semi-precious stones were used as inlay in Byzantine architecture (pl. 149). The wall-mosaics in the palace at Ctesiphon, however, in the materials which they employ, the use of lozenges and forms with curving profiles, and their placing, provide an immediate and striking parallel for the seemingly anomalous decoration of the Jausaq al-Khaqānī. In view of the impact which the magnificent palace at Ctesiphon had the Muslims, both during and after the conquest, and, more significantly, the partial dismantling of Ctesiphon under the 'Abbasids, it is difficult to avoid seeing the Sasanian palace as the immediate Impact on the Muslim architecture.

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48 Ibid., p. 102, Nos. 289-91.
49 Although it is true that mother-of-pearl was used in the Dome of the Rock in combination with mosaic glass, there is no Umayyad parallel known to me for the covering of large areas of wall surface with cut pieces of mother-of-pearl or relief glass vessels, or combinations of the two.
51 Lamm, Das Glas, p. 120; Trowbridge, Philological Studies, p. 138.
52 Krautheimer, Early Christian and Byzantine Architecture, figs. 178-9.
source of such architectonic exotica.

An ode of al-Buhtûrî to Yûnis ibn Bagha mentions a "palace covered with crystal glasses," a description which would admirably fit the Jausaq al-Khaqânî, its walls covered with raised glass vessels of various forms. The use of vitreous inlay composed of pieces of cut glass may be compared, both technically and aesthetically, to the use of qamariyyat filled with similar pieces of coloured glass. The overall effect of such decoration depends on the ability of glass used in one context to reflect coloured light, in another to transmit it. The combination of qamariyyat with painted window-glass, millefiori tiles, and polychrome glass with mother-of-pearl mosaics in the Jausaq must have given its rooms a colourful and dramatic, if not garish, appearance.

3.2.6 Miscellaneous.

Further brief references to qamariyyat, apparently of 'Abbasid date, must be mentioned. The first is a find of a fragmentary stucco and glass window-grille from Kala-e Khan in Iraq. This has never been published, but is said to consist of stucco tracery pierced with small apertures in the form of squares, triangles, and lozenges. A single piece of purple glass remains in place. It is probable that qamariyyat such as those found at Samarra and Raqqa were in use in Baghdad; the Baghdad Museum apparently holds some fragments of gypsum windows filled with coloured glass.

3.3 Iran.

The finds from Chal-Tarkhan Eshqabad (pl. 54) show that qamariyyat were used in Iran before the end of the Umayyad period. However, they do not appear to have enjoyed the widespread use that they did in the Levant. Virtually the only recorded finds of qamariyyat from Iran before the Ilkhanid period are from the excavations at Tepe Madraseh in Nishapur. The remains were found in the secular part of the city, in a richly-decorated private house of the third/ninth century.

The single published fragment (pl. 61) consists of the spandrel of a window-frame composed of two joined stucco plaques, each pierced with an aperture of different form. Between the two stucco plaques was sandwiched a piece of glass. In the spandrel on one side of the grille a trefoil appeared, filled with glass, while on the other the same glass piece admitted light in the form of an inverted teardrop. The sandwich technique is that employed in the manufacture of Umayyad and 'Abbasid

53 Reuther, Excavations, p. 442.
55 But is mentioned by Salam-Liebich in Grabar (ed.), City in the Desert, pp. 144-5, n.66.
56 Mentioned by Golvin, Essai sur l'Architecture Religieuse Musulmane III (1974), p. 106. I have been unable to trace these.
qamarîyyat, while the use of different-shaped apertures on either side of the same grille is also found at Samarra (fig. 24).58

The glass set in the opening had a greenish tinge and a thickened rim, and was evidently cut from a crown glass pane. An intact pane of crown glass (diameter 40 cm) was found on the floor of another room in the same building, and a plaster lantern found nearby originally held smaller panes of crown.59 Lamm published another crown glass window-pane from Iran which he dated to the third/ninth century,60 apparently on the basis of the Samarra finds.

The fragment on which the pierced spandrel occurred also has the remains of two much larger openings which form part of the circumference of a circle. Grooving along the edges of the openings indicate that these large circular openings originally held entire crown glass panes. The fragmentary grille from Nishapur is thus highly innovative in its combination of simple bull’s-eye openings with more complex apertures filled with glass quarried from the larger panes. In this, and in the use of different-shaped apertures on either side of the grille, the Nishapur finds appear to reflect Abbasid influence. The fact that no coloured window-glass is reported from Nishapur is a further indication that there was little tradition of using qamarîyyat in Iran at this date. Other fragmentary stucco window-frames found at the site, and at Qanat Tepe and Sabz Pushan, were decorated with elaborate patterns moulded in relief. These consisted of vegetal motifs and floriated Kufic inscriptions, some painted.61

Apart from a fragment of painted glass from Rayv, dated to the seventh/thirteenth century, which may or may not belong to a window,62 there are no further recorded finds of window-glass from Iran before the Timurid period. It appears that coloured glass was used, however sparingly, in northern Mesopotamia just before the Mongol conquest, for Qazwînî mentions the presence of coloured glass roundels (jûmâr) in a bath house at Sinjar.63 The dearth of published material means that it is not possible to trace the subsequent evolution of Iranian qamarîyyat. The lack of evidence suggests that coloured glass was not widely used in Iranian windows at this period. The finds from Nishapur appear therefore to be singular occurrences rather than part of a continuous tradition.

58 See above, p. 64 and fig. 24).

59 Wilkinson, Nishapur, figs. 1.173, 1.175.


61 Wilkinson, Nishapur, pp. 152-4, figs. 1.176-1.184.

62 Qazwini, Kitâb al-Ri'âd II, p. 263.

63 See below pp. 231.
3.4 Fatimids.

3.4.1 Egypt and the Maghrib.

Despite the use of stucco and glass window-grilles in Coptic architecture, and of elaborate stucco claustra in Tulunid and Fatimid architecture, little evidence exists for the use of qamariyyat in Egypt before the sixth/twelfth century. A single pane of window-glass, the earliest from Islamic Egypt, was found in a third/ninth-century context at Fustat.66 This was circular, translucent, and had a greenish-blue tinge. The pane measured 19 cm in diameter, and there was a slight thickening of the edge, but it lacked the characteristic bullion of crown glass. It seems that glass windows were not common in Egypt before the Fatimid period. The Geniza documents mention the provision, in 577/1181, of a glass window, but this was in a synagogue rather than a private house.

What appears to be the earliest extant window-grille containing coloured glass from post-conquest Egypt is preserved on the southern side of the small domed pavilion added to the entrance of the sahn of the Azhar by the Fatimid Caliph al-Hafiz li-Din illah (pl. 62).67 As Creswell noted, there is nothing in the form or appearance of the grille to suggest that it is not contemporary with the restorations of al-Hafiz, and so the feature may be dated to the middle of the sixth/twelfth century. Framed, like many Fatimid claustra,68 by a Kufic border, the stucco grille is composed of a simple geometric lattice based almost entirely on semi-circles and quatrefoils bisected by straight lines (pl. 63). The pattern is closely related to others used in several stucco and glass window-grilles in the monasteries of the Wadi Natrun (figs. 26-7).69 The date of these is uncertain; some may date from the late seventh/thirteenth century, but it has been suggested that those in the monastery of Deir Abii Makar, which are closest in appearance to the Azhar window, are as early as the third/ninth century. It may be therefore that the Fatimid artisans were drawing on Coptic traditions.

According to Creswell’s description, each of the openings in the grille is covered by a piece of green or yellow glass held in place by an additional application of plaster at the back of the grille. However this is not strictly true. The stucco claustrum covering the interior of the window-opening is now badly damaged, permitting examination of the reverse of the qamariyya. In fact the colours of the

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65 MAF I, p. 54, pl. 9a; A Fernandez-Puertas, Dos ventanas decoradas en la mezquita de al-Hakim en el Cairo, Al-Andalus (XIIV, 1977), p. 425, fig. 1-4, pl. 8.
66 I am grateful to Professor George Scanlon for supplying me with details of this find.
67 MAF I, pp. 55, 256, pl. 7a; M.S. Briggs, The Fatimite Architecture of Cairo (AD 969-1171), Burlington Magazine (XXXVII, 1920), pl. IIe. The window which appears in a recent publication cited as a Fatimid qamariyya is in fact another, of later date, in the same dome; D. Behrens-Abousseif, Islamic Architecture in Cairo (Leiden, 1989), pl. 5.
68 See, for example, claustra in the mosques of al-Hakim and al-Salih TalaT: MAF I, pls. 76-7; Fernandez-Puertas, p. 425, pl. 8;
69 Evelyn-White, Monasteries, p. 97, fig. 7.

glass are more diverse, with deep and light blue, light green and pinkish glass being used (ill. 23). Unlike modern window-glass the tones of these colours are subdued, which suggests that they are original. The Fatimid window makes use of small pieces of glass specially quarried to fit the geometric lattice. The glass is sandwiched between two narrow fillets of stucco tracery. The width of the tracery is approximately similar to that of the finer tracery used in the qamariyyat from Raqqa. The qamariyya in al-Azhar is important since it is the first to be composed of such narrow tracery alone, which suggests that a greater confidence in the working of such tracery had developed over the intervening period.

A further feature worthy of remark is the provision of window-grilles of two distinct types on either side of the window-openings above the entrance to the prayer-hall. While the grille already discussed fills the exterior of the opening, traces of an open geometric stucco grille remain in situ in the interior opening of the window (ill. 23). If these are original, then this may be the first extant example of the use of an openwork claustrum in conjunction with a qamariyya. The practice appears to originate in the Umayyad architecture of Syria, and was common in the later architecture of Cairo. It is to be noted that the qamariyya does not appear in the interior of the window-opening, as one might expect, but on the exterior. This is presumably because it was protected by the cupola, but means that its design can not be appreciated from the interior of the mosque. It appears once again that the presence of the qamariyya is to be explained by decorative rather than functional considerations.

Unfortunately the fragmentary evidence from western Fatimid sites has never been adequately published. Excavations at Sabra-Mansouriya produced "un claustrum a decor cloisonné dont les ajours sont pourvus de petits verres colorés". The colours of the glass were blue, green, and violet. Marçais considered the glass to have been manufactured at Qairawan, where vitrified material from glass production has been found. Although no other details are available, the description might equally apply to the Azhar qamariyya. That stucco and glass window-grilles were relatively common in Iffijya by the early fifth/eleventh century is demonstrated by the finds from the Qal'a of the Banu Hammud. If such qamariyyat were in use in the architecture of a local dynastic centre it is not likely that they were lacking in the palaces and mosques of the Fatimid overlords of the region. Indeed

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70 Also visible in a photograph published by H.G. Franz; Von Cordoba bis Baghdad (Graz, 1984), pl. XI, fig. 24.
71 See below, p. 154.
72 S.M. Zbiss, Mahdia et Sabra-Mansouriya, nouveaux documents d'Art Fatimite d'Occident, Journal Asiatique (CCXLIV, 1956), p. 92. I have not been successful in locating these fragments.
74 Idem.
75 See below, pp. 97-8.
recent excavations at Medinat Sultan in Libya have produced a fragment of stucco with a piece of blue glass attached which appears to have come from one of the windows of the mosque on the site, and which may be of Fatimid date. Although the qamariyya in the dome of al-Azhar may have drawn on an indigenous Egyptian decorative repertoire, it is equally possible that it stems from an independent Maghrabi tradition.

3.4.2 Jerusalem.

Fragments of stucco lunette-fillings containing glass were found in the Mosque of al-Aqṣā in Jerusalem. Hamilton attributed the finds to the renovations of al-Mustanṣir (c. 458/1065), so these may be cited as further evidence for the use of qamariyyat in Fatimid architecture. The finds are described as follows:

"... we found in situ in the west window the remains of a stucco grille with hexagonal lights; circular glass plates were held against the north face of this by a thin layer of plaster, most of which had fallen away. The stucco is 15 cm thick and is built up around fragments of pottery tiles. No other components of the three original windows were found, but in some of the rubble used to fill in the space beneath the lead of the porch lumps of plaster holding fragments of amethyst, cobalt, and rose-coloured glass were found."78

The colours of the glass, and the use of a simple geometric pattern brings to mind the qamariyya in al-Azhar. However, the use of whole panes of crown glass and broken tiles in the Aqṣā window both recall the grilles used in the pre-Islamic churches and monasteries of Palestine.79

It may be that the Aqṣa window is the product of a hybrid tradition. Although one cannot be certain, it appears from the description that the glass was held in place on the reverse of the grille by a thin application of wet stucco. If this is so then this is the first recorded use of technique which was to become widespread in the eighth/fourteenth century.

3.4.3 Sicily.

A further source of information regarding the types of window-grilles employed in Fatimid architecture is a group of fragmentary window-grilles of the sixth/twelfth and seventh/thirteenth centuries from Sicily. In contrast to the lead and glass window-fillings favoured in the architecture of Medieval Christendom, these grilles are made of stucco. Since such a medium is most suited to the climate of North Africa and Mediterranean Europe, and the use of stucco in such a context is extremely rare outside of Sicily, the use of stucco window-fillings should most likely be attributed to

76 Personal communication from Dr. Geza Fehérvári.
77 R.W. Hamilton, The structural history of the Aqṣa Mosque (Jerusalem, 1949), pp. 32-3, pl. XXi.
78 Idem.
79 Above, p. 35, n 120.
the impact of Islamic influences. Such a hypothesis is confirmed by the form of the surviving fragments of both clastra and qamarīyyat.

The most complex and complete example is the claustrum from a dome in the Church of San Giovanni degli Eremiti in Palermo (pl. 65). The grille is round-headed and its size (1.29 x 0.825 m) is comparable to that of the stucco claustra from Fatimid Cairo. Like the Tulūtim and Fatimid grilles in Cairo, the grille has an outer border bearing a Kufic inscription executed against a background of vegetal ornament. The Sicilian claustrum consists of a hexagonal pattern which makes use of straight lines to create a series of interlinked six-pointed stars. Similar grids were used in Umayyad claustra, and in the qamarīyyat from Raqqā (fig. 22).

A similar open stucco rectangular grille of sixth/twelfth-century date now preserved in the Galleria Nazionale della Sicilia shows marked similarities with the grilles found in the northern minaret of al-Ḥākim in Cairo (380-404/990-1013) (pl. 76). Among the similarities in the composition of both grilles are the use of an outer palmette border in place of calligraphy, the distinctive use of diagonally-placed palmettes at the four corners of the grille, and the use of an arabesque to fill the interior. Recently, restorations at the Duomo of Monreale have produced the remains of stucco window-grilles set in the original window-openings of the building.

In addition to the evidence for the use of open stucco grilles in Sicily, finds of stucco grilles bearing coloured glass have been made which, compositionally and technically, have no parallels in the architecture of the Christian West. Ibn Jubayr’s description of windows in the Church of La Martorana in Palermo (538/1143) is well-known. Less well-known is the fact that these windows appear to have been filled with qamarīyyat rather than conventional European stained glass. The traveller describes the decor of the church as follows;

"In its upper parts are well-placed windows of gilded glass (shamsīyyāt al-madhahhabūtī min al-

80 A. Salinas, Trafori e vetrate nelle finestre delle chiese Medioevali di Sicilia, Scritti per il centenario della nascita di Michele Amari, Volume I (Palermo, 1910), pp. 501, 504; G. Bellafiore, Architettura in Sicilia nelle età Islamica e Normanna (827-1194) (Palermo, 1990), pp. 131-2, fig. 128. An illustration of the dome with a replica of the grille in situ appears in G. di Stefano, Monumenti della Sicilia Normanna (Palermo, 1979), pl. LX. The windows of the Church of San Cataldo in Palermo have recently been restored after those of S. Giovanni degli Eremiti, but using a geometric grid with a Kufic border; Gabrieli & Scherrato, Gli Arabi, fig. 122.

81 The sole remaining claustrum in the Mosque of al-Ḥākim which appears to be original measures 1.60 x 1.24 m; Fernandez Puertas, Ventanas, p. 425.

82 See note 68 above.

83 Gabrieli & Scherrato, Gli Arabi, fig. 178.

84 MAE I, pp. 92-3, pl. 24b.

85 A peculiarity commented on by Creswell in the case of the grille from the al-Ḥākim mosque; MAE I, p. 92. A similar formula was used on Coptic window-grilles (pl. 41).

zuğājī) which steal all looks by the brilliance of their rays, and bewitch the soul. God protect us (from their allurements)."87

Archaeological explorations in the church have produced the remains of stucco window-grilles dated variously between the sixth/twelfth and ninth/fifteenth centuries,88 which are likely to be similar to those described by Ibn Jubayr, if not the same grilles. Like those from San Giovanni, the grilles had an outer Kufic border, the letters of the inscription being painted ("gilded"?) in yellow-gold against a blue background. Blue paint was used to provide a background for the carved decoration in both the Mosques of al-Azhar and al-Hākim in Cairo,89 suggesting a further link between the Sicilian grilles and Fatimid architectural decoration. Fragments of window-glass also found in La Martorana indicate that some of this stucco tracery was originally filled with coloured glass.90 When one bears in mind that the founder of the church, George of Antioch, had been an officer in the service of a Muslim prince in al-Mahdiyya,91 the sources of such Islamicising decoration become clearer.

It is possible that window-fillings of Islamic type were in use in continental Italy, since Leon of Ostia mentions gypsum windows (fenestrae gypsaea) in his description of Monte Cassino in 1066.92 In fact the latter author appears to contrast two different traditions of decorative window-fillings; those involving glass held in lead or iron, which one may take as typifying the Medieval Christian tradition, and fenestrae gypsaea, which are likely to derive from Islamic architectural traditions.

The use of qamariyyat was relatively widespread in the architecture of Muslim and Norman Sicily, to judge from the occurrence of similar finds in other buildings in both Palermo and Messina.93 Remains of rectangular stucco grilles pierced with lozenge-shaped apertures filled with coloured glass have been found in the Church of San Francesco d'Assisi in Messina.94 The use of such window-grilles in Sicily appears to have continued into the eighth/fourteenth century, for fragments of window-glass of this date have been found in the church of the Palazzo Chiaramonti in Palermo.95

The latter are particularly interesting as evidence for the use of painted window-glass in Sicilian qamariyyat. Fragments of clear, yellow, green, black, and purple glass were found, some of which

87 Broadhurst, Travels, p. 349; Wright, Travels, p. 333.
88 Salinas, Trafori e vetrate, p. 500, pls. I-II.
89 MAE I, p. 57.
90 Salinas, Trafori e vetrate, p. 500.
93 The present location of these finds is not known.
94 Salinas, Trafori e vetrate, p. 502, pls. III-IV.
95 Ibid., pp. 502-3, pl. VI.
were painted with floral patterns, arabesques, and a Maltese cross (pl. 66). Although the tints of the glass were the result of its process of manufacture, the painted decoration on its surface was unfired. Since this is also the case with almost all the examples of Islamic painted window-glass which have come to light, but is rarely true of decoration found on western stained glass, this appears to be yet another instance of Islamic influence on Sicilian architectural decoration. In the absence of more concrete indications, the finds from Palermo suggest that painted window-glass may have appeared in the qamarįyyat of Egypt.

Two different processes were used in the manufacture of the Sicilian qamarįyyat. The window-glass in the chapel of the Palazzo Chiaramonti was originally attached behind the exterior of the stucco tracery and held in place with thin strips of plaster. This appears not to have been the case with the finds from the Church of San Francesco at Messina, where the window-glass was embedded in the thickness of the plaster. The latter technique is similar to that used in the manufacture of Umayyad and Abbasid qamarįyyat. The former recalls Hamilton's description of the Aqṣā qamarįyyat, and anticipates the techniques used in Egypt later.

3.5 Seljuqs and Atabegids.

3.5.1 Konya.

Virtually the only recorded finds of Islamic window-glass from Anatolia before the Ottoman period are those from the palace at Kobadabad on the shores of Lake Beyşehir near Konya (c. 634/1236) and from the Alacddin Palace in Konya itself. The excavations at Kobadabad produced twenty-five fragments of cobalt glass, two of yellow and one piece of green glass. All were from panes of crown glass and bore the characteristic central bullion. The window-glass came from the harem of the palace. From the traces of stucco on the fragments it was clear that they had been set in stucco tracery. Fragments of coloured glass and stucco found in the Alacddin Palace indicate that its windows were filled similar grilles.

From the published description of the finds it appears that the panes of crown glass were used whole. It is possible that a similar use of crown glass panes was made at Samarra, and circular

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96 See above, p. 22.

97 Salinas, Trafori e vetrate, p. 504.


100 F. Sarre, Der Kiosk von Konia (Berlin, 1936), p. 34.

101 See above, p. 64.
panes were also used whole in window-grilles of the Aqṣā mosque which appear to date from the Fatimid period. In general the use of whole panes of crown glass was rare in the Islamic world, and it may be that the window-grilles were modelled on those of neighbouring Byzantium. Pieces of window-glass are among some some glass fragments on display in the Karatay Madrasa in Konya (pl. 67). Some of these seem to have been cut from panes of blue and colourless crown glass. They are said to come from a Seljuq madrasa at Kutahya. If this is so it suggests that glass windows of more complex form, similar perhaps to the qamariyyat found elsewhere in the Islamic world, were also used in Rum Seljuq architecture.

3.5.2 Rusafa.

Finds of qamariyyat in sixth/twelfth-century levels at Rusafa were mentioned, without further details, by 'Abd al-Haqq. In addition, recent excavations at Rusafa produced evidence for the use of both stucco claustra and qamariyyat in a richly-decorated house of the sixth/twelfth century. The qamariyya fragment was found in one of the iwans of the house. It consists of a border of rectangular apertures and two circular openings 20 cm in diameter (pl. 68). The tracery was about 3 cm wide. No details of the glass held in the grille or the manner of its attachment are given. The side-walls of the iwan had been set with faience tiles, and one may surmise that the qamariyyat were designed to harmonise with the colours of the tilework.

A stucco claustrum found in the opposite iwan is also of interest, although it never held glass (pl. 69). The tracery of the claustrum describes a scrolling arabesque pattern with a pronounced axial emphasis. Similar motifs were to appear on Ayyubid qamariyyat, and will be discussed below. The surface of the grille bore the remains of red, green and blue paint, a further reminder that, although the palette became more diverse, the Umayyad practice of colouring claustra continued into later periods.

3.5.3 Raqqa.

The hiatus between the published fragments of qamariyyat from Samarra and those that survive in Ayyubid buildings has, to some extent, been filled by recent finds from Qasr al-Banat in Raqqa. The majority of the stucco decoration found during the excavations, including the qamariyyat, dates from the sixth/twelfth century. Some of the stucco claustra used in the building have been published. Most of these made use of hexagonal grids similar to those which have been favoured in

102 See above, p. 71.
105 Ibid., p. 279, pl. 91b-c.
such contexts since the Umayyad period. Some idea of the number of qamariyyat used in the palace may be gleaned from the fact that almost 11 kilograms of coloured window-glass (ill. 24) and more than 200 fragments of qamariyyat were recovered from this small building. The regular forms of the stucco claustra bore little resemblance to those of the qamariyyat in which more varied forms were juxtaposed. In addition the incised lines found on the strapwork of the claustra are absent from the tracery of the qamariyyat.

The glass used in the qamariyyat was rose, purple, deep blue, yellow, dark green, olive and colourless (ills. 24-6). The quantities of blue and yellow glass were greater than those of other colours. The glass comes from panes of crown glass which varied in diameter between 12 and 26 cm, with thickened rather than folded rims. Most were at the lower end of this range, slightly smaller than the panes used in the manufacture of earlier qamariyyat. Most of the glass had been cut from the circular panes to fill apertures of different shapes. However some of the circular panes were recovered intact, or with only small pieces cut symmetrically from them (fig. 30), which suggests that both small cut pieces and hole panes of glass appeared in the qamariyyat. There is no trace of painting like that found on the window-glass from the Umayyad palaces at Raqqa.

Large fragments of stucco tracery were found, many with their glass still in place (pls. 70-2). However the stucco of which they are composed is friable and often abraded, making reconstruction difficult. Little of the original superstructure survives, but finds of rectangular window-frames indicate that at least some of the windows were rectangular. The qamariyyat consisted of an outer border 5-6 cm wide pierced with circular apertures 2.5 cm (fig. 28). Adjacent apertures were filled with glass of different colours. The origins of this pearl border may be traced back to the qamariyyat of Umayyad Syria.

The interior of the qamariyyat were pierced with a series of openings which varied in shape. Among the most common were rectangles, triangles, polygons and polylobed circles. Reconstruction drawings of some of the outer edges have been made (fig. 29a). A small quantity of fine tracery less than 0.5 cm wide was found (fig. 29b), which was probably used to fill the interstices between such simple geometric shapes.

In general the design of the qamariyyat from Qasr al-Banat is less ambitious than that of the 'Abbasid window-grilles from Raqqa. This is also reflected in the manufacture of the former. The "sandwich" technique which had been employed since the Umayyad period was also used at Qasr al-Banat. However, the former distinction between the thickness of the upper and lower layers of tracery has been lost, with the glass is set about equidistant from both faces of the grille (fig. 28). The overall

107 Ibid., pp. 311-3, figs, 6-7.
108 Pieces of glass which filled small circular openings are among the fragments recovered from Khirbat al-Mafjar (ill. 5, fig. 8).
thickness of the qamariyyat varies between 4.5 and 6 cm. A thin coating of stucco was used to hold the glass in place before the second layer was laid. Reeds were laid between the two layers of stucco, parallel to the outer edge. This presumably served to strengthen the edge and helped to bond the two layers of stucco. In one of the fragments two semi-petrified reeds have survived (pl. 72). Some of the edges have the projecting lip found on the Abbasid qamariyyat from Raqqa (fig. 15). A thick coat of plaster around some of the fragments indicates that the qamariyyat were also secured by this means. Some of the edges show the imprint of iron nails or spiggots which may also have served this purpose.

The quantity of glass and tracery fragments recovered suggests that qamariyyat were used extensively in the windows of the palace. Many of the loci where the fragments were found also produced fragments of stucco claustra, which suggests that closed and open grilles may have appeared on either side of the same window-openings. Some of the qamariyyat fragments are smooth on both faces, which suggests that they may have been designed to be seen from both sides. At least one of the fragments appears to have come from a blind qamariyya (ill. 28), which was probably used to maintain symmetry in the arrangement of qamariyyat even where there was no window-opening.

The decoration of this small palace was particularly lavish, making use of polychrome stucco ornament, glazed tiles and marble. The use of qamariyyat should be seen in this context. Carved stucco frames decorated with a geometric design interwoven with an arabesque, and painted blue and red were used around some of the windows. The use of such elaborate frames, and the combination of whole and cut panes of crown glass find a direct parallel in the earlier finds from Nishapûr. This apparently minor part of the decor of Qasr al-Banat serves therefore as a reminder of the strong Mesoopotamian and Iranian influences which make themselves felt in the architecture of the palace. One of the qamariyyat fragments has part of a pearl border executed in high relief attached along its outer edge. This was evidently intended to harmonise with the pearl borders pierced along the edges of many qamariyyat. It appears that the window-grilles were integrated both physically and aesthetically with the larger decorative scheme of the palace.

3.6 Ayyubids.
3.6.1 Madrasa al-Shamîya, Damascus (before 582/1186).

The earliest surviving Ayyubid qamariyyat are found in the Madrasa Shamîya extra muros in Damascus, built by Sitt al-Shâm, a sister of Salâh al-Dîn, before her death in 582/1186. Three

109 Touine, Qasr al-Banat, pp. 311-3, figs. 6-7.


111 Similar stucco pearl borders were used to frame niche-openings in the palaces of Samarra; Franz, Palast, pl. I, fig. 151.

112 Although it has been suggested that the stucco grilles in the bimaristan of Nûr al-Dîn (549/1154) originally held glass, this is not the case; J. Sauvaget, Les Monuments Historiques de Damas (Beirut, 1932), p. 53.
stucco and glass window-grilles remain in situ, two of similar type on the eastern (pl. 73) and western walls of the prayer-hall (ill. 30), another set over the mihrab (ill. 89). Two open stucco grilles are set below the qamariyya of the eastern and western walls (ill. 29). The walls around the windows are decorated with carved geometric ornament painted blue, and the windows themselves are framed with a thin blue line.

The wall beyond the eastern qamariyya has been blocked, so light no longer penetrates the glass of the window. The plaster of this grille is quite clean and undamaged, which suggests that this grille may be of recent manufacture. The western example however is well-preserved, although slightly damaged in two places. Both the eastern and western qamariyyat are set back flush with the wall of the building. The form of the two similar grilles is highly original, with vegetal forms replacing the geometric tracery encountered previously. The pointed arched form of the windows, the borders, and the use of vegetal motifs are all found in other Ayyubid qamariyyat, which suggests that the qamariyya in the western wall is original. The borders of both grilles consists of an outer row of circular apertures similar to those which had been used since the Umayyad period. A new feature is the use of an inner border of narrow rectangular elements separated by small circles. This feature was to recur with great frequency in later qamariyyat.

The colours of the glass employed are yellow (two shades), green, blue (two shades), and purple. It may be that the different shades result from the glass pieces being cut from different locations on a pane of crown glass. The colours are similar to those used at Qasr al-Banat, although the range is more restricted. While some of the glass has clearly been replaced, the deep tone of the colours suggests that most is original, since later window-glass tends to have a more vivid hue.

The main part of the design consists of three leaf fronds, one filled with orangish-yellow glass, the two smaller ones with blue. The whole ensemble is set against a green vegetal background. The lower part of the grille consists of a rosette composed of interlocking circles filled with green glass, bearing a purple five-pointed star at its centre. Similar motifs are to be found on Byzantine transennae from the Levant (pl. 49). More germanely, a granite window-grille from the now-demolished Mausoleum of Saif ibn Dhī Yazān in Cairo, showing close affinities with the Early Christian basalt grilles from the Hauran, is decorated with a similar motif (pl. 74). The latter grille bears an

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114 Modern qamariyyat of this form have been installed in the windows of the Madrasa al-Jaharkasya.

115 For example in the Muqaddāsyya Madrasa and the Jāmi’ al-Tawba, below, pp. 82-5.

116 Kraeling, *Gerasa*, pl. 1.b. See also MAF I, p. 214, for a similar pattern employed in a relief from the Basilica of San Marco, Venice.

inscription with the date 610/1213.

Technically, these early Ayyubid qamariyyat display new developments in the form and nature of the stucco tracery employed in their construction. Unlike earlier qamariyyat, which made use of apertures pierced in a flat surface, the Damascus grilles are carved in such a way that the prominence of the stucco tracery is reduced, the wide strapwork of earlier qamariyyat giving way to narrow, slightly bevelled fillets. The antecedents of this development are to be found in the Fatimid qamariyya in al-Azhar, but the Ayyubid tracery stands in much higher relief against the surface of the glass held within it. The immediate impact of this change is that the body of the pattern composing the grille is dominated by the coloured glass rather than the stucco tracery in which it is set. As far as can be ascertained, it seems that the mode of attachment of the glass is similar to that used in al-Azhar, the glass being held between two layers of tracery.

There are several reasons for believing that the qamariyya above the mihrab is not original, but is a creation of the Mamluk period. Firstly, its arched head is more rounded than that of the other windows. Secondly, the colours of the glass are lighter and more vivid than those of the glass in the qamariyyat just discussed. Thirdly, the apertures in the grille are smaller than those used in the latter qamariyyat, and in other Ayyubid grilles. Fourthly, the glass is not held between two layers of tracery, but held in place on the reverse of the grille with a thin application of stucco. This technique became widespread only from the eighth/fourteenth century. Consequently the window is discussed with other Mamluk qamariyyat in Chapter V.119

3.6.2 Jāmiʿ al-Hanābila (599-610/1202-13).

The windows opening above the doors to the prayer-hall of this mosque were originally filled with open stucco claustra. Qamariyyat of several different types survive in the prayer-hall itself. Although Sauvaget mentions seven medieval windows containing glass,120 only six survive. Of these, three are rectangular, two on the eastern wall (ill. 88), one on the western (pl. 114). The clear glass filling these windows is set in simple geometric stucco tracery. The rectangular form of these window-openings, the form of the tracery which fills them, and the use of qamariyyat filled with clear glass along the side walls of the mosque finds a parallel in the fenestration of the Jāmiʿ al-Tayruḻī. For this reason they are discussed in Chapter V.121

Of the three remaining qamariyyat two are located on the qibla (ill. 31), one on the eastern wall of the mosque. The window above the mihrab (ill. 87, fig. 54) is the most elaborate, combining epigraphic, geometric and floral ornament. However, the window is wider and its arch less pointed

118 See above, pp. 48-50.
119 Below, p. 138.
120 Sauvaget, Monuments Historiques, p. 96.
121 See below, pp. 137.
than contemporary Ayyubid windows such as those on the side walls of the Madrasa al-Shamiyya. The internal division of the grille and the use of a diagonal lattice filled with yellow glass find a close parallel in the qamariyyat of the Tayrouzī mosque in Damascus.\textsuperscript{122} For this reason I would suggest that this grille was also installed later, probably in the early eighth/fourteenth century, and will discuss it in Chapter V.\textsuperscript{123}

The grille in situ in the window immediately to the west of the mihrab (ill. 32) would seem to be the earliest surviving example of a qamariyya of the ‘centralised arabesque’ type identified by Creswell as an Ayyubid creation.\textsuperscript{124} The outer border of the grille is divided into a series of narrow rectangles. The border continues into the body of the grille, forming a prominent circle at its centre. The main body of the grille is occupied by an arabesque arranged about a central axis which terminates in an apical bud. The technique employed is analogous to that of the al-Shamlīya windows, with deep, narrow fillets used to frame larger areas of coloured glass. The grille is once again set into the wall to appear level with its surface. The strong primary colours of the glass employed may also be regarded as the classical colours of Ayyubid qamariyya: red, yellow, blue, and green (two shades). Different colours are used to pick out the main lines of the design; red for the border and central circle, and yellow for the main lines of the arabesque. Nonetheless the overall effect is a little confused, with the finer details of the design becoming lost in a blur of colour.

This window-grille is important evidence for the existence of qamariyyat of ‘centralised arabesque’ type at a slightly earlier date than those of the Māridānīya Madrasa (624-6/1226-7), which will be discussed shortly. Since this type of qamariyyat was to become popular subsequently it is worth pausing to consider the sources of the arabesque qamariyya. The appearance of the motif can be attributed to the generic proliferation of the arabesque in the decorative arts of the Islamic world in the sixth/twelfth and seventh/thirteenth century. One can however cite more specific parallels for the use of the motif on a window-grille.

Stylised tree of life motifs of Sasanian type appeared on several stucco claustra from the Umayyad palace of Qaṣr al-Hayr West (pl. 75). While most of the qamariyyat used in Egypt and the Levant before the seventh/thirteenth century made use of geometric tracery, vegetal motifs continued to appear in the tracery of claustra. A stucco claustrum in the Mosque of al-Ḥākim in Cairo (380-404/990-1013) is composed of a grid of stars interwoven with vertical rows of vegetal ornament.\textsuperscript{125} Axial arrangements of scrolling vegetation appear in the claustra filling some of the windows in the northern minaret of the same mosque (pl. 76).\textsuperscript{126} A claustrum on which a similar arrangement is used

\textsuperscript{122} See below, p. 136-7.
\textsuperscript{123} See below, pp. 138-9.
\textsuperscript{124} MAE I, pp. 91-2.
\textsuperscript{125} MAE I, p. 81, fig. 29; Fernandez Puertas, Ventanas, p. 425, figs. 1-4, pl. 8.
\textsuperscript{126} MAE I, pl. 24a-b.
survives from the mosque of al-Ṣaflī Ṭalāʾī (555/1160) [pl. 77]. Similar ornament is also found on Fatimid wood carving. The arabesque form is even more developed in the stucco claustra in the mausoleum of Imām al-Shāfīʿī in Cairo (608/1211), which have been remade following fragments of the original grilles. By the seventh/thirteenth century similar patterns were being used for glazed ceramic window-grilles in Iran (pl. 78). The use of colour and glaze on such a window-grille is not far removed from the setting of coloured glass within them.

While the appearance of the arabesque on stucco claustra from the fifth/eleventh century onwards is relevant, it is not necessary to look as far as Cairo or Iran for the immediate sources of the motifs used in the qamariyya of the Jāmīʿ al-Hanābilla. A fully-developed arabesque motif appears on the sixth/twelfth-century stucco claustrum from Rusafa mentioned above (pl. 69). An arabesque was used on a perforated stone lunette-filling in the portal of the Madrasa al-Muqaddamiya in Aleppo (545/1150-1). Moreover, a similar design appears on the remaining claustra above the north-eastern door of the Jāmīʿ al-Hanābilla itself (pl. 79). The arched body of this rectangular grille is filled with an arabesque of great delicacy, which closely resembles the remade claustra in the Mausoleum of Imām al-Shāfīʿī.

One may conclude that the use of arabesques on contemporary claustra influenced the design of the qamariyya in the Jāmīʿ al-Hanābilla. It appears that the stylistic and technical affinities between qamariyyat and claustra found in earlier periods continued in Ayyubid Damascus. Attention should also be drawn to the fact that many of the stucco claustra were originally brightly painted. The arabesque on the claustra from Rusafa was painted red, green and blue. The typical colours of the glass which fills the arabesques used in Ayyubid qamariyyat is similar, but includes yellow. Since a much wider range of colours was used in earlier qamariyyat some explanation must be given for this concentration on primary colours. One may offer the tentative suggestion that the polychrome

127 Ibid., pp. 285-6, pl. 100a. It has been argued that this claustrum reflects the influence of earlier Maghribi claustra; G. Marçais, Les échanges artistiques entre l'Égypte et les pays Musulman Occidentaux, Hesperis (XIX, 1934), p. 101, fig. 4.


129 According to Creswell; MAE I, p. 69, pls. 25 a-b. See also Exercices (XIII, 1896), p. 79.

130 SPA, p. 1623, pl. 756.

131 See above, p. 75.


133 Herzfeld mentions two such grilles, but only one survives; Damascus: Studies in Architecture IV, Ars Islamica (XIII-XIV, 1948), pp. 121, 123.

134 See above, p. 55.

135 Saliby, Maison Arabe, p. 279.

136 Purple, which was used extensively in earlier qamariyyat plays a minor role in the qamariyyat of the Madrasa al-Shamiya.
decoration of contemporary and earlier claustra influence the colour of the glass used in Ayyubid qamariyyat of analogous type. It is also likely that the restricted palette should be attributed to the desirability of striking a balance between form and colour.\(^\text{137}\) The tendency for the details of the design to become obscured has been noted above.

The qamariyya remaining on the eastern wall of the Jāmi‘ al-Hanābīla (ill. 33) is filled with geometric tracery. The pattern consists of a grid of overlapping circles, each single circle being intersected by six of its neighbours. The centres of the circles are filled with smaller discs. The colours of the glass with which the tracery is filled are green, blue, yellow, and purple. The antecedents of such geometric tracery are to be sought in the ‘Abbasid and Zangid qamariyyat from Raqqā. The generic form of such ornament, and the small quantity of Ayyubid qamariyyat which survive, renders it difficult to date the grille. The arch of the window is more rounded than that of the arabesque qamariyya on the qibla, and other Ayyubid qamariyyat, which might suggest that the window was modified and the grille installed at a later date. However the border motif and the colours of the glass are similar to those used in the qamariyyat on the side walls of the Madrasa al-Shamiyya, so the possibility the the qamariyya is original cannot be ruled out. If it is original then one may surmise that the windows of the mosque were originally filled with qamariyyat of different forms.

3.6.3 Madrasa al-Jaharkašiyya, Damascus (608/1211).

Qamariyyat of approximately similar date to those in the Jami‘ al-Hanabila formerly existed in the drum of the dome of the Madrasa Jaharkašiyya, also in the Salihīya quarter of Damascus. No details of these are available, other than they were composed of pieces of coloured glass set in pierced plaster.\(^\text{138}\) Sauvaget published a diagram of a fragmentary border of one of these grilles (figure 31) which, apart from the outer row of pearls, is unlike the border of any extant Ayyubid grille. These have since been removed and replaced with modern qamariyyat based on those in the Madrasa al-Shamiyya.

3.6.4 Māridāniyya Madrasa, Damascus (624-5/1226-7).

Further examples of qamariyyat of centralised arabesque type may be seen in the windows of the nearby Māridāniyya Madrasa, built by an Artuqid princess from Mardīn. It was not possible to examine the grilles in situ, but two stucco and glass window-grilles surviving in the prayer-hall of the madrasa were published by Sauvaget.\(^\text{139}\) It seems likely that qamariyyat were originally also used in the

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Colourless and olive-green glass does not appear to have been used in Ayyubid qamariyyat. The use of red glass is, however, an Ayyubid innovation, since window-glass of this colour is rarely found before this period.\(^\text{137}\) See below, p. 91.


windows of the adjacent mausoleum. Modern qamariyyat based on the type published by Sauvaget have now been set in its windows; eight in the drum of the dome and four pairs in the octagon. The use of this mode of fenestration is typical of Damascene mausolea in the Ayyubid period; it was also used in the Madrasa al-Jaharkaṣīyya.

One of the qamariyyat published by Sauvaget (ill. 34) was of similar form and design to the grille set in the qibla of the Jāmi' al-Hanābīlā (ill. 32). Like its slightly earlier predecessor, this was framed by a double border, the outer of simple circles, the inner of rectangles joined by small circles. A decorative elaboration not seen in earlier qamariyyat is the alternation of red and green glass in the apertures of the outer borders. The colours of the glass employed in the window are again primary; blue, green, red, and yellow. The use of colour is slightly more sophisticated than that found in the Jāmi' al-Hanābīlā, with red and green being used to differentiate the main lines of the arabesque, which is set against a yellow background. The use of three colours to distinguish the main lines of composition renders the form of the design more obvious than it is in the earlier grille.

Also interesting is the survival of a circular qamariyyat used to fill an oculus pierced above the two arched windows in the western gable of the prayer-hall (pl. 80). This is the earliest surviving example of such a qamariyyat, but it cannot be doubted that others like it existed. Like the larger grille, the window has a border of yellow glass set in a pattern of rectangles joined by circles. Small tear-shaped protrusions from the six circles in the interior of the grille pierce the border at intervals (fig. 40a), a feature which was to recur in circular qamariyyat of the Mamluk Period (fig. 40 d).

The interior stucco-work of the oculus consists of six polylobed circles set about a central rosette with a six-petalled rosette as its focal point. Similar rosettes were frequently used on pre-Islamic window-grilles from the Hauran (pls. 8-9), many of which are found in the windows of Ayyubid and Mamluk buildings (fig. 6). It is therefore possible, if uncertain, that the design of the stone grilles influenced the form of Ayyubid qamariyyat. The background ornament consists of vegetal ornament, including trefoils which protrude form the borders of the rosette. Once again the colours of the glass employed are primary and some attempt is made to distinguish different parts of the design. Red and green glass are used in the central rosette, white (colourless?) glass for the satellite circles, and blue for the rest of the background excluding the border.

A noteworthy feature of the grille is the polylobed or cusped appearance of the circular openings. Such cusped or polylobed openings are found on the earlier stucco windows from Nishapur, and on the marble colonnus in the Great Mosque of Cordoba. Similar polylobed apertures are used on

\[\text{\sloppy} 1^{\text{40}}\text{ Ibid., p. 125, pl. XXIV 2.}\]
\[\text{\sloppy} 1^{\text{41}}\text{ A circular window opens above the mihrab in the Madrasa al-Shamīyya, but its grille does not survive.}\]
\[\text{\sloppy} 1^{\text{42}}\text{ See above, p. 49.}\]
\[\text{\sloppy} 1^{\text{43}}\text{ Wilkinson, Nishapur, pp. 152-4, figs. 1.176-1.184.}\]
\[\text{\sloppy} 1^{\text{44}}\text{ Drisch, Fensterrötel, p. 30, fig. 8.}\]
contemporary Byzantine window-fillings (pls. 35-6), and occur on certain of the window-grilles represented in later Persian miniature paintings. However the use of polylobed openings in the qamariyyat from Qasr al-Banat (fig. 29) suggest a source for this feature which is closer to hand. It may be that, as at Raqqa, whole panes of crown glass were set in these cusped apertures.

3.6.5 Jāmi‘ al-Tawba, Damascus (632/1234).

A pattern similar to that of the large grille from the Māridānīya Madrasa was used slightly later for the qamariyyat in the Jāmi‘ al-Tawba in Damascus. Two stucco and glass grilles survive on the north wall supporting the dome in front of the main mihrab of the mosque (pl. 81). These are presumably all that remain of what must originally have been four pairs of qamariyyat in the supporting walls of the dome. The sixteen-sided drum of the dome has a single arched window-opening above each of these pairs of windows which presumably were also once filled with qamariyya. As noted previously, this arrangement is characteristic of Ayyubid fenestration, and is also used in the mausoleum adjoining the Māridānīya Madrasa and in the Madrasa al-Jaharkasīya. As many as sixteen qamariyyat may once have been required to fill the windows in such a dome, which gives some indication of the scale on which such grilles were produced in Ayyubid Damascus.

The borders of the grilles are less complex than those of the windows in the Māridānīya Madrasa, with a single framing band of rectangular fillets separated by small circles. The tracery of the grilles forms a slightly simplified version of the axial arabesque. The arabesque theme is continued in the carved decoration of the mihrab. Noteworthy are the small triangular bases from which the axes of the arabesques sprout. The grilles display the deep carving and narrow fillets characteristic of Ayyubid qamariyyat in Damascus. Unfortunately, little information can be gleaned regarding the colours of the glass used in the windows, since the raising of the roof of the northern transept at a later date has blocked out the light, and the surface of the grilles has subsequently been whitewashed.

3.6.6 The Levant.

In the light of the finds from Qasr al-Banat, it cannot be doubted that qamariyyat were in use elsewhere in Syria during the sixth/twelfth and seventh/thirteenth century. Fragments of stucco tracery containing glass were recovered from sixth-seventh/twelfth-thirteenth-century levels at

145 Bouras, Portes et Fenêtres, pp. 125-6, 168; Schultze & Bamsley, Monastery of Saint Luke, pls. 12, 29. The appearance of such cusped openings has been taken as an indication of Islamic influence; A. Grabar, Le décor architecturale de l’Église de la Vierge a Saint-Luc en Phocide, et les débuts des influences islamiques sur l’art byzantine de Grèce, L’Art du Moyen Age en Occident (London, 1980), pp. 27-8. Cusped or serrated circular openings also appear on some of the stucco window-grilles of Fatimid or, more likely, Mamluk date in the Coptic monasteries of the Wadi Natrun; Evelyn-White, Monasteries, pl. LXX.

146 See below, pp. 156-7.

147 Mentioned by Sauvaget, Monuments Historiques, p. 64.
A late seventh/thirteenth-century source, describing the rich decoration of Crusader houses in Tyre and Acre, mention that they were provided with numerous windows filled with glass. Although no further details are given, it is possible that the Crusader houses were illuminated by means of qamāriyyat similar to those used in Ayyubid Damascus. The adoption of Islamic forms of architectural decoration for use in Crusader domestic architecture is indicated by several contemporary sources.

It is, however, equally possible that the windows mentioned were of the more orthodox Christian type, with pieces of coloured glass inserted in lead came. That the techniques of Western Medieval stained glass were brought to the Near East by the Christian invaders is demonstrated by the finds from Atlit in Palestine. Here, in the ruins of a seventh/thirteenth-century church showing affinities with contemporary French architecture, fragments of lead tracery and glass from a small lancet window were discovered. The colours of the glass found were plain white, greenish white, emerald, purplish-red, blue and brownish-yellow. Some clear glass was also found. The tracery of the window assumed geometric forms including octagons, rosettes, and crosses (figure 32).

The glass pieces which filled the tracery were of varying thicknesses, indicating that they were quarried from panes of crown glass. Similar cut pieces of green and deep blue crown glass were recovered from a Crusader castle of the same date at Montfort (ill. 3). To allow for the inevitable variations in the thickness of the crown glass pieces, the lead came employed at Atlit was provided with a wide groove. As has been indicated above, the use of crown glass panes as quarries for the provision of small pieces of coloured glass is an Umayyad innovation. Conversely, as far as can be ascertained, the manufacture of crown glass panes was a late development in western European glass manufacture. In the West panes of this type appear to have been first developed by Normandy glass-workers in the eighth/fourteenth century, a century later than the church at Atlit. It thus seems likely that the Atlit windows, while deriving from western European traditions of stained glass, reflect

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150 Ibid., pp. 7-8: E. Baer, Ayyubid Metalwork with Christian Images (Leiden, 1989), pp. 4-5.
151 C.N. Johns, Excavations at Pilgrims' Castle, Atlit (1931-2), QDAP (IV, 1935), p. 133, fig. 8. Similarly, the appearance of stained glass in Constantinopole seems to reflect the aesthetic tastes of the occupying Crusaders; above, p. 42.
152 These are now kept in the Israel Museum, Jerusalem. Inventory No. 37.200. See Lafond, Découvertes, p. 237.
153 See above, p. 55.
154 Harden, Domestic window glass, p. 40. It has even been suggested that the technique of manufacturing crown glass was introduced to Europe as a result of the Crusades; Chambon, L'Evolution, p. 167.
the influence of contemporary qamariyyat in the technical aspects of their manufacture.

That such influences were reciprocal is suggested by the recent discovery of a tympanum-filling composed of pierced lead sheeting in the Qubbat al-Mir'aj (597/1200-1) in the Haram of Jerusalem.\textsuperscript{155} The only other examples of the use of lead in the manufacture of qamariyyat come from Spain and the Maghrib, and probably reflect the influence of western stained glass.\textsuperscript{156} If the lead grille from the Haram is an original Ayyubid creation it is likely that it too reflects the influence of stained glass in the Crusader architecture of the Levant. The syncretic blending of oriental and occidental methods and materials in the manufacture of such windows finds a parallel in other regions where Europeans and Muslims were in close contact, most notably medieval Sicily.\textsuperscript{157}

3.6.7 Mausoleum of the 'Abbasid Caliphs, Cairo (before 640/1242).

The use of qamariyyat in the mosques and madrasas of Damascus from the end of the sixth/twelfth century suggests that such window-fillings may have been found contemporaneously in Cairo. Despite this, the earliest examples of Ayyubid qamariyyat to survive in Egypt are those in the Mausoleum of the 'Abbasid Caliphs in the Southern Cemetery of Cairo. These qamariyyat are important in several respects, not least because, after the grille in al-Azhar, they are the earliest examples of stucco and glass window-grilles to survive from Muslim Egypt.

There were originally twelve grilles in the mausoleum, arranged in groups of three lights set between each pendentive (pl. 82). The first remarkable feature is the form of the windows. In contrast to the solitary arched window-openings found in Damascus, the Cairene windows are arranged in groups consisting of two squat grilles with flat bases and pointed arches, set below an elongated rectangular window pointed at both ends. This form of fenestration appears to have been introduced in Cairo in the late Fatimid or early Ayyubid period,\textsuperscript{158} and was to enjoy a long history in the subsequent architecture of the city.

Of the qamariyyat surviving when Creswell surveyed the monument, he identified two on the south-western side of the building, two on the north-western side and the lower left grille above the mihrab as being original.\textsuperscript{159} The border of the smaller grilles consists of a series of narrow rectangles. The stucco tracery of the grilles assumes the form of the familiar axial arabesque first encountered in the grilles from Imām al-Shāfi‘ī. Certain elements of the design, including the apical bud, protrude into the border (pls. 84-5), a

156 See below, p. 100.
157 See above, pp. 71-4.
158 Similar windows are found earlier in the mausoleum of Imām al-Shāfi‘ī(608/1211) and the mausoleum of Amīr Abī Mansūr Ismā‘īl (613/1216); MAE II, pls. 25a, 27b.
159 MAE I, pp. 91-2, 134.
detail which is also found in the qamarīyya of the Jāmi‘ al-Hanībīa in Damascus (ill. 32).

The Cairene windows also use the same techniques as their Syrian counterparts. The tracery is deeply carved, with pieces of cut glass held in position by narrow fillets of stucco. These are no deeper than 1.5 cm and follow the pattern of the tracery on the reverse of the grille. On the face of the window the fillets of the tracery are angled and slope downwards slightly to funnel the light downwards into the mausoleum. This feature was also later to recur with great frequency in later qamarīyyat.

Creswell's statement that the original qamarīyyat contained painted glass presumably comes from personal observation. The painted glass is clearly visible in the reconstruction drawing which he published (pl. 85). None is visible today, which suggests that the qamarīyyat have subsequently been replaced. Alternatively, it may be that the remaining paint has peeled from the surface of the glass. The painting visible in Creswell's photograph is clearly flaking, which suggests that, like earlier painting on Islamic window-glass, it was applied cold. The pieces of glass which filled the tracery were apparently colourless, but had a delicate arabesque pattern reserved on the surface of the glass (pl. 84), admitting light. The arabesque theme recurs in the rectangular glass elements filling the border. Since the stucco tracery itself assumes the form of a symmetrical arabesque, the use of painted glass bearing such a pattern produces the effect of an arabesque within an arabesque. Although there is no Syrian parallel for the eschewal of coloured glass, the selective use of painted glass to define the main lines of the arabesque pattern is comparable to the selective use of colour to the same end in the Damascene qamarīyyat. The painted qamarīyyat appear as a schematic echo of the delicate lace-like arabesque panels found at the centre of the keel arches on the south-west and north-east walls of the chamber (pl. 82). The arabesque theme is further stressed in the narrow blue-painted frieze which surrounds the window-grilles.

While pieces of coloured window-glass painted with simple decoration appeared earlier in Umayyad and 'Abbasid window-fillings, the painted window-glass from the mausoleum of the 'Abbasid Caliphs is innovative in at least one important respect. Instead of being painted on the glass, the designs are reserved in the black paint which covers the surface of the glass. Moreover painted window-glass is rarely found in the Islamic world after the third/ninth century. It may be significant that Ibn Jubayr, visiting the Ka‘bā in 579/1183, mentions that its skylights were filled with stained...
and decorated glass (zujjān ʿiraqiyun badiʿu al-naqshi), although nowhere is painted window-glass mentioned.

Lamm published a piece of painted glass from Rayy (ill. 36), which he dated to the seventh/thirteenth century. Lamm identified the fragment as belonging to a window-pane, although the small surface area of the surviving glass (nowhere greater than 7 cm in diameter) precludes any certainty as to its original function. The glass bears gill and painted decoration of greenish-blue colour and "is clearly related to a certain category of Rayy (Raghes) pottery of the Minai Ware with muffle-fired decoration chiefly in gold, white, and red". Whatever the origin of the piece, the abstract ornament of its decoration includes vegetal elements broadly reminiscent of the painted window-glass in the mausoleum of the 'Abbasid Caliphs. Earlier finds of painted window-glass have been made in Iran, although these seem to reflect the eastern extension of Umayyad decorative traditions. At a much later date the accounts of European travellers often mention the use of painted window-glass in Persia.

Since most of the finds of painted window-glass of the Islamic period are confined to lands to the east of Egypt (Syria, Iraq, and Iran), one may make the suggestion that the anomalous painted window-glass from Cairo is a reflection of eastern influence. Given the apparent popularity of painted window-glass in 'Abbasid architecture of an earlier period, it may be that qamariyyat of this type were consciously chosen as fitting decoration in a western mausoleum built for an eastern dynasty. However the continued use of qamariyyat filled with painted window-glass (pl. 66) in Sicily into the eighth/fourteenth century suggests that painted glass may have been used in Fatimid qamariyyat. Slightly later pieces of glass painted on the reverse with arabesques are set in the stucco ornament of the qibla wall in the mausoleum of Ahmad ibn Sulaymān al-Rifāʿī [690/1291] (ills. 37-8). The form of the painting has been compared to fragments the painting found on fragments of glass vessels from Fustat. It may be therefore that the painted glass in the mausoleum of the 'Abbasid Caliphs is evidence for a more widespread use of painted window glass in Egypt which continued even after it had disappeared in other parts of the Islamic world.

The windows in the mausoleum of the 'Abbasid Caliphs have an appearance remarkably similar

165 Wright, Travels, p. 83.
166 Lamm, Glass from Iran, p. 15, pl. 45a. Museum Inventory No. MM NM 949/1939. I am grateful to Dr. Karin Adahl for supplying the photograph of this piece.
167 Ibid., p. 15.
168 Thomson, Stucco, p. 86.
169 See below, pp. 164-5.
170 See above, p. 74.
to that of the contemporary *grisaille* windows of medieval Europe (pl. 86). The resemblances include the use of fine tracery to form the main lines of the design, the form of the design itself, and the use of colourless (albeit partly painted) glass. While it is possible that a direct relationship exists between the European and Cairene windows, this seems unlikely. Vegetal motifs similar to those used in European window-tracery from the Early Middle Ages onwards were widely disseminated throughout the Late Antique world. It therefore seems more likely that the European *grisailles* and the Cairene *qamariyyat* are related genetically. The resemblances are also heightened by technical aspects of both forms of window. The patterns used in *grisaille* windows, unlike those of figurative stained glass, are often formed by the lead tracery in which the glass is set. This is always the case with *qamariyyat*. The use of narrow fillets of tracery in these Ayyubid *qamariyyat* gives them the familiar appearance of stained glass windows. There is no need to look to Europe for the origins of such fine tracery, instead its emergence should be attributed to a gradual refinement of the *qamariyya* during the course of its evolution. The parallel histories of the *grisaille* and this form of *qamariyya* are undoubtedly related to the similarity of the sources from which they ultimately spring.

3.6.8 Mausoleum of Şāliḥ Najm al-Dīn al-Ayyūb, Cairo (640-8/1242-50).

In contrast to their predecessors in the mausoleum of the 'Abbasid Caliphs the *qamariyyat* in the mausoleum of al-Şāliḥ Najm al-Dīn al-Ayyūb in the Siq al-Nahasīn. Like the windows of the earlier mausoleum they consist of four groups of three lights between the pendentives. In this case all three windows in each group are of elongated form, pointed at both ends.

Until recently only the *qamariyyat* in the south-eastern windows above the *mihrab* were original, the others being filled with the characteristic bull's-eye grilles of the Turkish period. Of these three grilles (pl. 87) only the very lowest section of the uppermost one survived, enough to indicate that it was filled with tracery of a similar type to that surviving in the windows below. Recently all the windows in the tomb have been filled with modern *qamariyyat* fashioned after the form of the surviving remnants of the original windows (ill. 35).

Despite the nod to local building traditions in the shape of the grilles, the form of the stucco tracery is classically Syrian. The outer borders are composed of the familiar circles and rectangles and frame axial arabesques (pl. 88). The closest parallels for the form of the *qamariyyat* is found in the arabesque tracery of the window to the west of the *mihrab* in the Jāmi‘ al-Hanābilā in Damascus (ill. 32) created several decades earlier. The most obvious similarity between the two is the continuation of the border pattern into the body of the grille to form a large central circle. Close inspection reveals further similarities between the Damascene and Cairene grilles such as the protrusion of a trefoil axial

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172 Flood, *Tree of Life*.

173 See p. 56 above.

174 *MAE* I, p. 103, fig. 49, pl. 108.
bud into the zone of the circle and, at the summit, into the border ornament.

When I saw them in 1990 light no longer penetrated the glass of the original grilles, so the colours of the window-glass employed were difficult to determine. The only colour visible in the qamariyyat was deep blue. Herz-Bey reported that red, blue, yellow and green glass was used in the qamariyyat, the same colours which were used in the arabesque qamariyyat of Damascus. The same author also reported that the glass was thicker than that found in qamariyyat of the Mamluk period, although whether, as seems likely, it was cut from panes of crown glass is not known. Blue, yellow, red, green, purple and colourless glass has been used in the new grilles (ill. 35). It is not known whether these colours were chosen on the basis of the glass remaining in the original windows. In the new grilles the various elements of the design are differentiated by the use of different colours, in similar fashion to the Ayyubid qamariyyat in Damascus.

3.7 Conclusion.

The techniques pioneered in Umayyad Syria continued to be used in the production of later qamariyyat, but were modified and refined. By the end of the second/eighth century fine stucco tracery was being used, apparently for the first time. A similar development is evident in some third/ninth-century claustra. The single surviving Fatimid qamariyya from Cairo suggests that by the sixth/twelfth century window-grilles composed entirely of narrow fillets of stucco filled with glass were being produced. However the finds from Qasr al-Banat indicate that, even at the same date, both wide- and narrow-gauge tracery could be appear in the same qamariyya.

The evidence suggests that geometric tracery was favoured above all other forms in the qamariyyat of the Near East before the Ayyubid period. Some of these qamariyyat, notably those from Nishapur and Qasr al-Banat combine the use of small cut pieces of coloured glass with that of whole panes of crown glass. This may be the continuation of an earlier practice apparent in some of the qamariyyat fragments from Samarra. From the end of the sixth/twelfth vegetal motifs, principally the axial arabesque, also appeared in qamariyyat. This development seems to have been influenced by the use of similar forms on contemporary claustra. It also reflects a further technical refinement, with narrow raised fillets finally replacing the thicker strapwork used in earlier qamariyyat. The tracery of such grilles was sometimes slanted slightly to render the details of the design more legible from below. Elaborations on the pearl borders used since the Umayyad period also appear in Ayyubid qamariyyat, notably the use of narrow rectangles alternating with circles.


176 I have tried to examine the remains of the original grilles on several occasions, without success. Their present whereabouts is unknown.

177 Although, as noted above (p. 54), the shape of some of the pieces of window-glass from Khirbat al-Mafjar suggests that tracery of a more complex form than that which survives may have been known in the Umayyad period.
While the colours of the window-glass used in Umayyad qamariyyat continued to appear subsequently, in Ayyubid qamariyyat there is a marked narrowing of the range. The latter show a preference for primary colours and make extensive use of red glass, a colour rarely found before this period. Purple, the predominant colour of the glass used in Umayyad and 'Abbasid qamariyyat is now reserved for minor details. It seems likely that this development is related to the development of finer tracery and the use of more complex designs. As the width of the tracery narrowed, the proportion of glass to stucco increased markedly, underscoring the necessity to strike a balance between form and colour. Equally, the use of finer tracery enabled the creation of more complex window-grilles. As a consequence, the form of the design assumed a role as significant as the colour of the glass which filled it. The restriction in the colours of the glass used may result from a need to strike a balance between colour and form so that the two did not compete, the design disappearing in a confusion of colour. It has to be said that this endeavour was not always successful.

The qamariyyat from Raqqa show an awareness of this problem as early as the late second/eighth century. In these qamariyyat monochrome glass was used in the circular apertures pierced in the thick strapwork of circles, with the interiors and interstices filled with polychrome glass. In this way the main lines of the design were differentiated from the background. The solution adopted in the Ayyubid qamariyyat was to pick out the arabesque from its background by the use of one or two colours. In the mausoleum of the 'Abbasid Caliphs, where the qamariyyat were filled with colourless glass, painted glass was used to fill the main lines of the arabesque.

The use of painted window-glass in the latter mausoleum is something of an anomaly. It seems likely that painted window-glass disappeared after the third/ninth for reasons similar to those which caused the colour range of the glass used in window-grilles to be limited. Equally, as the width of the tracery narrowed, and the proportion of glass to stucco increased, the practice of treating the surface of the tracery with black paint to emphasise the colour of the glass became redundant. Such painting is not found after the third/ninth century, although claustra and other forms of stucco decoration continued to be brightly coloured.

The use of coloured glass in windows also seems to have become more widespread during this period. By the sixth/twelfth century windows of coloured glass were found in mosques, madrasas, mausolea and palaces. Qazwini (d. 682/1283) mentions the use of coloured glass roundels in a bath house at Sinjhar. The location of the finds from the West Palace at Raqqa suggests that qamariyyat were concentrated in the reception rooms. However, the dome of a single Ayyubid mosque or mausoleum could have as many as sixteen windows, many, if not all, of them filled with qamariyyat.

One may conclude that between the third/ninth and sixth/twelfth centuries there was a substantial increase in the number of qamariyyat being manufactured. This is not true however of all the areas covered by this survey. There is, for example, a noticeable dearth of evidence for the continuous use of qamariyyat in Iran during this period.

In the ‘Abbasid palaces at Raqqa, as in the in Umayyad palaces of Syria, *qamariyyat* were in windows over doorways. At both Rusafa and Qasr al-Banat *qamariyyat* were used in the windows of iwans. In mosques and mausolea *qamariyyat* were set in the windows of the side walls and *qibla*, and in the zone of transition of domes. There are noticeable regional variations in the form of window-openings and, consequently, *qamariyyat*. Rectangular *qamariyyat* appear to have been used at Qasr al-Banat. As will be demonstrated in Chapter V, windows of this form were to become common later, especially in Syria. The surviving Ayyubid *qamariyyat* from Damascus all have rectangular bases and terminate in a slightly pointed arch. In Egypt windows were pierced not in the zone of transition, but on the side walls, between pendentives. The tops of such windows were pointed, and they could have rectangular or pointed bases. In place of the single or paired windows favoured in Damascus, the Cairene windows tended to be grouped in threes.

Finds of stucco *claustra* from the ‘Abbasid palaces and Qasr al-Banat at Raqqa suggest that, as was the case in the Azhar Mosque, *qamariyyat* were often used to fill one side of a window-opening with a stucco *claustrum* filling the other. *Qamariyyat* fragments pierced on either side with apertures of different forms were found at Samarra and Nishapur however, which suggests that a *qamariyya* could also be used in contexts where it was visible from both sides.

The door-jambs of the West Palace at Raqqa are over 1m thick, which suggests that not much light would have entered through the window above. Although the area of glass used in the *qamariyyat* from the palace is considerably larger than that used in Umayyad *qamariyyat*, the openings are still rather small, the glass was highly decorated and any build-up of dust on the exterior of the grille would have considerably diminished their effect.

One may conclude that the use of *qamariyyat* in these windows cannot have been motivated by purely functional considerations. The doors of the apartments where many of the fragments were found open either onto an open courtyard or a terrace, and it is probable that the door was the main source of light for the chambers between the two. There is a certain irony in the fact that, although the use of windows above doors originated in the need to admit light and air when the door was closed, the setting of *qamariyyat* within such windows rendered them functionally redundant. Equally, the use of *qamariyyat* in the windows of open iwans can hardly have been dictated by the need for light. Instead the presence of *qamariyyat* in both instances should be attributed to their role as part of the *sine qua non* of contemporary palace decoration. In the ‘Abbasid *qamariyyat* the use of moulded ornament on the surface of the tracery, and the amount of painting on the glass within them, is evidence of a *horror vacui*, a desire to maximise the amount of decoration which the window-grilles could bear.

*Qamariyyat* were often used in conjunction with a wide range of polychrome decoration in stucco and other media. The painting on the ‘Abbasid window-glass from Raqqa mirrors that found on some of the glass vessels from the palaces, and echoes the large-scale stucco ornament of the latter.

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179 See p. 27.
Similarly the arabesques used in Ayyubid qamar iyyat are hardly exclusive to window-grilles, but find countless parallels in many contemporary forms of architectural decoration. The palaces of Samarra, the windows of which were filled with coloured glass, had their walls clad in a somewhat bizarre variety of vitreous architectonic decoration. The ornament of the sixth/twelfth-century palaces at Raqqa and Rusafa included polychrome glazed tiles. The qamariyyat were evidently designed to harmonise with these other forms of decoration. In Qasr al-Banat the qamariyyat were integrated into the decorative scheme of the palace by the use of elaborate stucco decoration which surrounded them and overlapped their edges, repeating motifs used along their borders. One can assume that the impact of such lavish polychrome decoration was originally heightened by the use of colourful furnishings and rich textiles.
CHAPTER FOUR
SPAIN AND THE MAGHRIB (287-856/900-1452)

4.1 Introduction.
In general the published shamsiyyat from the Western Islamic world are fewer in number than those from Egypt and the Levant. This, combined with the difficulties of studying shamsiyyat in situ in mosques and madrasas, means that the amount of material available for study is less than in the Near East. Despite this, sufficient evidence exists to show both similarities and differences between the coloured glass windows of the Maghrib and al-Andalus and those of the eastern Mediterranean.

4.2 Umayyads.
Al-Idrīsī considered the marble claustra in the Great Mosque of Cordoba worthy of the following description:

"Around the cathedral mosque, in the upper part, marble claustra (muttaka'fūt) ensure the diffusion of light and its penetration up to the level of the roof; each one measures the height of a man in length, four spans in width and four fingers in thickness. All these claustra have hexagonal and octagonal decoration, each one different from the other, worked in lattice (mukarrama).... and pierced to admit light." 1

Like the claustra in the Great Mosque of Madina, these were gilded. 2 Klaus Brisch and others have indicated that the marble claustra of the mosque stem from the same sources as the claustra used in the Umayyad architecture of Syria. 3 Stucco claustra of similar form have been found in the mosque and Salon Rico at Madinat al-Zahrā. 4 Despite this, no evidence exists for the use of stucco and glass grilles in the Umayyad architecture of Spain. It may be that shamsiyyat were not introduced until a later period. However, given the strong similarities between Syrian and Andalusian claustra, and the use of qaṣarīyyat in the mosques and palaces of Syria, this seems unlikely.

4.3 Aghlabids.
Several stucco grilles are preserved in the cupola in front of the mihrab in the third/ninth-century Great Mosque of Qairawān. In the lower walls of the dome four six-lobed openwork grilles are set

1 After al-Sharif al-Idrīsī, tr. A. Dessus Lamare, Description de la Grande Mosquée de Cordoue (Algiers, 1949), p. 11.
2 Sauvaget, Mosquée Omeyyade, pp. 78-9.
4 F. Hernandez Gimenez, Madinat al-Zahra, arquitectura y decoración (Granada, 1985), p. 94; B. Pavón Maldonado, Memoria de la excavacion de la mezquita de Medinat al-Zahra (Madrid, 1966), p. 92, pl. LXVII.
between columns (pl. 89), the form of the grilles echoed by the multiple lobes of their architectural surrounds. The stucco grilles are composed predominantly of vegetal motifs, with an arrangement of branching foliage along a central axis filling their main medallions. Similarly, the semi-circular lobes are filled with coiled leaves. The borders of the medallion are composed of a plaited band with regular piercings along its length. The grille directly above the mihrab has pieces of coloured glass attached to its reverse side. In the easter Mediterranean this method of manufacturing qamariyyat became widespread only from the eighth/fourteenth century. A similar method is used in some of the shamsiyyat in the Marinid madrasas of Fez (pl. 41), which would appear to confirm Marçais' doubts that these grilles were original. Above the mihrab of the mosque three rectangular stucco grilles are still in place (figure 33). They are lit from behind by three windows pierced in the thickness of the wall. The largest, the central grille, consists of a medallion held between two registers of vegetal ornament (ill. 39a). The outer border of the grille is composed of a Classical bead-and-reel (astragal), similar to that which occurs in the mihrab of the mosque. The upper and lower registers each consist of three square compartments, each filled with carefully-carved acanthus leaves. The central medallion is connected to these square compartments by a knotted border, and by the placing of a similar rectangular panel at its centre, also surrounded by knots. The use of such knots recalls the grid of interlocking circles in the qamariyyat from Raqqa (fig 22). The large outer border of the medallion is formed by a plaited band similar to that which frames the central medallions of the hexafoil grilles in the dome. The resemblances between the decoration of the dome, the mihrab and the window-grille suggest that the latter may be original.

The colours of the glass filling this grille are yellow, blue, green and reddish-orange (ills. 39-39a). Most of the background is filled with glass of the latter colour. In the corner squares asymmetric arrangements of colour are used, with yellow or green being used as a background colour in opposite squares. The colours of the glass are unusually bright and vivid for medieval glass and it is more likely to be modern. It is possible however that the claustrum is original, but that glass has been attached to the reverse of its apertures, using the techniques of a later date. I could not determine how

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5 G. Marçais, Coupole et plafonds de la Grande Mosquée de Kairouan (Tunis, 1925), fig. 12, pl. II; Manuel I, p. 73, fig. 37.

6 See below, pp. 146-7.

7 Marçais, Coupole, p. 21, n.1.


9 Marçais, Coupole, fig. 8.

10 Visible in Golvin, Mihrab, p. 14, fig. 8.
the glass was attached, but Marçais, discussing Marīnid shamsiyya in Fez, notes that the glass is attached "non au moyen de cloisons de plâtre, comme des claustra kairouanaises du Xe-XIe siècle...", which suggests that the older method was used. It may be that the glass in the grille has recently been replaced, or that the grille has been remade after the fashion of the original.

There is no reason to doubt that shamsiyya were known in Ifriqiyya at this date, for an incidental mention of glass windows in the work of Isaac Israeli (d. 320/932), who served at both the Aghlabid and Fatimid courts, shows that such windows were sufficiently familiar to his readers to be used in a metaphorical description of intellectual illumination:

"After the form and radiance of intellect had come into being, a radiance and splendour went forth from it like the radiance that goes forth from mirrors of glass set in the windows of baths and palaces when the radiance and splendour of the sun falls upon them."12

The two remaining shamsiyya above the mihrab are more problematic. Their setting looks as if it has been modified. The geometric lattices of which they are composed do not sit well with the vegetal ornament which predominates in the decoration of the mihrab and its dome, and in the tracery of the central window of the group. Moreover, geometric patterns of this complexity are lacking in the wooden panels which decorate the minbar of the mosque and which are related to the form of Umayyad claustra.14 The tracery of the two remaining shamsiyya can be paralleled in western Islamic geometric claustra and shamsiyya of a later date (pl. 91,15 and one may consider them to be later additions, probably of the ninth/fifteenth century or later.16

4.4 Zirids and Ḥammādids.

Archaeological evidence suggests that stucco claustra were used in Zirid architecture. Fragmentary finds of stucco decoration from the fourth/tenth-century Zirid palace at Ashir included some pieces of carved stucco which appear to come from such claustra.17 Unfortunately these were too damaged to permit any reconstruction, but appear to be quite similar to the thickly-constructed


12 A. Altmann & S.M. Stern, Isaac Israeli (Oxford, 1958), p. 119. Although the text mentions both glass and mirrors, at least some of these windows must be permeable to light, in order to illuminate the interior of the hammam.

13 Although it is true that a geometric rosette is found directly above the mihrab; A. Lézine, Architecture de l'Ifriqiyya: recherches sur les monuments aghlabides (Paris, 1966), pp. 91-2, fig. 39.

14 R. Ettinghausen & O. Grabar, The Art and Architecture of Islam 650-1250 (Harmondsworth, 1987), p. 107. Although one cannot rule out the possibility that these panels were, like the tiles around the mihrab, imported from Baghdad.

15 See below, p. 105.

16 Marçais [Coupeau, p. 21, n.1] also appears to have had reservations about these claustra, suggesting that they were later than the third/nineth century. Golvin (Le Mihrab, p. 35) suggests, probably correctly, that they are Hafsid.

17 L. Golvin, Le palais de Ziri a Achir (dixieme siecle IC), Ars Orientalis (VI, 1966), p. 72, figs. 51-2.
fragments of window-grilles recovered from the Qal'a of the Banu Ḥammad (pl. 90). Two window-grilles, apparently of the Ḥammadid period, survive in the western wall of the Great Mosque of Constantine. Although several generations of whitewash have rendered the details of their design almost indecipherable, they seem to have been filled with vegetal tracery.

The first conclusive evidence for the use of shamsiya in the early medieval architecture of Ifriqiyya has been furnished by various explorations at the Qal'a of the Banu Ḥammad (begun c. 401/1010). Blanchet's excavations at the site produced the remains of pierced stucco grilles filled with coloured glass. These appear to have come from a series of windows pierced in the wall dividing the sahn from the zulla in the Great Mosque of the city. There was, in addition, a shamsiya set above the mihrab on the exterior wall of the zulla, facing towards the sahn.

The two published fragments (pl. 90) include a piece which appears to come from a geometric lattice, but the carving of which shows little of the precision of 'Abbasid or Fatimid qamariyya. Instead the apertures of the grille vary in size and shape, giving the piece a crude appearance. Finds of red, green, yellow, and blue window-glass indicate that at least some of such grilles were provided with coloured glass, although how the pieces of coloured glass were attached to the tracery is unclear. The range of colours is more limited than those used in 'Abbasid and Zangid qamariyya. The use of red glass is noteworthy, since this colour was rarely used in the qamariyya of the eastern Islamic world before the Ayyubid period.

The evidence suggests that the use of such shamsiya was widespread on the site. De Beylié found numerous fragments of pierced plaster grilles, many still containing coloured glass. More recently, the excavations of Golvin produced the remains of moulded, and possibly cut, stucco window-grilles, some still containing coloured glass. The mention of moulding is interesting, and might suggest that the upper part of the tracery was prefabricated. The finds included colourless, brownish-red, violet, yellow, green, and blue glass. The colours are comparable to those of the window-glass found at Sabra-Mansouriya. The translucence and thickness of the window-glass varied from 0.1 cm to 0.3 cm. In view of this lack of uniformity in thickness it seems likely that the glass pieces were cut from crown glass plates used as quarries for the glass elements required to fill the stucco grilles. As has been shown, this technique was pioneered in the qamariyya of Umayyad

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18 P. Bourouiba, L'Arte religieuse Musulman en Algerie (Algiers, 1973), pp. 52-3, pl. VII 6-8. The other stucco grilles and shamsiya in the mosque appear to date from the Ottoman period or later.


21 De Beylié, Kalaa, p. 87.


23 Above, p. 70.
Syria and spread from there. The question of how the glass pieces were attached to the grilles remains to be resolved.

The use of ceramic window-grilles at the site must also be mentioned.24 Similar grilles were used in the pre-Islamic architecture of North Africa, and their use may represent the survival of antique modes of fenestration in the area.25 It also seems significant that the minaret of the Great Mosque of the Qal'a was provided with blind windows decorated with stucco and faience. At the highest level of the minaret these arched 'windows' were filled with glazed ceramic plaques cut with small diagonal crosses.26 The material would presumably have reflected the light, giving the highest level of the minaret a spectacular appearance. The windows below present a less dramatic variant on the theme, with claustra composed of individual green-glazed bricks forming an openwork grille composed of small crosses.27 Green-glazed tiles were set in the mihrab above which some of the shamsiyyat were set.28 The use of reflective faience tiles arranged in simple geometric patterns may be compared to the use of coloured glass in the windows of the mosque. The Fatimid qamarîyya in al-Azhtar makes similar use of basic geometric patterns.29

4.5 Dhūl-Nūnids.

Ibn Bassām's description of the palace of Yaḥyā Ibn Ismā'il al-Mamūn (435-468/1043-75), one of the Dhūl-Nūnīd rulers of Toledo is a valuable source of information on early Islamic architectural decoration in al-Andalus. In his description of the majlis in the palace, the writer mentions an inlaid marble dado above which is a band of inscription, followed by

"orderly seas (buhūrūn muntagīmatun) of glass gilded with ḫurṣ. gold (al-mulabbasi b'il-dhahabi al-'ibrī), decorated with the shapes of animals and birds, images of animals and trees which bewitch the heart and hold the eyes. The background of these seas is covered with ḫurṣ. gold filigree (znrāqi al dhahahabi al-'ibrī) with splendid images of similar animals and trees."30

24 De Beylié, Kalaa, pp. 82-3.
25 Pierced terracotta plaques were used extensively in the windows of pre-Islamic basilicas in North Africa. For references see page 29, note 70 above.
26 De Beylié, Kalaa, pp. 83-4, fig. 72. Curiously, such embellishments were used only on the south side of the minaret, that facing the mosque. De Beylié compares such decoration to the glass lintels of the Byzantine Palace of the Hebdomon.
27 Ibid., p. 84, figs. 63, 71.
28 Ibid., p. 80.
29 See above, pp. 61, 69.
30 Ibn Bassam, al-Dakhira, Volume IV, part 1 (Cairo, 1364/1945), p. 103.
The wording is somewhat obscure, but several scholars have taken the description as referring to *shamsiyyat*. The location, the upper part of a wall, is certainly right. Occasionally however one finds blind window-grilles in which coloured glass is used (ill. 28). One cannot be entirely certain therefore that the light penetrated the windows, although Ibn Bassām's effusive account suggests that it did.

This has also been taken as the earliest evidence for the use of metal window tracery in an Islamic context. The apparent veracity of the description is evidenced by several independent facts. Firstly, it appears that al-Mam‘ūn had a penchant for coloured glass creations, and al-Maqqaff mentions a pavilion which the king erected in his palace, a pavilion composed of stained glass encrusted, like the windows of his palace, with gold. Furthermore, the use of *shamsiyyat* composed of coloured glass set in lead tracery appears to have been relatively common in the Maghrib, at least during the Marinid period. Given the contacts between the Hispano-Muslim world and Christendom, where the art of stained glass was well-established, at least by the sixth/twelfth century, it is very likely that the use of lead tracery in such windows reflects the influence of Christian neighbours.

However, it is to be wondered whether the metal tracery of the Toledoan windows was in fact of gold. Ibn Jubayr frequently mentions windows of gilded glass (*shamsiyāt al-mudhahhabati min al-zujājī mulawnati*). This is phrase is a little obscure, until one considers the possibility that the writer is using a transferred epithet. The windows of the Martorana Church in Palermo, described in the same way by Ibn Jubayr, were filled with grilles of stucco and coloured glass. There is nothing to suggest that the glass was gilded, but the grille was painted blue and yellow-gold. It seems likely therefore that it was not the window-glass but the window-tracery which was "gilded". We know that gilding was used on the *claustra* in the Umayyad mosques at Madina and Cordoba, and it may be that the tracery of the Dhū‘l-Nūn id *shamsiyyat* was similarly gilded. Alternatively, the surface of the glass


32 See above, p. 77; below, pp. 126, 140.


34 See below, pp. 102, 104.

35 The use of lead tracery in the Near East coincides with with the Crusader occupation of the Levant; above, pp. 85-6.

36 In the Great Mosque of Damascus; Wright, *Travels*, pp. 266.

37 See above, p. 73.


39 Torres Balbas (Ventanas, p. 200) suggested that the *shamsiyyat* were constructed from gilded lead tracery.
may have been decorated in some way; Ibn Jubayr mentions that the glass in the skylights of the Ka'ba was covered with engraved decoration. If this is so, then the evidence for the use of metal tracery in western Islamic window-grilles before the Marinid period disappears.

The second point worthy of note in the description of Ibn Bassām is the specific mention of tracery forming figurative designs. This is the earliest evidence for the use of tracery in the form of birds and animals. Indeed, after the brief mention by Ibn Bassām, it is not until the late Timurid or Safavid period that we find any evidence for the use of such grilles, and this is from the opposite side of the Islamic world. The suggestion that windows decorated with trees, birds, and trees existed in eleventh-century Spain raises the possibility that figurative designs were a more common feature of shamsiyat than the material evidence would suggest, and at a much earlier period. Given the likelihood of Christian influence on the materials used, it may be that the somewhat unorthodox choice of subject matter also reflects the influence of Christian stained glass. However, the depiction of birds and animals on the tents of the Fatimid court suggests that such forms of decoration may have been quite common in the palatine architecture of the medieval Islamic world. The fact that the windows reproduced the decoration of the marble dado below suggests that the designs of the windows were not exclusive to that context and serves as a further reminder that shamsiyat and qanariyyat were designed to be seen in conjunction with other forms of decoration.

The descriptions of glass pavilions and elaborate glass windows in Toledo obviously begs the question of just how widespread such creations were outside the Dhu'l-Nunid court. Unfortunately neither the archaeological nor the textual evidence proves illuminating on this point. It is however worthy of note that shamsiyat of more orthodox character were also in use in Toledo at a slightly later date. The remains of window-grilles composed of coloured glass embedded in stucco were found in the uppermost windows of the synagogue now known as Santa María La Blanca. The grilles appear to date from the seventh/thirteenth century.

### 4.6 Almoravids and Almohads

Stucco claustra in which both geometric and vegetal tracery were widely used in the Maghrib during the fifth/eleventh and sixth/twelfth centuries. It has been suggested that the stucco tracery of the dome in front of the mihrab in the Great Mosque of Tlemcen might originally have contained

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40 Zujajun 'iraqiyyun badi'u al-naqshi, Wright, Travels, pp. 264-5.
41 See below, pp. 161-2.
42 Romberg, Fatimid Treasury, p. 66.
43 Torres Balbas, Ventanas, p. 199.
coloured glass.  Although the outer dome is provided with windows to allow the light to filter through the tracery, there is no evidence for the use of glass and the basis for this suggestion is not clear.

More concrete evidence for the use of coloured glass in Almoravid architecture has come from the excavations at the Qubbat Barudîyin in Marrakesh. These have produced the remains of stucco tracery containing coloured glass which originally filled the twelve windows in the dome of the building. The interior of the window-openings was framed in each case by Kufic inscriptions, some of them set against a red background. The use of such inscriptions around windows is common in Fatimid architecture (pis. 76-7).

Glass pieces of varying thickness were found, some with a folded rim, others bearing a central bullion surrounded by concentric circles. One can thus be certain that the small pieces of glass were cut from larger circular panes of crown glass. This is also indicated by the presence of a clean cut along the sides of certain of the pieces of glass from Marrakesh. The type of instrument used for cutting the pieces from the circular panes is unclear, but the excavators suggested a diamond, since iron tools would have produced a break of less clean appearance.

Among the fragmentary shamsiyyat was a small piece of coloured glass still embedded in plaster. The thickness of the plaster in front of the glass was 1.5 cm, that behind, 1.0 cm. It appears from the description of the excavators that the glass was held in place between the two layers of stucco. The use of layers of tracery of different thickness and the quarrying of pieces from larger panes of crown glass are both witness to the enduring strength of the techniques first developed in Umayyad Syria. Even the colours of the window-glass from the Almoravid mausoleum shows little divergence from those used in the windows of Qasr al-Ḥayr West, with fragments of green, blue, purple, and burnt ochre glass being found. Glass of similar colours was found at Sabra-Mansouriya and the Qal‘a of the Banu Ḥammād.

Although any Almoravid shamsiyyat in the Qarawîyîn Mosque in Fez have long since disappeared, Terrasse mentions textual evidence for their existence, and muses:

"One is tempted to imagine them after the little which remains to us of Marinid stained glass, with the same range of tones, but with more variety and nuance."51

47 Meunie & Terrasse, Nouvelles Recherches, pp. 38-40, figs. 76-84.
48 For details of these inscriptions see below, p. 308, n. 169.
49 See above, p. 69.
50 Meunie & Terrasse, Nouvelles Recherches, p. 39.
51 Terrasse, Mosquée al-Qarawiyîn, p. 46.
Shamsiyyat were also employed in late Almohad mosques, for al-Maqdq comments shamsiyyati al-zujaji in the Qutubiyya of Marrakesh (553/1158).52

4.7 Marinids.

4.7.1 'Attaffn Madrasa, Fez (726/1325).

The earliest surviving evidence for the use of shamsiyyat in Maghribi architecture of the post-Almoravid period is found in 'Attarfn Madrasa in the Marinid capital, Fez. The shamsiyyat have not been published in detail,53 but their main features may be summarised briefly. Firstly, and perhaps most surprisingly, the coloured glass which filled the windows was held in tracery of lead.54 Apart from Ibn Bassam's ambiguous description of the long-vanished Dhu'l-Nunid palace,,55 this is the first surviving evidence for the use of lead in Western Islamic shamsiyyat. The form of the lead tracery was predominantly geometric,56 although floral elements may also have been included.57

It appears that shamsiyyat of more orthodox type, composed of pieces of coloured glass set in stucco tracery, were also used in this Marinid madrasa.58 It is possible that, like similar stucco and glass shamsiya in the Bu 'Inaniya Madrasa, these are later replacements for original windows of lead and glass. Although I have seen a photograph of only one of the stucco shamsiyaat from the mosque (fig. 34), the form of this betrays nothing which could preclude a Marinid date. The tracery of the grille is composed of an arabesque with twin volutes sprouting the length of a central axis. Small pointed buds appear at nodal intervals along the axis, culminating in a large apical bud. As has been demonstrated above, the symmetrical arabesque appears on Ayyubid qamariyyat from the late sixth/twelfth century onwards. It appears in certain Mamluk qamariyyat from Cairo (ills. 58, 65-6), and in Iranian window-grilles from the beginning of the tenth/sixteenth century onwards.59

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52 Dowy et al., Analectes I, p. 405. See also, Ahmad Ibn al-Nasiri al-Slawi, Kitab al-Istiasa (tr. I. Hamet), Archives Marocaines (XXXII, 1927), p. 72.

53 The following unpublished report is mentioned in the bibliography of C. Cambazard-Amahan, Le décor sur bois dans l'architecture de Fès: époque almoravide, almohade et début mérinide (Paris, 1989); M. Terrasse, Mission à Fès consacrée aux vitraux de la Madrasa Attarin, Rabat le 17 juin 1977. I have not succeeded in obtaining a copy of the report.


55 See above, pp. 99-100.


Marīnid qamariyya resembles a carved panel on the rear wall of the mihrab in the Great Mosque of Taza (fig. 78), which was enlarged in 692-3/1292-3. There is no reason to dismiss the possibility that stucco and glass shamsiyyat featuring such arabesques were originally used together with lead tracery featuring geometric patterns in the windows of the Marīnid madrasa. Both forms of tracery were found together in the windows of Nasrid buildings and will be discussed shortly. The windows of the 'Attārīn Madrasa are separated by miniature columns, from which shallow scalloped arches spring. The latter motif is frequently used in Nasrid architectural decoration. The shamsiyyat alternate with blind windows on which similar arabesques occur. A similar alternation of windows and blind arches is found slightly later on the qibla wall of the Bu 'Ināniya Madrasa in Fez.

The technique used in the manufacture of the shamsiyyat in the 'Attārīn Madrasa was similar to that employed in Cairo from the eighth/fourteenth century onwards, and which will be discussed in Chapter V. This consisted of attaching small pieces of coloured glass to the rear of the tracery by pouring a coat of liquid plaster between the two. No technical details of the lead window-grilles are available, although it is probable that the technique used was similar to that employed in the production of medieval European stained glass, with glass pieces set in the grooves of lead camees. At a slightly later date this method was used for some of the window-grilles in the Alhambra (ill. 42, fig. 37).

4.7.2 Bu 'Ināniya Madrasa, Fez (746/1345).

Three types of grille appeared in the windows of this building: stucco claustra, shamsiyyat in which lead tracery was used and shamsiyyat of stucco and glass. Claustra were used to fill windows above the entrance to the prayer-hall of the madrasa. Qamariyya of coloured glass set in lead camees appear to have been concentrated in the windows in the qibla of the prayer-hall. Bel saw three such lead and glass shamsiyyat in place above the mihrab in the early part of this century. The windows were rectangular, round-headed, and surrounded by decorative stuccowork. More significantly, the central shamsiyya carried an inscription in its tracery, the short Qur'anic sura, al-Iklilas (CXII). The letters of the inscription were executed in relief, formed by the structural tracery of the shamsiyya.

59 See below, p. 158, type VI.
60 H. Terrasse, La Grande Mosquée de Taza (Paris, 1943), pp. 43-4, pl. LV.
61 For example, in the niches framing the entrance to the Hall of the Ambassadors in the Alhambra.
62 Dannerbeck, Representations, p. 20.
63 See below, p. 107.
64 Ricard, L'Art Musulman, pp. 152-3; Lambert, Vitraux, p. 107; Marquis, L'Architecture Musulmane, p. 338.
Inscriptions appeared earlier on the stucco cloister in the Great Mosque of Tinmal (c. 427/1035).66 Qamarivyat bearing short religious inscriptions appear above mihrabs in Egypt and Syria from the late eighth/fourteenth century onwards.67

Unfortunately, these lead window-grilles have since disappeared. When Henri Terrasse visited the madrasa in the early 1950’s only half of the central shamsiya was still in place, the others having been replaced with grilles composed of stucco and coloured glass.68 The lead tracery of this central grille made use of geometric motifs, while the colour of the glass filling it was predominantly blue, with white, green, and ochre glass also being used. As was the case elsewhere in the Islamic world, the coloured glass pieces used to fill the lead tracery were cut from circular panes of crown glass. The process of replacing the lead shamsiya with stucco and glass grilles has continued. The central window above the mihrab is now filled with a stucco grille on which no inscription appears, while an adjacent window which was missing a grille in the 1950’s69 is today filled with a stucco shamsiya (ill. 40). As noted above, the use of lead tracery in Islamic window-grilles is unusual. To the two examples just cited can be added a third, for a description of the Great Mosque of Ceuta, written in 826/1422, mentions shamsiya composed of lead and coloured glass in the windows of the qibla.70

It is not immediately clear whether some of the stucco shamsiya currently filling the windows of the qibla could be creations of the Marinid period. As has been pointed out, the three stucco grilles above the mihrab can be dated with certainty to the fourteenth/twentieth century. However both lead and stucco shamsiya were used in Nasrid architecture, and apparently also in the ‘Attārin Madrasa. Perhaps the three windows above the mihrab were the only ones in which lead tracery was used. It is possible, if unlikely, that lead shamsiya provided the prototype for the stucco grilles now in place. While many of the stucco shamsiya feature sunburst rosettes similar to those which appear in Nasrid shamsiya,71 they also include geometric motifs without parallel among other surviving medieval Islamic window-fillings.72 The colours of the shamsiya now in situ are similar to those described in the lead shamsiya formerly in the prayerhall, with blue and orange predominant and yellow and red

66 C. Ewert & J-P Wishhak, Forschungen zur Almohadischen Moschee II: die Moschee von Tinmal (Mainz, 1985), pls. 72b, 72e-f, 73d.
67 See below, pp. 312-5.
68 Meunie & Terrasse, Nouvelles Recherches, p. 40.
70 Ifa bighbali bshaamsayyutan min al-ziyāt al-mawwam binātātin shattā ma qīdātin bil-rasābi; E. Lévi-Provençal, Une Description de Ceuta Musulmane au XVe siècle, Hesperis (XII, 1931), p. 153.
71 See below, p. 105.
72 Among these is a grid of ovoids, each of which is divided into three segments by the use of horizontal bands; M Sijelmassi, Les Arts Traditionnels au Maroc (Paris, 1974), fig. 270.
featuring less prominently. Once again, the glass is applied using a thin coating of stucco on the reverse of the grille (ill. 41). Like those of the 'Attārīn Madrasa, the windows of the qibla are separated by blind panels of carved stucco (ill. 40).

4.8 Nasrids.

A considerable number of fragments of coloured window-glass are preserved in the Museo de Arte Hispanomusulmán in Granada (ill. 42, figs. 35-7). The exact provenance of the fragments is not recorded, but the corpus of window-glass has been assembled from the Alhambra and from the Palace of the Alixares in Granada. The latter palace, now demolished, was built in the ninth/fifteenth century. The window-glass from the Palace of the Alixares was found alongside fragmentary stuccowork and glazed tiles. The shamsiyyat from which the glass survives were used in a mirador or pavilion in the gardens of the palace.

The form of the fragments indicates that they were set in geometric tracery featuring starburst patterns such as those used in Nasrid and Marinid claustra (pl. 91), or in the tiled dadoes of the palace (ill. 43). It is possible, but unlikely, that the glass was used in lead tracery. The sole remaining fragment of a lead shamsiyya from the Alhambra indicates that these were of less ambitious form, making use of glass cut into very simple rectilinear shapes. Although no traces of stucco remain on the glass fragments, it seems likely that they were used in stucco grilles.

While not enough fragments of different types survive to complete the pattern of any one shamsiyya, several of the glass pieces are cut into distinctive shapes which indicate that they filled lattices composed of geometric rosettes and starbursts. The most characteristic shapes are stars which occur in a variety of forms; six-sided, eight-sided, and twelve-sided. Many of the fragments could be used to fill stucco grilles similar to that found in a Nasrid house on the Albaicin Hill in Granada (pl. 91). Several of the star-shaped pieces of glass are not complete, but show a clean-cut edge, indicating that they were used along the edges of shamsiyyat, or in subsidiary positions within the geometric grids. Other regular shapes among the fragments include semi-circles, triangles, lozenges, and many small angled pieces which would presumably have been used to fill subsidiary sections of the geometric lattices. Two larger flat pieces may have been used to fill tracery of different form, or perhaps a leaded window. The colours of the surviving glass are violet-blue, light grey-blue, deep ultramarine, bottle green, and ochre. The glass contains many bubbles. Colourless glass is plentiful, with the tone ranging from white to greenish and the quality of the glass varying from opaque to quasi-translucents.


75 L. Torres Balbás, Arte Almohade, Arte Nazari, Arte Mudejar, Ars Hispaniae IV (Madrid, 1949), fig. 180.
Many of these colours recur in the glazed tilework of which the dadoes in the palace are composed. The individual elements of the geometric patterns decorating these dadoes are similar in form to the cut pieces of window-glass. One may surmise that the decoration of the palace was characterised by the prevalence of a harmony in colour and form between the glazed dadoes, which reflected light, and the glass windows, which transmitted it. One is reminded of the Dhūṛl-Nūnīd palace, in which the designs of the windows mirrored those of the dadoes below.

Most of the window-glass appears to be cut from panes of crown glass. Characteristic indications that the small glass pieces were quarried from larger crown glass panes are variations in thickness (0.5-4.0 cm), signs of circular swirling, and the presence of rounded edges on some pieces with a slightly convex profile. At least one of the pieces shows little variation in thickness over a large surface area and has a rounded but irregular edge, both of which suggest that the glass was moulded rather than spun.

While some of the edges of the glass pieces are straight and clean, others have been deliberately shaped, but nipped rather than cut. Small semi-circular tool-marks are visible along the edges of such pieces (fig. 36). The presence of such marks has not been recorded on finds of window-glass from elsewhere in the Islamic world. The quarrying of glass pieces may be compared to the cutting of shaped pieces of wood or tile for the tiled dadoes and wooden ceilings of the palace. It may be that similar tools were used to cut both the glazed tiles used in the alicatado dadoes of the palace, and the pieces of glass set in the shamsiyyat.

The suggestion was made by Torres Balbás, and taken up by later scholars, that the Spanish name of the Hall of the Ambassadors, "Sala de Comares", was derived from the qamariyyat used in the decoration of that room. The room is one of three in the palace which retain their Arabic names, and this etymology is found as early as the tenth/sixteenth century. An alternative suggestion was that the name evolved because the Sala de Comares was built by workmen from a nearby town of a similar name. An a priori argument against the derivation of "Comares" from "qamariyyat", and one which has been overlooked to date, is that the term is rarely if ever used by Western Islamic writers to describe window-grilles of stucco and glass, "shamsiyyat" being the term chosen in its stead. A more convincing etymology has been proposed recently which links the name of the room

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76 Torres Balbás, Ventanas, p. 200.
77 F. de Montequin, Compendium of Hispano-Muslim Art and Architecture (Hamline University, 1976), pp. 152-4.
78 Fernandez Puertas, 'Fachada', p. 198.
79 D. Cabanelas Rodriguez, El Techo del Salon de Comares en la Alhambra (Granada, 1988), p. 91
81 See above, pp. 4-5.
to the Arabic qim 'arsh (the height of the throne), a reference to both the function of the room and its location in a high tower.82

Renovations at the southern end of the Court of the Myrtyles earlier this century produced further evidence for the use of lead tracery in Western Islamic shamsiyyat during the eighth/fourteenth century. The find consists of a fragment of a thick lead came 18.4 cm long with the remnants of thinner branching came at both ends, and a larger stem at the centre (ill. 42, fig. 37).83 A small triangular piece of opaque white glass is still preserved in the sole remaining closed aperture. The lead comes bear internal grooves to permit the insertion of glass pieces which, to judge from the form of the tracery, must have consisted of large hexagons or octagons, with small interstitial triangles. The lead windows appear to have been less complex in design than the stucco shamsiyyat, but no firm conclusions can be drawn on the basis of this single fragment. The piece was found in conjunction with a substantial quantity of coloured glass pieces of geometric form.84 Traces of lead tracery still adhering to the interior of three window-openings above the entrance from the Sala de la Barca to the Court of the Myrtyles suggest that shamsiyyat composed of lead tracery were used in several locations.85 The fragment of lead tracery came from the opposite end of the Court, and it is possible that it formed part of a window-grille filling windows in the corresponding position.

Some idea of how the lead shamsiyyat in the windows of the Sala de Barca may have appeared is given by a series of paintings of the Court of the Myrtyles executed before 1251/1835.86 In a view of the Court from the Sala de la Barca (pl. 92) the remains of window-grilles are clearly visible in each of the three windows (pl. 93). The heavy appearance of the tracery, and its occurrence in window-openings where traces of lead tracery are still visible, suggest that this is indeed a depiction of the lead grilles before their disappearance. The painting shows window-grilles composed of multi-petalled floral forms, important evidence for a diversity not attested to by the surviving geometric pieces of window-glass. A parallel may be sought in the reported use of floral forms in the lead shamsiyyat of the 'Attārīn Madrasa in Fez.

In two of the grilles there are signs of an arched internal division, and it seems as if two of the grilles are held in place by horizontal rods set at two different heights. The exterior of the window-openings is blocked, but grilles are visible in the windows above the doorway at the opposite end of the court. It may be that the exterior of the window-openings were originally filled with claustra such as those now in place.87

82 Cabanellas Rodriguez, Techo, pp. 91-8.
83 Museo Nacional de Arte Hispanomusulmán, Granada, Inventory Number 946.
84 Torres Balbas, Ventanas, p. 200. Traces of these are still visible today.
85 Ibid., p. 200.
86 J. Lewis, Sketches and Drawings of the Alhambra (London, 1835), pls. 6-9, 11
A circular shamsiya bearing an inscription (fig. 44) has been identified as coming from the Alhambra. The grille contains an inner medallion connected by four knots to its outer edge, and has a background filled with random piercings. Both features find a parallel in certain circular window-grilles of the late ninth/fifteenth century from Cairo (fig. 44d). I know of no circular windows in the Alhambra which this grille might have filled and none appears in any thirteenth/nineteenth century drawings of the palace. The inscription is incomplete and was evidently continued in an adjacent window. It reads, huwa al-khalaq... (He is the creator in...). The tendency for inscriptions to run from window to window is also a characteristic of Mamluk qamariyyat, which further indicates that this grille has been misidentified.

Finally, mention must be made of the possibility that shamsiyat in which wooden tracery was the major structural element were used in the Alhambra. It has been suggested that the open windows of the alcoves around the Hall of the Ambassadors, or at least those of the central alcove, were originally filled with wooden or lead grilles filled with coloured glass although no evidence has been given to support the suggestion. Wooden window-grilles similar to mashrabiyyat were used in Nasrid architecture, and some examples are preserved in the Alhambra Museum. The wooden ceiling in the Mirador de la Daraxa is filled with coloured glass (ills. 130-1), rendering it at least possible that wooden window-grilles of similar composition may originally have been filled with coloured glass. If so, none have survived.

4.9 Conclusion.

Textual evidence indicates that windows of glass were relatively commonplace in the Maghrib by the third/tenth century, although no surviving shamsiyat of this date can be identified. The earliest shamsiya from the Maghrib were manufactured in the same way as the qamariyyat of Egypt and the Levant, with pieces of glass sandwiched between two superimposed layers of stucco. From the

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87 These windows had been open and filled with stucco claustra by the time that Owen Jones executed his drawings in the early 1840’s; Jones & Ghoury, Plans I, pl. II.


89 See below, p. 147-8.

90 In numerous Mamluk buildings. See, for example, the mausoleum adjoining the mosque of Aşânim al-Siba’i (746/1345) and the madrasa-khanqah of Barqiyya (786-8/1384-6); see below, pp. 128, 133.


92 L. Torres Balbás, Ajmeces, Al-Andalus (XII, 1947), pp. 415-27.

93 Inventory Numbers 4600, 1675.

94 See below, p. 186.
eighth/fourteenth century onwards a different technique was used. This consisted of attaching pieces of glass to one side of a tracery panel by means of a thin application of plaster. The latter method continues to be used in the production of Maghribi shamsiyyat until the present day.

The colours of the crown glass panes used in the production of Maghribi shamsiyyat were also broadly similar to those used in the eastern Mediterranean. Purple does not seem to have been as common as it was in the Near East, and small quantities of red glass from the Qal’a of the Banu Ḥammād suggest that this colour may have become popular in the Maghrib before it was widely used in Syria and Egypt.

The paucity of evidence makes it difficult to generalise about the motifs employed in Maghribi window-tracery before the eighth/fourteenth century. The finds from the Qal’a of the Banu Ḥammād suggest that simple geometric ornament such as that used in the qamarīyyat from al-Azhar (pls. 62-3, ill. 23) and Qasr al-Banat (fig. 29) was also favoured in the Maghrib. In the Marinid period both vegetal and geometric motifs were used in window-tracery.

From the eighth/fourteenth century, and perhaps earlier, lead was also used in the manufacture of Maghribi and Andalusian shamsiyyat. The glass used to fill this tracery was cut from panes of crown glass. The range of motifs used in the lead tracery was wide, including geometric, vegetal and epigraphic ornament. Metal or gilded window-tracery featuring trees, birds and animals seems to have appeared in the Dhū‘l-Nūnīd palace at Toledo.

The provision of glass windows in baths and palaces continues an earlier tradition. Similarly the appearance of shamsiyyat in mosques and madrasas finds many parallels in other regions of the medieval Islamic world. From the Almoravid period one finds windows of coloured glass in mausolea, just as qamarīyyat were set in the windows of contemporary tombs in Cairo and Damascus.

In the Almoravid tomb at Marrakesh shamsiyyat were set in the windows of the dome, a usage which finds many parallels in Cairo and Damascus. In the earliest mosques such as Qairawan the windows were concentrated above the mihrab. Even when the focus of fenestration became more diffuse, and windows were spread along the qibla wall, the window above the mihrab was often marked by the use of shamsiyyat of particularly elaborate design. At the Qal’a of the Banu Ḥammād shamsiyyat were set in the windows along the back wall of the mosque. This usage is unusual, for it seems that the windows in the back wall of the Great Mosque of Damascus were filled with claustra rather than qamarīyyaṭ.95 Similarly, in Syrian mosques of the Ayyubid and Mamluk periods windows are often absent altogether from the wall facing the qibla,96 or are filled with claustra rather than qamarīyyat.97 The use of shamsiyyat in the back wall of the Ḥammādid mosque may be explained by the presence of a richly-decorated mihrab on the exterior of the wall. While little is known about the

95 See above, p. 27.
96 In the Tayrouzi Mosque, Damascus; below, pp. 137-8.
97 In the Jāmi‘ al-Hanābil, Damascus, above, pp. 79-82.
fenestration of Western Islamic palaces, the setting of *shamsiyyat* above doorways in the Alhambra continues an earlier tradition. The *shamsiyyat* in the *majlis* of the Dhūl-Nūnīd palace were set in windows pierced in its upper walls.

In Andalusia and the Maghrib, as in other parts of the Islamic world, *shamsiyyat* were often designed to harmonise with the decoration of the buildings in which they appeared. In the Dhūl-Nūnīd palace the windows repeated the designs found in the inlaid marble dado below. Similarly, in the Alhambra the *shamsiyyat* seem to have repeated motifs found in the tiled dadoes and stucco *claustra* of the palace. While the windows glowed with colour, the dadoes below shone with the brilliance of reflected light. The patterned polychrome light cast on the walls must have added considerably to the richness the layered quality of the decoration.

A major problem in discussing the development of Maghribi *shamsiyyat* is the tendency to replace old grilles with new. The continued use of similar geometric patterns in old and new grilles often renders it difficult to distinguish one from the other. Similarly the addition of glass to *claustra* and the replacement of lead tracery with stucco can be misleading. These problems are particularly acute in large urban centres where many of the most important buildings have remained in continuous since their foundation. This issue is discussed in more detail in the following chapter.
CHAPTER FIVE
MAMLUKS.

5.1.1 Introduction.

The largest surviving corpus of medieval qamariyyat is to be found in the windows of the Mamluk mosques, madrasas, mausolea and palaces in Cairo and Damascus. In the context of the present survey, the large number of qamariyyat found in these buildings precludes the possibility of dealing with each in detail. I have therefore concentrated on the most important monuments, or on those which serve to illustrate the major developments in qamariyyat over this long period. I have also included such textual references to the use of qamariyyat in destroyed buildings as I have found.

A major problem in dealing with this body of material is that of dating. It should be stated at the outset that, as a result of my research, I believe it to be unlikely that any qamariyyat in situ have survived unaltered since the Mamluk period. Among the criteria which one can use for determining the date of window-grilles in situ are the colour of the glass and plaster and the degree to which accumulated layers of dust prevent the passage of light. Modern window-glass has a more vivid hue than that used in medieval window-grilles, giving the colours a harsher appearance that that of medieval glass. The problem of finding window-glass of a suitable colour and hue to replace that missing from Mamluk qamariyyat is repeatedly stressed in the reports of the Comité de Conservation des Monuments Arabes.\(^1\) Similarly the colour of the plaster used in the past century is noticeably whiter than that of older plaster.

In considering the date of a grille there are four possibilities: that the grille is modern and bears no relation to the original; that the grille is modern but uses generic motifs found on window-grilles of the same date in other buildings because the form of the original grilles was unknown at the time of restoration; thirdly, that the grille is modern but is an accurate copy of the original; fourthly, that some parts of the grille are original while other parts of the plaster or glass have been replaced by modern materials.

I have ignored those qamariyyat which I believe to be entirely modern and not modelled on earlier grilles. Where there is a possibility that the qamariyyat in one building have served as the models for the modern grilles in another I have mentioned this.\(^2\) Where the qamariyyat in a building appear to be modern, but there are reasons for believing them to be accurate copies of the original, I have drawn attention to the stylistic parallels between the remade grilles and those in near-contemporary buildings. Among the criteria used to assess this are the division of internal space, the

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1. See, for example, Exercice (XV, 1898), pp. 93-4. The search for suitable glass was extended as far afield as Venice; Exercice (XII, 1895), pp. 44-5.

2. The similarities between the qamariyyat in the madrasa of Abī Bakr ibn Muzhir and those in the mosque of Qajmūs al-Ishāqī\(^7\) suggest this, although there are reasons for thinking that the windows of both were manufactured by the same craftsmen; below, p. 143-5.
types of borders and motifs used in the main fields of the window. In certain cases documentary evidence exists recording the manufacture of the windows and citing the sources of the designs used in them. In qamariyyat which the Comité repaired or replaced one often finds the date of restoration incorporated into the design of the grille. In this the Comité followed Mamluk practice, for one occasionally finds Mamluk window-grilles which bear the date of their manufacture. In other cases parts of the original qamariyyat have been preserved in museums and are available for comparison with the window-grilles now in situ. However, it should be borne in mind that where the qamariyyat of a medieval building have been remade one cannot be certain that the placing of the grilles or the inscriptions which appear on them follow original practice.

Occasionally one comes across types for which no obvious parallel exists in surviving qamariyyat. This may be due to the vagaries of fate, or may be because the grilles in situ bear no relation to those originally used. When in doubt I have referred to such windows in the course of discussing other types with which they show certain affinities, and which can be more easily dated. It has been a common practice to replace certain sections of tracery or some pieces of the glass within it. The same continuous process of renewal is apparent in the windows of medieval cathedrals. However the fact that little "medieval" stained glass is in fact medieval - and that what is original is not necessarily in its original condition - does not prevent one studying the forms and designs of stained glass, although it may render any discussion of the original use of tone and colour difficult. Similarly, the fact that certain portions of medieval qamariyyat have been replaced or repaired does render those qamariyyat useless as a potential source of information, although it may limit the amount or quality of the information which one can glean from them. Where evidence can be found either in the grilles themselves or in the reports of the Comité for repairs to, or restorations of, qamariyyat this is cited in the text.

5.2 Mamluk Qamariyyat.

5.2.1 Complex of Qala‘ūn, Cairo (683-4/1284-5).

Window units of several different types are employed in the fenestration of the mausoleum and adjoining mosque in this complex. Five units, each consisting of two narrow windows terminating in

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3 For example, in the case of the windows in the mausoleum of Zayn al-Dīn Yūsuf; below, pp. 116-7.

4 For example, one of the stucco and glass windows of the cupola in the mosque of Abu ‘l-Ghaḍānfar bears the date 869/1464-5; Wiet, MCIA: L’Egypte II (Cairo, 1929-30), p. 221.

5 Fragments of the qamariyyat from the madrasa of Tāl al-Yūsuf and the mosque of Qajma‘ al-Iṣḥāq are preserved in the Museum of Islamic Art in Cairo; below, pp. 133, 144.

6 For this reason I have not discussed the qamariyyat in the mausoleum of Qāybtāy in detail, but have referred to them in the course of discussing other late ninth/fifteenth-century window-grilles.

7 Frodl-Kraft, Vitrail, p. 2; Grodecki, Vitrail Roman, fig. 192.
horseshoe arches with an oculus above, occur along the qibla of the mausoleum and the wall opposite (ill. 44). Similar windows appear in the octagon of the dome. The origins of this form of window lie in Gothic architecture. Its appearance in this building may be attributed to Crusader influence. A metal grille carried from Acre as spolia is used in the windows directly above the entrance to the complex.

These windows are filled with qamariyyat featuring either axial arabesques (ill. 45) or two kinds of geometric tracery in which six-pointed stars appear at regular intervals (ill. 46). The arabesque is similar to that which appeared earlier in Ayyubid qamariyyat, but is adapted to fit the shape of the windows in which it appears. The arabesques have a central row of trefoils or fleur de lys which may be related to the appearance of similar features in the interstices of stucco claustra in the contemporary khanaqah al-Bunduqdariyya. The colours of the glass used are yellow, blue, green and purple. Some red glass appears in the geometric tracery, but this colour does not appear to have been as popular at this period as it was in Ayyubid qamariyyat, or in those of the Burji Mamluk period.

Wider windows terminating in rounded arches open at a lower level along the four walls of the mausoleum. Over the entrance a single large window of this type is flanked by two narrower windows of similar form. All these windows are filled with qamariyyat which, from the appearance of their plaster and the glass which fills it, seem to be modern. The windows in the qibla wall of the adjoining mosque are also filled with qamariyyat which appear to be modern but feature geometric patterns similar to those which appear in the upper windows of the mausoleum (pl. 94). Some of the qamariyyat were cleaned, repaired and their glass replaced by the Comité in 1322/1904 and 1326/1908. It appears that many have been replaced by modern copies more recently, for tracery moulds were visible in the mausoleum in 1411/1990.

Drawings of the window-grilles executed by Pascal Coste in the first half of the nineteenth century show window-fillings of significantly different form to those now visible, featuring circular discs, rosettes, large arabesques and small floral elements. It is possible that the artist simplified and enlarged the complex and intricate patterns employed in the stucco tracery. However, the borders of the grilles which he depicts, while different to those of the qamariyyat now in place, are very similar

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8 MAE II, pp. 199-201.
9 Ibid., pl. 66c.
10 Ibid., pl. 61c.
11 See below, pp. 148.
12 MAE II, pl. 68.
13 M. Herz Pascha, Die Baugruppe des Sultan Qalaun in Kairo (Hamburg, 1919), pp. 22-4; Exercices (XXIV, 1907), pp. 8, 73, 127 and (XXV, 1908), pp. 10, 27.
14 P. Coste, Architecture Arabe du Monuments de Kaire (Paris, 1837), pls. XVII-XVIII.
to those of Ayyubid qamariyyat. A more likely explanation for the discrepancy is that Coste was depicting stucco claustra used on the exterior of certain windows, a solitary example of which still survived in Creswell's day.15 The form, border and decoration of this grille corresponds almost exactly to that of the windows depicted in the drawings of Coste.

Certainly there is no a priori reason why many of the qamariyyat, even if they are modern, could not be accurate copies of the thirteenth-century grilles. The centralised arabesque, as I have demonstrated, is commonly found in such contexts from at least the early seventh/thirteenth century onwards, and occurs slightly earlier in Cairo in the claustra on the side walls in the mosque of Baybars [665-7/1266-9] (pl. 95).16 The slight alterations in the form of the arabesque, alluded to above, are easily explainable as a change over time and by reference to the unusual form of the window-openings. Similarly, the geometric patterns used in the remaining qamariyyat of the complex are analogous to those which appear in the tracery of the earlier geometric stucco claustra in the mosque of Baybars,17 and although many appear to be modern, there is no reason to suppose that they do not copy the form of earlier grilles. Stucco claustra of similar form are found in some of the monasteries of the Wadi Natrun.18

5.2.2 Mausoleum of Sultan al-Ashraf Khalil, Cairo (687/1288).

A similar interest in experimenting with the forms and placing of window-openings is apparent in the fenestration of this mausoleum. On the lowest levels of the walls of the building are four large arched windows similar to those on the exterior facade of the Qal' al-Manṣūr complex.19 It is not clear how these were originally filled, but they are each surrounded by a bevelled band of stucco arabesque decoration which still survives. Above each of these are set windows of three lights similar to those in the mausoleum of the 'Abbasid Caliphs (640/1242), although here the lowest two windows are slightly more elongated. A single window of similar form is pierced in each of the four pendentives of the dome (ill. 48). Above this, in the polygonal zone of transition, are twenty-four circular windows, of which only the eight which correspond with the sides of the drum are open (pl. 96). Finally, four arched windows are pierced in each of the four walls, above the level of the oculi.

15 MAE II, pl. 62c.

16 Such windows may have been more common in the architecture of the Levant at this period than the surviving evidence indicates. An eighth/eleventh-century Eastern European reliquary, a model of the Holy Sepulchre, is provided with narrow windows of elongated form, similar to those in the Mausoleum of Qal'at al-Manṣūr, but with pointed arches. These windows are filled with latticework in the form of axial arabesques: H. Glück, Christliche kunst des Ostens (Berlin, 1923), p. 126.

17 MAE II, pl. 52c.

18 See, for example, a group of three windows in the Monastery of El Baramus filled with geometric tracery featuring six-pointed stars; Evelyn-White, Monasteries, pp. 236, 241, fig. 18. It has been suggested that these date from a restoration of the monastery a little before 670/1271.

19 MAE II, pp. 216-8, pls. 77b, 117c.
The windows in the pendentives and those disposed in groups of three were all filled with qamariyyat similar to those which first appear in the Mausoleum of the 'Abbasid Caliphs. The tracery of these grilles consisted of narrow raised fillets in the form of an arabesque with a pronounced axially (ills. 47-8). Like the qamariyyat in the complex of Qal‘a'un, the borders of the grilles consisted of narrow rectangular elements laid end to end. There was a further border of plaited ornament surrounding the exterior of the grilles. The qamariyyat are reported to have been in good condition in the early part of this century, but are now largely destroyed. To judge from the remaining fragments, the colours of the glass employed in the qamariyyat were blue, green, and yellow.

The twenty-four bull’s-eye windows in the zone of transition were filled with geometric lattices similar to those used to fill the oculi in the complex of Qal‘a’un. Sixteen of these are blind. The eight open windows which correspond to the sides of the drum were filled on the exterior with thick stone grilles, and on the interior with qamariyyat. These window-openings are splayed, presumably to maximise the amount of light entering through them. On the interior they were each surrounded by a narrow band of geometric ornament or arabesque. The colours of the glass used in the circular qamariyyat were similar to those found in the other qamariyyat of the building.

A motif which fills a qamariyya in the eastern corner of the zone of transition deserves particular attention. This consists of a six-pointed star composed of double lines (pl. 96, fig. 40b). At its centre the star has a hexagon with radial lines. Tear-shaped petals protrude from its recessed points. The grille is filled with glass of similar colours to that used in the remaining qamariyyat of the tomb. At first glance there is nothing unusual about the choice of such a motif to fill a window, for hexagonal grids are used with great frequency in balustrade panels and claustra from the Umayyad period onwards, and analogous star medallions appear on the 'Abbasid qamariyyat from Raqqa (fig. 22).

However the particular form of the star medallion used here is of interest, for a similar motif had appeared over a century earlier in the tracery of a stone grille on the Bab al-Akhḍar (548/1153). The Fatimid medallion consists of a central circle surrounded by six half-circles, with vegetal ornament filling the spaces between (pl. 97). It is the central medallion, however, which is of greatest interest. The circle is filled with narrow stone tracery in the form of a six-pointed star intertwined with a six-petalled rosette. Two features in particular recall the design of the later qamariyya; the hexagon at

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21 MAF II, pl. 77c.

23 The presence of such a star medallion on a gateway suggests perhaps that it had some apotropaic function.
the centre of the star, and the ovoid protruberances from its recessed points. Hexagonal star medallions appear with great frequency in the hoods of Fatimid mihrabs (pls. 169, 175)\textsuperscript{24} and it seems likely that the motif is derived from Fatimid sources,\textsuperscript{25} although this is the first extant example of its use in the tracery of a qamariyya. Although the star medallion appears in a subsidiary context in the decoration of this early Mamluk mausoleum, the motif was to feature prominently in the circular qamariyyat of certain buildings of the Burji-Mamluk period.

5.2.3. Mausoleum of Zayn al-Dīn Yūsuf, Cairo (698/1298).

The dome of the mausoleum adjoining the madrasa rests on four tiers of muqarnas squinches (including the lowest), between each of which are set three tiers of windows filled with qamariyyat (ill. 49).\textsuperscript{26} These triple tiers are composed of two types of window-openings; either elongated hexagonal openings, or rectangular openings with a pointed triangular apex. While the earliest occurrences of this type of window are to be found in the Ayyubid mausolea of Cairo,\textsuperscript{27} this appears to be the first surviving example of a triple tier of such windows in which qamariyyat remain. In addition to the four groups of six windows between the squinches, twenty windows filled with qamariyyat are pierced in the drum of the dome above. Like the windows which compose the lowest tier of the three-tiered groups, these are square-based with a triangular summit. This form of fenestration was particularly associated with mausolea and continued to be used in subsequent Mamluk tombs in Cairo.

Most of the qamariyyat currently in situ in the mausoleum are recent creations, replacements after a fire destroyed some of the original grilles in the early part of the century.\textsuperscript{28} The replacements were, however, constructed using as a model those fragments of qamariyyat which had escaped the incendiary. In any case not all the qamariyya were destroyed, and some of those remaining may be original.\textsuperscript{29} The lack of substantial differences between the original qamariyyat and their replacements, and the similarities between the qamariyyat of this mausoleum and those of earlier Mamluk and Ayyubid monuments indicates that the reconstructed qamariyyat are indeed faithful copies of the original grilles.

\textsuperscript{24} Below, pp. 273-4.

\textsuperscript{25} Similar medallions with six-pointed stars occur in the decoration of buildings at Fustat; EMA II, pl. 117.

\textsuperscript{26} MAE II, p. 231; mentioned also in S. Blair, Sufi Saints and Shrine Architecture in the Early Fourteenth Century, Muqarnas (VII, 1990), p. 37.

\textsuperscript{27} For example in the mausoleum of the 'Abbasid Caliphs (640/1242), the mausoleum of Șā‘ib Najm al-Dīn al-Ayyūb and the mausoleum of Shagarr al-Durr (648/1250); L. 'Ali Ibrahim, The Transitional Zones of Domes in Cairene Architecture, Kunst des Orients (X, 1975), pp. 7-8.

\textsuperscript{28} MAE II, P. 231; Exercices (XXXII, 1915-19), pp. 72-3.

\textsuperscript{29} The topmost window over the mihrab bears glass different in tone to that used in other windows of the group.
Apart from their shapes, all the windows are filled with qamariyyat of a similar type. Like their predecessors in the mausoleum of al-Ashraf Khalîl, these consist of axial arabesques formed from narrow fillets of stucco. The borders, like those of other early Mamluk qamariyyat, are composed of thin lines of short rectangles. The glass employed is of similar colour to that found in Ayyubid qamariyyat; blue, green, yellow, red, and colourless. While window-grilles of diverse forms were often used on the lower walls of later tombs, qamariyyat of similar form to those just described continued to be used in the zone of transition of mausolea. The evolutionary stasis which characterises the design of qamariyyat used in such contexts is presumably related to the fact that, as the height of Mamluk domes began to soar, the qamariyyat in their upper levels became virtually invisible.

5.2.4 Madrasa of al-Nâṣîr Muḥammad, Cairo (703/1303-4).

A single qamariyya is found above the mihrab in this madrasa (ill. 50, fig. 39a). The grille has a rectangular base and terminates in a slightly pointed arch. The division into tympanum, horizontal register (here doubled), and lower rectangular field is especially noteworthy. A similar division is used in a qamariyya above the entrance to the mausoleum of Qalâ‘în but this appears to be modern and, because of the lack of earlier parallels, it cannot be certain that it follows the form of the original grille. This division was to become a consistent feature of later qamariyyat in Cairo. The tympanum is filled with a pyramidal arrangement of three complete and two half-panes of circular, perhaps crown, glass. Below this are two rectangular registers, the upper one bearing an inscription which contains the shahada in its full form. The lower panel originally contained a second inscription. Two cypress trees flanking a small globular vase appear on the lower panel. The colours of the glass which fill the grille are yellow, red, green, and blue. The vivid tone of this glass and the disturbance in the stucco surrounding the grille might indicate that it is a later replacement. However a qamariyya of a similar sort was depicted in the same position in the third quarter of the thirteenth/nineteenth century, with no disturbance visible. It is thus possible that the damage resulted from the replacement of the grille with one of identical form at a later date.

The overall appearance of the grille, and the presence of the cypress in particular, suggests a date in the late ninth/fifteenth century. However, one may point to several parallels with other qamariyyat which can be used to support the suggestion that, although the grille has been remade or heavily restored, the design may be contemporary with the construction of the building. The use of clear glass

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30 For example in the mausoleum of Asâlâm al-Sîlahîdâr (746/1345); below, pp. 125-7.

31 In later qamariyyat it was usually abbreviated.

32 See the photograph in MAE II, pl. 111c.

roundels finds a parallel on other qamariyyat in buildings erected in the first half of the eighth/fourteenth century.  

The lattice border which frames the grille is quite unusual, and I have found only two further examples of this border on Mamluk window-grilles. One is a circular grille in the Yalbugha Mosque in Damascus (747-8/1347) (pl. 102, fig. 53b), the other a claustrum above the mihrab in the mosque of al-Salih Tala‘i in Cairo (pl. 98, fig. 39b). The sole remaining original window-grille from the mosque (pl. 77) is of very different form to that now above the mihrab. The latter grille was clearly installed later, and it is tempting to see it as dating from the restorations of the mosque after the earthquake of 703/1303. The single rosettes inscribed in square panels at each of the four corners of the rectangular frame find a parallel in rosettes occurring in similar positions on some of the clastra on the exterior of the mausoleum of Qalâ‘ûn, and in some of the windows depicted in later Iranian miniatures (fig. 63).

The iconography of the claustrum in the mosque of al-Salih Tala‘i also bears comparison with the qamariyya in the madrasa of al-Nâṣir Muḥammad. The interior space of both grilles is divided in a similar way. Furthermore, a chalice or low vase flanked by cypresses appears on both. The vase motif recurs on one of group of three qamariyya in the Museum for Islamic Art, Cairo (pl. 51, fig. 39c). Unfortunately neither the precise date or provenance of these windows is known, but in the museum register they are said to be Mamluk. The predominance of red glass in the latter windows suggests a date late in the Burj Mamluk period. Cypresses become common only in late ninth/fifteenth-century Cairene windows. Since evidence exists to suggest that the qamariyya in the madrasa of al-Nâṣir Muḥammad may follow an original design one must admit the possibility, however unlikely, that similar motifs were used as early as the first quarter of the eighth/fourteenth century.

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34 Glass roundels were used in the windows of the Mosque of Amir al-Jukandar (719/1319), although the date of these is uncertain; Exercices (XXXII, 1915-9), pp. 82-4, pl. LXXVI. Similar roundels appeared in the qamariyya of the Qasr Bâshîbûk (740/1339); below, pp. 122-4.

35 See below, p. 127.

36 MAE I, pl. 100b.


38 On the lower grilles visible in MAE II, pl. 64 of a rectangular window-grille from the Mosque of Saida Zaynab, said to date from the eighth/fifteenth century; Prisse d’Avennes, Arab Art (London, 1983), p. 257. A cypress appears in this window and it is thus comparable to that in the mosque of al-Salih Tala‘i. Prisse d’Avennes dates it to the eighth/fourteenth century, but the presence of background drilling suggests that it should be assigned to the last part of the ninth/fifteenth century, if not a later date.

39 Inventory Nos. 4282-4, 0.97 x 0.48 m. This window is the topmost of three lights similar to those which appeared between the pendentives in Mamluk mausolea.

40 For example in the madrasa of Abu Bakr ibn Muzhir and mosque of Qâjmâ‘ al-İshâqî; below, pp. 142-3.
5.2.5 Mausoleum of Sanjar al-Jawfi, Cairo (704/1304).

Four three-tiered groups of six lights appear between the pendentives in the mausolea of Salar and Sanjar al-Jawfi. Above these, in the drum of the domes, are pierced windows with squared bases and triangular apices, 20 in the mausoleum of Salar al-Jawfi, 24 in the case of Sanjar al-Jawfi. The arrangement is thus similar to that used earlier in the mausoleum of Zayn al-Din Yusuf.

The upper windows are all filled with geometric tracery based on hexagonal grids with interstitial rosettes (ill. 52). The window-openings between the pendentives are also filled with such grilles. The exception are the windows of the lowest tier in each group, which are filled with *qamariyyat* composed of an axial arabesque motif similar to that which appears on a larger scale in the stone grilles of the building. As was the case with earlier Mamluk *qamariyyat*, the borders of the grilles are composed of narrow lines of rectangles. The colours of the window-glass is similar to that used in the complex of Qal`in; blue, yellow, mauve and colourless.

An unusual motif occurs in the *qamariyya* filling the four pairs of windows in the second tier between the pendentives of each mausoleum. This is a single mosque lamp executed in blue glass (pl. 53), a motif with a symbolic significance, but one without parallel in other *qamariyyat* of the Mamluk period. At the end of the last century the *qamariyyat* in the mausoleum of Sanjar al-Jawfi were repaired, and some were replaced. The colour of the plaster and the small amount of accumulated dirt on the windows *in situ* suggests that, despite the poor state of repair of some, most are of recent manufacture. The joggled borders of the two outer grilles filling the windows of the lowest tiers between the pendentives find no parallel in other Mamluk *qamariyyat*, which might suggest that not all of the modern grilles follow an original design. However the combination of arabesque and geometric tracery in the windows of the zone of transition is paralleled in the mausoleum adjoining the *khanqah* of Baybars al-Jashankir (706-9/1306-10) (ills. 54-5). The lower windows in the lights between the pendentives in this mausoleum are filled with *qamariyyat* featuring arabesques. The deep tone of the yellow, blue, green and red glass filling these *qamariyyat* suggests that many are original. The upper windows of these groups are filled with tracery in which six- and ten-pointed stars appear. As can be seen from the accompanying photograph, patches of different-coloured plaster are visible on many of these, which suggests that they have been repaired. The high quality of these *qamariyyat* are mentioned in reports of the Comite.

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41 MAE II, Pls. 92b, 93a and b.  
42 Ibid., p. 244, pl. 120a. The fact that Creswell comments on the unusual nature of the window-grilles indicates that these are unlikely to be the result of some decorative initiative undertaken by the Comite, although the *qamariyyat* may still be later than the date of the building. See below, pp. 324-5.  
43 See Chapter III, sections 8.4, 8.6.  
44 Exercice (IX, 1892), p. 52.  
45 Exercice (IX, 1892), p. 83.
5.2.6 Harem of the Qaṣr Ablaq, Citadel of Cairo (713/1313).

Al-ʿUmari, describing the polychrome decoration of the palace states that, "the light is reflected on the walls, passing through windows of Cypriot glass like precious stones in a necklace".46 This is the earliest evidence for the use of qamarīyyat in a secular building of the Mamluk period.

5.2.7 Mosque of Sultan al-Nāṣir Muḥammad ibn Qalaʿūn, Citadel of Cairo (718/1318).

The clerestorey windows of this mosque were "formerly filled with beautiful tracery and stained glass",47 of which fragments remained in the thirteenth/nineteenth century. No further details of these qamarīyyat are available, but they are likely to have been original, since the mosque was neglected and fell into a state of disrepair during the Ottoman period.48

5.2.8 Dome of the Rock, Jerusalem (719/1319).

Al-ʿUmari, writing before 755/1354, mentions the presence of glass windows in both the Dome of the Rock and the Qubbat al-Mirāj. Of the Dome of the Rock he says:

"The drum wall is pierced with sixteen gilded glass windows, covered externally with gratings ... each side of the octagon has seven windows, two blind lateral ones and five of glass, provided on the outer side with iron gratings.49"

The following description is given of the smaller dome:

"Its floor is covered with white marble and so also are the walls on the inside, as they are on the outside. Inside there are also eighteen columns. Above the aforementioned marble there are three half-windows similar to the plaster variety called al-mukandaj, and four of glass."50

It is perhaps possible to determine the appearance of at least some of the qamarīyyat seen by al-ʿUmari, for Richmond indicated that six of the sixteen qamarīyyat in the drum of the dome of this

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48 Ibid., p. 482.
50 Ibid., p. 74.
monument "appear to date from at least as early as the fifteenth century, possibly the fourteenth". These were attributed by Creswell to the restorations of al-Nāṣir Muḥammad. The qamariyyat are over 3m high and are of two types (pl. 99).
The first type is divided into a semi-circular tympanum and a rectangular body. Once again these qamariyya have the border characteristic of early Mamluk qamariyyat: narrow rectangles laid end to end. The tympanum is filled with a large ten-pointed star or shamsa set against a background of arabesques. Similar devices appear in the tympana of Cairene qamariyyat in the last quarter of the eighth/fourteenth century. The lower portion of these grilles is filled with an axial arabesque design surrounded by a border of narrow rectangles separated by circles. Both the border and arabesque motif derive from Ayyubid qamariyyat. Although the arabesque rarely appears on Mamluk qamariyyat of this form, it is found in a corresponding position in the qamariyyat of the Māridānī Mosque (741/1340) and the mausoleum adjoining the mosque of Aṣlām al-Silāhār (746/1345). Given the many parallels between this grille and the Mamluk qamariyyat in Cairo it seems likely that Creswell's dating is correct.

This is not necessarily the case with the second published qamariyya, which has a rounded head undifferentiated from the rectangular body of the grille. The outer body of qamariyya of this type is composed of tracery knotted in the form of six-pointed stars. An unusual feature here however is the extension of this border into the main area of the grille, where it forms a knotted surround for the axial arabesque motif which occupies the body of the grille. Although the effect of a 'window within a window' is paralleled in Cairene qamariyyat from the last quarter of the eighth/fourteenth onwards, there is no parallel for a border of this form among surviving qamariyyat. Equally, on Cairene qamariyyat the inner field is normally subdivided. The form of this grille bears a closer resemblance to Ottoman window-grilles, for example those in the Süleymaniye Mosque in Istanbul (966/1558) (ill. 121), than to any surviving Mamluk qamariyyat.

The plaster grilles are set in wooden frames about 8cm square in section, and Richmond supplies the following technical data:

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52 EMA ii, p. 92, n.4.
53 Richmond, Dome of the Rock, fig. 67.
54 In the madrasa of Jamāl al-Dīn al-Ustādār; pls. 111-2, fig. 47c.
55 See below, pp. 125-7.
56 Richmond, Dome of the Rock, fig. 68.
57 For example in the qamariyyat in the madrasa-khanqah of Barquq (786-788/1384-6) and the Mosque of Gani Bek (823/1420).
58 See below, pp. 168-70.
"The panes are large compared with those of the sixteenth-century windows, and the lines of plaster that take the place of the lead in our windows are narrow, barely more than one centimeter wide. The glass is set at a distance of from six to seven centimeters from the outer surface of the plaster. On the inside the glass is held in place by a fillet of plaster, bevelled on each edge, and about one centimeter wide and one centimeter thick, covering the joints between the panes."59

The glass which filled the windows was red, blue, green, yellow, and white in colour and was streaked and filled with bubbles. From these observations is it is clear that the technique employed in the manufacture of the grilles is similar to that used in the manufacture of qamariyya from the Ayyubid period onwards. However the same technique continued to be used in the manufacture of certain Ottoman qamariyyat, even after it had become archaic in other parts of the Islamic world.60 There are therefore no technical reasons why the published grilles could not be of different dates.

5.2.9 Qaṣr Bâshlîk, Cairo (740/1339).

Qamariyyat were used in the window-openings of the main iwan and the central lantern in this Mamluk palace. The windows in the iwan consist of three rectangular openings with rounded heads, surmounted by a single oculus (ill. 56).61 The lantern roof of the main hall of the qasr has three tall round-headed windows set high on each of its four faces. The qamariyya filling these windows are similar to, although slightly smaller than, those of the main iwan, with the lowest rectangular band omitted in each case. During the restorations of 1403-5/1982-4 the eighteen qamariyyat were cleaned and repaired, and missing pieces of glass replaced.62

The circular window-grille filling the oculus is composed of the usual border of narrow rectangles, which here surrounds eight large circular panes of clear crown glass (ill. 56). Similar eight-roundel medallions appear on the frontispieces of eighth/fourteenth-century manuscripts.63 The medallion at the heart of the grille again has a border of rectangles, surrounding a circular blazon. The blazon consists of a napkin on the central field of a three-fielded shield. This is the earliest extant example of the use of a heraldic blazon on a qamariyya, a practice which was to become increasingly

59 Richmond, Dome of the Rock, p. 79.

60 See below, pp. 175-8.


62 This among the information displayed in the building by its restorers. The exterior claustra were replaced earlier by grilles of modern manufacture based on the remains of the originals, Exercices (XXXIX, 1939-40), pp. 278, 333.

63 See, for example, the Kasâʾiyya of ʾImād al-Fāḍil (772/1370), Gray, Arts of the Book, fig. 20.
frequent, especially during the Burjī Mamluk period. It is also noteworthy that this is one of the earliest occurrences of the napkin blazon in any medium.64

The form of the oculus-filling (fig. 40c) displays similarities with the circular qamariyyat of the Ayyubid period from the Māridānīya Madrasa in Damascus (624-5/1226-7) [pl. 80, fig. 40a], notably in its use of a group of circular openings to surround a central focal motif and the protruding tear-shaped rays between. Similar designs are used in the painted decoration of Egyptian mosque lamps of the eighth/fourteenth century (pl. 123).65

As was the case with the qamariyyat in the Madrasa of al-Nāṣir Muḥammad, the bodies of the larger grilles in the Qasr Bāshṭāk are divided into a series of independent decorative zones (illustration 57, fig. 41a). The tympana of the grilles each bear a blazon similar to that at the centre of the oculus above, here set against a background of arabesque. The register below this, like the lowest panel of the qamariyyat, is blank but both would presumably have originally held inscriptions. The central rectangular panels of these grilles are each filled with a large circular medallion containing a blazon similar to that used in the oculus. The four corners of the grilles are each occupied by a single pane of crown glass set against an arabesque.

Two features of the latter grilles are particularly noteworthy, since they are both found on Mamluk qamariyyat. The first is the use of circular knots to tie the circular medallions to the borders above and below. Similar knots occur around the circumference of circular medallions on earlier metalwork.66 The second feature is the extension of the border ornament into the body of the grille proper. The use of a border in this way is found on certain Ayyubid qamariyyat, for example a window in the Jāmī’ al-Ḥanābīla in Damascus (illustration 32) and the mausoleum of Ṣālīḥ Najm al-Dīn al-Ayyūb in Cairo (pl. 88).

Yellow glass is used in the borders of the Cairene grilles, while the central blazon consists of a purple napkin placed against a background of blue glass. Green glass appears in the spandrels of the large qamariyyat. The glass roundels are clear.

5.2.10 Māridānī Mosque, Cairo (741/1340).

The round-arched window-openings on the qibla, northern and southern walls of this mosque are filled with a series of qamariyyat which are variants on a common theme. Pairs of windows of similar form, but terminating in a slightly pointed arch, appear in the zone of transition of the dome directly in front of the mihrab (illustration 60). Each pair is surmounted by a single oculus (illustration 61). Like their immediate predecessors the arched grilles are all divided into a lower rectangular panel with an

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65 Below, pp. 150.

66 One of the earliest occurrences is on a Qur'an container of Sultan Muḥammad ibn Qalāʻūn dated 728/1328; Wiet, Objets en Cuivre, No. 139.
arched tympanum above by the use of a rectangular horizontal panel bearing an inscription (fig. 42a). The borders of the grilles are all equally typical, composed of narrow rectangles.

Both the main fields and the tympana of the round-arched grilles are filled with axial arabesques (ill. 58). The glass used in the qamariyyat of the Māridānī Mosque is colourless, red, cobalt blue, turquoise, pale blue and yellow. It is likely that the grilles originally made use of a more diverse palette, since a fragment of one of the original qamariyyat, now in the Museum of Islamic Art (ills. 59, 62), also contains green glass. Although there are slight differences in the use of colour, the form of this window is similar to that of the qamariyyat just described. This suggests that those of the windows which are modern are faithful copies of the original design. The grilles were constructed using the technique of Ayyubid qamariyyat, with tracery consisting of narrow raised fillets of stucco. The stucco grilles in the Māridānī Mosque were set in wooden frames within the window-openings. The frames of the windows along the qibla wall are carved with arabesques.

The rectangular fields of the arched grilles in the dome are each filled with a medallion which, like those in the qamariyyat of the Qaṣr Bāshṭāk, are joined to their borders by knots (fig. 42a). The centre of each medallion is filled with a hexagonal rosette. The tympana of these grilles are also filled with axial arabesques. To judge by the colour of the plaster, all those presently in situ, including the circular grilles above, appear to be modern. However, given that the other arabesque qamariyyat were remade according to surviving fragments of earlier grilles, this may also have been the case with qamariyyat of the second type.

The use of the arabesque is somewhat unusual on window-grilles of this form. The motif was common on Ayyubid qamariyyat and continued to be used in the earliest Mamluk qamariyyat, such as those in the complex of Qalā‘ ūm. However the motif was subsequently reserved almost exclusively for use in the qamariyyat which filled the zone of transition in Mamluk mausolea. It may be that the choice of design was influenced by the form of the faience grilles in the sahn of the mosque. The arabesque appears in the tracery of two faience grilles over the northern and southern entrances (pl. 100) and a circular grille over the West doorway. The arabesque theme is also taken up in the marble balustrades of the courtyard. Given the resemblances between the qamariyyat of the prayer-hall and the faience grilles of the sahn, the differences between the circular grille over the west entrance to the sahn and the circular qamariyyat in the dome in front of the mihrah may suggest that the latter do not, like the larger qamariyyat, follow original designs. The latter are filled with six-petalled rosettes, the former with concentric circles of floral ornament.

The use of faience reflects Iranian influence and arabesques had appeared earlier on Iranian glazed ceramic window-grilles (pl. 78). Despite this, stucco and glass window-grilles featuring arabesques

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67 Inventory Number 244, 2.55 x 0.59 m.


69 Ibid., fig. 23.
appear in Iranian miniature painting only at the beginning of the ninth/fifteenth century. In view of the apparent dearth of qamariyyat in Iran at this period, and the widespread use of the arabesque on earlier Cairene qamariyyat, it is unlikely that the choice of form should be attributed to the influence of foreign traditions, although the arabesque may well have been chosen to complement the faience ornament. In terms of its appearance and effect the use of the arabesque on pierced panels of glazed faience and on glass-filled window-grilles is similar.

5.2.11 Mosque of Aslam al-Silahdar, Cairo (746/1345).

The mausoleum adjoining the prayer-hall of the mosque is provided with several groups of windows which contain qamariyyat of different types. On each of the four walls of the chamber, between the pendentives, a triple-tiered group of six lights similar to those in the mausoleum of Zayn al-Dīn Yusuf appears. Like those in the latter tomb, these windows are filled with arabesque qamariyyat (ill. 63). The glass which fills them is colourless, green and yellow. Above these, in the drum of the dome, are 20 windows with squared bases and triangular apices. These are filled with qamariyyat of similar design, but few are intact.

A further group of windows appears above the mihrab of the mausoleum. This consists of an oculus (ill. 64, fig. 40e) flanked by two rectangular windows with semi-circular heads (ills. 65-6, fig. 42b). These latter windows are filled with qamariyyat of very similar form to those of the Māridānī Mosque. They differ from the qamariyyat of the Māridānī Mosque in their border, which is here composed of rectangles separated by circles. They are, once again, divided into an upper lunette and a lower rectangular field by the use of a narrow horizontal band bearing an inscription. The inscription is a quotation from Sura XXXVII, verse 60 and is carried from window to window. It reads: (1) Inna hadhā la huwa (2) al-fawzu ʾl-ʾAzīm (Verily this is a supreme achievement). The letters of the inscription are filled with white glass, which causes them to stand out against their background.

The ubiquitous Mamluk border of narrow rectangular elements is once again employed. Both the tympana and the bodies of these grilles are filled with axial arabesques similar to those which appear in the qamariyyat of the Māridānī Mosque. The colours of the glass used in the grilles is also similar to that of the earlier qamariyyat; blue (3 shades), yellow, red and white. The windows are framed by a carved stucco border which consists of inscribed cartouches separated by roundels in which hexagonal star motifs appear (ill. 65, fig. 42b).

The similarities between the window-grilles above the mihrab of this mausoleum and those of the Māridānī Mosque are such that one might suppose that they were produced by the same hands. The geographical and temporal proximity of both buildings, and the fact that, apart from these two

70 See below, pp. 158, type VI.

buildings, the axial arabesque rarely appears in Mamluk qamariyyat of this form, supports such a hypothesis. We know, in addition that the team of IlKhanid craftsmen responsible for the faience decoration in the Māridānī Mosque also worked on the ceramic ornament on the drum of the dome in the mosque of Aslām al-Sīlahdār. For reasons cited above, there is no reason to attribute the qamariyyat also to Iranian craftsmen. If, however, the same team of craftsmen was responsible for the ceramic ornament in both buildings, it may well be that the same team of glaziers also worked in both buildings.

Although circular windows appear above the mihrabs of mosques from at least the end of the sixth/twelfth century, the circular window above the mihrab in this mausoleum is the first to retain its original tracery. This consists of a central six-petalled rosette from which pointed rays emanate (ill. 64, fig. 40e). The tips of each of these rays is occupied by a single letter which forms part of a circular inscription around the outer edge of the grille. The inscription is a quotation from Sura III:37, and is evidently chosen for its mention of a mihrab: kullāmā dakhala 'alayhā Zakariyyā al-mihrab wa ja 'indahā ráiza (every time that Zakariyya entered the mihrab to see her ...). Incriptions of similar radial form are found on contemporary metalwork, from whence the design of this grille may derive.

Blue and yellow glass are used to fill the border, with green and red being used for the interior. The letters of the inscription are, once again, filled with white glass. A blind circular grille of similar form is found above the main mihrab in the prayer-hall of the building. Two blind grilles occur opposite the windows in the qibla of the mausoleum.

5.2.12 Yalbugha Mosque, Damascus (747-8/1347-8).

The qibla of this mosque, which is no longer standing, was pierced with a series of circular windows filled with different types of qamariyyat. The windows opened above a stucco frieze decorated with arabesques and vegetal motifs which were continued around the window-openings. Single circular windows sometimes opened above the mihrabs of Ayyubid mosques, such as that in the Madrasa al-Shamiyya, and are common in Mamluk mosques in Cairo, but the provision of a series of such windows along the qibla is without precedent. It is not clear how many windows were pierced in

72 Ibid., p. 236.
73 A circular window opens above the mihrab in the Madrasa al-Shamiyya in Damascus (582/1186) but has not preserved its filling.
74 My thanks are due to Dr. Adel 'Abd al-Jader for reading this inscription.
75 See below, p. 152.
76 Karim, Mosque, fig. 7; Meinecke, Fayencemosaikdekorationen, fig. 32.
77 These are mentioned by 'Abd al-Haqq, Contribution, p. 86; A photograph of one of the qamariyyat was published by A. Rihāwī, Jāmi' Yalbugha fi Dimashq, Annales Archéologiques de Syrie (XXIV, 1974), pp. 125-50, pl. 8b. See also Herzfeld, Damascus: Studies IV, pp. 127-32, fig. 38.
the qibla, or whether the larger arched windows above were filled with qamariyyat. Some details of the circular qamariyyat can be gleaned from photographs.

At least three different types were used. The tracery of the first took the form of a six-pointed star set against a dense network of floral motifs (pl. 101, fig. 53a). It is noteworthy that the voids of which the outline of the star are composed are wider than those in other parts of the grille, so that the star stands out from its background. The outer border is the familiar one of narrow rectangles joined by circles. A qamariyya decorated with a hexagonal star appeared earlier in the mausoleum of al-Ashraf Khalîf in Cairo (pl. 96), and others of this type were to be used in the circular windows above the mihrabs of later mosques in Cairo. From the published photograph it appears that the circular qamariyyat in the Yalbugha Mosque were, like those in Cairene mosques, set in a wooden frame.

The second type of grille was filled with twelve small glass roundels framing a central rosette (pl. 102, fig. 53b). The outer border is similar to that of the grille just described, but with an outer row of pearl roundels pierced in the stucco surround. Larger glass roundels have previously been encountered in the qamariyyat of the Bashîrîk Palace in Cairo. Smaller roundels were frequently used in Burj Maslak qamariyyat, those in the madrasa-khanqah of Barquq (786-8/1384-6) being the earliest to show this feature.

A double border was also used in the third qamariyya (pl. 103, fig. 53c). The outer border was decorated with a twisting line. The wider inner border was filled with a diamond lattice. Little of the interior is visible, but it appears to have been filled with vegetal or floral tracery.

5.2.13 Madrasa of Amir Mithqāl, Cairo (before 765/1363).

The south iwan of this madrasa contains three arched window-openings filled with wooden grilles. Two oculi appear above the two windows flanking the main arch of the iwan. These oculi were filled with stucco claustra, the form of which was revealed by the recent restoration of the building.78 Both grilles are identical, and are set in splayed window-openings similar to those in the mausoleum of al-Ashraf Khalîf. The grilles are bordered by an arabesque strip. The tracery of the windows assumes the form of a six-pointed star interlaced with arabesques (pl. 104). The grilles in situ are of recent manufacture, the original grilles having been replaced by the Comité.79 The border is composed of narrow rectangles separated by circles. The centre of each star is occupied by a large floral motif. The association of star and flower in the tracery of a window-grille has been commented on in the discussion of the qamariyya in the mausoleum of al-Ashraf Khalîf.

The qibla is pierced with four arched windows and an oculus above the mihrab (ill. 67). The qamariyyat filling these were restored in the early part of this century, for the blind qamariyya

78 M. Meinecke. Die Restaurierung der Madrasa des Amirs Sabiq ad-Dîn Mîthqâl al-Anfiski und die Sanierung des Darb Qimz in Kairo (Mainz am Rhein, 1980), pp. 55-6, pl. 15.

79 Exercice (XXXI, 1914), pp. 17, 106.
in the north-west of the qibla iwan bears the date 1331 (1912)\textsuperscript{80} The same date appears in the circular grille above the mihrah. The tone of the glass filling the grilles suggests that it is not medieval. However, the plaster on which the date appears is much lighter in colour than that of the remainder of the grille. It is thus unlikely that the grilles are entirely modern. It seems more likely that, like the qamarîyyat in the madrasa of Amir Jamal al-Dîn Yûsuf al-Ustadar (806/1408), one of which bears the same date,\textsuperscript{81} they were cleaned, repaired and new glass added in 1331/1912.

The tympanum of each of the arched grilles is separated from the rectangular field below by a narrow inscribed band (ill. 68, fig. 41b). More unusually, the rectangular field below is split into two vertical rectangles, each filled with an arched panel. A further peculiarity of the grilles is the use of large circles as a framing device.

As in most qamarîyyat of the Bahri Mamluk period, the tympana of the grilles are occupied by circular medallions. Like the window-grilles in the Qaṣr Bâshûk (740/1339), these medallions contain panes of circular glass grouped about a central motif, here a rosette. The vertical panels of each grille are filled with geometric and floral tracery. The thicker lines of stucco assume the form of a grid of eight-pointed stars. This grid is in turn filled with narrow tracery in the form of rosettes, with the interstitial spaces of the larger grid sprouting leaves at intervals.

The raised narrow fillets of which the main lines of the composition are composed are analogous to those used on earlier Mamluk qamarîyyat, for example the grille in the madrasa of al-Naṣīr Muḥammad. An important innovation here however is the simultaneous use of two grades of tracery. The main lines of the design, and the borders, are formed by thick lines of stucco, while the subsidiary decoration is composed of much narrower fillets, set back from the raised lines of which the main motifs are composed. The glass used in the qamarîyyat is blue, green, red, yellow, and colourless. The predominant colour is red.

5.2.14 Madrasa of Ilgay al-Yûsuf, Cairo (775/1373).

The mausoleum adjoining the madrasa contains a variety of windows of different forms. Between the pendentives groups of three windows are used. These are composed of three narrow rectangular windows with horse-shoe arches\textsuperscript{82} similar to those in the complex of Qalâḫ. These groups of three windows are in turn surmounted by six oculi arranged in a pyramid. Above these the drum of the dome is pierced with 16 windows of familiar type, consisting of a squat rectangular openings terminating in a triangular apex. The steep rise of the dome, combined with the accumulation of dirt, render it difficult to discern the details of the qamarîyyat. It was presumably for this reason that the same motifs were used time and again in the windows of the transitional zones in Mamluk mausolea.

\textsuperscript{80} Meinecke, Restaurierung, pp. 55-6, pl. 10b.

\textsuperscript{81} See below, p. 135.

\textsuperscript{82} 'Ali Ibrahim, Transitional Zones, fig. 14.
Like the qamariyyat in the Māridānī Mosque, turquoise and yellow appear to be the predominant colours of the glass used in the windows, with clear glass roundels also being employed.

More accessible is a qamariyya filling a window in the western side of the north-western iwan (pl. 105, fig. 43a). This is similar to many of the Bahri Mamluk qamariyyat previously discussed, being divided into an arched tympanum and a rectangular field by the use of an inscribed band. As was the case with many of the earlier Mamluk qamariyyat, the tympanum is filled with a circular medallion, in this case a twelve-pointed star or shamsa. Five-pointed stars appear in the surrounding geometric tracery. The inscribed band below bears the shahāda, in shortened form. The geometric grid continues in the rectangular field below, with two truncated shamsas flanking a central medallion.

The centre of this medallion is occupied by the cup-blazon of the sāqi, set in the centre of a three-fielded shield. The blazon is framed with a row of narrow rectangles alternating with circles. This is the second surviving example of the use of a blazon on a qamariyya, the earliest being the windows the Qasr Bashtak. The blazon of the sāqi also appears above the entrance to the mosque. The outer border of this grille is also noteworthy in being the first surviving example composed of elongated hexagonal cartouches. Like the windows of the mausoleum, the window in the iwan is obscured by an accumulation of dirt, but red and turquoise glass are still visible in the grille. Like those discussed earlier, the grille is set in a wooden frame.

The most striking feature of the grille is its mode of manufacture. In place of the bevelled fillets of which earlier qamariyyat had been composed from the Ayyubid period onwards, this qamariyya consists of a pierced stucco panel with small pieces of glass attached behind. These seem to have been attached by means of a layer of plaster poured over the back of the grille and between the glass pieces, a technique which became common in the second half of the eighth/fourteenth century.83 This replaces the use of narrow strips of plaster tracery on the reverse of the grilles, and presumably had the advantage of increasing the speed of production.

5.2.15 Khanqah-Madrasa of Barquq, Cairo (786-8/1384-6).

In one of the first surviving monuments of the Burji Mamluks qamariyyat appear in the windows of the qibla iwan, and in the qibla and dome of the adjacent mausoleum. In the iwan two pairs of rectangular round-headed windows flank an oculus above the mihrab (pl. 106, ill. 69). The qamariyyat are of three kinds; a circular grille above each of the two mihrabs, and two large grilles with rectangular bases and arched apices terminating in a slight point. Much of the glass in the qamariyyat appears to be modern and is likely to have been replaced, perhaps when the qamariyyat were repaired at the end of the last century.84 Four of the eight windows in the cupola of the

83 See below, pp. 147-8.

mausoleum were also replaced. The form of the remaining grilles, and the content of their inscriptions, both suggest that they are largely original.

The oculus above the mihrab in the mausoleum is filled with stucco tracery which assumes the form of a six-pointed star (ill. 74, fig. 44a). Although circular qamariyyat filled with six-pointed stars were used earlier, for example in the Mausoleum of al-Ashraf Khalil, this is the first surviving example of a qamariyya of this type employed above a mihrab. Half-circles inscribed around the inner parts of the star are joined to the outer border by knots. The main lines of the design are filled with yellow glass, with red used for the background, blue and green for minor details of the design and colourless glass in the outer border. Similar hexagonal medallions are found on Mamluk metalwork (pl. 200), and star medallions of almost identical form are painted on either side of a window-opening in the Khattuniyya in Jerusalem [fig. 45] (755-82/1354-80), which might suggest that the motif might have had a particular connection with windows or light.

A variant of the star theme appears in the grille above the mihrab in the main iwan (pl. 107). This has a wider outer border within which six circles are inscribed at locations corresponding to the six points of the star. It seems that the form of the grille was influenced by other contemporary forms of stucco decoration, most notably the circular medallions, or shamsas, which appeared on the walls of Mamluk mosques, madrasas and palaces. A medallion in the iwan adjoining the tomb of Umm Anūk (before 749/1348) is particularly reminiscent of the qamariyya in the Barqūqīyya, being similarly provided with a wide outer border in which six roundels are placed at regular intervals (pl. 108).

The qamariyyat flanking the mihrab in the main iwan are of two types (ills. 70-73). Common to both is a wide central border around a panel which reproduces the outline of the window, producing the effect of a "window within a window". Both types have an outer border of narrow rectangles joined by circles. Blue and yellow glass is used in this border. The wide internal border of the two grilles furthest from the mihrab is filled with small roundels of colourless, red and yellow glass (ills. 69-70, fig. 43b). The inner panels of these qamariyyat contain the triple division typical of this type of Mamluk window. The lower field is occupied by a medallion in its centre and four smaller ones at its four corners. This panel has an inner border of trapezoidal cartouches like those which first appear in the madrasa of Ilgay al-YūsufT (fig. 43a). The lunette above is filled with a medallion with an elongated pointed apex. The centre of this, like the centres of each of the medallions in the field below, is occupied by a single trefoil motif. The colours of the glass used to fill this central panel are cobalt blue, turquoise and red. Yellow glass is used for minor details. Qamariyyat of similar form appear in the two windows flanking the mihrab in the adjacent tomb.

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85 Exercice (X, 1893), p. 38.
87 See below, pp. 311-2.
The two qamariyyat nearest the mihrab (ills. 71-2, fig. 43c) have a wide outer border decorated with an arabesque. The lines of this arabesque are filled with cobalt blue glass, and it is set against a yellow background, with red used for minor details. The lower field of the interior panel is bordered by a series of roundels with scalloped edges. The centre contains a shamsa filled with sixteen roundels filled with red glass which frame a central rosette. The shamsa is attached to the outer border at top and bottom by trefoil motifs. A similar medallion appears in the lunette above, with twelve roundels farming a central trefoil. Two smaller medallions appear in the spandrels. Qamariyyat of this form appear in the eight windows of the cupola in the adjoining mausoleum. The design is somewhat fussy and the overall effect is confused. An exception is the inscription, the letters of which are filled with white glass set on a cobalt blue ground. A similar method had been used earlier to render the inscriptions in the qamariyyat of the Māridānī Mosque and the mausoleum of Ašlam al-Silāḥdār legible.

The name and titles of Barquq run from qamariyya to qamariyya in the windows of the qibla iwan. Starting from the window furthest from the mihrab the inscriptions read: (1) 'azz li mawlāna (2) al-Sultan al-mālik (3) al-Ẓāhir Barquq (4) 'azza nasruhu. Continuous inscriptions appear in earlier Mamluk qamariyyat, those in the Mausoleum of Ašlam al-Silāḥdar for example. In the latter case however the inscriptions are Qur'anic. The use of the Sultan's titles in this way may be compared to the appearance of the founders' blazons in the qamariyyat of earlier madrasas, for example that of Ilgay al-Yūsufi.

5.2.16 Madrasa of Ināl al-Yūsufi, Cairo (795/1392).

Qamariyyat appear in the windows of the prayer-hall and those of the adjoining mausoleum. In the prayer-hall there are two distinct groups of window-grilles: those of the qibla wall, and those of the opposite iwan. The group on the qibla wall consists of an oculus above the mihrab (ill. 79, fig. 44b) flanked by two rectangular round-arched windows containing qamariyya of similar types (ills. 75-6, figs.47a). Of these only the damaged qamariyya to the south of the mihrab (ill. 75) is likely to be original. The colour of the glass and stucco both suggest this. Moreover the inscription in the other grille (ill. 76) is executed against a solid background filled with small circular perforations. This technique is not does not appear in the grille to the south of the mihrab. Similar perforated backgrounds become common on surviving qamariyyat only from the late ninth/fifteenth century. The appearance of this feature in a qamariyya of the late eighth/fourteenth century is therefore anachronistic and serves as a further indication that the grille to the north of the mihrab is not original.

88 J.M. Rogers, The Stones of Barquq, Apollo (CIII, April, 1976), p. 312, fig. 17; S.L. Mostafa, Khanqah und Mausoleum des Barquq in Kairo (Glückstadt, 1982), pp. 80, 83, figs. 36, 48.

89 See below, p. 148.
Both qamariyya are divided into three sections; an arched tympanum, an inscribed band, and a larger rectangular field below. Around the exterior runs a band of pearl roundels, an uncommon framing motif on qamariyyat of the Mamluk period, but one also present on those in the madrasa of Amir Mithqal. Here however the roundels do not touch, but are joined by narrow fillets of tracery. The tympanum of the original grille is filled with a circular medallion containing a scimitar in the wider central field of a three-field medallion (fig. 47a). This is the third extant example of a Mamluk qamariyya on which a heraldic blazon appears, the earliest being those of the Qasr Bashfak (740/1339) and the madrasa of Ilgay al-Yusufi (775/1373). The colours of the blazon are comparable to those of similar blazons on contemporary mosque lamps; red for the upper and lower registers and the scimitar, white for the central field. The letters of the inscription, in this case the bismillah, are filled once again with white glass.

The large rectangular field below is occupied by a twelve-pointed star or shamsa similar to those which appear in the earlier qamariyya in the madrasa of Ilgay al-Yusufi. The colours of the glass which fill this area of the window are white, cobalt blue, turquoise, green, red and yellow. Most of the glass is red or blue, with other colours being reserved for border motifs or background details.

The circular grille above the mihrab, like those above the mihrabs in the Khanqah of Barquq, is filled with tracery in the form of a six-pointed star (ill. 79, fig. 44b). The border, like those of the other qamariyyat in the qibla, is composed of pearl roundels. As in the qamariyya above the mihrab in the earlier khanqah, a single scalloped rosette appears at each of the outer points of the star. The centre of the star has been lost, but its triangular points are each filled with a single rosette. The outer border of joined cartouches recalls similar features on the qamariyyat in the Madrasa of Ilgay al-Yusufi (fig. 43a) and the Khanqah of Barquq (fig. 43b-c). The colours of the glass which fills the circular qamariyya are similar to those in the other two grilles of the qibla iwan.

A second group of three windows is found in the back wall of the iwan opposite the qibla (ills. 77-8). The group is similar to those found in the mausoleum of Qalā'ūn, consisting of an oculus set above a pair of narrow windows which terminate in a horse-shoe arch. Three distinct elements are combined in the tracery of the vertical windows; floral, geometric, and heraldic. The tracery is more dense and less differentiated than that of the grilles of the qibla wall. The body of the grilles is composed of a network of geometric tracery filled with red glass. Small circular rosettes appear at intervals in the geometric grid, the central one of each window being filled with a heraldic blazon containing a scimitar similar to that which occurs in the windows of the qibla. The remaining rosettes in the windows are occupied by trefoils similar to those which appear in the medallions on some of the qamariyyat in the khanqah of Barquq. The borders of the grilles are, unlike those of the qibla, divided into narrow rectangular segments. The circular window at the summit of this group is filled with a combination of floral and geometric tracery similar to that used in the two larger windows. Apart


91 Meinecke, Mamlukischenheraldik, p. 246.
from the red glass used to define the lines of the geometric design, yellow, green, blue, and white glass also appears in the qamariyyat of the iwan. Red and blue are the predominant colours.

Qamariyyat of similar type appear in the corresponding position in the adjacent mausoleum. Some of the qamariyyat in the madrasa are later replacements for the original window-grilles. An upper portion from one of the window-grilles of the iwan or mausoleum is preserved in the Museum of Islamic Art (ill. 59), indicating that at least part of one of the qamariyyat presently in situ is post-Mamluk. Although the design is similar to that of the qamariyyat in situ, those in the mausoleum have patches of plaster of different colours and make use of background drilling around rosettes (ill. 80). Both features suggest that portions of these qamariyyat have been replaced. It seems likely therefore that the fragment comes from one of the windows in the mausoleum.

A single circular qamariyya appears on the qibla wall of the mausoleum (pl. 109, fig. 44c). The colour of the stucco from which this grille is composed suggest that it is relatively modern. However, there are several features which suggest that it follows an original design. The central blazon containing a scimitar is similar to that which appears in the original grille on the qibla of the adjacent prayer-hall. The blazon is surrounded by a radiating inscription which contains two repetitions of the Qur'anic quote "Say: everyone acts according to his own disposition" (qul kulu y'amal 'alaya shākitātihi, XVII:84). In view of the similarities between this grille and the radial qamariyya above the mihrab in the mausoleum adjoining the mosque of Aslām al-Silāhdūr (ill. 64) it seems likely that the design of the later grille follows that of an original Mamluk creation. Although only two qamariyyat of this form survive it is worthy of note that both are found on the qibla wall of mausolea. It may be that qamariyyat in which radial inscriptions appeared were specifically chosen to appear in mausolea. In this case the letters are filled with blue glass, with red being used for the background, green for the borders and yellow for minor details.

5.2.17 Mausoleum of Yashbak/ Turbat al-Taynābiyyā, Damascus (797/1394).

Sauvaget mentions the presence of an ancient coloured glass window in the prayer-hall of the mausoleum adjoining this mosque. This still survives in the north wall of the drum of the dome (ill. 81, fig. 52). Since eight window-openings of identical form are pierced in the drum, it is reasonable to assume that all were originally filled with qamariyyat, perhaps of a similar type to that which remains.

The tracery of the surviving grille is very different to anything found among the contemporary qamariyyat of Cairo. There is no division of the body of the grille, which is instead filled with a uniform geometric pattern. This grid consists of three vertical rows of circular rosettes with thin spokes radiating from their centres. The interstices of the grid are filled with upright fleur de lys. The

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92 Inventory Number 3116, 0.78 x 0.56m.

93 Sauvaget, Monuments Historiques, p. 73.
appearance of similar motifs on the earlier qamariyyat in the khanqah of Barquq (ill. 71) and the madrasa of Inal al-Yūsufī (ill. 78) suggests that some connection existed between the qamariyyat of Cairo and Damascus during the Burjī Mamlūk period. The border is typical of that found on Damascene qamariyyat from the Ayyūbid period onwards, consisting of a narrow strip of rectangles alternating with circles. The glass present in the grille is red, yellow, blue and colourless.

5.2.18 Madrasa of the Amir Jamāl al-Dīn Maḥmūd al-Ustādar/ Jāmī al-Kurdī, Cairo (797/1394-5).

A single window-grille from this building has been published (pl. 110).94 The overall form of the grille is similar to that of the large qamariyyat in the khanqah of Barquq, consisting of a central round-headed panel surrounded by a wide outer border. The border consists of an outer strip of elongated hexagonal cartouches similar to those which first appear on the qamariyyat in the madrasa of Ilgay al-Yūsufī. This is followed by a double row of roundels, similar to those used in the wide borders in some of the windows in the earlier khanqah. The central arched panel bears the characteristic division of Mamlūk qamariyyat into tympanum, inscribed band, and rectangular field. The central composition is bordered by a narrow row of rectangles alternating with circles.

In place of the geometric medallion normally found in the tympana of such grilles, the tympanum is here occupied by a circular blazon. Like the blazon on the qamariyya in the madrasa of Ilgay al-Yūsufī, this is the blazon of the sāqī, a cup set on a three-field shield. The blazon is surrounded by a ring of stylised foliage. The remainder of the tympanum is filled with floral tracery. The epigraphic band below, like that on the grille in the madrasa of Ilgay al-Yūsufī, contains the shahada in shortened form. The tracery which frames this panel is decorated with incised vegetal ornament. The large rectangular field is filled with floral motifs. A small medallion appears at each of the four corners, a detail which recalls some of the qamariyyat in the Khanqah of Barquq.

No details of the colours of the glass which filled this grille are available. Although some of the window-grilles originally contained glass,95 from the published photograph the grille looks as though it may have been blind or did not contain glass. The grille is set in a wooden frame.

5.2.19 Madrasa of the Amir Jamal al-Dīn Yusuf al-Ustādar, Cairo (806/1408).

Two qamariyyat of similar form survive in the north-eastern iwan of this madrasa.96 Both are long and narrow with a rounded head (pl. 111). The grilles are once again divided in three by the use of a narrow inscribed band. The tone of some of the glass in these grilles suggests that some has been replaced (ill. 82). The qamariyya nearest the qibla contains the date 1331/1912 inscribed in its bottom

94 Mostafa, Khanqah und Mausoleum, pp. 99-100, fig. 99.

95 Exercice (XXV, 1908), p. 10.

96 Mostafa, Khanqah und Mausoleum, p. 110, fig. 144; Briggs, Muhammadan Architecture, fig. 185.
left-hand corner (pl. 111). The reports of the Comité record expenditure on plaster and glass for the windows of this mosque at the same date. However, as is clear from photographs, the stucco in which the date is written is much whiter and cleaner in its appearance than that which surrounds it. Patches of similar-colored stucco are clearly visible in other places on the same grille and on its neighbour. This feature suggests that, as was the case in the restoration of the madrasa of Amir Mithqal at the same date, only portions of the qamariyyat and some of their glass were replaced. This hypothesis is borne out by the many similarities between the design of the grilles and that of other Mamluk qamariyyat.

The tympana are each filled with a twelve-pointed star or shamsa (fig. 47c) similar to those which appeared in the qamariyyat in the madrasas of Ilgay al-Yusufi (fig. 43a) and Inal al-Yusufi (fig. 47a). The star is set against a background of floral tracery, with two small hexagonal star medallions filling the spandrels. Unfortunately the accumulation of dust on the windows has defeated several attempts to read their inscriptions. They appear to be Qur'anic, and, like the inscriptions on the windows of earlier madrasas and mausolea, to be continued from window to window.

The large lower rectangular panels on each grille contain a medallion filled with twelve glass roundels (pl. 112). Similar motifs occurred earlier on the qamariyyat of the Qasr Bashbak (ill. 57) and the khanaqah of Barqiuq (ill. 71). The four corners of the panel are each occupied by a single medallion. In contrast to the plainer arrangement of the earlier qamariyyat, here these medallions are set against a background of floral arabesques. The central medallion terminates in a single fleur de lys at top and bottom. Qamariyyat making use of similar foliated medallions are found in the mosque of Faraj Ibn Barquq in the Northern Cemetery of Cairo, but, to judge by their appearance and the brilliant white colour of their stucco tracery, these appear to be modern creations.

Similar medallions occur in the bronze revetments of Mamluk doors and relief carvings, and, later, on Ottoman window-grilles. At the centre of each medallion is a heraldic blazon similar to that which occurs in the earlier qamariyya in the Madrasa of Inal al-Yusufi near the Bab Zuwayla. The blazon is that of the silahdar, consisting of a scimitar set on the central band of a three-fielded shield. The blazons in the later grilles are each framed by a polylobed rosette.

The stucco grilles are mounted in a wooden frame. The predominant colour of the glass which fills the grilles is cobalt blue, with green playing a minor role (ill. 82). Alternate roundels in the large

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97 *Exercice* (XXX, 1913), p. 31.
100 Prise d'Avennes, *Décoration Arabe*, pls. 96-7.
medallions are filled with red or yellow glass. Unusually purple appears in the narrow border of these medallions. Although purple glass is used in early Mamluk qamariyyat, such as those in the complex of Qala'un or the Qaṣr Bāṣṭāf, it rarely appears in Burji Mamluk qamariyyat. The letters of the inscription are filled with yellow glass. White glass served this function in earlier Cairene qamariyyat. However a similar use of yellow glass is made in a group of Damascene qamariyyat which are discussed in the following section and which appear to date from the early ninth/fifteenth century.

5.2.20 Tayrūzī Mosque, Damascus (built 663/1264, restored early ninth/fifteenth century).

Three different types of qamariyyat were used in this mosque. On the qibla wall five stucco grilles containing coloured glass alternate with four grilles filled with roundels of clear glass (ill. 83). The windows are each framed by a narrow raised border and are separated by blind rectangular panels. All the qamariyyat are rectangular, which suggests that different modes of fenestration prevailed in the mosques of Cairo and Damascus at this date. In Cairo rectangular windows appear only in the drum of high domes, usually in mausolea.

The plainest windows are those on the qibla filled with clear glass and four more of related type which survive in the eastern wall of the mosque (pl. 113). The lozenge-shaped interstices of the grilles on the qibla are filled with small pieces of red, blue and yellow glass. Glass of similar colours fills small rosettes between the roundels of the windows on the eastern wall. No grilles of this form survive on the western wall, but it seems likely that plain glass was originally used in the windows of both walls. This mode of fenestration was probably adopted to admit a greater amount of light into the enclosed prayer-hall than if all its windows had been filled with coloured glass. The use of such windows on the side walls of the mosque also serves to focus attention on the polychromatic light streaming through the qibla. There is an evident hierarchy in the location of qamariyyat, for the only window in which an inscription occurs is set above the mihrab.

The qamariyya above the mihrab is framed by a double border (ill. 87, fig. 54a). The inner border is similar to the borders of Ayyubid qamariyyat, the outer is filled with rows of leaf-shaped motifs arranged diagonally along the edges of the grille. These are filled with purple glass while colourless glass appears in the spaces between. The greater part of the grille is filled with a highly stylised arabesque, the lines of which form a diagonal lattice. As was the case with Ayyubid grilles, the tracery

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103 Mentioned by 'Abd al-Ḥaqq, Contribution, p. 86.

104 For example in the mausoleum of Shāhī Najm al-Dīn al-Ayyūb (648/1250) and the tomb of ʿAlīn ibn Sulaymān al-Ridā (706-9/1306-10); MAE II, pl. 40a, 78a.
is composed of narrow fillets of stucco. The inscription which appears in a rectangular panel at the top of the grille reads: \textit{ma šā' Allāh wālā qīwāwata illa bi Allāh - }"By the will of God there is no power but with God." (part of Sura XVIII:39).

A particularly noticeable feature is the use of yellow glass to fill both the main lines of the arabesque and the letters of the inscription (fig. 54a). Cobalt, turquoise and red glass were used for the background, along with small quantities of purple. The use of yellow is particularly effective in making the main lines of the design stand out from their surroundings. It may be that this feature is derived from Ayyubid qamariyyat, for yellow glass is used to similar effect, although less extensively, in a qamariyya in the Jāmi‘ al-Hanāfīs (ill. 32). While the range of colours is similar to those used in Cairene qamariyyat at the same date, red and blue are the predominant colours of the glass used in the latter windows, with yellow used relatively sparingly. The arabesque is similar to that which frames the main panel on some of the qamariyyat in the khanqah of Barquq (fig. 43c), but the latter is outlined in blue glass. In their use of colour these Syrian qamariyyat are somewhat more successful than their Egyptian equivalents.

The remaining four windows on the qibla are each filled with a single stylised cypress tree. The centre of each tree is filled with a hexagonal rosette. The trees are set against a background of stylised arabesque filled with \textit{fleur de lys} (fig. 54b). There are slight differences between the qamariyyat closest to the mihrab and those at the extremities of the qibla. The latter each have two medallions containing eight-pointed stars flanking the apex of the tree (ill. 86). Eight-petalled rosettes fill the space below. The borders of these grilles are also similar to those framing the grille above the mihrab, but with a row of pearl roundels above and below. The two qamariyyat closest to the mihrab have an extra border of narrow rectangles joined by circles (ill. 87). The final difference is in the trunk of the tree which in the outer grilles is of a single thickness and filled with turquoise, while the trunks of the trees on the remaining grilles are of double thickness and are filled with green glass.

The use of colour in all these qamariyyat is similar to that in the window above the mihrab, but with a more extensive use of green glass for the outline of the trees. Slight differences in colour between the glass filling similar ornament of the same grille, for example the occasional substitution of cobalt for turquoise, suggest that some of the glass may have been replaced. Cypresses may have appeared in Mamluk qamariyyat as early as the first quarter of the eighth/forteenth century,\footnote{See above, pp. 115-9.} so there is nothing in the iconography of these qamariyyat to suggest that their design is not original. A noteworthy feature is the protrusion of the apex of the trees into the upper border of the grilles. This feature is clearly derived from Ayyubid qamariyyat on which the apical bud of the arabesque often protrudes in a similar manner (pl. 88, ill. 32).

Strong similarities between the qamariyyat in this mosque and certain of the window-grilles in the Jāmi‘ al-Hanāfīs suggest that some of the latter may have been installed in the late eighth/forteenth or early ninth/fifteenth century. Rectangular grilles filled with roundels of colourless
glass remain in the windows in the side walls of the earlier mosque, two on the eastern wall (ill. 88) and a plainer one on the western (pl. 114). Herzfeld published a similar window-grille from the Jāmiʿ al-Jarrāḥ (648/1250), 106 so it is conceivable that windows of this form were used in Ayyubid mosques. However, the use of such plain grilles in the windows of the side walls finds an obvious parallel in the fenestration of the Jāmiʿ al-Tayrouzī. Further resemblances between the window above the mihrab in the Jāmiʿ al-Hanābīlā and the qamariyyat in the Jāmiʿ al-Tayrouzī suggest that the windows of the side walls may have been added along with that above the mihrab in the Mamluk period.

Although the window above the mihrab in the Jāmiʿ al-Hanābīlā (ill. 87) is not rectangular, but terminates in a rounded arch, the parallels between the details of its design and those of the windows in the later mosque are numerous. They include the hexagonal lattice outlined in yellow glass (fig. 54c), and the use of fleur de lys to fill this. The setting of the only grille on which an inscription appears directly above the mihrab is also analogous, although here the letters are filled with blue and not yellow glass. Apart from the absence of cobalt, the colours of the glass used in the grille are also similar to those in the qamariyyat of the Tayrouzī Mosque; yellow, pale blue, red, green and colourless. Pale blue glass does not appear in the Ayyubid qamariyyat of the mosque, 107 but is often used for Mamluk windows in both Cairo and Damascus.

One can also point to elements of the design which find echoes in the qamariyyat of the Tayrouzī Mosque. For example, the eight-pointed stars which appear in the four corners of the window in the Jāmiʿ al-Hanābīlā (fig. 54c) are similar in form to those which flank the apex of the trees in the two grilles in the end windows of the qibla in the Jāmiʿ al-Tayrouzī (ill. 85). The parallels in design, use of colour and the general approach to fenestration suggest that some of the window-grilles in the Jāmiʿ al-Hanābīlā should be attributed to the same date, if not the same group of craftsmen, as those in the Jāmiʿ al-Tayrouzī.

It seems likely that the window above the mihrab in the Madrasa al-Shamīyya (ill. 89) should also be dated to the late eighth/fortieth or early ninth/fiftieth century. The form of its outer frame suggests that the setting has been altered. The original window would, like those on the side walls of the prayer-hall, 108 have terminated in a pointed arch. The whiteness of the stucco tracery and the tone of the glass which fills it suggests that this grille may be of recent manufacture. However even if this is the case, the combination of geometric and floral tracery finds on echo in many Mamluk qamariyyat 109 so the design may have been copied from an earlier grille. The colours of the glass are similar to those used in the Tayrouzī Mosque, with blue and yellow also predominant. Small pieces of

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106 Herzfeld, Damascus: Studies IV, p. 127, fig. 10. This is described as an "antique window screen of basalt" which, judging by the delicacy of the design, is unlikely to be the case.

107 See above, pp. 80-2.

108 See above, p. 77.

109 For example those in the madrasa of Amir Mithqāl (ill. 68) or in the iwan opposite the qibla in the madrasa of Ţāfl al-Yūsuf (ills. 77-8).
glass are attached to the reverse of the grille. The use of this method in preference to the "sandwich" technique used earlier would support a date in the second half of the eighth/fourteenth century or later.110

5.2.21 Mosque of Amir Gānī Bek, Cairo (830/1426-7).

Several different types of window-grille are used in this mosque. The arched windows at the northern end of the qibla iwan and the iwan facing are filled with simple stucco claustra. The circular window above the mihrab and the window immediately to the south of the mihrab (pl. 115) contain the remains of more sophisticated grilles. These make use of tracery of different thicknesses and show sufficient similarities with qamariyyat in other Burji Mamluk monuments to suggest that they are original.

All that survives of the circular window-grille above the mihrab is its wide outer border, framed by a narrower border of rectangles joined by circles (pl. 116, fig. 44d). The inner border is filled with a series of elongated cartouches separated by roundels. The roundels contain six-petalled rosettes, while the cartouches are filled with inscriptions executed against a background of vegetal motifs. Some, if not all, of the inscriptions are Qur'anic, for the two lowest cartouches contain quotations from Sura III. The lowest reads; Ina al-dīn 'abd allāh al-Islām (111:19). In the adjoining cartouche to the right the words La ilāha ila huwa al 'āzīz (III:6) appear.

The large arched window to the right of the mihrab originally contained a 'window within a window', a formula first used in the khanqah of Barquq (figs. 43b-c). The form of the tracery is similar to that in the window above the mihrab, and the wide outer border is filled once again with cartouches and roundels (pl. 117, fig. 48). The interior of both cartouches and roundels is decorated in a similar fashion to those in the grille above the mihrab. The cartouches are filled with religious formulae; the lowest on the right-hand side contains the bismillah, while the inscription in the central cartouche on the same side reads Allāh, la ilāha ila allāhu. Similar inscriptions had appeared on earlier qamariyyat; the shahāda appears on a qamariyya above the mihrab in the madrasa of al-Nāṣir Muhammad, a shortened version occurs on a grille in the madrasa of Ilgay al-Yūsufī, while the bismillah appears in the windows of the qibla in the madrasa of Ṣalāh al-Yūsufī. However in both these cases the inscription is contained in a horizontal rectangular panel. One may offer the suggestion the form of the inscribed border in the windows of this mosque derives from the stucco decoration used around windows in earlier Mamluk buildings. The window-openings in the mausoleum of Aslām al-Silhādar are surrounded by a wide stucco border decorated with cartouches and roundels (ill. 65, fig. 42b). The roundels contain geometric ornament, the cartouches inscriptions which appear to be Qur'anic. In the mosque of Gānī Bek the framing cartouches with their Qur'anic quotations have been incorporated into the design of the qamariyyat

110 See below, pp. 146-8.
themselves. One may conclude that the decoration used around window-openings was capable of influencing the design of the grilles used to fill them. Similarities between stucco window grilles and contemporary blind stucco ornament have been noted section 5.2.15.

Little of the internal tracery of the larger grille survives but it appears to have consisted of vegetal and floral ornament. The remains of what appear to be inscriptions are visible along the lower edge, although the use of inscriptions in such a context would be without parallel among surviving Mamluk qamariyyat. The colours of the glass used in the grilles are no longer visible, and the grilles in the qibla may have been blind. A blind grille of similar form to that just described survives in the northeastern wall of the mosque (pl. 118).

5.2.22 Madrasa of Qādī ʿAbū Bakr ibn Muzhir, Cairo (884/1479-80).

Three different kinds of qamariyyat are found in this madrasa. Despite the poor condition of some, the tone of the glass used suggests that some or all have recently been restored. The reports of the Comité for 1391/1891 show an unusually high expenditure on glass windows and metal netting for the mosque of ʿAbū Bakr Muzhir al-Anṣārī.¹¹¹ The date of this mosque is given as 903/1497, but since there is no record of two mosques of this name it seems that the records refer to the mosque built at the slightly earlier date. The large amount spent on the windows suggests that many, if not all, were replaced. In spite of this, it will be demonstrated in the following section that there are reasons for believing that even if the qamariyyat were made anew, they follow the designs of the original grilles.

The circular qamariyya above the mihrab (Type I) is filled with a radiating geometric rosette framed by a wide border knotted at four points. Red, yellow, green, colourless and two shades of blue glass are used in the grille.

Qamariyyat of the second type (Type II) appear in the two remaining windows of the qibla, those opposite, and in two windows in the walls flanking the side iwans. The grilles have a rectangular base and terminate in a slightly pointed arch. The central panel is framed by a wide border filled with cartouches and roundels similar to those which appear in the qamariyyat in the mosque of Gānī Bek. Here these are not filled with inscriptions, but with floral ornament (ill. 90-1, fig. 49a). The central panel is divided into a rectangular field and a tympanum above, but lacks the usual intermediate band of epigraphy. The tympanum is filled with a hexagonal star medallion with a hexagonal rosette at its centre. The lower field is filled with an axial arabesque. After its appearance in the windows in the Mausoleum of Aṣlām al-Silāḥdār, this is the first occurrence of the arabesque on qamariyyat of this type. The main details of the design are filled with blue and red glass, with green and yellow glass being reserved for borders and subsidiary motifs.

The most noticeable feature of these qamariyyat is the use of a background perforated with numerous drill-holes. The main elements of the design are thus raised against a background filled

¹¹¹ Exercice (VII, 1891), p. 95. The sum spent was 469 LE 671 Mill. Compare this with the expenditure of 48 LE on the purchase of four new qamariyyat for the khanaqah of Barquq, Exercice (X, 1893), p. 38.
with fine pinpoints of light. Technically this is a major innovation, for it enables the main design to be clearly distinguished from its background. As noted above, in some Burj Mamluk qamariyyat there is a tendency for the design to become lost in a mass of detail or a haze of colour. It may be that the new technique was introduced in an attempt to counter this tendency.

It is not clear when the drilled background was first introduced, but it seems to appear during the reign of Qâyûtî (877-918/1472-4). A similar technique was used on the qamariyyat in the qibla wall in the funerary complex of the same ruler (ills. 93-4). These appear to be modern, but it is conceivable that they follow the design of earlier window-grilles. A similar technique is used in some of the qamariyyat in the mosque of al-Mu'ayyad (818-26/1415-22) on the upper panels of which an analogous design of arabesques set beneath arches appears. There are reasons, which will be discussed shortly, for thinking that these too were manufactured in the late ninth/fifteenth century.

Qamariyyat of the third type (Type III) fill the remaining windows of the mosque. They have wide plaited internal borders framing a central arched panel (ill. 92, fig. 49a). The tympana of these panels are each filled with a tear-shaped medallion similar to that which appears in a corresponding position in some of the qamariyyat in the khanqah of Barqûq (ill. 71). The lower field is occupied by a cypress flanked by scrolling vegetal ornament. Once again the design is set against a background filled with drill-holes. Red and blue glass is used to fill the main lines of the design, with yellow, green and colourless glass used more sparingly.

The lower field of Type III qamariyyat bears a strong resemblance to the lower panels used in the windows of the mausoleum adjoining the mosque of al-Mu'ayyad. These are mounted in wooden tracery and appear in the windows on the south-western wall of the mausoleum. The form of the cypress and the background ornament are both similar, as is the use of a perforated background. The resemblances are more than superficial, and include such characteristic details as the plaited design halfway down the trunk of the cypress. Given the stylistic and technical similarities between these qamariyyat it seems likely that they are of similar date, or copy earlier grilles of similar date. While the cypress may have appeared in earlier Mamluk qamariyyat, and appeared in the windows of the Tayroûzî Mosque in the early ninth/fifteenth century (ills. 85-6) , the motif enjoyed a particular popularity during the reign of Qâyûtî, appearing on carpets, tiles and metalwork.

The qamariyyat in the madrasa of Abu Bakr ibn Muzhir are mounted in wooden frames. The method used in their manufacture was similar to that used in earlier windows, with pieces of coloured

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112 The reports of the Comité record both the manufacture of new window-grilles and repairs to others which had been damaged by birds attacking their exterior; Exercise (IV, 1886), p. xxii.

113 See above, p. 118.

glass attached to the reverse of the grilles by means of a thin layer of stucco. The exteriors of the windows were covered with metal meshes (pl. 119).

5.2.23 Mosque of Qajmās al-Iṣḥāqī, Cairo (886/1481).

One circular qamarīyya and five different types of rectangular qamarīyyat which terminate in a pointed arch are used in this mosque. Groups of three qamarīyyat are used on all the walls, except the qibla where two pairs of large qamarīyyat appear on either side of the mihrab, above which is a circular grille (ills. 95-6, fig. 44c). This grille is very similar, but not identical to, the qamarīyya above the mihrab in the madrasa of Abū Bakr ibn Muzhir. A single qamarīyya appears in the window at the back of the north-western iwan. All the qamarīyyat have a wide internal border composed of parallel knotted or plaited lines. This produces the effect of a smaller grille held in a larger, a phenomenon first encountered in the windows in the Khamqah of Barqūq.

Qamarīyyat of type I (ills 98-9, fig. 50a) appear in the windows of the wall facing the qibla, and in those of the two walls immediately perpendicular to it. They are similar to type II in the madrasa of Abū Bakr ibn Muzhir, but have an additional rectangular band containing an inscription separating the tympanum from the rectangular field below. The windows on the wall facing the qibla contain shortened versions of the shahāda contained in a polylobed cartouche. The remaining windows of this type feature the words ʿllāh la ilāhu ila hūwa. The panel below contains a cypress (fig. 51b) of similar form to those of the qamarīyyat in the mosque of al-Muʿayyad (fig. 51c). Circular apertures similar to those on the trunks of the trees depicted in the latter grilles replace the rectangular openings on the trunks of the cypresses in the qamarīyyat filling the windows in the madrasa of Abū Bakr al-Muzhir. However, a note of caution must be sounded here, for a plaited band similar to that on the trunks of the cypresses in these windows appears in the trunk of a tree or stem of an arabesque in a window depicted in a Herati manuscript dated 849-50/1445-6 (pl. 120). Since there appears to have been little tradition of coloured glass windows in the Iranian world, this may reflect the influence of Mamluk qamarīyyat. If so, then it seems likely that the grille in the mosque of al-Muʿayyad should be dated to the completion of the mosque in 826/1422, that is, to a period before the miniature. If this is accepted than the strong similarities between this window and the remade qamarīyyat in the madrasa of Abū Bakr Muzhir and the mosque of Qajmās al-Iṣḥāqī suggest that at least some of the latter were modelled on the windows in the mosque of al-Muʿayyad and may bear little relation to the qamarīyyat of the late ninth/fifteenth century. This is, however, unlikely since it will be shown shortly that the remains of one of the original qamarīyyat from the mosque of Qajmās al-Iṣḥāqī indicates that at least some of the window-grilles in situ are accurate copies of the original grilles. Instead it may be suggested that the qamarīyyat in the mosque of al-Muʿayyad were manufactured in, or copy a design of, the late ninth/fifteenth century. By implication, the form of the window in the earlier miniature

115 Nushaba with the portrait of Iskandar, Khamsa of Nizāmī, Topkapı Palace Museum H. 781, fol. 244b; T.W. Lentz, Dynastic imagery in early Timurid wall painting, Muqarnas (X, 1993), fig. 5.
may be taken as valuable evidence for Iranian influence on qamariyyat of the Burj Mamluk period.\textsuperscript{116}

Type II qamariyyat are similar to type I, but with a knotted outer border in place of the plaited border of type I (ill. 100, fig. 50b). The epigraphic frieze on these windows lacks the polylobed cartouche of type I.

Type III qamariyyat are analogous to type II in the madrasa of Abū Bakr ibn Muzhir. The main difference is the addition of an epigraphic frieze in which the bismillah is contained in a polylobed cartouche (ill. 101, fig. 50c). The outer border is plaited, with hexagons occurring at intervals. In the tympanum of the grille an eight-pointed star medallion appears in place of a hexagonal star. As in the windows of the earlier mosque, an arabesque appears in the lower panel. This is executed against a background filled with drill-holes. Two windows of this type appear on the wall opposite the qibla, flanking type I qamariyyat. Two more appear on the qibla, and one is found on the rear wall of the north-western iwan.

Type IV qamariyyat (ill. 102, fig. 50d) have an outer border of cartouches and roundels similar to that which first appears in the windows of the mosque of Gāmi Bek. The cartouches are filled with stars and rosettes. The large rectangular field of the window is occupied by a hexagonal grid in which the centre of each hexagon is occupied by a rosette. A hexagonal star medallion appears in the tympanum. Grilles of this type appear in the two inner windows of the qibla.

The final type of qamariyyat in the mosque, type V, has a wide outer border of rectangular and square panels filled with geometric tracery (ill. 103, fig. 51a). The central field of the grille is dominated by a large twelve-pointed star or shamsa, similar to those which appear in earlier qamariyyat, such as those in the madrasas of Ilgay al-Yüsufi and Ṣahl al-Yüsufi. The tympanum is occupied by a tear-shaped medallion similar to those which appear in a corresponding position in some of the windows in the khanqah of Barquq (fig. 43a). Windows of this form appear in the windows flanking the mihrab and in the side walls of the mosque. The colours of the glass which fills this grille is similar to those of the glass used in the other windows of the mosque. Red predominates, as it does in earlier windows, with cobalt, turquoise and pale blue glass also visible. Green and yellow glass are used more sparingly and, as in earlier qamariyyat, colourless glass is reserved for the letters of the inscription and for border motifs.

From the colour of the plaster, the tone of the glass and the relatively small amount of dust which has accumulated on the qamariyyat, most, if not all, appear to be of recent manufacture. Despite this, the similarities between types I-III and the qamariyyat in the madrasa of Abū Bakr ibn Muzhir are striking. The mosques are of approximately the same date, and it is conceivable that the qamariyyat of both were remade by the Comité using the remains of the original qamariyyat from one of the

\textsuperscript{116} For a discussion of the relationship between Egyptian and Iranian windows see below, pp 178-80.
Despite the similarities between the window-grilles, they are not identical, as one might reasonably expect had this been the case.

Moreover part of a type V qamariyya from the mosque of Qajmas al-Ishaqī is on display in the Museum of Islamic Art in Cairo (ill. 105). The composition of the grille, the form of the tracery, and the colours of the glass used in both this window are all similar to the remade grilles of this type, which suggests that they are faithful to the original design. A similar qamariyya, which also looks modern, appears in the south-western wall in the Mausoleum of Qaytbay (877-9/1472-4) [ill. 104]. This grille bears little relation to the other qamariyyat of the tomb, which suggests that qamariyyat of this generic type have been manufactured for use in buildings erected in the last few decades of the ninth/fifteenth century even if similar qamariyyat did not originally appear in these buildings. With this reservation in mind, it is still possible to suggest that the original qamariyyat in the madrasa of Abū Bakr ibn Muzhir and the mosque of Qajmas al-Ishaqī were a product of the same workshop.

A similar suggestion has been made with regard to the qamariyyat in the Māridānī Mosque and the mausoleum of Aslām al-Silāḥdār. In the case of the later mosques, support for the suggestion can be found in other elements of their decoration. We are fortunate in having the signature of 'Abd al-Qadir al-Naqqash, the craftsman responsible for the inlaid bitumen decoration, in the mihrab of the mosque of Qajmas al-Ishaqī. The same artist appears to have worked slightly earlier in the madrasa of Abū Bakr al-Muzhir, for his signature appears in the inlaid marble decoration on the qibla wall of that madrasa. The fact that qamariyyat were usually designed to harmonise with the other forms of decoration which appeared alongside them has been stressed repeatedly in the preceding discussion. It seems reasonable to suggest therefore that if the same craftsman worked on one type of decoration in both mosques, then the similarities between their window-grilles are best explained by the fact that they too were the product of craftsmen charged with providing window-grilles for both mosques. In view of the diversity among the qamariyyat in the mosque of Qajmas al-Ishaqī, it may be that a greater range of designs was also used in the original qamariyyat in the madrasa of Abū Bakr ibn Muzhir.

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117 Where the form of the original window-grilles in a building were unknown, the Comité sometimes manufactured new window-grilles using the grilles from other buildings of similar date as models. For example, in the mosque of Khayrbak, where all traces of the original grilles had disappeared, generic Ottoman bull's-eye windows were used; Exercice (XXI, 1914), p. 12.

118 Inventory Number 2308, 1.90 x 1.36m.


120 Ibid., No. 112, p. 417.
5.2.24 Madrasa al-Ashrafiyya, Jerusalem (after 887/1482).

An anonymous text mentions the existence of *qamarîyyat* filled with "Frankish" glass in this building.¹²¹ This source provides an interesting insight into Mamluk trade with Europe. As early as the first quarter of the eighth/fourteenth century Cypriot glass was imported for use in the *qamarîyyat* of the Qaṣr Ablaq in Cairo.¹²² In the following centuries Venetian glass was exported to the Near East for use in Ottoman and Safavid windows.¹²³ Although our source gives no details about the form of these windows or the colours of the glass used, it is reported elsewhere that they contained circular glass shields (panes of crown glass ?) bearing religious invocations.¹²⁴ Inscriptions and other forms of decoration were sometimes used on the surface of the glass roundels used in Ottoman windows.¹²⁵

5.2.25 Mosque of the Prophet, Madina (898-900/1492-3).

In 1273/1856 Burton noted the existence of coloured glass windows in the *qibla* of this mosque, remarking:

"...the only admirable feature in the Garden is the light cast by windows of stained glass in the southern wall, a present from Kaid Bey, the Mamluke Sultan of Egypt."¹²⁶

Burckhardt described the *qamarîyyat* thus;

"Large and high windows, with glass panes, (of which I know not of any others in the Hijaz) admit light throught the southern wall; some of them are of fine painted glass".¹²⁷

The mention of painted glass is curious, since no other instances of Mamluk painted window-glass are known to me. It is possible that Burckhardt assumed that techniques similar to those used in the production of medieval European stained glass were employed in the manufacture of Mamluk *qamarîyyat*.¹²⁸

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¹²¹ *Wa 'alwahu* *qamarîyyatun min al-zujaji al-'afranjiyyi* *rghâyati al-bahjati w'al-itqân*; van Berchem, MCIA: Deuxième Partie, Série du Sud i (Cairo, 1922), p. 369.

¹²² See above, p. 120.

¹²³ See below, pp. 177-8.


¹²⁵ See below, p. 173.


¹²⁷ Ibid., p. 69.

¹²⁸ See *ibid.*, *ff.* 144-5.
5.2.26 Miscellaneous.

(i) Two octagonal qamariyyat of the Mamluk period from a dome near the Mausoleum of Imam al-Shafi‘i, now destroyed, are preserved in the MIA (ill. 59). They are filled with red and colourless glass held in simple geometric tracery.

(ii) Mausoleum of Shaykh Hamad al-Zarkash, Aleppo: Sauvaget reported that this small Mamluk mausoleum contained traces of coloured glass windows in its cupola.

5.3 Techniques of Manufacture.

The techniques described in Chapter II, Section 2.3 continued to be used in the manufacture of stucco and glass window-grilles until the eighth/fourteenth century. They were then superseded by a different technique, although the older method continued to be used in Ottoman Turkey. In place of the "sandwich" technique used earlier, qamariyyat were now produced by attaching pieces of coloured glass to the reverse of a perforated stucco panel by a thin application of wet stucco. Unlike the pieces of glass used in earlier qamariyyat, the glass pieces which appear in window-grilles produced using this method are roughly shaped, with only the vaguest of reference to the form of the apertures behind which they appear. Using this method a single piece of glass can appear behind several adjacent apertures. This is often the case with glass which is set behind the drill-holes which appear on the background of Mamluk qamariyyat from the end of the ninth/fifteenth century. The tracery is usually slanted to channel the light downwards and to render the details of the design more legible from ground level. It appears that the use of crown glass continued in the Mamluk period, for Herz Bey reports that the glass pieces used in qamariyyat of the ninth/fifteenth century could be less than a millimeter thin and often had a rounded rim.

It is rarely possible to examine the reverse of qamariyyat in situ, so it is not possible to date the introduction of the new technique with precision. There is a certain irony in the fact that more technical information can be gleaned about Umayyad and Abbasid window-grilles, since their excavated remains are available for close inspection, than about the better-preserved qamariyyat and shamsiyyat of later periods. Herz-Bey dates the introduction of the new technique to the first half of

129 Inventory Number 95/1-2, 0.37 x 0.37m.


131 See above, p. 141.

132 Lane-Poole, Art of the Saracens, p. 222.

133 M. Herz-Bey, Catalogue of the Arab Museum (Cairo, 1896), p. 32.
the eighth/fourteenth century, and similar methods appear to have been used in the manufacture of Marinid shamsiyat by the middle of the same century. The qamarīyyat in the khanqah of Barquq (786-8/1384-6) were produced using the new method, which had also been used slightly earlier in the madrasa of Ilgay al-Yūsuf (775/1373).

This technique may have developed quite naturally from the methods used in the production of earlier qamarīyyat. During the manufacture of qamarīyyat according to the "sandwich" technique a thin layer of stucco was sometimes used to hold the glass pieces before the upper layer of tracery was laid in place. One often finds qamarīyyat fragments of this type where one layer of tracery has come away, revealing pieces of cut glass set behind the apertures pierced in the remaining layer of tracery. It is thus likely that the possibility of using only one layer of tracery would suggest itself quite naturally.

Quibell reported that a fragment of a stucco window-grille from the Coptic monastery at Saqqara had "irregular bits of coloured glass stuck on outside". This suggests that the simpler method was occasionally used even before the Islamic period. A fragment of perforated stucco tracery with a single piece of glass held on the reverse was found at Fustat (pl. 121). Unfortunately this is a surface find of uncertain date, but its appearance at Fustat suggests that this method of attaching the glass may have been used before the Mamluk period. The coloured glass which filled the stucco tracery in the Church of San Antonio in the Palazzo dei Chiarmonti, Palermo, (eighth/fourteenth century) [pl. 66] was held in place by a thin layer of stucco applied to the reverse of the grille. The "sandwich" technique was also used in the manufacture of medieval Sicilian qamarīyyat, so it seems that both methods were in simultaneous use.

Although windows produced using the second technique can only be viewed from one side, they can be produced more rapidly than the earlier grilles. The glass used in such windows can also be replaced quite easily, since it is only loosely attached and not held firmly between a double layer of tracery. It may be that the impetus for the adoption of the faster method of manufacturing qamarīyyat came from the need to provide qamarīyyat for the new palaces, mosques, madrasas, and mausolea erected as part of the extensive building programmes of successive Mamluk rulers.

One must also consider the possibility that the adoption of the new technique facilitated technical changes in the qamarīyyat themselves. The obvious example is the use of background drilling. As mentioned above, using the faster method a single large piece of glass can appear behind several perforations simultaneously. Background drilling seems to have become common only in the late

134 Ibid., pp. 3-4.
135 See above, pp. 102-4.
136 Quibell, Saqqara 1907-8, p. 5.
137 I am grateful to Professor George Scanlon for bringing this find to my attention and for permitting me to use his photograph.
ninth/fifteenth century, so it is difficult to see this as a causal factor in the adoption of the faster method of manufacturing window-grilles. It may be however that the use of background drilling was facilitated by the new techniques of manufacture.

Occasionally qamariyyat were manufactured in separate panels which were then mounted in a wooden framework. This is the case with some of the qamariyyat in the Mosque of al-Mu‘ayyad (ills. 93-4). Mamluk qamariyyat were usually set in a wooden frame which was held in place by the architrave on the exterior and, on the interior, by several small knobs.\(^{139}\)

5.4 Contexts.

In the preceding chapters an attempt has been made to relate the design of qamariyyat and shamsiyyat to other forms of contemporary decoration. The widespread use of coloured glass windows in Mamluk architecture should be seen as a further dimension of the love of polychrome decoration which manifests itself in the use of coloured marble, glass inlay, painted woodwork and, more rarely, glass mosaic. The wooden frames in which Mamluk qamariyyat were set were frequently decorated with carved ornament.\(^{140}\) Similarly, carved stucco friezes were often used to frame window-openings.\(^{141}\) In addition to such unifying uses of decoration, the survival of many of the furnishings which are largely lacking from earlier periods enable one to discern further contextual dimensions to the design of qamariyyat. Three types of furnishings in particular show strong affinities with the design of Mamluk qamariyyat; carpets, glass lamps and metal lanterns.

Wide borders similar to those of the qamariyyat in the mosque of Gānī Bek, Type II in the madrasa of Abī Bakr ibn Muzhir (fig. 49a) and Type IV in the mosque of Qajmās al-Ishāqī (fig. 50d) are also found on Cairene carpets of the ninth/fifteenth and tenth/sixteenth centuries. On the qamariyyat the borders are filled with cartouches separated by roundels. Similar motifs appear on the carpets, with both straight or, more commonly, polylobed edges (ill. 106).\(^{142}\) Borders of the same type appear on circular window-grilles (fig.44d)\(^{143}\) and circular carpets (ill. 107).\(^{144}\) A more general point

\(^{139}\) Lane Poole, Art of the Saracens, p. 222.

\(^{140}\) In the Māridān Mosque and the khongah of Barqāq.

\(^{141}\) In the mausoleum of Aṣḥām al-Silīfīlar.


\(^{143}\) Above the mihrāb in the mosque of Gānī Bek.

\(^{144}\) Sotheby’s, Islamic Works of Art: Carpets and Textiles (Tues. 12- Wed. 13 October 1982), pp. 46-7, No. 38.
of similarity is the narrow outer border common to the carpets and windows, and the recurrence of similar colours in both. The predominant colours of the carpets are red, green and blue. Blue and red are also the predominant colours of the glass used in Mamluk qamariyyat from the end of the eighth/fourteenth century onwards, with other colours playing a subordinate role.

Some of these carpets may have appeared in mosques, so these resemblances may be no more than parallel reflections of contemporary aesthetic tastes. However, one must also consider the possibility that more specific connections exist between Mamluk carpets, textiles and qamariyyat. The practice of decking out the interiors of rooms with carpets and textiles in celebration of particular feast days is found in the Islamic world as early as the fourth/tenth century.\(^{145}\) A similar practice was followed in Mamluk Cairo for Ibn Iyas informs us that, when the Provost of the Markets, Zayn al-Dīn Barakat ibn Mīsa, was released from prison in 918/1512 the windows of the houses in the quarter where he lived were hung with coloured silks.\(^{146}\) At a later date rugs and textiles on which arches and arcades were depicted were hung on solid walls to produce the illusion of openings and vistas.\(^{147}\) Similarly, patterns on Safavid carpets have frequently been described in terms of windows or jewelled grilles.\(^{148}\)

The fact that carpets and textiles could be used in this way suggests that the resemblance between the Cairene windows and carpets is more than fortuitous. A good parallel exists in the vela, the richly-decorated textiles suspended on the walls and in front of the doors of Byzantine churches, which, in their turn, influenced the decoration of the surfaces which they covered.\(^{149}\) Equally, one may point to the frequency with which "Kufesque" borders similar to those found on textiles occur in the stained glass windows of Gothic cathedrals.\(^{150}\) Although this connection deserves further investigation, one may offer the suggestion that design and colour of certain Mamluk glass windows are a further manifestation of the "textile mentality" which pervades so many other facets of Islamic architectural decoration.\(^{151}\)

\(^{145}\) SPA, p. 2276.


\(^{147}\) W. Denny, Saff and Sejjadeh, p. 98.


\(^{149}\) Bouras, Portes et Fenêtres, pp. 171-2, 236. See also U. Mommeret de Villard, Le transenne di S. Aspreno e le stoffe alessandrine, Aegyptus (II, 1923), pp. 64-71.


Links between Mamluk qamariyyat and contemporary mosque furnishings are also established by the repetition of certain motifs. For examples the large shamsas with fleur de lys sprouting from either end which appear in the qamariyyat of Jamāl al-Dīn Yūsuf al-Ustādār (811/1408) [fig. 47c] also occur on the metal revetements of Mamluk doors and on metal lanterns. The other form of shamsa, the twelve-pointed star, appears in the qamariyyat in the madrasa of Ināl al-Yūsufi (795/1392) [fig. 47a], in the madrasa of Jamāl al-Dīn al-Ustādār (fig. 47c) and in the mosque of Qajmās al-Iṣḥāqī (886/1481) [fig. 51a]. A similar shamsa appears on a wooden window shutter of the early ninth/fifteenth century from Konya (pl. 122).

Analogies may also be found between the decoration of Mamluk Qur’ans and the designs used in Mamluk qamariyyat. Medallions containing hexagonal stars similar to those which appear in the qamariyyat above the mihrabs in the Khanqah of Barquq appeared in the margins of some earlier Qur’ans (ill. 108). Similarly the use of polylobed cartouches to frame inscriptions on some of the grilles in the Mosque of Qajmās al-Iṣḥāqī may derive from book illumination, for similar devices are used to frame sura headings on eighth/fourteenth-century Qur’ans from Cairo. Since the inscriptions on the windows are religious, the adoption of such forms is appropriate to the context in which they occur.

The forms used in the decoration of Mamluk mosque lamps offer many parallels with those which appear in contemporary qamariyyat. The central fields of the windows in the Qaṣr Bashāfīk (740/1339) [fig. 41a] and the madrasa of Jamāl al-Dīn al-Ustādār [fig. 47c] are each occupied by a shamsa filled with glass roundels which frame a central heraldic blazon. Similar medallions appear on glass mosque lamps from the early eighth/fourteenth century onwards (pl. 123). Many of these are virtually identical to the medallions on the window-grilles. The interiors are usually filled with titlature or heraldic blazons. These are framed by an outer ring of painted scrolling ornament which, in certain cases, assumes the form of tightly-drawn roundels. It is possible that the origins of these medallions lie in the star medallions of ‘Abbasid qamariyyat, which had their outer border pierced with small roundels (fig. 22). Whether or not this is the case, the repetition of such motifs establishes a stylistic link between different objects which share a common function.

152 Amin & Ibrahim, Architectural Terms, p. 71.
155 James, Qur’ans, fig. 123a.
156 Ibid., figs. 137, 140-1, 143.

157 The best examples are those which date from the second half of the eighth/fourteenth century, and those bearing the blazon of Barquq in particular; G. Wiet, Catalogue Générale du Musée Arabe du Caire. Lampes et bouteilles en verre émaillé (Cairo 1929, reprint 1982), Nos. 278-285-6, 289-91, 301-5, 315-6, 321-7, 329-30.
This connection is reinforced by technical affinities between metal lanterns and qamariyyat of the late ninth/fifteenth century. The appearance of circular drill-holes in the background of certain qamariyyat of this date has been discussed above.\textsuperscript{158} Similar pierced backgrounds are found on Mamluk metal lanterns from the eighth/fourteenth century onwards (pls. 124-5).\textsuperscript{159} In view of its prior appearance on these lamps, it seems likely that contemporary metalwork provided the inspiration for this feature. The effect in both the windows and the lamps is to outline the main elements of the design against a ground permeated by pinpoints of light.

It should be noted that radial epigraphic blazons similar to those which appear in circular windows in the mausoleum attached to the mosque of Aşlām al-Sīlāḥdār (ill. 64, fig. 40e) and the tomb adjacent to the madrasa of İnāl al-Yūsufi (pl. 109, fig. 44c) are also found on Mamluk metalwork. The earliest occurrence of such a blazon is on the well-known incense burner of Muḥammad ibn Qalā‘ūn (693-741/1294-1340) [pl. 126].\textsuperscript{160} The six-petalled rosette which appears at the centre of the earlier window is occasionally found at the centre of radial epigraphic blazons on metalwork.\textsuperscript{161} Similarly, hexagonal star medallions filled with six-petalled rosettes are found on both circular qamariyyat (figs. 44a) and Mamluk candlesticks (pl. 200). In both cases the presence of such motifs may be explained by reference to the function of the objects which they adorn and by a mutual connection with the theme of light. This topic is developed in more detail in Chapter IX.

The decoration of one piece in particular, a mirror from Aleppo dated 720/1320 (pl. 127, fig. 46),\textsuperscript{162} suggests that those responsible for the design of Mamluk qamariyyat may have drawn on the decorative repertoire of contemporary metalwork. Apart from the superficial resemblance between the radial blazon at its centre and those on the later windows, the use of four knots to join the inner medallions finds a later parallel in the circular qamariyyat in the madrasa of Abū Bakr ibn Muzhir and the mosque of Qajmās al-Iṣḥāqī (ill. 96, fig. 44e). Moreover the twelve satellite circles surrounding a central blazon recall the design of medallions in the qamariyyat in the khanqah of Barqūq (fig. 44a) and the madrasa of Jamāl al-Dīn al-Uṣūdār (fig. 47c). As I have already indicated, many of the forms used in the decoration of Mamluk qamariyyat are likely to have been adapted from other forms of decoration. In certain contexts, the radial blazon can function as a symbol of light.\textsuperscript{163} It may be this association which led to such blazons appearing in "sun-like" or "moon-like" conduits for light. On the Topkapi mirror the blazon functions as a symbol of the sun around which

\textsuperscript{158} See above, pp. 147-8.
\textsuperscript{160} J.W. Allan, Islamic Metalwork, the Nuhad al-Said Collection (London, 1982), No. 15, p. 86.
\textsuperscript{161} Sotheby's, Islamic Works of Art, p. 147.
\textsuperscript{163} Allan, Islamic Metalwork, pp. 86-8.
the twelve images of the zodiac rotate. One cannot therefore rule out the possibility that the appearance of similar motifs in window-grilles is related to the connection with light. Is it possible, for example, that the twelve-roundel medallion was understood to have a specific connection with the zodiac even when the images of the zodiac did not appear within it? If so its appearance in the context of a window-grille filled with coloured glass would be particularly appropriate. The fact that the roundels are framed by a shamsa is itself suggestive. Further connections between the hexagonal star, the zodiac, coloured glass and light are discussed in chapters VII and IX.

This brief resumé of the stylistic affinities of Mamluk qamariyyat indicates the broad range of sources on which those responsible for the creation of such windows drew. As one might expect, there are strong similarities between certain types of window-grilles and contemporary stucco decoration. There are also border motifs which are common to blind stucco decoration, textiles and qamariyyat. It seems likely that these similarities are significant, and one can offer the suggestion that the use of form and colour in Mamluk rugs, particularly in the ninth/fifteenth century, exerted an influence on the development of the qamariyya. A particularly noteworthy phenomenon is the occurrence of stylistic and technical similarities between Mamluk qamariyyat and objects which are functionally related to them. The most obvious aspect of this phenomenon is the tendency to borrow both particular motifs and techniques associated with contemporary lamps of both metal and glass. The significance of this association, and the possibility that certain motifs were chosen because they had specific connections with light, is explored in the two final chapters.

5.5 Conclusion.

This survey of Mamluk qamariyyat shows both a continuation of earlier styles and major innovations over the course of two and a half centuries. In Cairo the arabesque qamariyyat which had first appeared in the Ayyubid period continued to be used but, with rare exceptions, were confined to the transitional domes of mausolea. With the construction of ever-higher domes this type of qamariyya became lost to sight in the upper reaches of mausolea and consequently developed little. The diversity of the windows in the lower walls of mosques, madrasas, mausolea and palaces, and the grilles which fill them, stands in marked contrast to the virtual uniformity of the qamariyyat in the superstructure of Mamluk buildings. From the early eighth/fourteenth century these lower windows, which were usually either arched or round, were divided into three zones; a tympanum filled with medallions containing stars or rosettes, a narrow epigraphic frieze, and a lower rectangular field in which medallions filled with blazons, roundels, or starbursts appeared. From the beginning of the Burji Mamluk period onwards the interior space was further subdivided by the reservation of a wide border around the central panel of such windows. The circular windows which appeared above mihrabs were filled with qamariyyat featuring hexagonal rosettes, stars, blazons, radial inscriptions or combinations of these.
While the small number of qamariyyat which survive in Damascus make it difficult to draw firm conclusions, it is clear that there were strong regional differences in the approach to fenestration. The use of rectangular windows filled with qamariyyat in the qibla and side walls of the Jami' al-Tayrouzi is without parallel in Cairo. Similarly, while single oculi often appear above the mihrabs of Cairene mosques, there is no Egyptian precedent for the series of circular windows which were pierced in the qibla of the Yalbugha Mosque.

In contrast to the qamariyyat of Cairo, in which geometric motifs predominate, vegetal and floral tracery was used extensively in Damascus. The colour range of the window-glass used in both urban centres is similar; cobalt, turquoise, pale blue, red, yellow, green, purple and colourless. The palette is broader than that used in Ayyubid qamariyyat, with a noticeable broadening of the range of blue glass used. There are however differences in the use of colour. In Cairo there is an obvious preference for blue and red glass from the late eighth/fourteenth century onwards.164 If the surviving qamariyyat are representative, it seems that blue and yellow were the colours favoured in Damascus. While purple glass appears only rarely in Cairene qamariyyat after the middle of the eighth/fourteenth century, it continues to appear in Damascene windows into the ninth/fifteenth century.

The preference for two or three main colours may be related to the need to strike a balance between form and colour. As I have indicated in Chapter III, Section 7, similar considerations may have led Ayyubid artists to rely on a narrow range of colour in order to distinguish primary and secondary elements of the designs which appeared in window tracery. Several methods were used to the same end in Mamluk qamariyyat. The most obvious is the use of glass of a particular colour, usually white or colourless in Cairo and yellow in Damascus, to fill the main lines of the design, borders and the letters of inscriptions. The Abbasid qamariyyat from Raqqa had used the same method to distinguish the borders of the large medallions which filled them. The method is used quite effectively in Damascus, but the greater complexity of Cairene qamariyyat in the Burji Mamluk period often serves to obscure the details of the design.

In the last quarter of the ninth/fifteenth century a new technique was used to distinguish primary and secondary components of the designs used in window tracery. Following this method the tracery of the main design was raised on a plain background perforated with points of light. This produces a marked contrast between decoratif motifs and the ground on which they are set. The different quality and quantity of light entering through each zone of the grille thus serves to highlight the central motif. It seems likely therefore that this innovation came about as a result of a perceived need to resolve the conflict between light, colour and form. Similar background perforations were used earlier on metal lanterns, and it may be that the functional similarities between lamps and windows lead to the adoption of this method for use in qamariyyat. In the second half of the eighth/fourteenth century the "sandwich" technique of manufacturing qamariyyat was replaced by a faster method which made

164 This stands in contrast to the development of Islamic glass weights, where colour does not appear to follow dynastic patterns; J.G. Kolbas, A color chronology of Islamic glass, Journal of Glass Studies (XXXV, 1983), pp. 95-100. At this period most Egyptian glass weights were colourless.
use of only one layer of tracery. Despite these technical innovations, pieces cut from panes of crown glass continued to be used in Mamluk windows.

The occurrence of qamariyyat of similar form in contemporary buildings suggests that the same workshops may have been responsible for the creation of qamariyyat used in different buildings. The resemblances between three distinct groups of qamariyyat are particularly striking: those in the Maridānī Mosque and the mausoleum attached to the mosque of Ašlām al-Silāḥdār in Cairo; those in the madrasa of Abū Bakr ibn Muzhir and Qajmās al-Iṣhāqī, also in Cairo; and those in the Jami‘ al-Tayrūzī and certain of the windows in the Jāmi‘ al-Harābī in Damascus.

The types of buildings in which qamariyyat were used are similar to those in which they had appeared earlier; mosques, madrasas, mausolea and palaces. Qamariyyat were set in windows in the zone of transition, on the qibla and side walls of mosques and in the iwans of palaces and madrasas. They usually appeared in the interior of window-openings, with geometric claustra of stucco or stone being used on the exterior.\footnote{165} Occasionally one finds the interior of window-openings filled with claustra.\footnote{166} The use of simple nets of meshes of brass and copper on the exterior of window-openings became common in the eighth/fourteenth century.\footnote{167} Such meshes served to protect the glass exposed on the exterior of the grilles from the ravages of birds and other pests.

Where qamariyyat of different forms appeared in one building, they seem to have been arranged symmetrically in facing windows. In certain cases blind qamariyyat were used to continue the symmetrical arrangement even where there was no opening.\footnote{168} The use of inscriptions which run continuously from window to window suggests that the design of each qamariyya took account of neighbouring grilles, and that the qamariyyat used in a particular building were often designed as a unified group.

\footnote{165}{For example in the complex of Qal'ān, MAE II, pls. 64-5, 68.}

\footnote{166}{In the Mosque of Qusūn for example (720-31/1320-30); Briggs, Mohammedian Architecture, fig. 186.}

\footnote{167}{Amin & Ibrahim, Architectural Terms, pp. 90-1.}

\footnote{168}{In the mausoleum adjoining the mosque of Ašlām al-Silāḥdār and in the mosque of Gānī Bek (pl. 118).}
CHAPTER SIX
IRAN AND ANATOLIA TO 957/1550.

6.1 Introduction.

As has been noted above, there appears to have been little tradition of coloured glass windows in Iran in the Early Islamic period. In view of the absence of such windows from the pre-Islamic architecture of Iran it seems probable that qamariyyat were introduced to the region from the Levant, perhaps as early as the Umayyad period, and used sparingly thereafter. With the exception of a few fragments from Chal-Tarkhan Eshqabad (pl. 54) and Nishapûr (pl. 61) there is a remarkable dearth of archaeological evidence for the use of qamariyyat in Iran before the Timurid period. It appears therefore that the Iranian world gave no great priority to the use of such windows before this date.

The situation is all the more remarkable for the fact that, from the end of the eighth/nineteenth century window-grilles of stucco and glass appear with great frequency in the buildings depicted in such paintings. Window-grilles are often depicted in great detail in Iranian miniatures. The forms which these grilles assume show sufficient stylistic parallels with surviving window-grilles to suggest that they were based on actual windows, but sufficient differences to indicate the existence of a distinct regional style. In the light of this fact the gap between the testimony of the miniatures and the published archaeological evidence is all the more mystifying. In the past finds of window-glass and stucco tracery have often been omitted from archaeological publications, and it may be that future archaeological investigations will produce the missing evidence. It seems likely that the apparent lack of qamariyyat in situ is due, at least in part, to the constant renewal, renovation, and restoration of buildings which have remained in continuous use. Why the effect of these phenomena should be more acute in Iran than elsewhere is not immediately clear. When using the evidence of miniature painting one should perhaps consider the possibility that the use of coloured glass windows was not quite as widespread as the frequency with which they are depicted might suggest. Bearing this reservation in mind the artistic, archaeological and textual evidence for the use of qamariyyat in Iran is considered below. Although most of the discussion focuses on the pre-Safavid period, the stylistic evolution of such windows is followed into the early tenth/sixteenth century. The main characteristics of Ottoman windows and the sources from which they derive are considered briefly in the final sections.

6.2 Evidence from miniature painting.

6.2.1 The evidence.

That many of the decorative panels seen above doorways and open windows in such miniatures represent "stained glass" windows has been quite plausibly suggested by several scholars.1 These
panels are often depicted with surprising attention to detail, with the white lines of plaster tracery clearly distinguished from the coloured glass which fills it. In many cases the central bullion of the circular, apparently crown, glass panes used in these windows is represented by a central dot. It is even possible to discern the form of the narrow borders which frame the windows and which, in many cases, are similar to those used in the qamariyyat which survive in Egypt and Syria.

While such paintings give us a good idea of the varieties and forms of the qamariyya in use in pre-Safavid Iran, there are two major dangers in taking these representations entirely at face value. Firstly, since these are usually paintings accompanying a text it must be assumed that they play an important decorative role. Thus aesthetic considerations may frequently override architectural accuracy in the endeavours of the artist. Secondly, the repetition of certain types of windows suggests that pattern books were in use among the artists responsible for these paintings. Thus the possibility arises that the windows represented in some later miniatures may not be representative of those used in contemporary buildings, but may reproduce earlier types. It is with these reservations in mind that the following summary has been prepared.

6.2.2 Window types.

Type I. The most common type of window-grille consists of glass roundels arranged in vertical or, more rarely, horizontal rows (ills. 109-12, fig. 55). The type is similar to the bull's-eye transenna used in Byzantine architecture. The openings in which the roundels appear often have serrated edges or internal protrusions, presumably to hold the glass in place. Similar serrations were used for the

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3 Dannerbeck, Representations, pp. 74-8.


5 Windows of this type with horizontal rows of roundels appear in a Shahrnava manuscript of the late eighth/fourteenth century; N. Atasoy, Four Istanbul albums and some fragments from fourteenth-century Shah-Namehs, Arts Orientals (VIII, 1970), fig. 28.

6 See above, pp. 36-41.
same purpose in Byzantine window-grilles (pl. 128), and in some of the qamariyyat from Qasr al-Banat at Raqqa (fig. 29). It is equally possible that, in some cases, the feature had no functional significance but served a decorative role. This is the case with the polylobed openings in Yemeni houses (pl. 129). Grilles of type I are either rectangular or rectangular with an arched head. The interstices are often pierced with stars, circles or triangles. Alternatively, the interior roundels are joined by smaller circles. The arched grilles frequently have a wide outer border in which roundels, trapezoidal cartouches, or cartouches and roundels appear. The border motifs are sometimes filled with red or blue glass (ill. 110), but the roundels which fill the interior are usually painted grey, which suggests that they were colourless.

Windows of this type appear at the end of the eighth/fourteenth century, in the Baghdad Diwan of Khwājū Kirmānī (ill. 109), and continue to be depicted in early Safavid miniatures.

Type II:7 Related to windows of the first type, these consist of a series of concentric circles appearing in a rectangular grille (ill. 112, fig. 56). It has been suggested that the windows consisted of slivers of glass set in thin spokes of plaster.8 Qamariyyat of this type must have been similar to that found in the late eighth/fourteenth-century Turbat al-Tāynābīyyā in Damascus (fig. 52), or the wooden and glass lattices found in Iranian houses from the seventeenth century onwards (ill. 117).9 They appear to be specific to Shirazi miniatures of the early eighth/fourteenth century.

Type III:10 Perhaps the most common type of window depicted in eighth/fourteenth-century windows. This type of window is rectangular and contains a smaller internal rectangular panel surrounded on three or more sides by roundels (fig. 57). The interstices between the roundels may be pierced with trefoils, or the roundels may be joined by smaller circles. The internal panel is usually divided into a rectangular cartouche, which is often seen to contain an inscription, and a lower field in which a floral spray, which often issues from a vase, is set beneath a polylobed arch (ill. 114) or, less commonly, within a rectangular panel (ill. 113). The earliest occurrence of this type is in the Baghdad Diwan of Khwājū Kirmānī (799/1396) (ill. 109) and, although they occasionally occur in early Safavid miniatures (pl. 130), they are rare after the ninth/fifteenth century.

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7 Bahram Gur Introduced to the Hall of Seven Images, Anthology of Iskandar Sultan, Shiraz (813/1410), B. Gray, Persian Painting (Geneva, 1977), p. 75; Palace scene, Khamsa of Nizāmī, Shiraz (813/1410-1), Hillenbrand, Imperial Images, No. 95.
8 Dannerbeck, Representations, pp. 50-1, pls. 6, 10.
9 For this and other examples see S. Cantacuzino & K. Browne, Isfahan, Architectural Review (CLIX, 1976), Figs. 14, 16.
10 A murder frustrated, Kalīla va Dimna, Tabriz (1360-74/762-776), Gray, Persian Painting, p. 38; Kalīla va Dimna, Herat (833/1430), Serajuddin, Architectural Representations, pl. 92; Tābātābāy's visit to Rustam's chamber, ŚMahūrī, Herat School (c. 844/1440), SPA, pl. 875; The Marriage of Khusrau and Shirīn, Khamsa of Nizāmī, Tabriz (931/1525), A.V. Williams Jackson & A. Yohanan (eds.), A Catalogue of Persian Manuscripts presented to the Metropolitan Museum of art by Alexander Smith (New York, 1965), p. 60. See also Dannerbeck, Representations, p. 51.
Type IV: Related to windows of the third type, windows of this form have an arched head and a smaller internal panel of similar form, framed by a series of roundels (fig. 58). The central panel is not subdivided, but contains floral sprays similar to those depicted in windows of type III. Windows of these type seem to be specific to paintings executed in Herat in the first half of the ninth/fifteenth century (ill. 114).

Type V: Rectangular grilles with an outer border of lattice. Floral motifs are set beneath a polylobed arch which may or may not bear an epigraphic frieze above (ill. 112, fig. 59). Windows of this type are found in the first half of the ninth/fifteenth century.

Type VI: Windows with a wide outer border filled with roundels or cartouches. Where the apices of these grilles are visible they are triangular. The interior is occupied by a symmetrical arabesque (ill. 115, fig. 60). The wide border is filled with cartouches which often also contain arabesques. This type appears in miniatures executed in the first half of the ninth/fifteenth century. Abstract vegetal motifs and flowering trees had appeared earlier in windows depicted in Herati manuscripts of the early ninth/fifteenth century (pls. 120, 131), so the penchant for windows featuring vegetal motifs existed earlier. At least one of the vegetal motifs in the latter windows is symmetrical and appears to be an arabesque with a characteristic plaited motif in its stem (pl. 120). The other windows in the Khamsa manuscript contain assymetrical floral ornament and flowering trees.

Type VII: Window-tracery in the form of a hexagonal lattice with circular panes of glass appearing behind each of the hexagons (fig. 61). Where the full grille is visible this terminates in a

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11 Tahmīna's visit to Rustam's chamber, *Shahnama*, Herat School (c. 844/1440), SPA, pl. 875; two early ninth/fifteenth-century *Khamsa* manuscripts of the Herat School, one in Teheran (Gulistan Museum), one in Topkapi Palace Museum; Seraiuddin, *Architectural Representations*, pls. 91-2.


14 Lentz, *Dynastic imagery*, figs. 2, 5.
curved and pointed arch. In at least one case a grille of this type has a wide outer border filled with roundels. Windows of this type appear only in the early tenth/sixteenth century (ill. 116).

Type VIII: Another geometric window-type which emerges in the tenth/sixteenth century. This consists of tracery in the form of an octagonal grid in which four-pointed stars appear at intervals along the axis (fig. 62). This grid is framed by a border of roundels and cartouches.

Type IX: Windows in which glass roundels are combined in geometric patterns, usually hexagons or octagons (pl. 132, fig. 63) This is framed in a wide outer border filled with lattice or other forms of ornament.

6.2.3 Evolution.

Several conclusions may be drawn from the foregoing summary. Firstly, that qamariyyat filled with glass roundels, similar in appearance to Byzantine bull's-eye transennae, were common in the Iranian world from the end of the eighth/fourteenth century and continued to be used into the Safavid period. Secondly, that inscriptions, bouquets and vases containing flowers were often depicted on Iranian windows between the late eighth/fourteenth and early tenth/sixteenth century. In the Safavid period their popularity wanes and they are superseded by window-grilles in which axial arabesques appear. Window-grilles of similar type appear in at least one manuscript of the early eighth/fourteenth century, so arabesque qamariyyat may have been in use at an earlier date. It has been suggested that the floral sprays and inscriptions found in Timurid miniatures disappear in the Safavid period and are replaced by arabesque windows. This, however, is not strictly true since arabesque windows occasionally appear in Timurid miniatures, and floral sprays are found, if only occasionally, in depictions of Safavid windows (pl. 130). What is noticeable is a sudden penchant for windows featuring geometric tracery and polygonal arrangements of glass roundels in Safavid miniatures. The tendency for a certain window-type to recur in paintings of a particular date from a particular school (see type IV) may support the suggestion, mentioned above, that many the windows were not drawn

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15 Shīrīn giving an audience to Khusrau, Khamsa of Nizāmī, Shiraz (955/1548), Dunham Guest, Shiraz Painting, pl. 7; Why is that sufi in the hammam?, Ḥofṭ Āvarang, Mashhad (964-73/1556-65), Welch, Persian Manuscripts, pl. 38. See also Dannerbeck, Representations, pp. 59-61.

16 The wedding feast of Khusrau and Shīrīn, Khusrān-u Shīrīn, Tabriz (c. 937/1530), Robinson, Rylands, No. 553.

17 The suicide of Shīrīn, Khusrān-u Shīrīn, Tabriz (c. 937/1530), Robinson, Rylands, No. 554; Zulīyka and her companions, Yūsuf ve Zulayka, Shiraz (954/1547), Dunham Guest, Shiraz Painting, pls. 35a-b; Bahram Gur in the blue pavilion, Khamsa of Nizāmī, Shiraz (945/1538-9), Hillenbrand, Imperial Images, No. 195c. See also Dannerbeck, Representations, pp. 58-9.

18 Dannerbeck, Representations, pp. 55-8.
from observation, but from pattern books. This might help explain the disparity between the artistic and archaeological evidence for their use.

Among the more exotic and rare motifs which feature in the qamariyyat of pre-Safavid Iran is an animal. What seems to be a fox or some other quadruped appears in one of the windows depicted in the Baghdad Diwan of Khwājū Kīrmānī (ill. 109). It crouches on four legs against a background in which an assymetrical flowering tree appears, set beneath a polylobed arch. Other than a passing reference to window-tracery featuring animals in fifth/eleventh-century Spain, the paintings provide the earliest evidence for the appearance of figurative motifs in Islamic window-tracery. A peacock (pl. 133) and a winged figure (pl. 134) appear in panels above open windows in two miniatures of the early Safavid period. The context is right for glass windows, and the panels have the characteristic borders of window-grilles. Given the lack of parallels for the subject matter, the panels cannot be certainly identified as window-grilles. Despite this, the evidence of the Baghad manuscript indicates that figurative qamariyyat were known in the Iranian world as early as the late eighth/fourteenth century.

Some idea of how these Iranian windows may have appeared can be gleaned from some stucco and glass and window-grilles in the Palace of Amber in Rajastan, which bear figurative designs inspired by Hindu mythology (pl. 135). Like much else in the decoration of the building, these clearly reflect the influence of Iranian prototypes. The main motif in the central panel of the window, a vase with flowers, is similar to appears in Iranian qamariyyat depicted in Timurid miniatures. Technically also the Rajastānī window-grille reflects Iranian influence in the use of small drill-holes as a background, a feature of Cairene qamariyyat from the end of the ninth/fifteenth century or earlier, and one which appears in the windows depicted in Iranian miniatures from the tenth/sixteenth century onwards (fig. 60b). Although they are later in date the Indian window-grilles give some idea of how the earlier Iranian figurative qamariyyat may have appeared.

The colours used in the depiction of the grilles in Timurid and Safavid miniatures and, by implication, the glass which fills them, are quite muted. Blue and red are the predominant colours of the glass which fills most of the windows, including those featuring floral sprays (ills. 109, 112-4), with green being used to a lesser extent. Most of the large roundels appear to have been of clear glass,

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19 Ibid., p. 54.
20 See p. 100 above.
21 Faridun and his family, Shahnaina, Tabriz (c. 999-1009/1590-1600); Robinson, Persian Miniature Paintings, pl. 29.
22 Iskandar is recognised by Queen Nushaba, Khamsah, Shiraz (c. 921/1515); E. Grube, Islamic Paintings of the 8th to the 15th century in the collection of Hans P. Kraus (New York, 1972), pl. XXII.
23 See note 40 below.
24 They appear to be of twelfth/eighteenth or thirteenth/nineteenth-century date.
but red glass is occasionally used for borders (ill. 110). The roundels which appear in type IX windows are several shades of red, green and yellow (ill. 116).

6.3 The Archaeological evidence.

Assorted finds of coloured glass windows from various ninth/fifteenth- and tenth/sixteenth-century monuments in Iran and Central Asia confirm that coloured glass windows were used in the Iranian world. In view of their importance, the fact that these finds are inadequately published is particularly unfortunate.25 No details of the medium in which the excavated window-glass was mounted are given, but it seems likely that stucco was used. The stucco decoration of the mausoleum of Shirин Bika Aqa in the Shah-i Zindeh Complex at Samarqand (787-8/1385-6) included window-grilles of plaster and coloured glass set in two zones of the dome; in the arches of the octagonal drum, and in eight facets of the sixteen-sided zone above.26 This method of fenestration is similar to that used in Ayyubid and Mamluk mausolea.

Similarly, the dome of the Ghiyathīyyī Madrasa in Khargird (846-850/1442-6) was supplied with windows of coloured glass. The fragments recovered included colourless, dark brown, dark and light blue glass.27 Qamariyyat were also used in several windows of the masjid attached to the shrine of Shāykh Jamāl al-Dīn at Anau (860-1/1455-6).28 Evidence for the use of such window-grilles in Samarqand at a slightly later date was found in the mausoleum of Ishrat Khan (869/1464). Excavations in the building produced thin pieces of glass purple-red, red-violet, light blue, dark green, and yellow in colour.29 Like those used in earlier Central Asian mausolea, the qamariyyat filled the windows of the central domed chamber.

As was the case in other areas of the Islamic world, the use of coloured glass windows was not confined to religious and funerary institutions, but extended also to secular architecture. Fragments of coloured window-glass have been recovered in Samarqand, from the palaces of Ulughbek, Chihīl Sultan, and Gūr-i Amīr,30 and from Tirmiz.31 It should be noted that the colours of the excavated glass are all quite dark with red and blue (of various shades) predominating. This would appear to

25 My attempts to locate these finds have been unsuccessful.


27 Golombek & Wilber, Timurid Architecture, pp. 135, 323.

28 Ibid., pp., 135, 293.


30 Pugachenkova, Samarkand, p. 186.

31 I owe this information to Professor G.A. Pugachenkova. The material is apparently unpublished.
confirm the accuracy of the miniatures in this regard, for the windows which appear in them are filled with glass of similar colours.

The sole published window-filling of this period is a qamariyya from the Darb-i İmâm in Isfahan (pl. 136, ill. 117).32 The interior space is divided into a series of small compartments in which polylobed arches similar to those of type IV windows appear. The window is divided into three rows of vertical panels, a wide central row being flanked by two narrower rows of symmetrical arched compartments. The uppermost of these are decorated with arabesques. The tracery of those immediately below depicts two small birds perched on flowering branches. Below this come two single cypress trees set against a background of vegetation. The lowest panels each feature a single peacock set amidst flowering vegetation. Two of the larger panels in the central field are polylobed. In the lowest of these a simurgh is depicted in combat with a dragon. Above this the tracery assumes the form of flowers branching from a vase flanked by two birds, a motif derived perhaps from the ancient Iranian iconography of the Tree of Life.33 The larger vase depicted in the uppermost panel of the grille lacks these birds. The motif of the vase with flowers finds a parallel in windows of type IV. Flowering trees are found in the window depicted in Timurid manuscripts (pl. 131). As noted above, cypresses appear in Mamluk qamariyyat from the last quarter of the ninth/fifteenth century, if not earlier.34

The window-grille has been dated to the foundation of the building in the mid-ninth/fifteenth century.35 Several of the motifs which feature in the design of the window-grille, for example vases and the battle between the dragon and simurgh, also appear elsewhere in the interior decoration of the Darb-i İmâm.36 This might be cited in support of the suggestion that the grille is contemporary with the erection of the building. However, similar designs appear on carpets and the minor arts of the Safavid period.37 In the window-grilles which appear in paintings of the Timurid period, and later, only a single large central panel is visible. It is possible that the constraints of the medium necessitated the substitution of a single prominent panel for many. It is equally possible that subdivisions indicate that the grille is later than the foundation of the Darb-i İmâm. The closest parallel for the internal division into a series of arched panels is found in the window above the mihrab of the Süleymaniye Mosque in Istanbul (966/1558) [ill. 120]. A strong case has been made

33 The motifs may also have had a paradisal significance, for the dedicatory inscription of the Darb-i İmâm states that the building is the envy of Paradise; A. Godard, Isfahan, Athar-e-Iran (II, 1937), p. 52. See also below, pp. 315-7.
34 See above, pp. 118, 142-3.
35 Orazi, Wooden Gratings, text accompanying figure 114-5.
36 Godard, Isfahan, figs. 15-16; Dannerbeck, Representations, p. 66.
recently for re-dating the grille to the tenth/sixteenth or eleventh/seventeenth century. Among the most convincing arguments used to support the later dating is the use of a background filled with drill-holes. Similar features seem to appear in Mamluk qamarīyat only in the last quarter of the ninth/fifteenth century, and in the windows depicted in Iranian miniatures in the first half of the tenth/sixteenth.

The colours of the glass which fills the Darb-i Imām grille are red, yellow, turquoise-blue, purple, orange, green, and white. Like the later Mamluk qamarīyat of Cairo, the glass is held in place by a thin coat of plaster poured between the glass pieces and the back of the grille.

6.4 The textual evidence.

Although many travellers mention the use of coloured glass windows in Iran, these accounts are mostly late. Despite this, many of the windows which the travellers describe appear to make use of motifs similar to those which had appeared in earlier windows. To some extent therefore the textual evidence can be used to corroborate the visual and archaeological evidence for the use of coloured glass windows at an earlier date.

In 1026/1617 Pietro della Valle wrote of double windows in the 'Ali Qāpū in Isfahan "...closed by stucco grilles set partly with coloured glass". Thevenot, who also travelled to Iran in the eleventh/seventeenth century, mentions "painted windows" in the Little Pavilion in Isfahan. Thomas Herbert, who travelled in Persia between 1037/1627 and 1039/1629, mentions windows of painted glass in the home of a Shirazi nobleman. The latter writer also describes the reception room in the house of a Persian magistrate thus:

"...the room was arched in mosaic sort and embossed with stones of several colours; the light was at one end through a window that was large, the frame neatly carved, and the glass no less curiously painted with such knots and devices as the Jews normally make for ornament."
A further mention of painted window-glass occurs in the account of the late eleventh/seventeenth-century traveller Raphael du Mans, who refers to window-fillings of talc painted with birds, flowers, and lozenges filled with red, blue, and green glass. The testimony of Chardin corroborates these reports and elaborates on them:

"...in Noble men's Houses, they are all Sashes, whereof the Squares are made of a thick waved Glass, to hinder People looking in, and are of all Colours irregularly, and without order, some Red, some Green, some Yellow, and so on; they make also a kind of Windows the Glass wherein is set in Plaster, in the Figure of Birds, or of Flower-Pots, and the rest is of bits of Glass of all Colours, in imitation of the natural colours of what is there represented."^46

The mention of two different techniques used in the manufacture of figurative and non-figurative window-grilles is instructive. The testimony of Tavernier is similar; he mentions the use of both wood and stucco tracery. As has been pointed out in the preceding chapter, Mamluk qamarīyāt were usually set in a wooden frame. Some of the qamarīyāt represented in miniatures of the tenth/sixteenth and eleventh/seventeenth centuries may make use of wooden tracery, and wooden tracery was certainly used in Iranian windows from the twelfth/eighteenth century onwards (ill. 118).^48

Tavernier also stresses once again the use of such windows to ensure privacy, particularly in the harem. As regards the motifs of which the tracery is composed,

"These panes are usually pots of flowers made of plaster, which together with the stem and small branches coming out of it and the flowers are made of small pieces of glass of naturalistic glass fitted in"^49

The mention in these accounts of abstract motifs, vases of flowers, and birds find parallels in the windows depicted in earlier miniatures and in that from the Darb-i Imām, which may be contemporary with these accounts. Thusfar there is no reason to doubt the accuracy of these accounts. The mention of painted window-glass is, however, more problematic. Since this is a consistent feature of Western accounts of Safavid architectural decoration it seems likely that reports of painted window-glass have some basis in fact. The finds of Umayyad and 'Abbasid window-glass discussed above make

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49 SPA, p. 1363, n.1.
it clear that painted window-glass was more commonly employed in early Islamic qamariyyat than was formerly thought. After the third/ninth century however finds of painted window-glass are rare.\(^{50}\) It may be that the references to painted window-glass in the accounts of European travellers result from a misperception on their part. Accustomed as they were to the painted stained glass of European churches, they may have assumed that the Iranian "stained glass" windows were similarly decorated.\(^{51}\) However, glass roundels decorated with rosettes and inscriptions were used in Ottoman windows, and some of this ornament appears to have been painted.\(^{52}\) It may be therefore that these accounts are accurate and are the sole surviving evidence for the use of decorated window-glass in Safavid windows.

6.5 Context and usage.

The colours of the few fragments of Timurid window-glass which have been found suggests that "there may have been a prevailing colour harmony"\(^{53}\) between the qamariyyat and the faience and painted decoration of the monuments. It is probable that the design of some Timurid qamariyyat reflected that of the faience grilles which appeared in the same buildings. Pierced faience grilles making use of geometric patterns appeared in the windows of Rum Seljuq buildings from the seventh/thirteenth century.\(^{54}\) A seventh/thirteenth-century Iranian rectangular blue-glazed window-grille (pl. 78) features an arabesque motif clearly related to the centralised arabesque tracery used in contemporary Ayyubid qamariyyat.\(^{55}\) The strong axiality of the composition anticipates that of the floral sprays and arabesques which appear on the qamariyyat depicted in ninth/fifteenth- and tenth/sixteenth-century miniatures. Faience cloisters decorated with arabesques appeared on the exterior of the windows in Safavid mosques.\(^{56}\) The probable similarities in form between faience window-grilles and Timurid qamariyyat can best be envisaged by considering the close relationship between the qamariyyat and faience grilles in the Māridānī Mosque in Cairo (741/1340), the latter executed by a team of Iranian craftsmen.\(^{57}\)

\(^{50}\) See above, pp. 85-88.

\(^{51}\) Dannerbeck, Representations, p. 33. A later European traveller, Carsten Niebuhr, mentions painted glass in the windows of Sana'a; Voyage I, p. 390. Since this is the sole evidence for the use of such glass it seems reasonable to conclude that the traveller's perceptions were influenced by his expectations.

\(^{52}\) See below, pp. 173.

\(^{53}\) Golombek & Wilber, Timurid Architecture, p. 135.

\(^{54}\) O. Aşlanapa, Anadolu'da Türk Çini Ve Keramik Sanatı (İstanbul, 1965), fig. 22; E. Arseven, Türk Sanatı (İstanbul, 1970), p. 54, illustration of Sahip Ata Türbe, Konya.

\(^{55}\) A similar unpublished ceramic window-grille of the Seljuq period is on display in the Israel Museum, Jerusalem.

\(^{56}\) Sourdel-Thomine & Spuler, Kunst des Islam, p. 352, fig. 340.
The wall surfaces around the windows in which qamarīyāt are depicted are frequently decorated with painted geometric or floral ornament. Motifs similar to those which appear in the window-tracery, including sprays of vegetation issuing from vases, also appear in the painted ornament of the rooms depicted in contemporary miniatures. A painted border of tassels often appears immediately around the window-openings in which qamarīyāt appear (pl. 131). These may be designed to act as rays, emphasising the notion of light emanating from the window. Their immediate effect however is to produce the impression of the coloured window as a carpet with a tasseled fringe. In view of the relationship between Mamluk carpets and qamarīyāt it seems likely that Timurid windows were also influenced by the "textile mentality" mentioned above. The indications from Iran, like those from elsewhere in the Islamic world, are that the colours and forms of the qamarīyāt used were chosen to complement the overall decoration of the buildings in which they appeared. The control of lighting and the use of coloured light within these buildings must be seen as a lost dimension of architectural decoration, one no less important to their overall appearance than their faience mosaics, and one "which must have given to the formal interiors a peculiarly enchanting effect".

The types of Iranian buildings in which coloured glass windows appeared were similar to those in which qamarīyāt were used elsewhere in the Islamic world. Both the artistic and archaeological evidence indicates that stucco and glass windows were used in Timurid and Safavid palaces. The use of such windows may have become more widespread in the Safavid period, for the accounts of travellers mentions their use in the houses of the Iranian bourgeoisie. The Tarikh-i Yazd mentions windows of coloured glass in two interconnected painted belvederes erected above a garden kiosk. As will be demonstrated in the following chapter, the use of coloured glass in the decoration of a garden kiosk has a long history in the Islamic world.

That qamarīyāt also appeared in Iranian mosques is indicated by a miniature from the Divān of Hafiz, painted in Tabriz about 942/1535 (ill. 115). The evidence of the miniature is corroborated by the testimony of Fryer that in the mosques of Shiraz "Panes of Glass for more solemn Light, are fetched from Venice, Tinctured with diverse Colours". Although this evidence relates to the Safavid period, it seems likely that similar windows were also used in earlier mosques. The archaeological evidence which exists for the use of qamarīyāt in mausolea finds support from a depiction of

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57 See above, pp. 124-5.
58 Lentz, Dynastic Imagery, p. 257, fig. 6.
60 Pugachenkova, Samarkand, p. 186.
61 O'Kane, Timurid stucco decoration, p. 82, n.4. See also Golombek & Wilber, Timurid Architecture, p. 180.
Bahman in the mausoleum of Garhsp, Nariman, Sam, and Rustam, in a copy of the Bahman-Nameh dated 800/1397 and probably executed in Shiraz.63

To maximise the amount of light penetrating the interiors of such buildings smaller windows were splayed. In addition, their sills were often slanted inwards to funnel the light downwards into the chamber.64 A similar practice is occasionally found in Mamluk Cairo, for example in the circular window-openings of the mausoleum of al-Ashraf Khaiil (687/1288).

Iranian qamariyyat appear most frequently set over doorways in the interior of buildings, a usage with a long history in the Islamic world. In addition they are also used above rectangular window-openings which were closed with shutters or metal grilles.65 There are hints that window-grilles of a particular type were used in particular contexts. For example, type I windows usually occur above doors, while type IV usually appears above rectangular window-openings. However type II appears in both contexts. It is often the case that more than one type of window-grille appears in the same room.

The exterior of window-openings were normally filled with stone or wooden claustra in which geometric tracery appeared,66 although similar claustra could also appear in the interior of windows.67 There are, however, at least three miniatures in which windows of stucco and glass appear on the exterior of window-openings (ill. 113).68 Given the fragility of the medium this usage is surprising. A qamariyya is used to fill the exterior of a window-opening in the Azhar Mosque in Cairo, but in this case the window is protected by a cupola directly in front of it (pl. 62).69 It is conceivable that such depictions do not reflect actual practice, but the desire to maximise the decorative aspects of the architectural backdrop to the scenes depicted.

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63 I. Stchoukine, Les Peintures des Manuscrits Timurides (Paris, 1954), pl. XVI.
66 Orazi, Wooden Gratings, p. 69. This is the best survey of the role of such grilles in Safavid architecture, containing analyses of wooden and stone window-grilles from the Chihil Sutuh, 'Ali Qapu, and Hasht Behesht in Isfahan. For a depiction of such exterior claustra see a painting of Zal's ascension, Shahrinav, Shiraz (998/1589); Dunham-Guest, Shiraz Painting, pl. 50a.
67 See, for example, Nushirvan greeting the Khaqan's daughter, Shah Tahmasp's Shahrinav, Tabriz, c. 937/1530; Welch, Wonders of the Age, No. 34.
68 The fire ordeal of Siyavush, Shahrinav, Shiraz (800/1397-8): Hillenbrand, Imperial Images, No. 124; 'Ali Saves a Christian Monk, Anthology of Iskandar Sultan, Shiraz (813/1410), Jones & Michell, Arts of Islam, No. 550; Humayun sees the picture of Humayun, Berlin Baysonghur manuscript, Shiraz 823/1420; Enderlein, Miniaturen, pl. 23.
69 See above, pp. 69-70.
6.6 Ottoman windows.

Apart from the finds of crown glass panes at Ktabadabad and Konya, the earliest evidence for the use of qamariyyat in Turkish architecture is to be found in miniature paintings of the Ottoman period. As was often the case elsewhere in the medieval Islamic world, each side of the window-openings in Ottoman buildings were filled with window-grilles of different types. The most common form of exterior transenna used during the Ottoman period was a simple sheet of stucco pierced with circular openings filled with clear glass. These bull's-eye lights are likely to derive from Byzantine sources, since they were used in Byzantine churches as the predominant form of fenestration. The interior of the windows of Ottoman buildings were used filled with polychrome qamariyyat of elaborate design. The most common form of these window-fillings is an arched grille measuring 1-1.2 x 1.5-1.7 m with a wide border on all sides. The panels at the centre of such grilles are decorated with tracery in the form of cypress trees, floral arabesques, flowers springing from vases or, more rarely, architectural motifs. The stucco tracery is filled with pieces of coloured glass in which primary colours such as red, green, and yellow predominate. Windows of this type appear in Ottoman miniatures from the first quarter of the tenth/sixteenth century onwards. They are known in Turkish as revzenimkenus (decorated windows). Like the windows depicted in Persian miniatures, when they appear in domestic buildings such coloured glass windows are often placed above rectangular window-openings closed with metal grilles. The following summary of the main types of Ottoman coloured glass windows gives some indication of their forms.

6.6.1 Arabesques.

Perhaps the most famous Ottoman qamariyyat are those in the Suleymaniye Mosque in Istanbul. The window-grilles are thought to have been installed during the last phase of construction of the mosque in 965-6/1557-8. The windows presently in situ are either original, or have been restored according to their original appearance. The windows are grouped along the qibla of the mosque (ill. 711).

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70 See above, pp. 74-5.
71 See above pp. 36-41.
74 Arseven, Arts, fig. 464. Wood or metal grilles could be used to close either these rectangular openings, or the tympana above; Arseven, Türk Sanati, p. 197. For a discussion of such grilles see S. Eyice, Grilles and Lattice Work in Turkish Art, Sanat Duyanmiz (II, 6, 1976), pp. 40-1.
75 Bakirer, Ottoman Glass, p. 149.
119), with round windows and arched windows of three different sizes being used together. The round windows employ clusters of eight polylobed medallions grouped around large central medallions, each of which bears an inscription. The background of such qamariyyat is filled with floral motifs. Inscriptions appear routinely in Ottoman glass windows. Most often these assume the form of a single inscribed band at the centre of a medallion, or separating the tympanum from the rectangular body of the grille. The latter is the case with the Ottoman qamariyyat in the Dome of the Rock which, like the inscriptions in Mamluk windows, are designed to be read continuously, from window to window. Some of the latter windows feature arabesques similar to those which appear in the windows of the Suleymaniye. They are described by Evliya Çelebi thus:

"Windows in the first concentric wall overlook the sanctuary. On their wonderful iridescent stained glass one reads either the words la ilaha illa-llah (There is no God but Allah) or the verse, 'God is the Light of the heavens and earth' (Sura XXIV, 35), or the names of the first four caliphs. It is a bewilderingly beautiful stained glass."

Quotations from the Sura of Light also appear in the Suleymaniye windows.

The arrangement of polylobed medallions in the oculi from the Suleymaniye recalls the design of earlier circular qamariyyat, for example, those from the Mārīdāniyya Madrasa in Damascus (pl. 80). Similarly, the division of the border into a series of cartouches of different sizes recalls the treatment of some of the Mamluk oculus-fillings in Cairo, such as those in the mosque of Gāmî Bek (fig. 48). The larger arched window-grilles (ill. 121) have similar borders which also make use of cartouches filled with floral elements similar to those found in the windows represented in Persian miniatures (fig. 60). Similar devices feature on a tenth/sixteenth-century window from the Mihrimah Mosque at Uskudar.

The central panels of many of the Suleymaniye window-grilles also contain floral arabesques (ill. 121). Like the qamariyya from the Darb-i İmām, the large window above the mihrib in the Suleymaniye is divided into a number of compartments of different forms and sizes (ill. 120).

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76 Ibid., p. 151. Arseven publishes a fragment of a qamariyya from the Suleymaniye: Arseven, Arts Decoratifs, fig. 456. Some of the restoration work is not sympathetic to the original - note the crude inscribed lower panels in the windows visible in ill. 120.


78 M. de Vogüé, Le Temple de Jérusalem (Paris, 1864), pp. 96-7, pls., XXIV-XXVI.

79 See above, pp. 120-2.

80 H. St Stephan, Evliya Tshelebi's travels in Palestine VI, QDAP (IX, 1939-42), p. 89.

81 See below, pp. 320-1.

82 Eyice, Verrerie, p. 180, fig. 6.

Among the motifs which occur in the central panels of this window are vases with flowers and flowering trees, both of which are found earlier in Iranian windows (ills. 109, 112-4, pl. 131).

The central panels of most of the grilles on the qibla are each filled with an axial arabesque similar to that which had appeared in many Ayyubid and some Mamluk qamariyyat, and the windows depicted in Timurid and Safavid miniatures (type VI). Arseven published two coloured glass windows from the Yesil Tübe in Bursa (825/1421) which also feature arabesques (fig. 64). This might suggest that arabesques had appeared in Ottoman windows over a century before the construction of the Suleymaniye Mosque, but it is by no means certain that these are contemporary with the foundation of the building. The bull's-eye lights which fill the exterior of the window-openings of the Suleymaniye are composed of crown glass panes set in lead tracery.

We are fortunate in knowing the name of the craftsman responsible for the qamariyyat. Whatever his vices, Sarhoş Ibrahim (Ibrahim the Drunkard) succeeded in creating magnificent windows for the mosque. The meticulous records kept during the construction provide numerous details regarding the origin and type of the glass used in the windows. Among the glass purchased were 590 panes of round glass and 90 ökkaç of white and coloured glass. The colours of the latter glass were yellow, green, blue, and red, the same colours which appear in the qamariyyat of the mosque today.

Whether this glass was imported or manufactured locally is unknown, as is the question of whether the glass was prefabricated or came in the form of raw material ready for blowing on the spot.

Qamariyyat similar to those used in the Suleymaniye are depicted in the Şurname-i Humayûn (ill. 122). and fill the windows in the harem of Topkapi. These are of two types. The first, found in the Surname-i Dairesi (Apartments of the Princes), has a narrow border composed of cartouches filled with floral motifs (ill. 123). This frames a central panel which terminates in a pointed arch filled with floral arabesques similar to those which appear in the windows of the Suleymaniye.

The colours of

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84 Ibid., p. 237.
86 J.M. Rogers, The Furniture and Decoration of Suleymaniye, International Journal of Middle Eastern Studies (14, 3, 1982), p. 301. The panes of crown glass were presumably used for the external lattices, the coloured glass for the qamariyyat which filled the interiors of the window-openings.
87 Bakirer, Ottoman glass, pp. 151-2. This scholar also mentions the purchase of yellow and green glass, possibly from Venice, for the windows of the Sultan Ahmet Mosque (1019-27/1610-7).
88 Bakirer [Ottoman Glass, p. 151] takes the construction notebooks of the mosque as indicating that crown glass was manufacture in tenth/sixteenth-century Istanbul, while Rogers [Furniture, p. 250] seems to suggest that the window-glass was imported from Venice.
89 The guild of cooks, The guild of kebab cooks; Ministry of Culture and Tourism, Ottoman Empire in Miniatures, Volume I (Ankara, n.d.), pls. 42, 44.
90 Bakirer, Ottoman Glass, p. 150, fig. 74. The use of such window-grilles in the Topkapi harem recalls the testimony of Tavernier concerning the use of similar qamariyya in Iranian harems: SPA, p. 1363, n.1.
the glass used to fill these windows is blue and yellow. Windows of the second type, in the Kadin Efendiler Dairesi (Apartments of the First Ladies), dated to the second quarter of the eleventh/seventeenth century, are broken once again into a series of compartments in which floral arabesques and flower vases feature (ill. 124).\(^9\) These are filled with red, blue, green and blue glass.

6.6.2 Vases with flowers

Some of the windows from the Sultan's Lodge (Hunkar Kasr) near the Yeni Çami in Istanbul published by Arseven feature vases of flowers similar to those in the windows of the Topkapi harem (fig. 65).\(^9\) These have been dated by Bakirer to the completion of the mosque in 1071/1660.\(^9\) Most of these take the form of a pointed arch, and, like the Iranian and Turkish window-grilles discussed above, some are divided into a number of panels of different sizes and shapes (fig. 65).\(^9\) The border consists of alternating rectangular and square panels, the former filled with floral stems, the latter with single flowers. The arched panel at the summit bears an inscription, as does the arched tympanum above the central rectangular panel. This panel is subdivided into a large field framed in an ogee arch, and two spandrels filled with floral motifs. This composition recalls once again the window-grilles depicted in Iranian miniatures, and that from the Darb-i İmām. Further similarities include the liberal use of the drill to provide a perforated background against which the raised fillets composing the central motifs are set, and the motif which fills the central field itself, an elaborate bouquet issuing from a low-set wide vase.\(^9\) In another window from the Yeni Çami (pl. 137) the vase in the central field is of more orthodox type, with a narrow neck, flaring body, and low foot. Flowers are seen to sprout from the ground to either side of the vessel. The small roundels used as a framing device around all the panels of the window are found on qamarīyya from the Umayyad period onwards.

Similar qamarīyya appeared simultaneously in the provinces of the Empire. Qamarīyya featuring flower vases were used in Cairo in the Ottoman period. Window-grilles of the Ottoman period from Crete feature cypresses and flower vases.\(^9\) Rectangular qamarīyya in the Madrasa al-

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\(^9\) Bakirer, Ottoman glass, p. 150, fig. 75.

\(^9\) Arseven, Arts Decoratifs, figs. 451, 461, 466.

\(^9\) Bakirer, Ottoman Glass, p. 150.

\(^9\) Arseven, Arts Decoratifs, fig. 461.

\(^9\) Ibid., fig. 461.

\(^9\) S. Pelekanidis, Die Kunstformen der nachbyzantinischen Zeit im nordgriechischen Raum, Studien zur Frühchristlichen und Byzantinischen Archäologie (Thessaloniki, 1977), p. 482, fig. 10. The author's statement that such qamarīyya are a product of Byzantine art cannot, however, be accepted.
Khatūmīyā in Jerusalem (755-782/1354-80) filled with vases of flowers and single rosettes are said to date from the Ottoman period.97

6.6.3 Cypresses.

The Yeni Çami in Istanbul also contains window-grilles which feature cypresses, but the date of these is unknown. The mosque was begun in 1006/1597, but construction stopped in 1012/1603 and was not completed until 1071/1660. Bakirer98 dates the window-grilles to this period. Coloured glass windows appear around the mihrab of the mosque and in the nearby Sultan’s Lodge. The qamariyyat are arched, and their tracery is filled with cypress trees, sometimes in pairs. Windows in which cypresses appear are depicted in the Surname-i Humayūn (ill. 125)99 and other manuscripts of the tenth/sixteenth century.100

6.6.4 Geometric motifs.

Windows of another type which also appear in the Yeni Çami are composed of white, blue, and purple crown glass arranged in groups of eight.101 Windows of this type, but filled with colourless glass, exist in the qibla wall of the Sokollu Mehmet Pasha Mosque in Istanbul (979/1571-2) [pl. 141].102 Similar windows are depicted in Iranian miniatures from the tenth/sixteenth century (type IX).

6.6.5 Bull’s-eye transennae.

Simple bull’s-eye transennae of a type used in Byzantine architecture were used to fill the exterior of Ottoman windows. The openings could be circular (yuvarlak), oval (yunūrta), or elliptical (fil gozu), each being filled with a pane of crown glass, usually clear.103 Occasionally windows of this type appear on the interior of window-openings.104 Two windows filled with glass roundels appear behind

97 Burgoyne, Mamluk Jerusalem, p. 348, figs. 31.9-31.10.
98 Bakirer, Ottoman Glass, p. 151.
99 See also The display of the cavalry corps, The guild of thread dealers; Ministry of culture, Ottoman Empire, pls. 34, 48, 56.
100 In the Sültemanniye, Şehriye Selim Han, Zihniyet-ı Fevah. For drawings of these see O. Bakirer, Anadolu mimarisinde pencere çami kullanınına kis bir bakış, First International Anatolian Glass Symposium, April 26th-27th 1988 (Istanbul, 1990), figs., 90-3.
101 Bakirer, Ottoman glass, p. 150.
102 Akurgal, Art and Architecture, pl. 92.
103 Arseven, Arts Decoratifs, p. 183, fig. 453; Bakirer, Ottoman Glass, p. 149.
the enthroned Selim II in a portrait executed at Istanbul around 978/1570. An inscription is clearly visible on the roundel at the centre of each of the windows (ill. 126). Inscriptions also occur in the glass roundels used in the windows of the late-ninth/fifteenth-century Ashrafiiyya Madrasa in Jerusalem. It seems that such roundels also bore other forms of decoration. The ship wrecked off the Dalmatian coast in 991/1583, and presumed to have been carrying a cargo from Venice to Istanbul, contained over 648 panes and fragments of crown glass. Some of these had moulded decoration which consisted of rosettes or geometric designs which covered their surface. Window-grilles containing clear glass which featured moulded vegetal ornament and painted rosettes also appeared in Ottoman mosques in the Balkans, such as the Mehmet Pasha Mosque in Mostar (1026-7/1617) [pi. 141].

6.6.6 Architectural motifs.
In the qamariyyat of Ottoman Cairo small pavilions, floral motifs, inscriptions, and vases of flowers often appear alone or in combination (pls. 139-40). Curiously, although coloured glass was used in Ottoman garden pavilions, architectural motifs appear not to have been used in the qamariyyat of Ottoman Turkey. Their appearance in Cairo presumably reflects local tastes.

6.6.7 Baroque windows.
From the twelfth/eighteenth century onwards a new simplified type of glass-window filling appeared in the Ottoman world. This consisted of large areas of flat glass held in plaster window-grilles which were divided into large geometric units. Exterior windows of similar type were in use simultaneously. The use of coloured glass in such grilles was kept to a minimum, and much of the glass used in the tracery was imported from Venice. The "Baroque" appearance of these late grilles, and the lack of parallels in the Islamic world indicates that they reflect the influence of

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104 For example in the Sulevmanname; Bakirer, Anadolu mimarisinde, figs. 86-7. One of these windows has star-shaped apertures pierced in the spaces between roundels.


106 See above, p. 145.


108 Lane-Poole, Art of the Saracens, p. 224, pls. 95-8; G. Migeon, Manuel d'Art Musulman II (Paris, 1927), fig. 314; Z. Hassan, Atlas of Moslem Decorative Arts (Cairo, 1952), fig. 723. Since qamariyyat were themselves often used in kiosks and pavilions of the Ottoman period [Bakirer, Ottoman glass, p. 147], the appearance of pavilions in the window-tracery may be seen as particularly appropriate.

109 Arseven, Arts Decoratifs, p. 183, figs. 459-60, 463, 465; Eyice, Verrerie, p. 180; Bakirer, Ottoman Glass, pp. 152-3, fig. 78.

110 Venetian window-glass was imported as early as the tenth/sixteenth century: M. Rogers, Glass in Ottoman Turkey, Istanbuler Mitteilungen (XXXIII, 1983), p. 250. See below, pp. 177-8.
contemporary European decorative trends. Similar windows in which clear and coloured glass, and even pieces of mirror, were used appeared simultaneously in Qajar Iran. A miniature in the Surname-i Humayun depicting the festivities accompanying the circumcision of Murad III's sons in 990/1582 shows glaziers in the process of filling stucco tracery with glass (ill. 127). Both arched and circular window-grilles are shown in the painting. The form of the grilles in the miniature is similar to that of the later "Baroque" windows, with large panels of glass being set in tracery in the form of lozenges, hexagons, cartouches and rectangles. While these resemble the later type of window, it seems likely that the resemblance should be attributed to the constraints of the media which necessitated abbreviating the details of the windows. The painting is important evidence for the prefabrication of Ottoman qamariyyat, for several completed examples are depicted above an area in which glaziers are seen working on two further windows.

Occasionally, both forms of window-grille are combined, with large areas of glazing appearing alongside finer tracery filled with pieces of coloured glass. Such hybrid qamariyya were used in the windows of the Mosque of Beyazit Pasha in Amasya (817-22/1414-9) [fig. 66]. The grilles were broken into a series of geometric compartments of various forms and dimensions, with the largest portions of the grilles filled with clear glass. In the smaller central panel and the four surrounding compartments of some of the grilles a different technique is used. These sections consist of finer plaster tracery in the form of flowers, vegetation, and flowers springing from vases, the apertures being filled with pieces of coloured glass. While Gabriel believed that these dated from the foundation of the mosque, Goodwin suggests that they are not more than a century old. The use of large areas of clear glass appears to reflect the influence of the "Baroque" windows, and supports the later date.

111 Orazi, Wooden Gratings, pl. 4; Cantacuzino & Browne, Isfahan, fig. 5; J. Carswell, New Julfa, the Armenian Churches and Other Buildings (Oxford, 1968), pl. 78.

112 Rogers, Glass, p. 250, pl. 61 i; Bakirer, Anadolu mimarisinde, figs. 94-5. Michael Rogers compares the windows in the miniature to some tenth/sixteenth-century windows in the Harem of Topkapi on which vases and flowers appear, despite the absence of these motifs in the former windows. Bakirer also includes the miniature in her discussion of windows of the tenth/sixteenth century bearing representational and floral motifs: Bakirer, Ottoman glass, p. 149.


114 Goodwin, Ottoman Architecture, p. 81.

115 Gabriel [Monuments, p. 28] mentions the use of "vitrés de couleurs claires, maintenues dans les compartiments d'un chassis de plâtre" (i.e. of 'Baroque' type) in the mosques of Istanbul as early as the tenth/sixteenth century. This would appear to be contradicted by the evidence cited by Bakirer (Ottoman glass). It may be that the former scholar had the ubiquitous bull's-eye windows in mind.
6.7 Techniques of manufacture.

Technically, coloured glass windows of the Ottoman period offer some surprises. Two different techniques appear to have been used in their manufacture, depending on which area of the Empire they originate from. In Turkey the most common technique was the "sandwich" method favoured in the manufacture of qamariyyat elsewhere in the Islamic world until the eighth/ fourteenth century. Pieces of coloured glass were embedded between two layers of plaster. The glass pieces were held in clay while the plaster tracery took form around them. The tracery on the face of the grille took the form of raised moulded fillets, bevelled to produce a three-dimensional effect. This is similar to the technique used in the manufacture of Ayyubid qamariyyat. In many Ottoman grilles the flat plaster background is filled with small drill-holes (pl. 137), producing a veil of light against which the lines of the main composition are set. This feature appears on Mamluk qamariyyat at the end of the ninth/fifteenth century (ill. 90) on the windows depicted in Safavid miniatures (fig. 60b), and on the surviving window from the Darb-i Imān (ill. 117). This method is used to ultimate effect in Ottoman windows, "in which areas of solid colour are broken up into collages of fragments more like smalti than panes of glass".

The stucco fillets of the tracery are usually slanted downwards at an angle of 45° to direct light downwards onto the observers below, and to render the designs of the qamariyyat more visible. A similar device is used in Cairene qamariyyat in the Burji Mamluk period. Occasionally metal rods are used at the back of the grilles to reinforce the tracery. The glass roundels which fill the exterior of the windows in the Süleymaniye Mosque are set in lead tracery. Brass wire was ordered for the twelfth/eighteenth-century restoration of the windows in the Dome of the Rock, although it is not clear how this was used.

117 Bakirer, Ottoman glass, p. 149.
118 See above, p. 90.
119 See above, pp. 147.
120 See above, pp. 161-3.
121 Rogers, Glass, p. 250.
122 Arseven, Arts Decoratifs, fig. 457; Goodwin, Islamic Architecture, p. 51.
123 Lane-Poole, Art of the Saracens, p. 223.
124 Lecompte, Arts et Métiers, p. 79; De Vogüé, Temple, p. 96.
125 Goodwin, Ottoman Architecture, p. 237.
126 St Laurent & A. Riedlmayer, Restorations of Jerusalem and the Dome of the Rock and their political significance 1537-1928, Muqarnas (X, 1993), p. 79. It may have been used between the outer ceramic grilles and the coloured glass windows - brass and copper wire was used to cover the exterior of the windows in Mamluk buildings (pl. 119).
In the windows of Ottoman Cairo a different technique was used. Here pieces of coloured glass were set in place behind the apertures pierced in stucco grilles, and a layer of plaster then poured across the back of the grille to hold them in place. This technique was first used on a large scale in Cairo during the eighth/fourteenth century, and continued during the Ottoman period.

The glass used in Ottoman windows was of two different types; flat (moulded) and crown (blown and cut). Often, as mentioned above, crown glass panes were used whole, particularly in the grilles which filled the exterior of window-openings. During the tenth/sixteenth century much foreign, mostly Venetian, glass was imported for use in the qamariyyat of Istanbul. The glass was expensive, and broken glass valuable, the craftsmen were thus obliged "to adopt their technique to the size of the bits available". Since, in other parts of the Islamic world, pieces of coloured glass for use in qamariyyat were usually cut from crown glass panes, it is likely that this was also the case in Ottoman Turkey. It is thus probable that, among other factors, practical and economic considerations were influential in determining the form of Ottoman qamariyyat. Later however, when window-glass was manufactured in Istanbul, larger areas could be filled with glass, leading to the creation of window-grilles of "Baroque" type.

It must be stressed that the motifs which appear in Ottoman qamariyya are by no means specific to them, but appear in a variety of media during this period. Cypress trees, floral arabesques, tulips, and arrangements of flowers in vases similar to those used in the tracery of Ottoman windows also appear in the tilework, textiles, carpets, and book-covers of this period. Ottoman qamariyyat, like those of earlier periods reflect contemporary aesthetic tastes and must be seen in conjunction with contemporary forms of decoration in the buildings where they appeared.

127 See above, pp. 146-7.

128 The fact that the "sandwich" technique is used in preference to the Egyptian method in the manufacture of modern Yemeni stucco and glass windows (ills. 144-8) is evidence in support of a Turkish influence in the origins of such windows.

129 Rogers, Glass, p. 250; this is discussed in more detail in the following section.

130 Rogers, glass, p. 251.

131 Arseven, Arts Decoratifs, p. 182.

132 Rogers, Glass, p. 251.

133 Compare, for example, the floral arabesque on an example of Ottoman tilework published by Arseven [Türk Sanati, p. 211] with the tracery of a window-grille published by the same author (Ibid., p. 198). The motif of a vase of flowers set in an arched niche which appears on many Ottoman qamariyya is also a stalwart of contemporary tilework.

134 Bakirer, Ottoman glass, pp. 150-1.

135 This is aptly illustrated by a window-grille in the Green Mosque at Bursa published by Arseven [Arts Decoratifs, fig. 468]. The window is set at the centre of a panel of glazed tilework which continues the theme of the luminescent flowers and arabesques embodied in the design of the qamariyya.
6.8 Imports of window-glass.

Although this phenomenon has been touched on in the preceding discussion it merits further discussion. The earliest evidence for the use of imported glass being used in qamarıyat is the testimony of al-Umari, who mentions the use of Cypriot glass (al-zujāji al-qubrusi) in the windows of the Qasr Ablaq in Cairo (713/1313). The practice appears to have continued subsequently, for "Frankish" glass (al-zujāji al-afraṇjiyyr) was used in the windows of the Ashrafiyya Madrasa in Jerusalem (after 887/1482). In view of the close trade relations between Venice and the Mamluk kingdom, and the evidence for later imports of Venetian window-glass, it seems likely that this "Frankish" glass may, in fact, have been Venetian. As mentioned above, Venetian glass was imported for use in Safavid windows.

Seen in context then, the Ottoman practice of importing window-glass merely continues a tradition which began in the Bahri Mamluk period, if not earlier. What is perhaps surprising is the scale of the Ottoman imports. Venetian window-glass was imported to Istanbul as early as the tenth/sixteenth century. The finds from the Gnalic wreck indicate that by the last quarter of that century large quantities of crown glass, some of it decorated, was being imported. The scale of these imports may reflect the quantities of glass required for Ottoman windows. Whereas open claustra filled the exterior of window-openings in earlier buildings, the exteriors, and sometimes the interiors, of Ottoman window-openings were usually filled with panes of clear crown glass. Between twenty-five and thirty panes of glass could be used in each window - 590 panes of colourless glass were purchased for the windows of the Suleymaniye. However, this reason alone is not sufficient to explain the phenomenon, and one must assume that window-glass of high quality was not available in sufficient quantities to satisfy demand. This is suggested by the import of coloured window-glass from Venice. A similar situation prevailed in other parts of the Islamic world. Carsten Niebuhr mentions the use of Venetian glass in the windows of Yemeni buildings in the late twelfth/eighteenth century. As late as the 1340's/1920's Venetian glass was being used in the windows of the Qasr Ablaq in Cairo.

136 See above, p. 120.
137 See above, p. 145.
139 See p. 166 above.
140 Rogers, Glass, p. 250.
141 Bakirer, Ottoman Glass, p. 151.
142 Rogers, Furniture, p. 301.
143 Bakirer, Ottoman Glass, pp. 151-2.
144 Niebuhr, Voyage I, p. 390.
glass was still being imported for use in the windows of Sana'a.145 This was then superseded by imports of coloured glass and plastic from the Soviet Union.146 The situation was similar in Kuwait, where the small amount of glass used in windows was imported from Europe, Iran or Iraq.147 One may conclude that the use of imported glass in Ottoman windows is part of a tradition with parallels, both earlier and later, in many parts of the Islamic world.

6.9 Sources.

It remains to consider the stylistic affinities of the windows just described. Two separate but related issues must be considered here. The first is the sources on which the Iranian windows draw, the second is the relationship between Ottoman glass windows and those discussed in the preceding chapters. In view of the paucity of evidence for the use of coloured glass windows in Iran before the end of the eighth/forteenth century, it is no surprise to find many parallels between the windows depicted in Iranian miniatures and those found earlier in Egypt and the Levant.

The basic forms of the windows depicted in Iranian miniatures are two; rectangular and rectangular terminating in a pointed arch. Both types are found to the west of Iran by the sixth/twelfth century.148 Most of the border motifs which appear in the Iranian windows had appeared earlier in Syrian and Egyptian qamariyyat. Roundels are used from the Umayyad period onwards, narrow rectangles joined by circles from the Ayyubid period. Elongated hexagonal cartouches first appear in the border of a grille in the madrasa of Ilgay al-Yūsufī (775/1373) [pl. 105, fig. 43a], while cartouches separated by roundels appear in the qamariyyat in the mosque of Gānī Bek (811/1408) (pls. 116-7, figs. 44d, 48).

The preference for blue and red glass in the Iranian windows seems to follow a precedent established in Egyptian qamariyyat of the Burjī Mamluk period.149 It may be however that, just as the preference for these colours in Mamluk Egypt seems to reflect the influence of carpets, the same colours were chosen to harmonise with the faience decoration used in the Iranian world. It is also possible to point to technical similarities between the Iranian and Egyptian windows. The drill-holes used on the background of Egyptian qamariyyat from the last quarter of the ninth/fifteenth century


146 S. & M. Hirschi, L'Architecture, p. 298.


148 Rectangular windows were used in Qasr al-Banat at Raqqa, while most of the surviving Ayyubid qamariyyat in Syria terminate in a pointed arch.

149 See p. 149 above.
appear in the windows depicted in Iranian miniature only in the early tenth/sixteenth century (fig. 60b), and, probably later, on the window from the Darb-i Imām (ill. 117).

All these similarities, and the chronological gap between the appearance of certain characteristic features in Mamluk, Timurid and Safavid windows, indicate that, in particular techniques and details, the Iranian windows were strongly influenced by earlier Egyptian and Syrian qamariyyat. This is not to say that the iconographic content of the Iranian windows is derived from similar sources. On the contrary, many of the Iranian motifs find no parallels among surviving Egyptian and Syrian qamariyyat. The occasional appearance of figurative motifs in windows is especially noteworthy, as is the use of windows filled with glass roundels. As has been noted above,150 finds of crown glass panes at Konya and Kobadabad, suggest that bull's-eye windows (type I) were used in Rum Seljuq architecture. Although the glass used in shamsiyyat and qamariyyat was normally of this type, such panes served as quarries for smaller pieces and were rarely used whole. In view of the proximity of Byzantium, it is conceivable that the use of such windows in Anatolia reflects Byzantine influence. Although the present state of our knowledge precludes any definitive conclusion, it may be that the vogue for windows of this type in Timurid and Safavid architecture reflects Byzantine influence mediated via the Seljuqs of Rum.

In Iranian windows glass roundels were also used as a border around more elaborate motifs. The most common (type III) is an arched panel in which a floral spray issuing from a vase is set beneath a polylobed arch, above which an inscribed rectangular panel appears. While similar epigraphic bands occur on Mamluk qamariyyat from the early eighth/fourteenth century onwards, there are few parallels for the flowering vase. An exception is a group of windows which appear along the qibla in the Mosque of al-Ṣalih Ẓāhirī in Cairo (ills. 128-9). The mosque was built in 555/1160, but the windows are later, for the sole surviving Fatimid claustrum from the mosque (pl. 77) is of a very different form to the qamariyyat.151 The tone of the glass which fills the grilles now in situ, and the colour of their stucco, suggests that they are recent creations. However, the form of these grilles is so different to any of the other Mamluk qamariyyat which survive, and the similarities between them and the windows in the Iranian miniatures so great, that it seems reasonable to offer the suggestion that the grilles were remade using as a model the remains of medieval grilles.

The grilles terminate in a pointed arch and have an inner border filled with colourless glass roundels (ill. 129). The interior panel is divided into a tympanum, epigraphic band, and a lower panel in which a flower vase is set beneath an arch.152 The strong iconographic similarities between these qamariyyat and Iranian windows of type III are immediately evident. It is as if one had created qamariyyat using the windows in the miniatures as a blue-print. One can even point to specific

150 See above, pp. 74-5.

151 See above, pp. 80-1.

152 Prisse d'Avennes published a qamariyya from Cairo which shows a vase of flowers set on a table beneath an arch. Arab Art, p. 250, pl. 145. The use of a drilled background indicates that the window cannot be dated before the late ninth/fifteenth century.
details, such as the use of small circles to link the roundels, which also appear in the Iranian windows (type I, fig. 55). Although it is probable that the Cairene windows copy earlier models, the precise date of these models is uncertain. The mosque was twice destroyed by earthquake, and was rebuilt in the early eighth/fourteenth century, so it is likely that the original windows were added after this date. The use of large roundels to frame the inner arch finds a parallel in the qamariyyat in the mosque of Amir Mithqāl (before 765/1363) (fig. 41b). However the drilled background of the tympanum suggests that the original windows were made even later, for this feature does not appear in Cairene qamariyyat before the last quarter of the ninth/fifteenth century. This being so, the iconography of this window, the lack of surviving parallels in Egypt and the fact that windows of similar type appear in Iranian miniatures from the end of the eighth/fourteenth century, all suggest that the original qamariyyat were based on Iranian models. Further evidence for the influence of Iranian window-grilles on Mamluk qamariyyat has been cited above. One must conclude that the influences operating on Mamluk and Timurid qamariyyat were reciprocal.

The geometric forms which appear in Iranian miniatures in the early Safavid period also seem to reflect local tastes. Polygonal arrangements of roundels do not appear in the Mamluk qamariyyat which survive. Neither do hexagonal lattices filled with panes of crown glass. However, a stucco grille in which hexagonal lights were each filled with a circular pane of glass was found in the Aqṣa Mosque in Jerusalem (pl. 64). This qamariyya appears to be Fatimid, so one cannot rule out the possibility that the Safavid windows of similar type are imitating earlier prototypes which do not survive. An Ottoman window of this type appears in the Hümârname (990/1582). A detailed discussion of the origins of Ottoman Turkish qamariyyat and their relationship to the decorative window-fillings found elsewhere in the Islamic world is beyond the scope of this study. However, it should be clear from the foregoing discussion that many of the technical and iconographic features of Ottoman windows are derived from Mamluk and Timurid sources. Some summary remarks and observations can, however, be made.

Similarities between Ottoman qamariyyat and Islamic window-grilles of earlier periods include both the overall design of the grilles, and the specific motifs which appear within them. The division of the body of the window-grilles into a series of compartments arranged around a central arched panel, which appears for example in the Süleymaniye windows, is characteristic of the window from

153 See above, p. 118.

154 In the qamariyyat from the madrasa of Abū Bakr ibn Muzhir and the mosque of Qajmāš al-Islāqī, above, pp. 147-8.

155 See above, pp. 142-3.

156 See above, p. 71.

157 Bakirer, Anadolu mimarisinde, fig. 89.
the Darb-i Imam in Isfahan, although this may have been created later. The subdivision of the central panel into numerous small units develops from a tendency apparent in Egyptian qamariyyat of the late eighth/fourteenth century, those in the khamqah-madrassa of Barqiq for example, where the interior space is divided into a central arched panel framed by a wide border (figs. 43b-c). In later Egyptian qamariyyat, such as those in the mosque of Qajmas al-Ishāqī, both the border and the interior panel are subdivided (figs. 50-51a), but not to the extent that they are in later Iranian and Turkish windows.

Technical similarities between Ottoman, Safavid and Mamluk window-grilles include the use of a drilled background. This feature appears in Mamluk qamariyyat from the end of the ninth/fifteenth century, but is found in the windows depicted in Iranian miniatures only from the early tenth/sixteenth century (fig. 60b). The debt to predecessors extends also to the individual motifs which fill the tracery of Ottoman window-grilles. The arrangements of flowers in a vase frequently encountered in qamariyyat of the Ottoman period appear in the windows depicted in Persian paintings from the second quarter of the eighth/fourteenth century onwards (type III). Similarly, cypresses are found in Mamluk qamariyyat by the end of the ninth/fifteenth century, if not earlier.158

The antecedents of the arabesque windows used in Ottoman architecture are to be sought in qamariyyat of the Ayyubid period. In Mamluk Egypt qamariyyat filled with arabesques are restricted almost exclusively in the windows of domes in mausolea.159 Arched windows decorated with arabesques (type VI) appear in Iranian miniatures in the the early tenth/sixteenth century. In view of the apparent preference for arabesque windows in Iran it seems likely that the Ottoman artists were drawing on Iranian rather than Egyptian models.160

Polygonal arrangements of glass roundels do appear in certain Ottoman windows (pl. 141). These seem to be derived from Iranian sources, for similar windows appear in Iranian miniatures in the first half of the tenth/sixteenth century (type IX).

One noteworthy difference between Turkish and Iranian windows is the use of cartouches rather than glass roundels in the wide internal borders. This may be an indication of Mamluk influence, for similar cartouches appear in the windows in the mosque of Gīrā Bek (811/1408) [figs. 44d, 48] and in later mosques, while large glass roundels are rarely used as border ornament in Mamluk qamariyyat.

The Turkish preference for the "sandwich" technique largely abandoned in Egypt and Syria in the course of the eighth/fourteenth century requires some explanation. One may find in this incidental evidence for the use of similar techniques earlier in Iran. Although the window from the Darb-i Imām was not produced by this technique, it may be that in the Iranian world both techniques continued in

158 See p. 118 above.

159 The qamariyyat in the Mihrābīn Mosque and the mausoleum of Aṣhāf al-Sībihī are exceptions; above, pp. 123-7.

160 The occurrence of windows of this type in Iranian miniatures of this date is noted by Bakir (Ottoman glass, p. 151). She does not, however, discuss the relationship between the Iranian and Turkish window-grilles, concluding only that a miniature in which an arabesque window appears "might point to the use of similar windows in Iran during the sixteenth century".
use simultaneously at a time when the "sandwich" technique had become obselete in other parts of the Islamic world.

It may be that the dual orgins of Turkish rezventi-menkus are acknowledged in the term itself. Arseven proposed an etymology based on the Persian rezven (window) and the Arabic menkus (decorated).161 According to popular legend, the two circular window-grilles in the Sileymaniye Mosque were trophies from Baghdad.162 Despite the impracticalities of transporting glass windows over such long distance, there is some historical precedent for such a practice.163 In this case the windows were in fact the work of an Ottoman artist, Ibrahim the Drunkard, although it seems that they were so unique, or of such fine quality, that they were attributed to foreign workmen. In view of the evidence cited above one must conclude that Ottoman window-grilles are more derivative than might at first glance appear to be the case. However limited their iconographic repertoire, the Turkish windows excel in their perfection of techniques developed in earlier periods. The skillful combination of narrow fillets of stucco tracery and perforated background produces a spectacular veil of coloured light with which the qiblas of many Ottoman mosques were illuminated. The significance with which such veils of light were invested will be discussed in Chapter IX.

6.10 Conclusion.

It is an irony of history that stucco and glass window-grilles of the Ottoman period, those which are among the most technically sophisticated but the least innovative, are often cited as typical of the genre. In the preceding chapters I have sought to demonstrate both the analogies and divergences between qamariyyat in use contemporaneously in neighbouring parts of the Islamic world. The qamariyyat in use in Mamluk Cairo were distinct from those in Damascus to which they bore a much closer resemblance than they did to Iranian window-grilles. The latter appear to have developed a distinctive regional style, although one influenced by Ayyubid and Mamluk prototypes. Both Mamluk and Iranian window-grilles were influential in the development of Ottoman glass windows, but one can point to technical and iconographic differences between stucco and glass windows from different parts of the Ottoman Empire. The degree of regional variation is perhaps surprising, and gives some indication of a diversity not fully represented by the fragmentary remains of qamariyyat and shamsiyat from earlier periods. One may conclude that the fragile art which flowered in the desert of

161 Arseven, Arts Decoratifs, p. 182. Persian glass is among the materials which were used in the twelfth/eighteenth-century windows in the Dome of the Rock; St. Laurent & Riedlmayer, Restorations, p. 79.

162 Goodwin, Ottoman Architecture, p. 235.

163 One thinks, for example, of the window-grille carried off from Baghdad by the Fatimid general al-BasasTri; see below, pp. 190. In 993/1585 Osman Pasha carried off a cupola from Tabriz which contained windows, shutters and painted decoration; L. Bronstein, The Documentary Survey, Bulletin of the Iranian Institute (VI, 1, 1946), p. 167. Murad III had the cupola built into a garden kiosk, a context in which qamariyyat often appeared.
Syria at the end of the first century of the *hijra* produced numerous offshoots during the course of the following centuries.
SECTION TWO
The preceding chapters have largely been concerned with stylistic analysis in attempting to outline the development of stucco and glass windows in medieval Islamic architecture. In the second section of the thesis the emphasis is less on windows and their stylistic development than on iconographic issues arising from the use of light and colour in the Islamic world. The following two chapters explore two different aspects of the architectural uses of light and glass, one germane to secular architecture, the other to religious. Although dealing with different - although related - realms, the two chapters are joined by a common thread since the point of departure for each is the Qur'an. In Chapter Seven the evidence for the construction of glass palaces and pavilions is considered in the light of the description of King Solomon's glass-paved palace in Sura XXVII:44. Chapter Eight examines the impact of the Light Verse (Sura XXIV:35) on the decoration of the mosque and assesses the significance of the symbolic uses of light in religious architecture. It will be argued that the image of both the glass palace and the glass lamp had a symbolic potency derived from their Qur'anic origins. In both cases the close and often complex relationship between Qur'anic text, exegesis, secular literature and architecture is evident. It will be argued that it was the literary dimension which ensured the widespread dispersal of both motifs and their ability to act as powerful symbols in chronologically or geographically disparate contexts. The discussion in Chapter Seven is hindered by the dearth of surviving medieval palaces, although it is significant that many of the ideas discussed below find expression in surviving monuments such as the Alhambra in Granada or Topkapı Palace in Istanbul. Frequent reference is made to these standing palaces in the course of the discussion in an attempt to distinguish between fact, fiction and exaggeration. The final chapter draws on the preceding iconographic analysis, returning to the window, and to those discussed in Section One in particular, to consider the possibility that the window or its glass filling could ever have acted as a bearer of meaning.
CHAPTER SEVEN
PALACES OF CRYSTAL.

7.1 Introduction.

So far the discussion has centred on the use of coloured glass in window tracery. I would like to turn now to look at related uses of glass on a larger scale in the palatine architecture of the medieval Islamic world, and to examine the notion of the palace as a place of light. In particular, the following discussion will focus on the frequency with which accounts of glass pavilions surface in the medieval Islamic sources, and on the architectural and iconographic implications of these accounts.

7.2 The glass pavilion.

7.2.1 The texts.

It is reported by Abū Ṣafīḥ, a seventh/thirteenth century source, apparently drawing on an earlier account by Eutychius, that 'Abd al-'Azīz, the son of the Caliph Marwān, undertook the following building activities at Hulwān:

"...he made a large lake, into which water flowed from springs in the hills, named the Mukattam Hills, by an aqueduct which he constructed [from the hills] to the lake. Beside the latter he erected a pavilion of glass (ʿarsha min zujāf)."

Similarly al-Azraqī mentions a house of crystal (dār al-quwārīr) built at Madīna by Ḥamad al-Berberī for Harfūn al-Rashīd. It is not clear whether the structure was actually constructed from glass, or the idea was merely suggested by its name. Both aspects are found in later descriptions of palaces. The house was located alongside a canal close by the Mosque of the Prophet, one of the twenty-three gates of which was named after the crystal house.

Later Dimashqī describes a palace of glass built beneath a lake by the Artuqid ruler of Mardīn. The palace was submerged so that the ruler could escape the heat of the summer:

"This palace has windows, rooms, and doors of transparent glass, from which one can see fish, without getting wet."

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2 F. Wüstenfeld, Geschichte und Beschreibung der Stadt Mekka (Leipzig, 1858), p. 437; see also pp. 69, 316, 329, 462. At the time al-Azraqī was writing the house was occupied by one Mīsa b. Buga, to whom it had been allocated by the Governor of the city.

The phenomenon does not appear to have been confined to the eastern Islamic world, for the following account is given of a pavilion built by Yahyā ibn Ismā‘īl al-Ma’mūn, the Dhū‘l-Nūnid ruler of Toledo (435-68/1043-75);

"He constructed in the middle (of his palace area) a lake, in the centre of which he built a pavilion (qubba) of coloured glass and encrusted with gold (manqīsh bi‘l-dhahab). The water was caused to rise to the top of the pavilion by an artful device invented by his engineers, so that the water would descend from the summit of the pavilion, encompassing it, the various streams uniting with one another. In this fashion the glass pavilion was within a sheet of water which was shed across the glass and which was flowing incessantly while al-Mam‘ūn sat within the pavilion without being in the least touched by the water; and even torches could be lighted in it, producing thereby an astonishing and marvellous spectacle."4

Several details of this account find parallels in descriptions of royal pavilions from many parts of the Islamic world. The pavilion set upon an artificial pool recalls the small domed pavilion in the Umayyad palace at Khirbat al-Mafjar.5 A similar pavilion was set in the centre of an artificial lake at Madīnat al-Zahrā’.6 At Sabra the majlis of the Fatimid ruler was set in the centre of a pool into which multiple water channels emptied.7 Large pools were built in both the Aghlabid palace at Raqūqā and the Hammadid palace at the Qala of the Banu Hammad.8 That the flowing water served to cool the ruler is suggested by an account of a garden pavilion built by Maḥmūd of Ghaznī which was cooled by having water pumped up from an adjacent pool to soak the roof.9

The tradition of such glass pavilions seems to have been especially strong in the Maghrib and al-Andalūs. The Almohad Palace at Marrakesh, built or reconstructed in 654-5/1256-7, was composed of a series of structures with names such as "House of Water" (Dār al-Mā‘) and "House of Crystal" (Dār al-Billawr).10 The term billawr usually denotes transparent crystal, especially rock crystal, but it can also be used for crystal glass.11 The intended reference may be to rock crystal, for roundels of billawr

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7 Bloom, Meaning, p. 41.

8 Jairazbhoy, Outline, p. 120. A pavilion or palace in the latter city was named Dar al-Bahr (House of the Pool); J.M. Bloom, The origins of Fatimid art, Muqarnas (III, 1985), p. 29.

9 SPA III, p. 1424, n.2.

were used to cover a Sasanian baldachin.\textsuperscript{12} In terms of the visual effect of the material and the notion of a transparent palace, both glass and crystal are closely related. Even if the Dār al-Billawr was not constructed from glass, it may be that such figurative names served to evoke the image of pavilions such as those described above.

In the eighth/fourteenth century the Andalusian poet Ibn Khātīma describes another glass pavilion standing in the centre of a garden pool in Granada.\textsuperscript{13} It may even be that an example of a contemporary glass pavilion survives from Granada. The Mirador de la Daraxa in the Alhambra is crowned with a ceiling of larchwood filled with large pieces of red, yellow, blue, green, and white glass (ills. 130-1). The ceiling has the profile of a truncated pyramid and its tracery is based on a cruciform geometric pattern (pl. 142). The pattern of the tracery is similar to that found on the tiled dado in the adjacent Hall of the Two Sisters (pl. 143)\textsuperscript{14} and resembles a wooden window-grille from the hammam of the palace.\textsuperscript{15} A similar pattern appears on a Nasrid stucco claustrum (pl. 144)\textsuperscript{16} and in the stucco ornament of the mirador itself.\textsuperscript{17}

The inscriptions in the room identify it as a royal pavilion built for the Nasrid Sultan Muḥammad V (755-61/1354-9 and 764-94/1362-91). The tone of the glass used in the ceiling is more vivid than the window-glass from the palace. The presence of red glass in particular, a colour not represented among the window-glass,\textsuperscript{18} suggests that some, if not all, of the remaining glass is not original. Despite this, the similarities between the design of the wooden tracery and other forms of Nasrid decoration suggest that the tracery is original.\textsuperscript{19} The ceiling is covered by a pitched roof, and light falls from windows pierced in the walls supporting the outer roof. A similar system had been used

\begin{footnotesize}
\begin{itemize}
\item[11] Lane's Arabic-English Lexicon, Volume II (London, 1885), p. 257. An inscription in the Dome of the Rock from the restorations of 418/1027-8 refers to the mosaic decoration as billawr. Van Berchem suggested that this term was chosen because of the combination of glass with translucent mother-of-pearl: EMA II, p. 308.
\item[12] Below, p. 191.
\item[14] M.J. Ghoury & O. Jones, Plans, Elevations, Sections and Details of the Alhambra, Volume I (London, 1842), pl. XX.
\item[15] Now in the Museo de Arte Hispánomusulmán, Inventory Number 4660. The use of such wooden grilles in Hispano-Muslim architecture is discussed by Leopold Torres Balbás; Al-Andalus (II, 1947), pp. 415-27.
\item[17] Torres Balbás, Arte Almohade, fig. 178.
\item[18] Although red glass was used in earlier Hammadid shamsiyat: see above, p. 97.
\item[19] It has been suggested that some of the fragments of glass in situ are original and some later; D.M. Gómez Moreno, Guía de Granada (facsimile edition, Granada, 1982), p. 70. I am grateful to Professor Fernando Valdés Fernandez for bringing this reference to my attention.
\end{itemize}
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earlier in the Great Mosque of Tlemcen. Among the verses written by Ibn Zamrak to be inscribed around the walls of the mirador are the following:

"There appears in this place a sky of glass ('afaq al-zujaj) which occasions admiration. Upon its surface is stamped a beauty with which it shows itself to be enriched."21

"The light is one but the colours are varied and each can be seen as distinct, or all mingled together."22

Although incorporated into a palace, the mirador is intimately connected with the garden which it overlooks.23

That the phenomenon was not restricted to al-Andalus is indicated by descriptions of an Ottoman royal pavilion from the opposite end of the Mediterranean. The pavilion, built for Sultan Mehmed II about the middle of the ninth/fifteenth century, is variously described as circular or hexagonal, and stood in the gardens of Topkapi Palace;

"In this seraglio is a room made entirely of transparent glass squares joined and fastened together with tin rods, and it is in the guise of a round cupola, resembling a stretched tent when seen from a distance. In the past, water once ran over it with a marvellous artifice, flowing down from the cupola and descending to the garden. The king frequently used to go there in the summertime to sleep during the day, to the cool and sweet murmur of the resounding waters."24

Other accounts stress the use of dazzling jewels in the decoration of the pavilion. The marvel was imitated in a glass belvedere constructed in the palace of the Grand Vizier at Üsküdar.25 The description of water flowing down the exterior recalls the Ghaznavid and Dhu'l-Nunid pavilions mentioned above, which suggests that such pavilions are not as fanciful as might at first appear. In the Mirador de la Daraxa the idea of flowing water is suggested visually by the muqarnas mouldings on

20 Torres Balbás, Bóvedas caladas, p. 190.
21 On the side walls of the chamber, based on the translation of A. Almagro Cardenas, Estudio sobre las inscripciones Arabes de Granada (Granada, 1879), pp. 109, 115. A recent translation makes reference to a metaphorical "glass snake" in preference to a glass ceiling; E. García Gómez, Poemas Arabes en los muros y fuentes de la Alhambra (Madrid, 1985), pp. 76-9. This is based on a variant reading of a'afu for 'afāq which García Gómez discusses at length. Curiously, the latter author fails to mention the glass ceiling. In view of this, and given that the inscription is likely to have been in a better condition when Almagro Cardenas read it, the earlier translation is used here.
22 After García Gómez, Poemas, p. 126.
23 Frequent reference to the garden is made in the inscriptions in the room; J. Dickie, The Alhambra; some reflections prompted by a recent study by Oleg Grabar, Studia Arabica et Islamica: Festschrift für Ihsan 'Abbas (Beirut, 1981), pp. 133-4.
its walls (ill. 130), which look "like water and dripping foam".26 The practice of chanelling water down the surface of such structures served to cool those within and may lie behind descriptions of submerged palaces of glass. There is also a strong illusionistic dimension to the association of glass and water which is explored below.

One wonders how the reality compared with the descriptions since, with the exception of the Nasrid mirador, little survives of such glass pavilions. Some idea of how such unlikely structures were conceived of in the medieval Islamic world is provided by a miniature in the Majmu' al-Tavarikh (Herat, c. 829/1425) which depicts the glass gunbad in which Buddha Shakyamuni was laid to rest (pl. 145).27 The tomb is square with walls and a pointed dome of clear transparent glass.28 Given the improbability of constructing a palace or pavilion entirely from glass, however, one wonders what inspired the descriptions cited above; it may be that certain types of wall mosaic or vitreous wall-cladding were capable of producing the impression of glass walls and floors.29 A glass palace described in the Book of Enoch is said to have a tessellated floor.30 and one thinks of the abundance of vitreous wall decoration in the palaces of Samarra.31

Since many of these descriptions appear to imply that glass was used in such a way as to allow the passage of light through it, one must also consider the possibility that they were related to the qamariyyat and shamsiyat previously discussed. The suggestion that a Venetian glass-maker may have been responsible for the glass used in the Topkapi pavilion32 finds a parallel in accounts of the importation of Venetian glass for use in Ottoman qamariyyat.33 Similarly, the description of metal cames holding the glass in the Ottoman dome accords well with the apparent use of similar metal tracery in the earlier Toledan pavilion.34 Stucco is almost exclusively the preferred medium for such tracery in the Islamic world. However it may well be that the Dhūl-Nūnīd pavilion was constructed from gilded metal tracery, for we know that lead tracery was used in some Nasrid and Marīnīd

26 Bargebuhr, Alhambra, p. 189.
28 Although it lies outside the scope of this study, the motif of a glass tomb or coffin occurs with regularity in medieval texts; B. Carra de Vaux, L’Abrégé des Merveilles (Paris, 1898), p. 247; Trowbridge, Ancient Glass, pp. 23, 25; SPA, pp. 970-1.
29 See below, pp. 213-23.
30 Trowbridge, Ancient Glass, p. 141.
31 See above, pp. 65-6.
32 Necipoğlu, Architecture, p. 293, n.23.
33 Above, pp. 177-8.
34 For a discussion of this gilding see above, pp. 99-100.
shamsiyyat (ill. 42). The same word shamsiyya (sun-like) which is used for coloured glass windows in the Maghrib is used in a description of the Dhu’l-Nunid pavilion. The association between the garden pavilion and coloured glass survived in subsequent periods when qamariyyat continued to be used in the windows of such structures. In the Ottoman period, one even finds garden pavilions depicted in the coloured glass of qamariyyat. In the glass pavilions the use of metal in preference to water-soluble stucco is perhaps related to the practice of allowing water to flow down the glass. However, ceilings of stucco tracery in which pieces of coloured glass are set occur in Mudejar architecture. It is possible therefore that, as was the case with the shamsiyyat of the western Islamic world, different types of tracery were used. The wooden tracery in the ceiling of the Mirador de la Daraxa suggests an alternative medium to either stucco or metal. Although pierced domes filled with glass continued to appear occasionally in Mamluk and Ottoman mausolea, the Topkapi pavilion, like its Nasrid counterpart, stands at the end of a line which may ultimately stretch back to the Umayyad period.

7.2.2 The palace of light.

The glass pavilions just described often stand in a garden setting. Certain of the royal pavilions functioned as belvederes providing a commanding view over the surrounding landscape. The garden pavilion and the window with a commanding view over an artificially created landscape were important elements in the villa rusticana. The inscriptions in the Mirador de la Daraxa make clear that the room was a royal bower from which Muhammad V contemplated his kingdom below. The Mirador is the eye of the palace and the Sultan its pupil, contemplating his capital from its symbolic centre. Similar ideas are encountered in the pavilions of Topkapi, and in the citadel of Cairo.

35 See above, pp. 102-4.
36 Dozy et al, Analectes I, p. 348; above, p. 11.
37 See p. 4 above.
38 See p. 173 above.
39 L. Torres Balbas, Bóvedas caladas hispanomusulmanas.
40 H. 'Abd al-Wahhab, Dome decoration by means of pierced openings, Studies in Islamic art and architecture in honour of Professor K.A.C. Creswell (Cairo, 1965), pp. 95-104.
41 Z. Pavlovskis, Man in an artificial landscape, the marvels of civilization in Imperial Roman literature (Leiden, 1973), pp. 28-30. Occasionally translucent structures were incorporated into the architecture of royal villas; see below, p. 208.
42 Dickie, Alhambra, p. 341.
43 The image which comes to mind is that of al-Mansur sitting at the centre of the circular microcosm of Baghdad; R. Hillenbrand, The symbolism of the rayed nimbus in early Islamic art, Cosmos (II, 1986), pp. 15-21.
Providing the ruler with a window on his domains, such windows may be considered as "windows of appearances" related to the ceremonial grilled window from behind which 'Abbasid, Fatimid and Mamluk rulers revealed themselves to their subjects. In both cases the emphasis is on the ability to watch without being seen, to express dominion by mere presence rather than actual participation. The symbolic significance attached to such ceremonial windows is indicated by the fact that the Fatimid general al-Basasūr took the metal grille from the shūbbaq in the 'Abbasid palace in Baghdad, along with the mantle and turban of the Prophet, back to Cairo, where the grille was incorporated into various palaces.

The construction of such fantastical pavilions may also be seen as a conspicuous display of wealth and luxury. The use of rich and colourful materials characterises much of Islamic palace decoration; glass in particular appears to have been highly valued as a decorative medium. In the 'Abbasid palaces at Raqqa qamariyyat appear to have been used in contexts in which they were functionally redundant. This suggests that they were present because they were regarded as being among the elements which constituted the sine qua non of palace decoration. For the same reasons pierced domes filled with coloured glass continue to appear in the palaces of the Islamic world until today. One reason why the medium of glass is so highly valued is on account of the visual effects associated with it. The appearance, colour, and properties of glass give it the capability of resembling the jewels which were frequently used in the decoration of Late Antique and Islamic palaces. The jewelled baldachin is a recurrent theme in descriptions of pre-Islamic courts. Apart from the well-known Takhi-i Taqdiš, it is reported that a domed pavilion (qubba) stood in the palace at Ctesiphon. The

44 Necipoğlu, Architecture, pp. 244-5.
47 Camard, Cérémonial, pp. 361-2; D. Sourdel, Questions de cérémonial 'Abbaside, Revue des Études Islamiques (XXVIII, 1960), p. 130; Behrens-Abouseif, Citadel, p. 72.
49 See above, p. 92.
50 In the royal palace at Casablanca for example; Paccard, Traditional Islamic craft, pp. 202-3, figs. 1-6.
qubba was made of radiant crimson and hung with curtains woven with gold thread and set with panes (jāmāt) of red, white, and coloured billāwār. The latter term has been discussed above. The term jāmāt, which usually means a goblet, can also be used for roundels of glass such as those used in the domes of hammams. In a practice which recalls the decoration of the Sasanian dome, roundels of this type were attached to the kiswa sent to the Ka‘ba by Sultan Baybars (658-76/1260-77). It seems likely that the use of such crystal roundels gave the qubba the appearance of stained glass. Apparently even the glass pavilion was not immune to the "textile mentality" mentioned above.

The names of medieval Islamic palaces and pavilions frequently suggest the dazzling brilliance of gold and silver, the sparkling of jewels, the glow of pearls and the shining of stars. At a certain point the line between fact and fiction becomes blurred, and it seems likely that the glass pavilions were intended to evoke this brilliance literally. One may point to several indications that similar concerns underlay certain aspects of early Islamic court ritual. For example, the ‘Abbasid Caliph al-Muqtadir received the Byzantine envoys to his court enthroned in splendour, with nine strings (‘uqūd) of large precious stones (jawhār) hanging from the right side of his throne, their brightness surpassing that of the sun. The belief that certain gems were self-luminous was common enough in the medieval Islamic world, and a later text uses the term ‘uqūd in a description of Mamluk qamariyyat. In the Golden Palace in Fustat Khumārāwayh ibn Tulūn had a pavilion covering a pool


55 M. Gaudefroy-Denombynes, Le voile de la Ka‘ba, p. 17. The ornament must have resembled those qamariyyat of the Burji Mamluk period in which roundels of crown glass were set. See, for example the qamariyyat in the Qayr Banīfik (ills. 56-7).

56 Qaddīmī, Book of Gifts, p. 134 and accompanying notes.


58 See below, pp. 197-8.

59 For example, we are told that the crenellations (shurrīfāt) of a palace built by the chamberlain of the Ḥamdīnīd ruler Nasr al-Dāwla shone like ingots of silver and gold in the light of the setting sun; M. Canard, Quelques aspects de la vie Sociale en Syrie et le Jazira au xiième siècle d'après les poètes de la cour Hamdanide, Arabic and Islamic Studies in Honor of Hamilton A. R. Gibb (Leiden, 1965), p. 170. It is not clear, however, whether a poetic metaphor is being used, or whether the exterior of the palace was decorated in such a way as to make it reflect light.

60 Qaddīmī, Book of Gifts, p. 144.

61 Ibid., p. 184; Mazīdī, Les Prairies d’Or (tr. C. Barbier de Meynard), Volume VII (Paris, 1873), pp. 376-7; Wright, Early Travels in Palestine, p. 247. In the pre-Islamic Near East emeralds were believed to be luminous at night; E. Herzfeld, Zoroaster and His World, Volume II (Princeton, 1947), p. 818. For similar ideas in the medieval West see M. Schlauch, The Palace of Hugon de Constantinople, Speculum (VII, 1932), p. 510.

62 See above, p. 120.
of mercury, on the surface of which he floated on an inflated animal skin. The pool is said to have presented an impressive spectacle when the light of the moon harmonised with that of the glittering mercury. A similar idea was exploited to great effect in the majlis of `Abd al-Rahmān II (206-38/822-52) at Madīnāt al-Zahrā, which contained at its centre a vast cistern filled with mercury. Spectacular light effects were produced by the play of sunlight, filtered through the jewelled and crystal columns and marble arches surrounding the basin. At a command from the Caliph the mercury could be set in motion, causing flashes of light to dart around the room like lightning. The same ruler appeared before Christian ambassadors to his court on a balcony overlooking a lake on which lilies filled with silver and gold sparkled in the sun. It seems likely that such public displays, like the self-conscious nomenclature of the palaces in which they occurred, were connected with the idea of the ruler as a sun or source of light. The idea of the ruler as a luminary is implicit in much of medieval Islamic royal titlature, and became something of a cliche of courtly panegyric. Iconographic references to the light of the ruler are also found in the decoration of mosques, palaces, and even cities, from the Umayyad period onwards. The notion of the ruler as a symbolic sun seems implicit in the construction of early Islamic palaces featuring domes which function as symbols of the cosmos. The idea that the enthroned ruler sits among the stars is hinted at by the use of names such as al-Thurayya or al-Kawkab for royal pavilions.

63 Rubiera, La Arquitectura, pp. 84-5.

64 Bargebühr, Albimbra, pp. 186-7; De Gayangos, Mohammedan Dynasties, p. 237.

65 De Gayangos, Mohammedan Dynasties, p. 243.

66 For an exploration of same phenomenon in the western monarchies between the Late Antique and Napoleonic periods see E.H. Kantorowicz, Oriens Augusti–Lever du Roi, Dumbarton Oaks Papers (XVII, 1963), pp. 119-77.

67 An inscription in the Great Mosque of Damascus, apparently of the 'Abbasid period, describes the Caliph as a lamp (sinjō); M. van Berchem, Notes d'Archéologie Arabe, Toulounides et Fatimites, Journal Asiatique (XIX, 1892), p. 395. Similar ideas are implicit later in the use of names such as Badr al-Dīn, Shams al-Dīn, Nūr al-Dīn etc. On the death of the latter ruler the following lines were penned: 'And how has the revolving celestial sphere come to rest on the earth, since the earth itself is the centre of the celestial sphere?'; H. Sauvire, Description de Damas IV, Journal Asiatique (NS IV, 1894), p. 291.

68 In early Islamic panegyric the caliph was addressed by such titles as "Star of Truth" (kawkab al-haqq); S. Sperl, Islamic kingship and Arabic panegyric poetry in the early ninth century, Journal of Arabic Literature (VIII, 1977), p. 23. The Ikhshidid ruler of Egypt was described as a black sun shining in harmony with the natural sun; D. & J. Sourdel, La civilisation de l'Islam classique (Paris, 1968), p. 381. See also E. Baez, The Ruler in Cosmic Setting: a Note on Medieval Islamic Iconography, Essays in Islamic Art and Architecture in Honor of Katharina Otto-Dorn (Malibu, 1981), p. 17.

69 R. Ettinghausen, From Byzantium to Sasanian Iran and the Islamic world: three modes of artistic influence (Leiden, 1972), p. 39; Hillenbrand, Rayed Nimrus. It may even be that the ruler could, on occasion, be symbolised by a light. Muqaddisi mentions that in the Haram at Mecca lamps were lit for the rulers of Yemen and Egypt and elsewhere; Al-Muqaddasi, Ahsan al-Ta'fisim , p. 75. See also F.B. Flood, The Iconography of Light in the Monuments of Mamluk Cairo, Cosmos (VIII, 1992), pp. 184-6.

70 Among these one might cite the heavenly dome (Qubbat al-Khadra) in the palaces at Damascus, Rusafa, Wasit, Baghdad, and the starry dome in the bath-house at Qusayr Amra; C. Wendell, Baghdad: Imago Mundi, and other Foundation-Lore, International Journal for Middle East Studies (II, 1971), pp. 117-20.
The conscious orchestration of illusionistic light effects by the uses of torches and tapers in the pavilion of al-Ma'mūn finds a counterpart in accounts of pre-Islamic palaces and in the experiments of earlier rulers. The implication is that by day the pavilion shone with the brilliance of reflected light, the pools on which most of these pavilions were set serving, no doubt, to increase their sparkle. By night the pavilion acted as a jewelled lantern, shining with the light of the tapers lit within it. In the Thousand and One Nights an illuminated garden pavilion is said to "sparkle in a sea of light". The pavilion constructed from a hollow jewel illuminated by lamps lit within is a recurring motif in eschatological and mythological texts. By day or night it is understood that the pavilion is a royal bower, a dome of light, the source of which is deliberately ambiguous. The desire to create a superlunary ambience for the ruler is related to further aspects of the glass pavilion, namely its paradisal, Solomonic, and cosmological resonances.

7.3 The Jewelled Palaces of Paradise.

7.3.1 The Qur'an and hadith.

According to medieval Islamic cosmology the number of the earths and heavens is seven. Each of the seven heavens is said to be composed of a different precious stone or metal, the precise hierarchy of which varies according to the commentator. It is generally believed that Paradise is located in, or above, the seventh heaven, its structure corresponding to the seven-fold division of the cosmos. At

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71 See below, pp. 197-8.

72 Al-Ghumdī, the towering Himyaritic palace in Sana'a, is said to have had a throne room at its summit capped with a slab of translucent alabaster. The alabaster served to admit sunlight by day and, by night, to transmit the light of oil lamps lit within the dome, transforming it into a beacon for the surrounding countryside; N.A. Faris, The antiquities of South Arabia, being a translation from the Arabic, with linguistic, geographical and historical notes of the eighth book of al-Hamdani's al-Bili (Princeton, 1938), pp. 17-8; Ibn al-Faqīḥ, Abūnā, p. 26; Mas'ūdī, Prairies IV, p. 251.

73 On the domed constructions of water, light, and translucent marble in the palace of the han-Nagūt viziers of the Zirīḍ ruler of Granada see Bargeboli, Alhambra, pp. 142-3.

74 On the illusionistic effects and iconographic significance of the conjunction of water and glass see below, pp. 209-16.

75 The same idea could also work in reverse, for lamps were occasionally produced in the form of pavilions; below, p. 321-2.


77 See below, pp. 228-9.

the summit of the heavens, above Paradise, is the Throne of God, an ineffable zone of light. The first level of Paradise, the Dar al-Jalīl, is constructed of white pearls, the second (Dar al-Salām) of ruby, the third (Jannāt al-Māwā) of green chrysolite, the fourth (Jannāt al-Khulīd) of yellow or green coral, the fifth (Jannāt al-Naʿīm) of white silver, the sixth (Jannāt al-Firādūs) of red gold, and the seventh (Jannāt 'Ādn), of large pearls. Similar descriptions of a Paradise composed of gold, glass and jewels are found in Jewish eschatological texts and one might quote the description of New Jerusalem given in Revelation (XXI:18-21);

"And the building of the wall of it was jasper: and the city was pure gold, like unto clear glass. And the foundations of the wall of the city were garnished with all manner of precious stones. The first foundation was jasper; the second sapphire; the third, a chalcedony; the fourth, an emerald; the fifth, sardonyx; the sixth sardius; the seventh chrysolite; the eighth beryl; the ninth, a topaz; the tenth, a chrysoprasus; the eleventh, a jacinth; the twelfth, an amethyst. And the twelve gates were twelve pearls; every several gate was of one pearl: and the street of the city was pure gold, as it were transparent glass."

The Qur'ānic view of Paradise is of a verdant garden, indeed the term janna can signify both an earthly garden and its transcendental equivalent. In later exegesis the Qur'ānic description of the architecture and topography of the Garden was considerably embellished; the Garden was said to be surrounded by a wall of gold and silver bricks, its gates of jewel-encrusted gold. The Garden and its inhabitants are characterised by light. They wear bracelets of gold and pearls and use vessels and

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79 Ibn al-Sīhna describes a more complex scenario, in which seven seas of light surround the seven heavens. These are followed in turn by veils of different materials, seven of each; Lane, Arabian Society, p. 99.


81 According to such traditions there are twelve compartments in Paradise. The walls of the first are of glass, the second of silver, the third of gold and silver, and the fifth of gold, crystal, and berylum. The materials from which the remainder are constructed are not specified; L. Ginzberg, The Legends of the Jews, Volume I (Philadelphia, 1947), pp. 21-2.

82 See also the jewelled city in the Isle of the Blessed described by Lucian, Vera Historia, II:11.

83 XXV:10, LV:46-78.

84 El. Djamma, p. 1015.


87 Qur'an XXII:23.
furniture of precious metals and stones. The brightness of the men is like the sun, while their companions are compared to precious stones, their skin so translucent that it resembles glass.

The architecture of paradise is equally fabulous. In the Qur'an three types of dwellings are mentioned: palaces (qūsūn), lofty mansions (ghuraf) with rivers flowing beneath them, and pavilions (kḥṭȳm). Later exegesis elaborated on this theme, describing palaces of pearls with upper rooms of ruby and doors of gems, whose inhabitants shine like a light. Some of the dwellings have domes of pearls, while others are composed of a single hollowed pearl up to sixty miles in diameter. Alongside these are found pavilions of pearls, chrysoprases, and rubies "as large as the distance between al-Jabiya and Sana'a". Similar descriptions of shining heavenly mansions composed of crystal, gems, and other luminescent or translucent materials are found in Judaeo-Christian eschatology:

"...behold I will lay thy stones with fair colours, and lay thy foundations with sapphires. And I will make thy windows of agates, and thy gates of carbuncles, and all thy borders of pleasant stones."

89 Ibid., p. 1201.
90 McDonald, Paradise, p.342.
92 Qur'an XXV:10.
94 Qur'an LV:72.
95 McDonald, Paradise, p. 346; al-Tabriżi, Mishkât III, p. 1198; Muslim, Sahîh IV, No. 1173, pp. 1477-8. In antiquity the ruby was more highly prized than the diamond; Herzfeld, Zoroaster II, p. 818. Thus the palaces of Paradise are constructed from the most precious stones known. A hierarchy of palaces moving from those of gold and silver to those constructed from a single pearl has been detected in the hadiths; Al-Saleh, La vie future, p. 35.
96 al-Tabriżi, Mishkât III, p. 1196; Mishkât IV, p. 1269.
97 al-Tabriżi, Mishkât III, p. 1196; Muslim, Sahîh IV, No. 1179, pp. 1480-1; al-Bukhârî (tr. O. Houdas & W. Marçais), Les Traditions Islamiques, Volume II (Paris, 1906), p. 440; Al-Ghazâlî (tr. T.J. Winter), The Remembrance of Death and the Afterlife, Kitâb ḏikr wa-miṣr wa-ma ṣâla (Cambridge, 1989), p. 241. According to Ibn 'Abbas, the sky and earth were themselves created from a single white pearl; Fahd, Naisbance, p. 245.
99 Isaiah LIV:11-2. The reading of agates is doubtful, for elsewhere the Hebrew word used, suqâdûm, "signifies shining or gleaming stones, and their use for windows indicates that they must have been transparent"; Kunz, Precious Stones, pp. 305-6. In the following extract from the Talmud the same word is translated as ruby which accords well with the upper rooms of ruby mentioned in Muslim texts. The belief that the ruby was self-luminous was apparently widespread, below, p. 295, n. 74.
One might compare this with the Talmudic tradition:

"I will make thy pinnacles of rubies (kadkod) ... And thy gates of carbuncles ... the Holy One, blessed be He, will in time to come bring precious stones and pearls which are thirty [cubits] by thirty and will cut out from them [openings] ten [cubits] by twenty, and will set them up in the gates of Jerusalem."100

Compare these in turn with al-Ghazālī's description of the just man's arrival in Paradise;

"When he arrives at his house he gazes at its foundations, which are of one pearl-stone, over which stands a palace of red, green, yellow, and every other hue, then he raises his head and looks to its roof, which is as lightning."101

The eschatological associations of jewels could also work on an urban scale, for Narshâki mentions a tradition that;

"On the Judgement Day three cities of Khurasan will be adorned with red rubies and coral, and their radiance shall shine about them."102

The idea of translucent architecture is also very much in evidence in a third/ninth-century text, the Kitāb al-Tawahhum:

"There (in Paradise), each object which the Friend of God discovers permits his sight to pass through it, like something transparent, in the discovery of new beauties ... you, with your eyes, you see the transparence of your palaces, the number of your wives and your domestics, the number of rooms constructed for you."103

Such ideas appear to have been widespread in the ancient Near East, for descriptions of jewelled and vitreous paradisal architecture are found in Zoroastrian104 and Manichean texts.105

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100 I. Epstein (ed.), The Babylonian Talmud, Seder Nezikin, Baba Bathra. Volume I (London, 1935), p. 300. It is also reported that in the Garden of Eden Adam had ten canopies, domed like the heavens, each of a different precious stone, except the last which was of gold; ibid., p. 302.

101 Al-Ghazālī, Rememberance of Death, p. 236.


These shining dwellings sit amid a garden composed of similar precious materials. The pebbles of the Garden are pearls and rubies, its soil saffron, the river of Paradise, al-Kawthar, flows over pearls and rubies, between banks of gold, while the trunk of every tree is of gold. Alternatively, the trees are composed of pearls and rubies. The tree which looms largest in eschatological texts, the Sidrat al-Muntaha, is said to be covered with gold, its upper reaches inhabited by golden butterflies. It is also said to be composed of emeralds studded with precious stones and is usually depicted like this (ill. 132). Even the fauna of Paradise is characterised by light, for the elect will ride winged horses of ruby, while there will be horses and camels of dazzling whiteness.

7.3.2 The palace as Paradise.

As will be clear from the foregoing comments, to enter the domain of Paradise is to penetrate a world of which luxury and artifice are the enduring characteristics. While the natural world echoes the Garden, it is clearly understood that the petrified beauty and synthetic excellence of the jewelled palaces, trees, and gardens of Paradise infinitely surpasses the attractions of their terrestrial equivalents.

The structure of many medieval palaces, among them those of Baghdad, Cairo, Marrakesh, Granada and Istanbul, recalls that of their paradisal equivalents. They consist of loose groupings of palaces and pavilions, usually set amidst landscaped gardens and water courses. The origins of such structures and their rarified setting are to be sought in the palaces of the Late Antique and Sasanian world. The names of many of these palaces and pavilions also recall descriptions of their heavenly equivalents. Among the most significant are the Golden Palace (Qasr al-Dhahab), the Islamic answer to the Domus Aurea, The Pearl (al-Lu'lu'a), The Jewel (al-Jawhar), The House of Glory or 105.

105 Tsui Chi, Mo Ni Chiao Hsia Pu Tsu, BSOAS (XI, 1943-6), pp. 201, 203.

106 EI, Djanna, p. 1015. Bukhārī reports that the two banks of the river were domes made from hollow pearls; Goldsack, Traditions, p. 272.

107 McDonald, Paradise, p. 346


109 McDonald, Paradise, p. 380; Rosen-Ayalon, Early Islamic Monuments, p. 52, n. 15.

110 Al-Tabrīzī, Mishkāt III, pp. 1201-2; EI, Djanna, p. 449.


112 In the Abbasid Palace in Baghdad named after the Golden Gate which was the entrance to it; J. Lassner, The Topography of Baghdad in the Early Middle Ages (Detroit, 1970), p. 95. In the Zārif Palace in Fustat, the Fatimid Palace in Cairo, and the Zengid Palace in Aleppo; Rubiera, Arquitectura, p. 85; M. Canard, Cérémonial Fatimite, p. 359; J. Sauvaget (tr.), Les Perles Choisies d'Ibn ach-China (Beirut, 1933), p. 43. The name continued to be used for Mamluk palaces; Jairazbhoy, Outline, p. 174.
The Glorious (Dar al-‘izz or al-‘Azīza, simplified to the Zīzā),\textsuperscript{113} The Palace of the Star (al-
Kawkab),\textsuperscript{116} and The Palace of the Pleiades (Qasr al-Thurayyū),\textsuperscript{117} We also hear of Silver
Chambers\textsuperscript{118} and Emerald Gates.\textsuperscript{119} These names, suggestive as they are of the superlative opulence of
gold and gems, are part of an attempt to surround the institution of monarchy with a mysterious ambience of luxury and wealth.\textsuperscript{120} In view of the texts just cited, they are also clearly designed to
evoke the jewelled dwellings of Paradise, an idea bolstered no doubt by their rich decoration.\textsuperscript{121} These
paradisal pretensions are also apparent in names such as Qasr al-Firdāsh,\textsuperscript{122} and in many cases
contemporary descriptions clearly identify the palaces, pavilions, or the gardens in which they stand as images of paradise.\textsuperscript{123} As well as their names and decoration, the activities which took place in
such pavilions - drinking, listening to poetry and music - added to their paradisal associations.

\textsuperscript{113} A pavilion of this name built by al-Mutawakkil in 245/859 apparently inspired a Byzantine imitation; A. Grabar, L’Iconoclasme
Byzantin (Paris, 1957), p. 171. The name occurs in the Fatimid Qasr al-Dahab, and Nasir-i Khusraw mentions another structure of
the same name outside the walls of Cairo; Bloom, Meaning, p. 84; C. Schefer, Voyage, p. 134. It also recurs in connection with the
Hanmādīd Palace at Biṣīyya; F. Gabrieli, Il palazzo Hammadit di Biṣīyya descritto da Ibn Hamdis. Festschrift für Ernst Kühl
- aus der Welt der Islamischen kunst (Berlin, 1959), p. 58.

\textsuperscript{114} Outside the walls of Fatimid Cairo, alongside The Pearl; Schefer, Voyage, p. 134. Earlier among the Fatimid palaces of
Ifrīqiyya; Grabar, L’Iconoclasme. P. 171, n.4.

\textsuperscript{115} Sauvaget, Perles, p. 43; Grabar, L’Iconoclasme, p. 171, n.4.

\textsuperscript{116} In the Hammadīd palaces at Biṣīyya and the Qala of the Banū Ḥammād; Gabrieli, Palazzo, p.58; Blanchet, Kalaa, p. 110. In a
contemporary poem cited by Blanchet the Qasr al-Manṭara at the latter site is compared to the stars.

\textsuperscript{117} G. Le Strange, Baghdad during the Abbasid Caliphate (Oxford, 1900), pp. 250-1. For al-Buhārī’s verses in praise of the
building see G.E. von Grunebaum, Aspects of Arabic Urban Literature mostly in the ninth and tenth centuries, Al-
Andalus (XX, 1955), pp. 69-70.

\textsuperscript{118} Ḥaṣārat al-Fudd, among the Fatimid palaces of Ifriqiyya; Bloom, Meaning, p. 41.

\textsuperscript{119} Bāb al-Zabarjerd, along with the Bāb al-Dhabab in the Fatimid Palace in Cairo; Schefer, Voyage, p. 129.

\textsuperscript{120} The symbolic nature of the names was recognised by Canard, Ceremonial, p. 359, n.6.

\textsuperscript{121} The palace of William II, the Norman ruler of Sicily whose court was much informed by Islamic culture, had a garden palace
with walls painted and covered with gold and silver; M.N. Adler, The Itinerary of Benjamin of Tudela (London, 1907), p. 79. On the
rich decoration of the Byzantine Pearl Pavilion see G.A. Paspates (tr. W. Metcalf), The Great Palace of Constantinople (London,

\textsuperscript{122} The palace, erected by al-Mu’tadid (r. 279-90/892-902), was set amid gardens in which were water channels and a lake; Le
Strange, Baghdad, p. 250.

\textsuperscript{123} Frye, Bukhara, p. 27; D.N. Wilber, Persian Gardens and Garden Pavilions (Vermont, 1962), pp. 76, 97; R.A. Jairazbhoy, Early
7.3.3. The jewelled palace.

The descriptions summarised above have such a strong visual appeal that it would be surprising if they had inspired paradisal allusions in nothing more graphic than the names of medieval palaces. Hubristic attempts by earthly potentates to mould the landscape and architecture of their domains in the image of Paradise predate Islam. One of the most famous is the Iram of Shahdad which was built in the image of something very close to the Islamic Paradise. The city was surrounded by a wall of golden bricks encrusted with gems. It contained innumerable palaces, each with a thousand gold columns encrusted with emeralds and rubies. Certain sources report that these columns in turn supported flagstones of gold on which stood golden castles with their upper apartments made from gold and precious stones. The soil of the city was of glass and through it flowed rivers of gold, on the banks of which stood trees with golden leaves and fruit of emeralds, rubies, and pearls. Two points in these accounts are noteworthy. The first is that we are explicitly told in the Qur'an and elsewhere that the gardens and architecture of Iram were conceived of as an imitation of Paradise. Shaddad's Iram became a paradigm for later rulers trying to cast their courts in the image of Paradise, and royal gardens are frequently compared to both. Seen in a wider context the jewelled architecture and gardens of Iram are part of a fascination with fantastical temples, palaces, cities, and gardens in medieval Islamic literature. Such structures are frequently said to be constructed from gem-encrusted gold, with shining jewelled windows, floors of polished marble or glass and gardens in which stand silver trees with gems as fruit. Some of these descriptions appear to derive from impossible exaggerations of the aura of luxury and excess surrounding contemporary

124 Rubiera, La Arquitectura, pp. 57-61.
126 The earth of glass or diamonds is found in other descriptions of Paradise and mythological cities; Tsui Chi, Mo Ni, p. 203; Rubiera, Arquitectura, p. 59-60.
129 In the Alexander Legends the wandering hero encounters palaces constructed from sapphires, rubies, emeralds, with columns of crystal, and luminous temples with windows of gold and jewels; Wallis Budge, The Life of Alexander, pp. 155-7, 199, 272. One might also mention the Palace of Prester John and other mythical palaces constructed from gold and jewels, with windows of crystal and beryl, lit by luminous gems; Wright, Early Travels, p. 265; L. Thordikke, A History of Magic and Experimental Science during the first thirteen centuries of our era, Volume II (London, 1923), pp. 242-3; Schlauch, Palace of Hugon, p. 507; E. Ullendorff & C.F. Beckingham, The Hebrew Letters of Prester John (Oxford, 1982), pp. 106-8. In the Thousand and One Nights one finds magical jewelled architecture on an urban scale; Rubiera, La Arquitectura, pp. 63-8. These are not confined to the Islamic world, for descriptions of similar jewelled cities occur in Sanskrit texts; Kunz, Curious Lore, p. 236. For a general overview of the phenomenon in East and West see M. Idel, Magical Temples and Cities in the Middle Ages and the Renaissance, Jerusalem Studies in Arabic and Islam (III, 1981-2), pp. 185-9.
130 See below, pp. 203-4.
courts. Many others have a long history and an iconographic significance which goes beyond the expression of wealth or luxury. 131

The second point to be made is that the spectacular appearance of Iram, like that of Paradise itself, derives from a petrification of organic matter, a mineralisation or vitrification of the natural world. The ability of Iram to evoke Paradise lay chiefly in the use of precious shining and translucent materials. If one may talk of an "iconography of effect", then the use of gold, glass, and gems in the construction of Iram typifies such a phenomenon. A similar aura of antinatural stylisation and rarification characterised the material and literary ambience of many medieval Islamic courts. 132

An insight into how the jewelled flora, ghuraf, khīyām, and quṣīr of Paradise were conceived of in the Umayyad period may be gained from the mosaics in the Dome of the Rock and the Great Mosque of Damascus (ill. 133). The decoration of the Dome of the Rock has been associated with eschatological texts such as the passage from Isaiah quoted above. 133 Similarly, the jewel-hung vegetation in the Dome of the Rock has been interpreted as a representation of the jewelled flora of Paradise. 134 To this one might add that the golden vine in the Great Mosque of Damascus is an even more deserving candidate, for it was studded with sapphires, pearls, coral, carnelian and gems. 135

In the mosaics of the latter mosque one finds isolated garden pavilions, and tall palaces similar to the khīyām and ghuraf mentioned in the Qur’an (ill. 133). 136 Many of the latter have upper chambers in which the only windows occur. 137 These recall the palaces with upper chambers of rubies and jewelled windows mentioned in the texts cited above. Equally, they appear to be related to the tower houses of South-West Arabia, in which the topmost room is usually the most lavishly decorated and provided with multiple window-openings. It seems likely that the latter preserve an ancient tradition, exemplified by the elevated throne-room of Ghumdan with its alabaster skylights. 138 One may also point to the multi-storeyed dwellings depicted on Axumite stele which reserve the largest or most

131 See below, p. 204, n.161.
132 See, for example, the quote used on page 202.
133 S. Goitein, Jerusalem in the Arab period (638-1099), The Jerusalem Cathedral (II, 1982), p. 177.
134 Rosen-Ayalon, Early Islamic Monuments, pp. 52-3. It may even be that the decoration was inspired by actual jewels and crowns suspended in the interior of the building; N. Rabbat, The Dome of the Rock revisited: some remarks on al-Wāṣafī’s account, Muqarnas (X. 1993), pp. 71-2. On the ambiguous relationship between objects hung with jewels and those decorated with, or composed of, them see E. Baer, Jeweled Ceramics from Medieval Islam: a Note on the Ambiguity of Islamic Ornament, Muqarnas (VI, 1989), pp. 83-97.
135 W.M. Brinner, A Chronicle of Damascus 1389-1397 by Muhammad ibn Muhammad ibn Saura (Los Angeles, 1963), Volume I, p. 161, Volume II, p. 120.
137 Ibid., p. 15.
138 Paris, Antiquities, pp. 17-8. The use of alabaster windows is of great antiquity in the area; above, pp. 5-9.
complex windows for the top room (pl. 146, fig. 1). These have been interpreted as images of the Biblical heavenly mansions, which suggests that the Qur'anic ghuraf, the buildings in the Damascus mosaics, the Axumite stelai, and the Yemeni tower house may all share a common heritage.

The use of shimmering glass tesserae in the Damascus mosque suggests that here too the iconographic content of the images is intimately connected with the qualities of the materials used in their depiction. Noteworthy in this regard is the use of mother of pearl inlay and the depiction of strands of pearls hanging in the open doorways of the buildings. Given the frequency with which references to pearl pavilions crop up in descriptions of paradisal architecture, this is hardly coincidental. The gates of the Heavenly City, composed of single pearls, recall the pearl pavilions mentioned in the hadiths, and certain authorities believe that Paradise itself is vaulted with pearls. As has been shown, similar traditions permeate Judaeo-Christian eschatology, and it may be significant that such strands of pearls frequently appear in depictions of the jewel-encrusted golden walls of Heavenly Jerusalem as it appears in Byzantine mosaics (ill. 134). Since the golden walls of this shining city are said to resemble glass, the medium in which they are depicted lends a further depth to the content of the images.

It is difficult to be certain to what extent the use of reflective, translucent, or luminescent materials in early Islamic architectural decoration add to the paradisal connotations of such decoration over and above its iconographic content. One might mention however that in addition to the use of

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139 Krencker, Denkmäler Nordabessiniens, pp. 24-7, figs. 44, 47-50; D. Buxton & D. Matthews, The Reconstruction of Vanished Axumite Buildings, Rassegna di Studi Etiope (XXV, 1971), pp. 58-9. These upper windows are often filled with elaborate tracery which appears in them alone and is similar to the stone tracery which survives in the rock-cut churches of Ethiopia.


141 The Ka'ba of Najran was said to be a ghuraf; I. Shahid, Byzantium in South Arabia, Dumbarton Oaks Papers (XXXIII, 1979), pp. 71-1. Among the meanings of the term are "seventh heaven", "the highest places of Paradise", or even "Paradise"; Brisch, Iconography, p. 17. It is self-evident that the imagery in the Qur'an derives from a context familiar to those for whom it was intended, and just as the flora of Paradise is a petrified version of its earthly counterpart, so the gleaming ghuraf may be based on actual palaces.


143 Al-Saleh, La vie future, p. 30.

144 One of the earliest extant representations of Heavenly Jerusalem is on the triumphal arch in the Church of S. Maria Maggiore in Rome (432-4), C. Cechelli, I Mosaici della Basilica di S. Maria Maggiore (Turin, 1961), pl. I.XII, figs. 33-4. In the mosaics of San Vitale (before 545) the walls of the city are composed of golden plaques in which pearls, emeralds and sapphires are encrusted. The combination of these stones may almost be taken as shorthand for Heavenly architecture; J. Gage, Gothic Glass: Two aspects of a Dionysian aesthetic, Art History (V, 1, March 1982), p. 45. The situation was slightly different in the Islamic world, where emeralds and rubies were preeminent among all jewels; Sachau, Chronology, p. 208. Chains with hanging pearls hang in the gateway to the city depicted in the Ravenna mosaics.
glass mosaics in the Great Mosque of Samarra, al-Muqqadisī mentions the use of nana on its walls. In view of the frequency with which references to Paradise occur in the decoration of mosques, one wonders whether the vitreous decoration of the mosque was not intended to give it the appearance of Paradise. One may cite a parallel in Byzantine architecture, where the use of glass mosaic and marble enabled the interior of churches to give a foretaste of the shimmering glories of Paradise.

Returning to the sphere of secular architecture, it should be clear that the glass pavilions described above belong in the same stable as the palaces of Iram, or the pearl pavilions of the Damascus mosaics. It seems that, in addition to the factors discussed in the preceding section, descriptions of the translucent palaces and jewelled pavilions of Paradise may have inspired the construction of the belvederes under discussion. Even where glass and jewels were not used, the notion of pearly architecture survived in the names of later mosques, palaces and the panegyrics written about them. The qubba of coloured glass seems as close an echo of the jewelled palaces and translucent pavilions of heaven as might be found on earth.

Many of the themes just discussed recur in a poem composed by Manuchšhiš Damšhānī:

"This auspicious palace which you have built this year
Resembles with its paradisal pavilion, Paradise...
Thus its Iram (garden) is choice and well-designed...
Its wood is all of sandal, and the aloes of Qimar, its stones are all jewels and precious rubies.
Its water all from the River of Kawthar and the Spring of Life,
Its earth all of amber and kneaded camphor" [150]

Written about a palace built by Mahmūd of Ghaznī, it contains just that evocative blend of metaphorical description, paradigmatic reference, and paradisal allusion. Such a melange is by no means exclusive to Ghaznavid panegyric, for it is equally apparent in what we know of the glass

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145 See above, pp. 62-3.


147 Roberts, Jeweled Style, p. 76.

148 A similar idea may be reflected in the "Pearl Mosques" of the Indian Subcontinent, although the immediate source of the name is the brilliant polished marble and stucco with which they are decorated; EL, Al-Durr, p. 628. Ibn 'Asākir mentions a hadith according to which those who built a mosque on earth will be rewarded with a house of pearls and hyacinths in Paradise; N. Elisseeff, Le Description de Damas d'Ibn 'Asākir (Damascus, 1959), p. 83.

149 Ibn Zamrak's poetic verses in the Hall of the Two Sisters in the Alhambra mention that, seen in sunlight, the architecture gives the illusion of being constructed from pearls; J.T. Monroe, Hispano-Arabic Poetry (London, 1974), pp. 354-5. For an Ottoman "Pearl Kiosk" hung with actual pearls see below, p. 239.

palaces and the descriptions written of them. It should be borne in mind that the architecture of these pavilions is inseparable from their context, and that the structures usually stood in landscaped gardens on or near artificial watercourses. As has been pointed out, descriptions of the flora of Paradise are no less graphic and fantastical than those of its architecture. Such descriptions have resonances in early Islamic religious art, and the jewelled gardens of the 'Abbasid, Fatimid, Hammadid, Ghaznavid and Timurid courts may have sprung from a similar source. Given the close resemblance between window-glass and jewels, one wonders whether the dazzling trees and animals in Dhūl-Nūnīd shamsīyayat and Timurid qamarīyayat should be considered in a similar vein. The metaphorical resemblance of flowers and fruit to jewels and semi-precious stones is a recurrent theme of courtly poetry, which draws its images from the milieu familiar to its readers.

The jewelled tree has a long history in literature, and similar objects were apparently part of the repertoire of pre-Islamic courtly art. It has also been suggested that the golden gardens

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152 In addition to the gilded trees and automata of Baghdad one might mention that in the gardens of the New Kiosk (al-Jawsiq al-Mudīth) there were streams and a pond of gleaming lead, surrounded by trees covered with rings of gilded copper; Lasner, Topography, pp. 90, 270; Le Strange, Baghdad, p. 257; Qaddumi, Book of Gifts, p. 143. The latter feature recurred in the Tulunid gardens at Fustat; Rubiera, La Arquitectura, pp. 84-5.

153 The Fatimid Treasury appears to have been particularly rich in such exotica, for it contained a jewelled palm tree, a miniature garden with silver trees from which hung precious stones as fruit, and different sorts of jewelled animals; Prisse d'Avennes, Arab Art; pp. 197-8; Qaddumi, Book of Gifts, pp. 33, 168, 263.

154 In the "Paradise Gardens" of the fifth/eleventh-century Hammadid Place at Bijāyya there was a pond surrounded by artificial trees of gold and silver from which water shot forth; Gabrieli, Palazzo Madama, pp. 56-8; Rubiera, La Arquitectura, p. 94. In the same texts golden birds are described which shot water like silver from their beaks.

155 SPA, p. 1442.

156 De Clavijo describes a gilded tree at the Timurid court hung with emeralds, turquoise, sapphires, and pearls shaped like fruits. Like its 'Abbasid predecessor the tree was provided with golden birds which sat upon its branches, pecking at its fruit; P. Gonzales de Clavijo, Embassy to the Court of Timur (London, 1859), p. 161; Lasner, Topography, p. 269; SPA, p. 1444. William of Rubruck found a similar tree, worked by a Persian goldsmith, in the court of the Mongol Khan; Lethaby, Architecture, pp. 101-2. The paradisal allusions of this object are clear, for at its foot were four lions, out of the mouth of which issued rivers of milk, wine, honey, and an unspecified drink.

157 See p. 100 above.

158 See above, p. 160.

159 H. Pérès, La Poésie Ardalouise en Arabe Classique au XIème siècle (Paris, 1953), p. 323; Rubiera, Arquitectura, pp. 82-3; Crane, Risāla, p. 70. For an excellent discussion of the relationship between metaphorical references to precious stuffs and court ritual at the 'Abbasid court see Qaddumi, Book of Gifts, pp. 268-9. See also Baer, Jeweled Ceramics; Roberts, Jeweled Style.

160 Such a tree is described in the Akkadian epic of Gilgamesh and from such ancient sources the motif was incorporated into the Thousand and One Nights, its carnelian and lapis fruit being replaced by the rubies and emeralds more precious to the medieval
possessed by medieval potentates formed part of a Solomonic repertoire,\textsuperscript{162} functioning as iconographic tools in the service of those trying to recreate a Solomonic ambience.\textsuperscript{161} Such a suggestion is equally relevant to the present discussion, for the Solomonic aspects of such exotica are frequently inseparable from its paradisal connotations, and this is also true of the glass pavement itself.

7.4 The Crystal Palace of Solomon.

7.4.1 The Qur'anic account and its transformation.

Among the most memorable architectural visions conjured up in the Qur'an (XXVII:44) is the palace of Solomon visited by Bilqīs:

"She was asked to enter the lofty palace but, when she saw it, she thought it was a lake of water, and she (tucked up her skirts and) uncovered her legs. He said 'this is but a palace paved smooth with glass (qārḫ māmarād min qiwārūrī')."

Upon this revelation Bilqīs sees how easily deceived she has been in the past, abjures her former paganism, and promptly has her hairy legs shaved. No details of the palace are given apart from its central feature, a pavement which plays on the ability of translucent, presumably greenish, glass to suggest water. Given the paucity of description, and the visual appeal of the image, it is hardly surprising that in subsequent accounts of the palace its illusionistic glass architecture became its most characteristic feature.

At least as remarkable as the description of the shimmering pavement is the speed with which the part was transformed into the whole in the subsequent literary tradition, the pavement becoming an entire palace of glass. This transformation had occurred by the time of Ṭabarī, and probably earlier.\textsuperscript{163} Thus while the latter's account contains the 'classical' aspect of a glass pavement,\textsuperscript{164} Ṭabarī also

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\textsuperscript{161} The notion of a jewelled garden recalls the "Spring of Khusraw", the carpet on which a garden with palaces and rivers was depicted in golden thread and gems; Qaddūm, \textit{Book of Gifts}, pp. 168-9. From Firdūsī we learn that the same ruler welcomed Rustam seated in a garden beneath a tree of gold, silver, and jewels; Baldwin Smith, \textit{Architectural Symbolism}, p. 114, n.19; SPA, p. 1443. One of the 'Abbasid governors of Khurasan obtained a palm encrusted with jewels which was said to have belonged to the Sassanian Shah; N. Jamil, \textit{Selections from Kitāb al-Dhakā'ir wa al-Tuḥaf}, unpublished M.A. thesis (Edinburgh, 1986), p. 37.


describes Solomon as the possessor of a thousand houses of crystal.¹⁶⁵ Even the central feature of the palace has been much embellished, for Tabarî, in what appears to be the oldest surviving non-Qur'anic version of the story,¹⁶⁶ describes how the jinn of Solomon built a palace of green glass, paved with glass. Under this pavement they inserted various fishes and sea-creatures so that when Bilqis enters the palace "she observes the likenesses of fishes and other aquatic creatures in the glass".¹⁶⁷ This image of the glass pavement with an aquarium beneath is represented graphically in at least one later Iranian miniature painting (pl. 147)¹⁶⁸ in which the fishes beneath the glass recall nothing so much as the fishes trapped in the exergues of many Iranian lustre bowls.¹⁶⁹

By the time of al-Tha'alibî the idea of a glass palace is so firmly established that while entire palaces, pavilions and domes of glass feature in his account, no mention is made of the Qur'anic pavement:

"Solomon sees rising from the bottom of the sea a pavilion, tent, tabernacle, or tower, vaulted like a dome, which is made of crystal and is beaten by the waves ... The aerial city is erected by the genii at the order of Solomon, who bids them build him a city or palace of crystal a hundred thousand fathoms in extent and a thousand stories high, of solid foundation but with a dome airy and lighter than water; the whole to be transparent so that the light of the sun and moon may penetrate its walls..."¹⁷⁰

A story, related by al-Nuwâyrî (d. 733/1332), tells how the jinn built a vast city for Solomon, with a judicial palace built of crystal at its centre.¹⁷¹ In the same city the vast palace built for Solomon was adorned with crystal and precious stones. Even as the Qur'anic description of the palace was

¹⁶⁵ Bargebuhr, Alhambra, p. 139.
¹⁶⁶ This appears to be based on the account of Ibn Ishaq; H. St. John Philby, The Queen of Sheba (London, 1981), p. 64.
¹⁶⁷ Ibid., p. 74.
¹⁶⁸ T.W. Arnold, Painting in Islam (New York, 1965), p. 108, pl. XXXIII. As the author points out, it seems that the painter has misunderstood the central detail of the story, representing the feet of the queen as covered by water. However, it is possible that the artist is following yet another version of the story. In the version of Tabarî, and in a Jewish rendering of the legend, Solomon pours water upon the surface of the crystal pavement; Bargebuhr, Alhambra, p. 139. An analogous depiction of the scene in the stained glass windows of King's College Cambridge appears to draw on an Islamic source, for between the Queen and Solomon a tank of rippling water is visible, a detail omitted from Christian versions of the story; Anon., The Times (28 June 1954), p. 10 and accompanying illustration.
¹⁶⁹ In certain popular Persian texts the dominion of Solomon is said to extend from the moon to the fish, a pun on the words az mah ta naqif, A. Bausani, Drammi Popolari Inediti Persiani Sulla Legenda di Salamone e della Regina di Saba, Atti del Convegno Internazionale di Studi Etiopici, Accademia Lincei (Rome, 1960), pp. 167-209, p. 183.
¹⁷¹ Rubiera Mata, La Arquitectura, p. 48.
embellished in later descriptions, so too did Solomon become associated with a whole range of pre-Islamic and mythological palaces constructed from glass and jewels. Al-Hamdānī mentions a tradition attributing the construction of the Yemeni palace of Ghumdān to Solomon,\(^{172}\) while a pre-Islamic source relates how Ghumdān was built by Bilqīs.\(^{173}\) The main feature of the palace was its ceiling of alabaster, so translucent that its owner could distinguish different types of birds flying overhead. A Solomonic story related in an Ethiopic text of the Alexander legend appears to represent a later conflation of reports concerning the glass palace of Solomon and legends surrounding Ghumdān. In a story describing the countless wonders associated with Solomon his palace is described as follows:

"And he built himself a glass house wherein were ten thousand complete rooms, and he built up the walls thereof so that he could see that which was behind it; and he could hear the worm crawling upon the tiles of the chamber floor, and he could see the bird which was in the air out of sight."\(^{174}\)

As early as the fourth/tenth century Solomonic and Alexander legends were often conflated and confused. Both peripatetic rulers encounter magical palaces of crystal, often set on the sea, lit with inextinguishable lamps\(^{175}\) and with shining jewelled windows\(^{176}\) which recall those mentioned in the eschatological texts cited above. The Shāhnāma describes how Alexander comes upon a lapis mountain on the summit of which is a palace built of topaz and crystal.\(^{177}\) A ruby within the palace served as a lamp, lighting the palace like a sun. Similar stories, some of great antiquity, were later incorporated into story cycles such as Alf Layla wa Layla which sparkles gem-like with marble floors resembling water, seas of light, crystal chambers, and jewelled pavilions.\(^{178}\) The inclusion of such motifs in this body of secular tales illustrates the universal appeal of magical architecture and the pervasive power of Solomonic motifs on medieval Islamic literary traditions.

\(^{172}\) Faris, Antiquities, p. 21.

\(^{173}\) Watt, Sheba, p. 101; Philby, Sheba, p. 64; Ghumdan EI, p. 1096.

\(^{174}\) Wallis Budge, Life and Exploits of Alexander, p. 330.

\(^{175}\) Carr de Vaux, L'Abrégé, pp. 31, 33, 46-7. A Jewish legend gives an account of a similarly peripatetic Solomon to a mysterious abandoned building, the rooms of which were composed of pearls and precious stones; Ginzberg, Legenda IV, p. 164.

\(^{176}\) E. García Gómez, Un Texto Arabe Occidental de la Leyenda de Alejandro (Madrid, 1929), p. cxxix.


\(^{178}\) Lethaby, Architecture, p. 206; Gerhardt, Art of Story-telling, pp. 150-1, 205. Given the likelihood of Indian influence on the same work, attention should be drawn to the existence of a Hindu myth which mentions a jewelled platform set in a crystal tank lined with precious stones which give it the appearance of being filled with water; Kunz, Precious Stones, p. 237. The motif is likely to be of some antiquity, for in the Mahabharata there is a description of a tank of black crystal which resembles clear water; Lethaby, Architecture, p. 208.
A further variant on the Alexander Legend is also relevant to the theme of translucent Solomonic architecture. A story related by al-Mas'ūdī tells how a diving bell of glass was constructed for Alexander in which he and two companions sank to the bottom of the sea, where they studied fishes and demons.\(^{179}\) In the Ethiopic version of the story Alexander descends into the sea in

"...a cage of glass which was covered with asses skins, and which had an opening that was closed with chains and rings."\(^{180}\)

Similar tales of glass submarines surface in Medieval European versions of the Alexander Legend.\(^{181}\) The graphic nature of descriptions of the glass diving bell, like those of the glass palace, inspired depictions of the mysterious structure (pl. 148).\(^{182}\)

There are strong Solomonic resonances to the story of the glass diving bell, not least in the idea of a submerged glass chamber which, as we have seen, features in a Solomonic tale told by al-Tha'alībī. Apparently, in later versions, the glass diving vessel came to be associated with Solomon, who took the place of Alexander.\(^{183}\) It is possible that this association derives from the similarities between the Solomonic motif of the submerged glass palace and the diving bell of Alexander.\(^{184}\)

The leitmotif of the submerged pavilion crops up elsewhere. For example, it is recorded by Plutarch, and repeated by al-Birūnī, that Nero had a cupola built of rock crystal (qubbat billāwr) which came to an unfortunate end when it was loaded on to a boat which subsequently sank.\(^{185}\) The medieval Islamic glass pavilions with water running down their exterior are clearly connected with the traditions surrounding submerged palaces of glass. Dimashqī even mentions a submerged palace of glass in Mardin; whether the myth inspired the practice or vice versa remains an open question.

\(^{179}\) Mas'ūdī, PRAIRIES II, pp. 426-7. Pseudo-Callisthenes relates a similar tale which may be the source of al-Mas'ūdī's account. Magical subaquaeous palaces of glass and gems are also found in Sanskrit literature; W.A. Clouston, Popular Tales and Fictions, Their Migrations and Transformation, Volume I (Edinburgh, 1887), p. 197.

\(^{180}\) Budge, Alexander, p. 282.


\(^{182}\) G. Cary, The Medieval Alexander (Cambridge, 1956), pl. VII.

\(^{183}\) St. John Seymour, Tales of King Solomon (London, 1924), p. 53.

\(^{184}\) For the suggestion of a connection between the glass pavement of Solomon and certain elements of the Alexander cycle see I. Lichtenstätter, Origin and interpretation of some Qur'anic symbols, Studi Orientalistici in Onore di Giorgio Levi della Vida, Volume II (Rome, 1956), p. 67.

\(^{185}\) Kahle, Bergkristall, pp. 337-8; G. Levi della Vida, Alessandro II Macedone, Ketys L'Odrystio e al-Biruni, Arabico and Islamic Studies in Honor of Hamilton A.R. Gibb (Leiden, 1965), pp. 409-15, p. 409. Ibn al-Zubayr mentions that among the many objects rifled from the Fatimid Treasury was an onyx dome (qubba) from Yemen which had belonged to the Umayyad Caliph Hishāma. The size of the dome is not indicated. It is unlikely to have been very large, but may have formed part of a freestanding structure; Jamil, Kitāb al-thahalīf, pp. 39-40, n. 110. The submerged crystal dome or glass pavilion is a recurrent leitmotif of Solomonic lore.
7.4.2. The glass palace in the medieval West.

Glass chambers and translucent pavements were by no means peculiar to the Islamic tradition. Similar features are also found in the literature of the Late Antique and Medieval Christian world. Pliny describes a Temple which was incorporated into the Domus Aurea by Nero. It was constructed from a luminary stone and

"thanks to this stone, in the night it was as light as day in the temple, even when the doors were shut; but the effect was not that of windows of lapis specularis, since the light was, so to speak, trapped within rather than allowed to penetrate from without." 186

The glass temples and palaces which figure in the literature of the medieval West continue to possess as magical an aura as their Islamic counterparts. The popularity of later accounts of translucent and luminescent architecture is undoubtedly related to the mysterious nature of glass, and its status as a luxury item in the medieval world, East and West. Vopiscus tells how a wealthy Syrian built a house from blocks of glass joined by bitumen. 187 In addition to the jewelled and luminous palaces built by Prester John, a letter addressed to the Byzantine Emperor Manuel (1143-80), purporting to come from the pen of the legendary ruler, mentions a

"marvellous chapel of glass, always just big enough for as many persons as entered it." 188

A similar motif occurs in the Life of Saint Macarius, where a church which appears to be constructed from crystal is described. 189 Among the marvels mentioned in the sixth/twelfth-century Mirabilia Urbis Romae is a Temple called Holovitreum made of glass and gold and containing depictions of astronomical scenes on its walls. 190 More germanely, the letter of Prester John describes a temple set upon a pavement composed of crystal slabs beneath which various marine creatures

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186 Nat. Hist., XXXVI:163. A similar tale is told by Mas’udi, who claims that Alexandria is illuminated without the use of torches, so great is the brilliance of the marble from which it is constructed; Mas’udi, Prairies II, p. 429.

187 Trowbridge, Ancient Glass, p. 140; nam vitris quadraturis bitumin alissque medicamentis insertis domum instruxisse perhibetur.

188 Thorndike, Experimental Science, p. 244. This, however, appears to be a later addition to the letter.

189 Trowbridge, Ancient Glass, p. 141; vidimus ante nos ecclesiam, mirabili ornatis decoratam quae tota quasi crystallina videbatur.

190 Lethaby, Architecture, p. 223. Similar motifs are found in the medieval literature of Asia. A Chinese source relates how the Emperor Wu built a series of religious edifices with doors of rock crystal or glass which flooded the interior of the buildings with light; Kunz, Lore, pp. 100-1.
swim. The strong visual appeal and magical nature of the image may explain why a similar crystal pavement appears in the earliest renderings of the Grail Legend:

"The floor is a crystal sea. As though through a thin layer of ice one sees the waves passing and in them fish and marine wonders darting to and fro." 

The specific detail of fish appearing beneath the glass floor suggests an Islamic source for this motif. Among the more intriguing references to the glass palace in later medieval European literature is a tale told by Mendax, the lying traveller, in William Bullein's Dialogue against the Fever Pestilence (1564); he describes the crystal tomb of Solomon, seen in Ethiopia and as large as Westminster Abbey. On partaking of a certain herb one can, for four hours of the night, see through the crystal of the tomb and observe the spectacle of the Prophet-King and four hundred ladies dancing. The inclusion of this tale in a book full of wonders indicates the light in which such crystal structures appeared to contemporaries.

7.4.3 The eschatological dimension.

Similar stories regarding the glass palace of Solomon permeated Jewish tradition. It is conceivable that the transformation of the Qur'anic glass floor into the full-blown glass palace of later Islamic tradition took place under the influence of Jewish accounts of the queen's visit. In Talmudic accounts Solomon receives the Queen of Sheba enthroned in a house of glass, or a chamber paved and lined with glass (bayt zugaytah), so that Bilqis mistakenly believes the king to be sitting in water.

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194 Other descriptions of glass palaces, jewelled pavements, and illusionistic floors in medieval European literature will be found in the following sources: J. Schick (ed.), Lydgate's Temple of Glas (London, 1891), p. 70; Lethaby, Architecture, pp. 204-5, 208, 220; W.A. McClung, The Architecture of Paradise, Survivals of Eden and Jerusalem (London, 1983), pp. 106-7. Many of these were undoubtedly inspired by Biblical descriptions of Heavenly Jerusalem.
Even without the conflation of the pavement and the palace it should be noted that a glass pavement resembling water, as mentioned in the Qur'an, is quite different from a transparent pavement of glass covering a body of water, as described by Ṭabarī, although the two are clearly related. According to the version of the story found in the Chaldaean Targum on the Book of Esther, Solomon received the Queen of Sheba in a palace of glass set on a body of water covered by glass. It is conceivable therefore that Muslim writers who embellished the Qur'anic account were drawing on Jewish sources. However, the final compilation of the Targum was completed only at the beginning of the seventh/thirteenth century, so the possibility that it was influenced by Muslim traditions remains open.

There is in any case an inherent ambiguity in the use of the term ʿārāh in the Qur'an and elsewhere to denote a pavement, since in Classical Arabic the term can also refer to a house or chamber. One might thus see in the Qur'anic account of the palace a linguistic predisposition towards synecdochism in which the part stands for the whole or, more strictly here, vice versa. The Qur'anic tale also has eschatological overtones, for in the passages from the Book of Revelation cited above, the New Jerusalem is described in terms not dissimilar to medieval accounts of Solomon's palace. The city has walls of glittering gold resembling glass and foundations of twelve types of precious stone. That certain Jewish texts describe the walls of the lowest Paradise as being composed of glass has already been mentioned. Illusionistic vitreous pavements also feature in Judeo-Christian eschatological traditions. In the Biblical account the streets of New Jerusalem are composed of pure gold resembling transparent glass, while the Throne of the Lamb is set on a sea of glass. A similar idea surfaces in rabbinic tradition, where those entering heaven are warned "not to confuse the alabaster pavement before the Throne of God with water." The illusionistic effect of this

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201 Revelation 21:11.


203 J.J. O'Shaughnessy, God's Throne and the Biblical Symbolism of the Qur'an, Numen (XX, 1973), pp. 202-21, p. 212. Among the stones used in the pavement of Ahasuerus mentioned in the Book of Esther (1:6) is the (durr). This term is used elsewhere for pearl, and it is not impossible that the floor mosaic was composed of mother of pearl and marble. However, most scholars agree that in this context the term probably refers to a particularly brilliant form of alabaster; M. Clément-Mullet, Essai sur la Minéralogie Arabe, Journal Asiatique (6th series, XI, 1863), pp. 20-1.
pavement is reminiscent of the Qur'anic story, and it is clear that polished marble or alabaster could produce the appearance of glass or water\textsuperscript{204}, a theme explored further below.

There is in any case a strong degree of illusionism implicit in the very idea of a "sea of glass", which plays on the ability of one substance to resemble another.\textsuperscript{205} The sea of glass at the summit of the heavens recalls the widespread belief that the nature of the heavens was crystalline.\textsuperscript{206} Cosmological motifs were often incorporated into the decoration of palace pavements.\textsuperscript{207} The eschatological pavement of glass resembling water thus involves a conceit which works on many levels.

The glass palace attributed to Solomon in Islamic tradition recalls not only the pavement of Heavenly Jerusalem, but also the crystal house of God as described in the Book of Enoch:

"And I went in until I drew nigh to a wall which is built of crystals and surrounded by tongues of fire: and it began to affright me. And I went into the tongues of fire and drew nigh to a large house which was built of crystals: and the walls of the house were like a tessellated floor (made) of crystals, and its ground work was of crystal ... And I looked and saw therein a lofty throne: its appearance was as crystal."\textsuperscript{208}

In other Jewish eschatological traditions there is a further play on the illusionistic similarities between translucent substances such as marble and glass, which is not without relevance to the palace of Solomon. On a mystical journey through the seven palaces of the seventh heaven we read of the following experience:

"Ben Azar beheld the sixth palace and saw the ethereal splendor of the marble plates with which the palace was tessellated and his body could not bear it. He opened his mouth and asked" [the angels]: "What kind of waters are these?"\textsuperscript{209}

\textsuperscript{204} A reminder of this phenomenon is provided by an early tenth/sixteenth-century description given by an Italian visitor of the marble columns in the Masjidi-'Ali Shah in Tabriz as being "so fine and transparent that they resemble fine crystal"; S.P. & H.C. Seherr-Thoss, Design and Colour in Islamic Architecture (Washington, 1968), p. 189.

\textsuperscript{205} There is in any case a certain linguistic overlap between sea and glass, for in the Classical and Late Antique world the term \textit{vitreus} was used to designate either a sea-green colour, or any crystalline substance; Trowbridge, Ancient Glass, pp. 70-3. In Revelation (22:1) the Waters of Life are, in their purity, compared to crystal. As noted above (p. 24), the presence of residual impurities meant that most medieval colourless glass had a faint greenish hue.

\textsuperscript{206} "Hast thou with Him spread out the sky, which is strong, and as a molten looking glass?" (Job 37:18). See above, pp. ??, In a medieval Jewish account of the cosmic throne of Solomon the footrest of the throne is formed from a brick of sapphire brought by one of the jinn from the vault of the sky; Ville-Pélagéon, \textit{Salomon en Basileus}, p. 27. For the connection of the glass sea with the water over the firmament see H.L. Struck & P. Billerbeck, \textit{Kommentar zum Neuen Testament}, Volume III (Munich, 1954), pp. 798-9.


\textsuperscript{208} Trowbridge, Ancient Glass, p. 141.

Another version of the same story describes the walls of the palace as follows:

"... it seemed as though hundreds of thousands of waves of waters were streaming against him, and yet there was not a drop of water, only the ethereal glitter of the marble plates with which the (Sixth) Palace was tessellated."210

Marble panels with rippling veins line the walls of the Dome of the Rock. The use of such decoration probably reflects Byzantine influence, for similar marble plaques appear in the Church of San Vitale in Ravenna, and elsewhere.211 It has recently been suggested that the plaques in the Umayyad monument were designed to evoke the idea of rippling water found in these or similar eschatological texts.212 Further evidence may be cited in support of such a view which, significantly, also ties in with the Solomonic motifs being discussed here. In the Talmud the walls of the Temple built by Herod are described as being composed of white and blue marble and alabaster set in alternating protruding and indented rows. Herod is dissuaded from coating the walls with gold by the Elders who tell him:

"Let it be, it is more beautiful so, for it looks like the waves of the sea."213

There is a Solomonic parallel here, for, according to certain Jewish commentators, the court of the Temple in Jerusalem surrounded the Temple, "just as the sea surrounds the world."214

Marble plaques with rippling veins, similar to those used to clad the lower walls of the Dome of the Rock, are also found on the walls of the riwaq in the Great Mosque of Damascus (pl. 150). Although the Solomonic resonances are less immediately apparent,215 it may be that an apparently innocuous element in the decoration of the mosque may in fact act as a bearer of meaning. Ibn Sasra

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210 Ibid., p. 50.
211 These are visible in Deichmann, Ravenna, Volume III, pls. 291-303.
212 Rosen-Ayalon, Early Islamic Monuments, p. 55. Slabs of green marble similarly veined to produce "sea-wave like effects" were used on the floor of Hagia Sophia; Lothaby, Architecture, p. 211; below, pp. 219-20.
214 Ibid., pp. 107, 112. The notion of the Temple amidst the sea recalls similar legends surrounding the Ka'ba, and the watery setting of the glass palaces; below, pp. 228-30.
215 Several authors state that among the marble plaques of the mosque only two are of veined or coloured marble, and these come from the throne of Saba, or that of Bilqis herself; H. Sauvage, Description de Damas, Journal Asiatique (NS VII, 1896), p. 198; Ellisseeff, Description, pp. 51-2. A similar story is told by Yaqiq; Le Strange, Palestine, p. 264. While the Qur'anic account (XXVII:41-2) tells how Solomon disguises the throne of Bilqis, later traditions report that the Prophet-King had her throne brought to Syria from Saba; Johns, Sheba, p. 65. It may be that the identification of the marble plaques was prompted by these literary accounts.
informs us that similar plaques were formerly found in the interior of the mosque, and that their aqueous appearance was recognised in the late eighth/fourteenth century:

"The walls were covered up to the edge of the mosaic with the same marble that is above the mihrab today, and there is nothing like it at this time. It is called 'foam of the sea' (ghaff al-bahr) by architects, and when a man examines it, he sees that it is one of the wonders and marvels of the world." 216

In discussing the ability of marble to resemble water it is important to note the existence, in both the medieval Christian and Islamic worlds, of a belief in the aqueous nature of translucent stones such as marble and gems. 217 According to al-Dimashqī, rock crystal, which resembles calm pure water, is formed by the petrification of condensation. 218 The crystal is destroyed by fire and reverts to its aqueous essence, dissolving like glass. A later author, cited by Ibn 'Asākir (d. 571/1176), describes the marble cladding in the Damascus Mosque as follows:

"It is claimed that marble is a substance which has been petrified; it is alleged that the proof is in the fact that marble dissolves in fire." 219

One may surmise that illusionistic decoration in which translucent materials were chosen for their ability to emulate water was not confined to Qur'ānic metaphor, but played a role in certain major religious, and possibly secular, monuments of the Umayyad period. The Solomonic resonances in the Dome of the Rock may extend to the mosaic decoration with its shining trees hung with jewelry. Apart from the paradisal connotations of such decoration, 220 it has been suggested that the


217 This is related to the idea, cited by Qazwīnī and others, that the heavens were created from the vapours resolving from the dissolution of a jewel; A.J. Wensinck, The Ocean in the Literature of the western Semites, Verhandelingen der Koninklijke Academie van Westenschappen (XIX, 2, 1918), p. 8. A similar account given by al-Suyūṭī recalls a passage in the Book of Enoch: "And thus I made firm the waters, that is, the depths, and I surrounded the waters with light, and I created seven circles and I fashioned them like crystal, moist and dry, that is to say, like glass and ice..."; A.M. Heinein, Islamic Cosmology (Beirut, 1982), pp. 140, 203.

218 Mehren, Cosmographie, p. 81. Mas'ūdī also refers to the aqueous nature of emeralds; Mas'ūdī, Prairies III, p. 44. Similarly, a Syriac text of the Mamlūk period describes how translucent stones such as beryl and hyacinth are aqueous in nature, produced from the petrification of condensation under the influence of cold or dryness; J. Bakos, Le Cunéiforme des Sanctuaires de Grégoire d'Antioche (Paris, 1916), p. 31. Qazwīnī states that rock crystal is a type of glass, but more solid than actual glass, while Tifashi reports that rock crystal melts like glass; Clement-Mullet, Minéralogie, p. 232. Analogous beliefs were common in medieval Europe; R.M. Garrett, Precious Stones in Old English Literature (Leipzig, 1909), p. 15.

219 Quaternère Histoire II i, p. 276; Sauvarein, Description de Damas, p. 199. In the account of Ibn 'Asākir it is suggested that the marble will collapse if exposed to fire because each panel is attached to the next, presumably by lead crampons; Elisséeff, Description, p. 24.

220 Rosen-Ayalon, Early Islamic Monuments, pp. 49-69. It has been suggested that the mosaics in the building were inspired by eschatological descriptions of golden architecture and jewelled windows; Glueck, Jerusalem, p. 177.
mosaics were intended to echo the glories of the Temple previously on the site of the building. In medieval Islamic descriptions of the Solomonic Temple it is frequently said to have been richly decorated with jewels such as rubies, crystal, emeralds, amber, pearls, and turquoise. As a consequence it shone with a brilliant light. The theme was established as early as the third/ninth century, when Dinawī wrote:

"It shone in the darkness of a moonless night like a brilliant lamp because of the quantities of jewels and gold used in its construction."223

The connection of the site of the Temple with light appears to have continued subsequently. Ibn 'Abd Rabbīh reports that a glowing ruby was formerly suspended over the sakhras.224 The light which it gave was sufficient to let spinners spin by night for many miles around.225 According to a tradition, cited by Ibn al-Faqīh, on the Day of Judgement Jerusalem will be surrounded by seven walls of precious metals, stones and light.226 The point to be noted is that fabulous descriptions of Solomonic architecture appear to have inspired the jewelled and vitreous decoration of later buildings. Such a conclusion is not without relevance to the glass palaces under discussion. One may compare the phenomenon with later attempts to create churches in the image of Heavenly Jerusalem by the use of precious stones, gilding, and stained glass.227 The graphic descriptions of the Heavenly City and their physical embodiment in the Gothic cathedral were combined in accounts of the mystical Temple of the Grail. The Solomonic

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222 The various sources are summarised in Soucek, Temple, pp. 85-6.

223 Ibid., p. 85. Several other traditions stress the luminous qualities of the Temple. In Jewish tradition it was on the site of the Temple that the primordial ray of light which illumined the world came into being. After the construction of the Temple this light continued to emanate from the Holy of Holies, shining forth through its windows which, widening towards the exterior, were specifically designed to let light radiate outwards; Patai, Man and Temple, pp. 84-5. Rumi relates that "light [shone] forth from the pieces of mortar" with which the Temple was constructed: R.A. Nicholson, The Mathnawī of Jalal al-Dīn Rūmī (Cambridge, 1930), p. 298.

224 Le Strange, Palestine, p. 162.

225 In the Ottoman period the same story was told of a golden dome erected by Solomon over the sakhras; Crane, Risāla, p. 53.


dimension may have been established earlier, for there are strong indications that Hagia Sophia, the jewel in the crown of Justinian's sixth-century building programme, was intended as a Temptlum Salomonis.\textsuperscript{228} Coloured glass and semi-precious stones were used as inlay in Byzantine churches, including the Church of Saint Polyeuktos (pl. 149),\textsuperscript{229} another imperial foundation in Constantinopole which was intended to echo the splendours of Solomon's Temple.\textsuperscript{230} Almost nine hundred years later Solomonic tradition was still sufficiently potent for Sulayman the Magnificent to make reference to the jewelled temple built by his Qur'anic namesake in the decoration of the Suleymaniye.\textsuperscript{231}

7.4.4 The floor of glass.

It is to be wondered how far eschatological and mythological traditions surrounding the illusionistic pavement of glass were related to the illusionistic qualities of actual pavements or the materials used in the decoration of certain buildings. One thinks, for example, of the generic marine scenes depicted on Late Antique floor mosaics. There is a certain illusionism in the depiction of such scenes on the floor, and in the use of translucent pieces of blue-green glass to depict the sea.\textsuperscript{232} Thus the very materials used were capable of evoking, or even imitating, the characteristic nature of the water depicted in mosaic.

The taste for illusionistic floor mosaics continued into the Middle Ages. A palace in Beirut described by Vibrand of Oldenburg in the early sixth/thirteenth century possessed not only a cosmological ceiling, but a floor carpeted with mosaic representing a body of water rippled by a faint breeze. Such is the veracity of the illusion that, walking across the floor, ".. one is astonished .. not to see one's footprints".\textsuperscript{233} At the centre of the room is a large fountain decorated with images of different animals in mosaic. This latter detail recalls the practice, also common in Late Antiquity, of

\textsuperscript{228} The triumphal claim of Justinian, "Solomon, I have outdone you!", may be apocryphal, but for a comprehensive survey of the Solomonic associations of Hagia Sophia and its decoration see G. Scheja, Hagia Sophia und Temptlum Salomonis, \textit{Istibuler Mitteilungen} (XII, 1962), pp. 44-58.


\textsuperscript{231} Necipoğlu-Kafadar, Suleymaniye, pp. 100-3. For a later explicit comparison between the Temple of Solomon and another Ottoman mosque see Crane, \textit{Risâle}, p. 67. The Ottoman rulers, many of whom bore the name of the Qur'anic ruler, were frequently compared to Solomon.

\textsuperscript{232} See, for example, a pavement of the late third or early fourth century found at Melos, in which a fisherman is set amidst a sea composed of such translucent tesserae; R.C. Bosanquet, Excavations of the British School at Melos, \textit{Journal of Hellenic Studies} (XVIII, 1898), pp. 67-8, fig. 4 and colour plate.

\textsuperscript{233} Rey, \textit{Les Colonies}, p. 7.
lining fountains and pools filled with living fish with two-dimensional mosaic images of fish.234 The illusionistic conceit inherent in the aniconic decoration of the palace floor recalls the pavement of Solomon's palace and its deceptive resemblance to an expanse of water. Moreover, it is reported that the veins of the marble panels lining the walls and ceiling of the room produced the illusion of sea waves.235 Significantly, Syrians, Saracens, and Greeks are mentioned in connection with the work.

Even marble floors may themselves resemble water, either by bearing marks similar to those on the surface of an expanse of water, or by being highly polished and reflective.236 One of these is an imaginary palace built by a mythical ruler on the banks of the Euphrates:

"He adorned all the ceilings with mosaic, he decorated the pavement with precious gleaming marbles and tesserae of stone. Inside he made ... cruciform halls, strange penticubula containing shining marbles reflecting shafts of light ... He paved the floor with onyx so smoothly polished that those who saw it mistook it for water congealed to ice."237

It has been suggested that the fifth/eleventh-century writer who penned such exotica had in mind the palaces of Constantinopole.238 Many of the features described can be paralleled in contemporary descriptions of Byzantine palaces. The palace of Constantine at Cyzicus, for example, was paved with golden tiles239 which would presumably have gleamed, giving the illusion of transparency.240 The Boucoleion Palace in Constantinopole is said to have had a chapel paved with marble so pure and clear that one would have taken it for crystal.241 A similar idea survives at a later date in the Muslim world, for an inscription in the Mahal-i Khas in Fatehpur Sikri (977-1010/1569-1601) compares the floor surface to a looking-glass.242

234 Bibliography in L. Drewer, Fisherman and Fishpond: from the Sea of Sin to the Living Waters, Art Bulletin (LXIII, 1981), p. 533. It is noteworthy that the shadhurwans of the sabils in Mamluk Cairo were often decorated with representations of fish and drinking animals; S. Lamei Mostafa, The Cairene Sabil: form and meaning, Muqarnas (VI, 1989), p. 37.

235 Baer, Avubuid Metalwork, p. 4, n.23.

236 Lethaby, Architecture, pp. 211, 214.

237 Mango, Art, pp. 215-6. For the idea that marble and other translucent stones were aqueous in nature see above, pp. ????


240 Heavenly Jerusalem is said to be constructed from shimmering gold, "like unto clear glass"; Revelation 21:18, 21:21.


Similar ideas are apparent in a marble pavement in Hagia Sophia, composed of marble slabs separated by transverse strips of *verde antique* cut in such a way as to produce wave-like effects.243 A sixth/twelfth-century source describes the pavement as follows:

"The floor is like the sea, both in its width and in its form; for certain blue waves are raised up against the stone, just as though you had cast a pebble into the water and had disturbed its calm. This sea has broken out into a gulf to eastward, and one wave having been, as it were, piled up against its predecessor, and another against the next ..."244

A second text describes the Proconnesian marble as the earth and the green as "in likeness of the rivers that enter the sea".245 In certain churches the illusion was carried further by the depiction of marine creatures in the *opus sectile* covering floors.246

There are strong indications that, even in Late Antiquity, those responsible for the creation of such pavements were fully aware of the visual conceits which could be facilitated by the similarities between glass, water, and marble. A striking example of this phenomenon is the fashion, particularly apparent in North African villas and baths between the third and the fifth centuries AD, for mosaic pavements imitating marble (pl. 151).247 There are strong indications that such glass pavements came to be valued for their own sake even in contexts where neither economic constraints nor local availability precluded the use of marble.248 In numerous cases the appearance of the marble slabs depicted is veined and rippling, like those used later on the walls of the Dome of the Rock and the Damascus Mosque,249 producing the impression of water running across the floor. The use of glass tesserae to imitate marble resembling water adds a further convoluted dimension to the illusionistic conceits permitted by the medium.

Even apart from the ability of glass mosaic to imitate or depict a body of water, the use of mosaic tesserae on floor surfaces produces a literal pavement of glass. It has been suggested that the account

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245 Ibid., p. 243. Four strips of marble which appear on the floor are said to be the four rivers of Paradise; Mango, *Art*, p. 101.

246 Megaw, Recent work, pp. 336-7, fig. 13.

247 D. Michaelides, Some aspects of marble imitation in mosaic, *Marmi Antichi: problemi d'impiego, di restauro e d'identificazione*, *Studi Miscellanei* (XXVI, 1985), pp. 155-63. The fashion appears to have been largely confined to North Africa, but examples are found in Sardinia, Sicily, and the Palace of Theodoric at Ravenna. The vogue for such floors died out in the course of the fifth and sixth centuries.

248 Ibid., p. 163.

249 A mosaic floor from Djemila depicting rippled-veined marble is particularly reminiscent of the Umayyad slabs. Another bathhouse floor depicts marble veined in the characteristic parallelogram shapes of quarter-sawn marble as is the case with the marble slabs in Jerusalem and Damascus; ibid., pls. 5i, 7ii.
of a crystal palace in the Book of Enoch derives from the striking visual effects produced by the glass mosaics used to decorate Early Christian churches. In addition to glass tesserae some form of glass veneer, probably in the form of plaques, appears to have been used in Roman architecture from an early date.

7.4.5 The palace of crystal as a Palatium Salomonis.

Many of the descriptions cited previously have a powerful visual appeal which no doubt explains why, time and again, attempts were made to create sublunary structures in their image. As Solomon was the archetypal Qur'anic and Biblical monarch, medieval rulers from Ireland to India saw themselves as heirs to the Solomonic mantle. Their claim to the Solomonic legacy was frequently expressed in the art, architecture, and ritual of the court. The preceding summary of the literary sources gives some indication of how pervasive the motif of the glass palace was in the medieval world. Just as descriptions of the illusionistic architecture of Paradise appeared to have inspired certain types of decoration in medieval Islamic and Christian architecture, so, it seems, did descriptions of Solomon's fantastical palace inspire the glass pavilions built by numerous medieval Islamic potentates. The paradisal and Solomonic resonances of such architecture are often indistinguishable, and the former have been dealt with in the preceding section. The archetypal nature of the glass-paved palace is recognised by al-Biruni, who cites a tradition according to which Solomon was the first ruler to possess a pavement of glass.

The erection of a glass pavilion by Abd al-'Aziz ibn Marwan suggests that the princely architecture of the Umayyads was not lacking in a Solomonic dimension. In addition, the well-known image of an enthroned caliph from an apse in the Umayyad bath-house at Qusayr Amra, which sits atop a register bearing aquatic scenes (pl. 152), has been connected with the Qur'anic description of Solomon enthroned upon his sea of glass. There is, in certain accounts of the latter

250 Trowbridge, Ancient Glass, p. 141. The crystal floor of this palace is said to be tessellated.

251 Ibid., pp. 138-41.


255 See above, pp. 184.

256 Kahle, Bergkristall, p. 343. Curiously, in the same tradition the construction of the pavement is attributed to Satan, presumably on account of its characteristic illusionism.

palace, an iconographic connection between the glass palace and the sea, a leitmotif which in its most extreme manifestation takes the form of submerged palaces of glass. The image is particularly appropriate to its context, for shallow water-troughs are still preserved in the bath-house.258

In Byzantine architecture glass mosaic encrusted with semi-precious stones is frequently used to illusionistic ends, masking structural members and dissolving solid wall surfaces. Similar vitreous veneers might easily be used to translate accounts of the illusionistic glass palace of Solomon into architectural reality. It is perhaps with this in mind that one should view the rich and varied glass decoration of the Jausaq al-Khaqānī, which included coloured glass windows, plaques of millefiori glass, mother of pearl, and concave glass vessels used as wall-decoration.259 Given the practical difficulties of constructing a palace entirely of glass one can think of no better way of creating an apparent palace of glass than through the use of a vitreous veneer to cover wall surfaces. In the case of the Jausaq al-Khaqānī the veneer included three-dimensional glass vessels which recall an ode composed by al-Buhtūrī Tor Yūnus ibn Baghi in which a palace covered with crystal glasses is mentioned.260

The suggestion that the decoration of the Jausaq al-Khaqānī may have had paradisal and Solomonic connotations is bolstered by the find of a glass pavement in a palace at Raqqa constructed in the early third/ninth century, and therefore approximately contemporary with the Iraqi palace. In a court opening off the reception room of the palace, a series of glass flagstones were found embedded in a plaster matrix.261 The slabs are composed of greenish glass approximately 12 cm square and just over 1 cm thick, smooth on one side and with regular rows of raised rounded bubbles on the other. The glass plaques were set with their grooved face downwards in the plaster which covered the floor, so that their smooth upper surface was visible (ill. 135). The court was thus literally paved smooth with green crystal, as was the the court in the palace of Solomon. Evidently the greenish hue of medieval colourless glass enabled it to resemble water. The appearance of such a court, carpeted as it was with polished green glass, was, like the Solomonic palace, capable of resembling a body of water. One may surmise that, to an observer familiar with the Qur'anic description of a "court paved smooth with glass", the floor of the Raqqa palace cannot have failed to bring to mind the pavement which caused Bilqīs such distress.262 There are indications that this floor may not have been unique, for the

258 The fifth/eleventh-century Persian writer Bal'ami claimed that Solomon was the first ruler to possess hot baths; Soucek, Review, p. 257.
259 See above, pp. 65-6.
262 As suggested by Grabar, Alhambra, p. 129; Lamei Mostafa, Sabil, p. 37.
remains of similar plaques of translucent glass with a greenish hue have been found at Qasr al-Hayr East (pl. 153) and Samarra.263

While Solomon is rarely mentioned by name in accounts of glass palaces and pavilions, in many cases the connection is implicit. Dimashqī, discussing the submerged palace at Mardīn, describes it as being paved with green crystal (mumarrad min al-qīwārīr),264 the exact words chosen in the Qur'an to describe the characteristic feature of Solomon's palace. Similarly, the house of Ḥarūn al-Rashīd was known as the Dār al-Qīwārīr. Thus, while the connection is not made explicitly, the reference cannot have been lost on any reader familiar with the Qur'anic passage. In fact these words may be considered almost as a Solomonic formula, for they frequently recur in descriptions of floor-surfaces and vitreous architecture.

At the opposite end of the Islamic world one may point to poetic descriptions of a glittering pavement (al-sarrūh al-mumarrad) in the Umayyad palace at Māḍīnāt al-Zahrā.265 It is not clear whether the floor was actually of glass, for marble floors and artificial pools are frequently compared to the glass court of Solomon. A similar vein of illusionism is apparent in the fact that the garden pavilion in front of the Salon Rico at Māḍīnāt al-Zahrā might once have appeared to float on the surface of the lake in the midst of which it sat.266 The illusionism inherent in the juxtaposition of water and glass has been mentioned above, and it should be borne in mind that the pools and watercourses frequently associated with medieval Islamic palaces also had the ability to produce palaces of "glass".267 The role of the long rectangular pool in front of the Torre de Comares in the Alhambra has been summarised by Bermúdez Pareja as follows:

"...thanks to the calmness of the water in the pool, in it is reflected a limpid blue, or the quivering of the stars, and the architecture, which thereby resembles palaces of glass."268

Crystal is frequently used as a metaphor for water,269 and the notion is not without relevance to a palace which has its metaphorical and literal floors and ceilings of glass. A similar idea had struck

263 As far as I know the finds from Qasr al-Hayr are unpublished, but are on display in Tadmor Museum. It is not clear whether these plaques were used to cover walls or floor surfaces. A fragment of a glass plaque of similar form was found in the Jausaq al-Khaqanī at Samarra, Lamm, 
Das Glas.
p. 118, No. 338.
266 Ruggles Fairchild, Mirador, p 76.
267 This idea was implicit in the name of certain palaces. For example, contrary to its name, the Chihill Sutun in Isfahan has only twenty columns. The forty columns result from the reflection of these twenty in the adjacent pool; Jairazbhoy, Outline. p. 278.
Ibn Iyad almost a millennium earlier. Describing a Fatimid garden palace, he compares it to the pre-Islamic palace of Khwānaq standing in a watery setting "as smooth as glass of azure hue".\textsuperscript{270} Other writers specifically connect the illusionistic properties of pools and water with the glass pavement mentioned in the Qur'an. Observing an artificial pool outside Cordoba, Ibn Zaidūn wrote:

"Before the calm water of the surface you would be seduced by the green crystal \((\text{gīwrīr})\) of the surface, so smooth that you would imagine it to be the court paved with glass (where Solomon received the Queen of Sheba)."\textsuperscript{271}

Once more the word chosen to describe the water is precisely that used in the Qur'anic description of the Solomonic pavement. As stated above, the close association between water and glass derives from the illusionistic properties of both, which, in their colour, translucence, and smooth surface often resemble each other. This resemblance is often evident in descriptions of glass decoration. Ibn Bassam, for example, describing what appear to be \(\text{shamsiyat}\) on the upper walls of the Dhu'l-Nunid palace in Toledo, refers to them as "well-ordered seas \((\text{būhūrn muntazimatur})\) of glass".\textsuperscript{272} The phrase recalls the eschatological seas of glass encountered above, and suggests a further dimension to the association of water and glass in the pavilion built by the same ruler.

While the idea of glass-like pools and water-like glass was kept alive in descriptions of ponds and vitreous decoration, it also surfaces in metaphorical descriptions of built palaces. Ibn Hamdīs, writing in the late fifth/eleventh or early sixth/twelfth century, compares the Hammadid palace at Bījāyya to both Paradise and the Palace of Solomon. A marble floor within the palace is said to give the appearance of rock crystal streaming with pebbles like pearls.\textsuperscript{273} There is no suggestion that the floor was actually constructed from crystal; instead the poet plays on the illusionistic properties of polished marble, a theme familiar from descriptions of Byzantine palaces. Here the poet is using the ability of marble to resemble glass in order to make a Solomonic allusion. One must assume that the motif of the Solomonic pavement was sufficiently familiar for the metaphors of writers like Ibn Hamdīs and Ibn Zaidūn to be intelligible to their intended audience. Similar ideas could, like the paradisal allusions discussed above, be suggested by the names of palaces; one thinks for example of the \(\text{Dūr al-}\text{Billāwr}\) in the Almohad palace at Marrakesh.

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\textsuperscript{269} The metaphor is not confined to the realm of literature, but is also found in descriptions of magical, illusionistic art; P.P. Soucek, Nizami on Painters and Paintings, Islamic Art in the Metropolitan Museum of Art, ed. R. Ettinghausen (New York, 1972), p. 10.

\textsuperscript{270} Bloom, Origins, p 29.

\textsuperscript{271} After Peres, \textit{Poésie}, p. 131.

\textsuperscript{272} See above, p. 98.

\textsuperscript{273} Gabrieli, Palazzo, p. 56; Bargebuhr, Alhambra, p. 241.
That these could be more than literary conceits is, however, suggested by accounts of historical glass palaces, and the survival of architectural curiosities such as the pavement from Raqqa. It seems likely that the influences between architecture and literature flowed both ways. Thus accounts of the glass palace inspired attempts to replicate it, attempts which then entered the realm of panegyric, which in turn fuelled later attempts to capture the illusionism of the Qur'anic palace.

The relationship between architecture and literature is nowhere more apparent than in the Alhambra. In addition to the allusions to the "sky of glass" in the poetic inscriptions of the Mirador de la Daraxa, the following lines, also penned by Ibn Zamrak, appear on the left-hand side of the entrance:

"I am not alone: my garden has created a prodigy
the like of which eyes have never seen:
a pavement (sarh) of glass which, whoever sees it,
would believe it to be a boundless sea and be frightened."274

The term sarh is that used in the Qur'anic account of Solomon's palace, and several scholars have seen the Solomonic allusion in the poem.275 While the original covering of the floor in the Mirador appears to have consisted of lustrous glazed tiles, some of which remain, it seems more likely that these lines are designed to evoke the general idea of glass architecture. As stated at the outset, the term sarh is somewhat ambiguous, and the verse has also been taken as referring to a palace or chamber of glass.276 That the verses are not intended to be taken completely literally is also suggested by a recently-discovered text by Ibn Khafib, a contemporary of the Alhambra. The following remarks are included in a description which Emilio García Gómez connects with the Hall of the Two Sisters which adjoins the Mirador:

"The high vault, resting on these four columns, is surrounded by a smooth sea of glass, thereby teaching those with eyes to see."277

For this reason certain scholars have connected the Solomonic reference in Ibn Zamrak's verse with the "sky of glass" mentioned in the same poem:278 since it seems likely that the structure

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274 After García Gómez, Poemas, pp. 122-3.


278 Almagro Cardenas, Estudio, pp. 109, 115. However, while this scholar connected the ceiling with the sarh mentioned in the poem, he does not explicitly mention the Solomonic palace.
originally had a ceiling of glass similar to that now in situ, the poetic allusion and architectural reality neatly coincide. The fact that this was the bower from which Muhammad V contemplated his capital, leads one to the inescapable conclusion that the Nasrid ruler was, like many before and after him, laying claim to the Solomonic mantle. The Alhambra is a palace which stands at the end of the line, which brings to fruition ideas inherited from older traditions. On the basis of the evidence cited above one must conclude that the iconographic allusions in the poetic inscriptions and decoration of the Mirador are unique only in terms of their fortuitous survival. The strength of the Solomonic tradition in palace architecture ensured that glass structures similar to the Mirador continued to be built in other centres of power by other rulers with Solomonic aspirations.

7.5 The Glass Microcosm.

7.5.1 The palace as a microcosm.

One of the most famous palaces of the medieval Islamic world is that described by Nizami in the *Haft Paikar*. The palace was built for Bahram Gur by an architect who was also an astronomer and consisted of a series of domed pavilions. Each dome was of a different colour, the colour of each being associated with a different planet; black for Saturn, sandalwood for Jupiter, red for Mars, yellow for the sun, white for Venus, turquoise for Mercury, and the seventh reflecting the light of the moon. On different days of the week the great Shāh sat enthroned beneath each dome in turn, wearing robes of a colour chosen to harmonise with that of the dome. In this way the whole building acted as a microcosm, creating through emulation an empathetic connection between the palace and the cosmos. The seven pavilions of Bahram Gur were frequently depicted in Timurid miniatures and are anticipated in the famous depiction of Bahram Gur in the Hall of Seven Images from the Anthology of Iskandar Sultan (ill. 112). In this miniature the form of the later palace is prefigured in the seven domes of seven different colours which appear above the seven images of the seven princesses. A single qamariyya appears above each of the open windows in each of which a curtain of a different

279 See above, pp. 186-7.

280 Dickie, Alhambra, p. 134. In the poetic inscriptions on its walls the Mirador is described as the eye of the garden which it overlooks, with the Nasrid Sultan as the pupil of that eye.

281 See Necipoğlu, Architecture, pp. 246-7. The Burj al-Zafar fortress built by Qaytbay in Alexandria is said to have rested on a vaulted infrastructure of glass; E. Herzfeld, MCIA, Première Partie, Égypte III: Le Caire (Cairo, 1900), p. 489. It is possible that this story derives from pre-Islamic sources, for a similar story is told of the Pharos which stood on the spot previously, Ibn al-Faqīh, Abrégé, p. 87. The Coptic ruler ‘Adm is said to have had a tomb in which a dome of green glass rested on eight vaults of the same substance, Carra de Vaux, Abrégé, p. 247.


283 Gray, Persian Painting, p. 75; Dunham Guest, Shiraz Painting, pp. 43-7.
colour hangs. The hall is circular, a form with cosmological overtones, thus the cycle of correspondence between colour, form and number is complete.

Several of the characteristics in Nizami's description find parallels in fabulous accounts of other pre-Islamic palaces. Although the palace of Ghumdān appears to have been a multi-storeyed monolith, some sources mention that it had seven levels, with each side constructed from a stone of a different colour.284 Similarly, according to Nizāmī,285 the Lakhmid palace of Khwārīnaq had several domes. Others specify a single dome which changed its colour between blue, yellow, and white at different times of the day, reflecting that of the natural sky.286 Several writers mention the brilliant lustre of the dome, "polished like a mirror ... a sun within and a moon without."287 As was the case with the Solomonic palace, descriptions of the vanished glories of these semi-mythical palaces became the standards against which many later palaces were measured. Comparisons between Ghumdān, Khwārīnaq, the palace of Bahram Gur and contemporary palaces are common in medieval courtly poetry,288 and are often implicit in the use of the same names for medieval palaces.289 If Shaddad's Iram can be considered a paradigm for later attempts to create paradise on earth, then the palace described in the Haft Paikar can be considered as a paradigmatic microcosm designed, through emulation, to harness the empathetic forces of the cosmos.290

The structure of medieval Islamic palaces was often similar to that of the palace described by Nizami, and the numbers of Islamic palatine pavilions could be similarly imbued with cosmological meaning.291 Cosmological allusions are also apparent in the names associated with many royal palaces and pavilions,292 as was the case at the court of Bahram Gur, the desire to emulate the cosmos

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284 Ibn al-Faḍḥ, Abreżé, p. 39. This may equally be related to the idea that the four cardinal points are each associated with a particular colour; A. Wünsche, Salomos Thron und Hippodrom Abbilder des babylonisches Himmelsbildes, Ex Oriente Lux (II, 1906), p. 41.

285 Wilson, Haft Paikar, pp. 41-2.


287 Idem.; Haft Paikar, pp. 41-2. Tabari says that the chief characteristic of the dome was, like the seventh dome of the unnamed palace of Bahram Gur, its ability to reflect the lustre of the moon.


289 Bloom, Origins, p. 29.


291 The Fatimid palace in Cairo is said to have had square pavilions, twelve in number like the zodiac, in its gardens. The Ilkhanid palace at Sultaniya was composed of a similar number of pavilions surrounding a larger central structure; Necipoglu, Architecture, p. 245.

292 See p. 198 above.
could even influence the form of the furnishings used within them. The Mughal emperor Humāyūn (r. 937-943/1530-6) appears to have been particularly susceptible to the ideas contained in the Haft Paikar. Humāyūn dressed, like Bahram Gūr, in clothes of a colour chosen to harmonise with the planet ruling that particular day. The Mughal ruler also had a circular carpet which, much like a Ptolemaic map of the cosmos, consisted of a series of concentric circles of different colour. The throne of the ruler was placed in the golden circle at the centre, in a position corresponding to that of the sun.

7.5.2 The jewelled mandala.

Like the palace of Bahram Gūr, the magical temples, palaces, cities and furnishings of jewels and crystal discussed in the preceding sections of this chapter frequently have a cosmological dimension. According to a Jewish legend, Hiram of Tyre built a model heaven constructed from plates of metal, glass, and precious stones. The structure was capable of simulating the effect of thunder and lightning, a motif familiar from descriptions of Khusrav's throne and the majlis at Madīnah al-Zahra.

One frequently finds descriptions of cities with seven walls or pillars of precious stones and metals, corresponding to the seven jewels of which the heavens are composed. The tradition appears to have a particularly long history in the Iranian world - one might mention the walls of Ecabatana, each of a different colour. The mythological city of Kang dez was similarly believed to have seven walls of precious stones and metals. In Zoroastrian texts of the Islamic period the city is described thus:

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293 It is reported that the Umayyad Caliph Marwān ibn Muhammad had a table of onyx (jaza') made in the form of Jupiter, and that he who ate upon it was never satiated; Qaddāmin, Book of Gifts, p. 185. For a mirror dated 548/1153 on which the images of the seven planets are depicted in seven different metals see SPA, p. 2483, pl. 1301a.


295 Ibid., p. 651.

296 See, for example, Mehren, Cosmographie, p. 32; Carra de Vaux, L'Abrege, p. 247; Wallis Budge, Life and Exploits, p. 187; Patai, Man and Temple, p. 111.

297 Ginzberg, Legends V, p. 335. In the Talmid Hiram is compared to Adam, who had ten domed heavens, each of a different precious stone; Epstein, Baba Bathra I, p. 302.

298 Herzfeld, Zoroaster II, pp. 806-7. The influence of similar cosmological ideas has been detected in the seven-tiered structure of the Babylonian ziggurats; G. Widengren, Aspetti Simbolic i dei Templi e Luoghi di Cult del Vicino Oriente Antico, Numen (VII, 1960), p. 2. In a discussion of Mithraism, Origen mentions seven gates, each of a different metal connected with a particular planet; V.F. Hopper, Medieval Number Symbolism (New York, 1938), p. 17. For analogous cities with walls of gems see Lethaby, Architecture, pp. 128-9, 132-3, 145. Similar jewelled architectural mandalas are found are described in Sanskrit texts. The magical city of Kusavati has ramparts composed of seven gems, in each of which appear four gates with seven pillars of different gems; trees composed of different types of jewels appear between each of the ramparts of the city; Kunz, Curious Lore, p. 236.
"...its beams are seven, of gold, of silver, of steel, of bronze, of iron, of glass, and of crystal."\(^{299}\)

Such traditions are closely related to the eschatological and paradisal visions discussed in the second section of this chapter. Ibn al-Faqlī mentions a tradition according to which, on the Day of Judgement, seven walls will appear around Jerusalem; those that are mentioned are of gold, silver, pearls, rubies, topaz and light.\(^{300}\) By the fifth/eleventh century, if not earlier, they occur in descriptions of Paradise by writers such as al-Wāsitī:

"...I shall descend upon thee a dome of light, made by my own hands, that will shine in the sky and in the air; I shall raise upon thee a wall of gold, a wall of silver, a wall of emerald, a wall of clouds, a wall of pearls, a wall of rubies..."\(^{301}\)

The connection between the sub- and superlunary worlds, the planets, jewels and metals was developed by writers such as al-Bīrūnī or those of the Ikhwan al-Safā'.\(^{302}\) In addition to the use of certain materials or particular numbers of architectural elements, the built environment could be transformed into a microcosm by the use of certain forms. The Sabaeans of Harran built their city in the shape of the moon.\(^{303}\) It seems more than coincidental that the circular monument built by Harun al-Rashid at nearby Herakla has four gates in the form of four geometric shapes on its axes.\(^{304}\) In pre-Islamic times the gates of Damascus were each decorated with the image of the planet to which they corresponded.\(^{305}\) In the fourth/tenth century similar ideas also influenced architectural forms in Central Asia. Narshākī mentions a castle which kept collapsing until they agreed that if the castle were (sic) built according to the figure of the constellation of the Great Bear in the sky, with seven pillars in that form, it would not be destroyed."\(^{306}\)

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\(^{300}\) Ibn al-Faqlī, *Abregā*, pp. 119-20. In later texts the seven jewelled tents of the heavens were each associated with a particular planet; Crane, *Profeție*, p. 19.


\(^{304}\) A circle, a square, a hexagon and a polygon. The monument has not been published in detail, but is closely related to the earlier round city of al-Mansūr; K. Töneker, *Die Stadt Raqua und ihre historischen Bauten, Land des Baal - Forum der Völker und Kulturen* [eds. K. Kohlmeier & E. Strommenger] (Mainz am Rhein, 1982), pp. 363-6. For the suggestion that the form of the towers built by the Ghaznavid sultans had a cosmographic significance see E. Diez, *Die Siegestürme in Ghausia als Weltbilder*, *Kunst des Orient* (I, 1950), pp. 37-44.

\(^{305}\) Sauvaire, *Description de Damas*, pp. 371, 425.
This is duly done, with results which are propitious for the master of the place. One may conclude that the palace as a microcosm was more than an abstract notion in the medieval Islamic world. What appears as fiction in the Haft Paikar may actually be an accurate reflection of fact.

Mas'ūdi relates a curious story which contains just that blend of architecture, magic and cosmology which characterises the palace described by Nizāmī and those under discussion. The author informs us that, according to some idolators, the Ka'ba was one of seven temples dedicated to the planets (that is, the sun, moon, and five planets).307 These seven temples were spread from Arabia to China and included the pre-Islamic palace of Ghumdīn.308 The seventh temple was built in China, and was seven stories high, each storey being lit by seven large windows or doors (ābab). In front of each window an image of each of the planets appeared, decorated with jewels of different colours on each of which a different planet exerted an influence.309 Mas'ūdi's description captures some of the details, and much of the ambience, of the pavilion in which the images of the seven princesses are shown to Bahram Gur (ill. 112). Given the long history of this type of cosmological architecture in the Iranian world, both the image and the description are likely to derive from similar sources. The connections between jewels, windows and the planets are discussed in more detail below.

7.5.3 The cosmological pavilion.

The idea that the nature of the heavens is crystalline is widespread in Judento-Christian and Islamic cosmography.310 Mas'ūdi tells how God created the sky from a vapour rising out of the primal waters,311 and other commentators see this vapour as resulting from the dissolution of a white crystal.312 A similar relationship is suggested by Zoroastrian accounts of the primal waters generating

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307 Mas'ūdi, Prairies IV, pp. 44-54. The pre-Islamic cosmological significance of the Ka'ba is suggested by the presence of 360 idols around it; cf. Ka'ba. Artificial suns were dedicated there in the pre-Islamic period; above, pp. 12-3. For an extended discussion of the connection between the Ka'ba and the pre-Islamic cult of Saturn see H. Lewy, Origin and significance of the Magen Dawid, Archiv Orientalní (XVIII, 3, 1950), pp. 339-50.

308 According to al-Dimashqī, this palace was built as a Temple of Venus; Mehren, Cosmographic, p. 31. A similar story is related by Ibn Khalidīn; H. Howarth & I. Shukrallah, Images from the Arab World (London, 1944), p. 93.

309 The story may derive from Sabacan sources; H. Corbin, Rituel Sabéen et Exégèse Ismaélienne du Rituel, Eranos Jahrbuch (XIX, 1951), pp. 189-91. For echoes of the tradition in medieval European literature see Idel, Magic Temples.


from the crystal egg or diamond dome of the sky.\textsuperscript{313} The sea of glass on which the Throne of God, as described in Revelation, sits is a mirror image of the sea of water which exists above the heavens.\textsuperscript{314} In Islamic tradition the Throne of God floated upon the waters which, according to Ibn 'Abbás, existed before the creation of heaven and earth.\textsuperscript{315} Similarly its earthly counterpart, the Ka'ba, also floated on the waters until it came to rest on a spot cleared by a wind sent from God.\textsuperscript{316} Like the Ka'ba, Solomon's throne, set on its glass pavement, may be considered an echo of God's throne on earth. In view of such traditions it seems that the construction of glass pavilions set upon pools and lakes may have a cosmographic dimension. In certain cases this is even suggested by the use of the term 'arsh rather than the more usual qubba.\textsuperscript{317}

In the Shahnāma we encounter a jewelled house built by Kai Khusrau on Mount Alburz:

"He erected a pleasure-house of crystal, studding it with emeralds; a cupola of onyx brought from Yaman..."\textsuperscript{318}

Kay Khusrau was the father of Siyavakhsh, the builder of Kang dez, and the palace of Kay Khusrau is sometimes said to consist of seven structures, each constructed from a different precious stone or metal.\textsuperscript{319} Mount Alburz, the emerald mountain, is the cosmic mountain par excellence, the axis mundi of traditional Iranian cosmology,\textsuperscript{320} and the choice of site is hardly random. The setting of the pavilion on such an axis mundi recalls the island on which the Ka'ba, the axis mundi of the Muslim world, came to rest. One may detect a similar cosmological dimension in the setting of garden pavilions on artificial islands or hillocks.\textsuperscript{321} It is reported that the prototype of the Ka'ba was a pavilion hollowed

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\begin{footnotesize}
\begin{enumerate}
\item[314] See above, p. 211.
\item[315] Wensinck, Navel, p. 39.
\item[316] Idem.
\item[317] See p. 184 above.
\item[318] Warner & Warner, Shahnāma II, p. 101. The mention of a Yemeni source suggests that the dome may have been similar to the alabaster domes used in Yemen; below, pp. 247-8. It is reported that a dome of Yemeni alabaster or onyx was among the objects in the Fatimid treasury; see note 185 above.
\item[319] Corbin, En Islam Iranien II, pp. 170-1.
\item[320] It is from the emerald of Mount Qaf that the sky was believed to derive its colour; Aga-Oghu, Mā'ūn, pp. 247-9; Wendell, Baghdad, p. 121; Heinen, Islamic Cosmology, p. 171; Crane, Rituāl, p. 19. According to the Mas'ūdī the lowest heaven is of emerald; Prairies I, p. 49.
\end{enumerate}
\end{footnotesize}
from a single ruby which glowed from within with the light of golden lamps and the Black Stone, a white hyacinth which shone before its brilliance was extinguished by the sins of man.\textsuperscript{322} Similarly, several sources mention the existence of a Celestial Temple (bīyūt al-maʾmūr) in or above the seventh heaven, directly above the earthly Kaʿba. The Temple is constructed from ruby or hyacinth and its two doors are of green emerald. As many as ten thousand golden lamps, each giving more light than the sun, are said to hang from its roof.\textsuperscript{323} Thus one can point to both secular and religious parallels for the setting of a jewelled or crystal pavilion on an artificial island, a symbolic axis, amidst a body of water.\textsuperscript{324}

7.5.4 The dome of glass.

Having discussed the idea of an "iconography of effect" above, in the following discussion I would like to consider the idea that not only the form of the pavilion and its setting, but its vitreous fabric, and that of others like it, gave it the appearance of the heavens. The utilitarian, paradisal and Solomonic aspects of domed water-and-glass constructions have been mentioned above. I might however begin with another category of building in which light, water, and glass serve similar utilitarian ends.

Qamarīyya\textit{t} appear to have been used in hammām domes as early as the Umayyad period.\textsuperscript{325} Glass windows were frequently used in pre-Islamic baths, presumably to facilitate the passage of light while minimising the associated loss of heat. An alternative form of fenestration in the Islamic world made use of simple circular apertures pierced in the domes and vaults of hammāms. These were usually filled with discs of greenish or coloured crown glass, or hemispheres of glass attached to the exterior of the openings with mortar and other fixatives.\textsuperscript{326} That such glass-filled openings were


\textsuperscript{322} Carra de Vaux, \textit{Abrégé}, p. 82; Wensinck, \textit{Navel}, p. 42; Ibn al-Faqih, \textit{Abrégé}, pp. 23-4; G. Le Strange (tr.), \textit{The Geographical Part of the Nuzhat-al-Ouliib} composed by Hamd-Allah Mustawfi (London, 1919), pp. 3-4; Fahd, Naissance, p. 262, 269. According to others Adam and his pavilion descended in Sri Lanka; Clément-Mullet, Mineralogie, p. 41. In the Talmud Adam is said to possess ten domed canopies, each of a different precious stone; above, n. 100. For a tradition connecting the sakhara in Jerusalem with a shining ruby see above, p. 215. The tradition of shining stones or jewels losing their lustre through the sins of their owner is also found in medieval European literature; J. Evans, \textit{Magical Jewels of the Middle Ages and the Renaissance} (Oxford, 1922), p. 64.

\textsuperscript{323} Wensinck, \textit{Navel}, pp. 51-2; Crane, \textit{Rooftop}, p. 51. Some authorities place the bīyūt al-naʿamūr in the fourth heaven, where a similar structure composed of jewels was seen by Moses according to Jewish eschatological texts; Gaster, Visions of Hell, p. 575.

\textsuperscript{324} One may detect cosmological overtones not just in the setting of the pavilions, but also in their form, for certain are said to have been round, or to have had the appearance of tents; Necipoğlu, \textit{Architecture}, p. 192. Both forms appear in Islamic cosmographies; Wensinck, \textit{Navel}, pp. 43-4.

\textsuperscript{325} See above, p. 19.

\textsuperscript{326} Gro\text{\"{u}}tzfeld, \textit{Das Bad}, p. 43.
found by the fourth/tenth century is indicated by a description of a *hammam* in a Hamdáníd poem which describes a

"...vaulted ceiling with the colour of cornaline (*aqīq*), with small round openings filled with types of concave glasses to filter the light, shining like silver, so that one would say that the ceiling was encrusted with silver cups, and that the ground was paved with small black shining stones (*sabaj*)." 327

That such features were found at the same period in *hammams* at the opposite end of the Mediterranean is clear from an incidental mention of glass roundels in the writing of Isaac Israeli. 328

The effects of light penetrating the glass-filled openings and steam in a *hammam* are described by al-Qazwīnī in the following terms:

"From time to time a rainbow appears at night in the atmosphere of the bath; this happens when the air of the bath is humid and there are candles or something similar within the bath. Avicenna reports the following: 'I have seen a rainbow in the atmosphere of the bath, not in my imagination, but existing in reality. A visitor to the bath could change his position to wherever he wanted and the colours remained as they were.' Qâdir ʿUmar ibn ʿSahān says: 'The reason for this is that the sunlight falling onto the coloured glass of the bath is reflected from the walls. A similar reflection occurs when one puts a polished highly-coloured object in the sun.' 329

The origins of such openings are not clear. They do not appear in the Umayyad baths at Hammām al-Sarakh or Qusayr ʿAmra. 330 Similar openings, often lined with terracotta pipes, were used in Sasanian domes and vaults 331 and it may be from this source that the openings in Islamic domes derive. 332

The potential for light effects noted by al-Qazwīnī was exploited in the form and placing of the openings in *hammam* domes. These domes often assume the form of simple "domes of heaven", pierced with star-shaped openings filled with coloured glass and arranged in larger radiating patterns. These *hammam* domes were merely giving more graphic expression to the idea expressed in the

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327 Canard, Aspects, p. 175.

328 See above, p. 96.


332 Although similar openings were occasionally used in Roman baths; Spinazzola, *Pompei*, fig. 82.
decoration of the dome at Qaṣṣāyř ʿAmra, for the domes of bath houses were frequently painted with stars and cosmological scenes in the Roman and Late Antique world.333

Star-shaped apertures were used in the dome of a hamman at Madīnat al-Zahrāʾ (pl. 154).334 Apertures of similar form were used in later hammams, and where the openings were not star-shaped they were often arranged in the form of rayed six- or eight-pointed stars, sunbursts (figs. 67-8),335 or whirling patterns which give the illusion of movement (pl. 155).336 Such plays on light are in keeping with the star-shaped openings in the dome from Qīsīs (pls. 176-7), or the use of star patterns on lamps and window-grilles.337 The apertures in hamman domes were, like those in Sasanian domes, usually lined with terracotta piping (qastal), sealed with concave discs of glass (ʿamari or jāmēṭ) embedded in stucco.338

Qazwīnī mentions the use of red, green, yellow and white jāmēṭ in a hamman at Sīnāʿīr at the end of the seventh/thirteenth century.339 In one of the earliest representations of a hamman, in the Kifāb-ī Samakʾ ʿAyvār (c. 731-41/1330-40), red, pink, yellow and blue glass roundels fill the apertures of the domes340 and similar glass discs appear in later depictions of hammams (ill. 116). One also finds lantern domes filled with glass roundels depicted in early eighth/fourteenth-century miniatures.341 Similar glasses were set in the circular openings in Ayyubid muqarnas domes.342 Mica was

336 One of the earliest is in the ninth/tenth-century Ismail Bey Hamman at Bursa: Goodwin, Ottoman Architecture, p. 85, fig. 78. See also Ahmet Aru, Türk Hamamları, pp. 63, 142.
337 See below, pp. 318-9.
338 This is the case with the surviving Ayyubid hammams; Écochard & Le Coeur, Bains, p. 37. See also Burgoyne, Mamluk Jerusalem, pp. 92-3, 285. Sauvaget (Bain Damasquin) gives the term garmaya for these glass roundels. In Persian the glass inset in domes is known as golgar; H.E. Wulff, Traditional Crafts of Persia (Massachusetts, 1966), p. 171. Grotfeld, Das Bad, p. 43. On the use of the term jamāt see above, p. 191.
339 Qazvīnī, Tāhir al-Biṣṭāʾ II, p. 263.
341 In the Chester Beatty Chilasīyā of Saʿīdī, copied by Jaʿfar Baysonghīrī (830/1426); ibid., p. 81, pl. 34.
occasionally used in place of glass and it may be of further significance that Tifash Trefers to mica used for this purpose as "star of the earth" (kawkab al-ard).343

7.5.5 The windows of heaven and the architectural clock.

The notion of the apertures in a dome, even in as utilitarian setting as a hammam, serving as stars of light, or shining windows on the sky, may be related to the idea of a cosmos pierced with windows through which its luminaries shine. The circular apertures in Sasanian domes and vaults were designated by the Pahlavi term roZanam;344 The same term is used for the circular windows (roHaniha) pierced in the crystal firmament.345 It was in these windows that the cosmic luminaries appeared, with one opening existing for each day of the solar year. Related descriptions of the "windows of heaven" occur in the Judaeo-Christian tradition346 and appear to have influenced Islamic cosmology. A fourth/tenth century text, sometimes attributed to Mas'udi, states that the bayt al-ma'tur, the jewelled counterpart of the Ka'ba, had 360 doors, each of which opened one degree of the planetary orbits.347 Al-Maqari cites a tradition according to which the Great Mosque of Cordoba had 360 arches, one for each day of the year, with the sun passing through each in turn over the course of a year.348 Al-Suyuti quotes the following belief, attributed to Ibn 'Abbās:

"The sun has 360 small windows; every day it rises in one window. Then it does not return to that window until the same day in the following year."349

The idea is similar to the notion that the stars are holes pierced in the fabric of the heavenly dome or that the sky is a garment studded with precious stones.350 One thinks of the jewel-studded

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343 Clement-Mullet, Mineralogie, pp. 238-9, 241, 243.
345 Bailey, Zoroastrian Problems, p. 138, n.1. In the Bundahishn, which appears to draw on a text of the second AD or earlier, it is said that Mount Alburz has 180 windows in the East and the same number in the West through one of which the sun appears each day; Anklesaria, Zand-Akasih, p. 65.
347 B. Carra de Vaux, L'Abrege, p. 11. A semi-legendary account of the construction of Hagia Sophia gives the numbers of its doors as 365; Mango, Art, p. 99.
349 Heinen, Islamic Cosmology, pp. 149, 216-7.
cosmic dome of Khusrau, the earlier sapphire "heavens" of Parthian rulers, or the jewelled cosmological ceilings described in Byzantine romance literature. That such ideas were foremost in the minds of those using such hammams is unlikely. In the context of palatine architecture one can point, however, to later structures which incorporate similar ideas.

The pool of mercury in the majlis at Madīnat al-Zahra is said to have been surrounded by 360 arches. The idea is an ancient one, for Pliny describes a theatre built by Marcus Scaurus which had one storey of marble, on top of which a storey of glass was supported on 360 columns. The palace of the Buṭrid ruler Adad al-Dāwla at Shiraz had 360 chambers, in each of which the ruler resided for one day.

The fortress built for Malik ʿAbbās at Ghur (c. 421-2/1030) by an astrologer had twelve towers, each of which had thirty openings. Each day the sun would shine through one of the windows so that the ruler would know in which house of the zodiac the sun dwelt for that day. The parallels with Bahram Gūr’s palace are striking, even down to the use of an astronomer-architect. The idea may have some basis in Sasanian tradition, for it is reported that the zodiacal position of the sun could be told by which of the gates of the Sasanian city of Jayy it shone through.

At a slightly later date the Mughal Emperor Humayun, apparently inspired by the Haft Paikar, built a zodiacal tent in which each of the twelve divisions were of a different colour, corresponding to a sign of the zodiac. Each of the rooms had a lattice through which the dominant star shone. The

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351 P. Ackerman, The Throne of Khusraw (The Taḥšī-Ṭaqdīs). Bulletin of the American Institute for Iranian Art and Architecture (V, 2, 1937), pp. 107-8. Ceilings studded with precious stones imitating the planets and zodiac are described in other pre-Islamic and legendary palaces; A. Simon-Cahn, Some Cosmological Images in the Decoration of the ceiling of the Palatine Chapel in Palermo, unpublished Ph.D. thesis (Columbia, 1982), p. 55; H.P. L’Orange, Studies in the Iconography of Cosmic Kingship (Oslo, 1953), p. 19. Domed pavilions with images of the cosmos hung with jewels were also found at the Timurid court; SPA, p. 1424, n.2. For similar Ottoman pavilions see below, p. 239.

352 Philostratus, Life of Apollonius of Tyana 1:25.

353 Schlauch, Palace of Hugon, p. 508.

354 Although it is possible that al-Maqrīzī’s confusing accounts of the Cordoba mosque with those of the palace, de Gayangos, Mohammedan Dynasties 1, p. 501, n.58.


356 p. Schwarz, Iran im Mittelalter nach den Arabischen Geographischen. Volume I (Leipzig, 1929), p. 49. The palace was perhaps built in imitation of the palace of the Sasanian ruler Yazdagird outside Shiraz, a building which, it is said, had 360 windows.


358 Based on an early fifth/eleventh-century Arabic text; E.G. Browne, History of Isfahan, JRAS (1901), p. 417. There are also indications that the names of the gates had associations with metals and astral bodies. The pre-Islamic gates of Damascus each bore the image of a particular planet; Sauvaire, Description, p. 371. For a discussion of a semantic connection between city towers and the zodiac see Lichtenstetter, Origin, pp. 66-7.
symbol of the windows seems to have had a particular significance in Humayun's life, for at his birth is is reported that light shone forth through the windows of the room in which he was born.\(^{360}\) The idea of windows, doors and architectural elements having cosmological significance had a wide appeal, and a particularly sophisticated type of palatine mandala, the Ming Tang, had evolved earlier in China.\(^{361}\) It may be that some garbled version of this tradition is preserved in Mas'udi's description of a Chinese cosmological palace, cited above.

That similar ideas were also disseminated in the western Islamic world is suggested by a poem written by Ibn Gabirol. Bargebuhr has suggested that the poem was composed with the palace of Yusuf ibn Naghralla, the Jewish vizier of the Zirid ruler of Granada, in mind. The poem is heavy with cosmological bombast, and includes the following description:

"The doors are like those of the ivory mansions reddened by palatial algum woods. And there are windows, transparent above them, skylights where dwell the heavenly planets."\(^{362}\)

One may interpret these lines in a number of ways. The first is that, by night, the stars are visible through the windows above the doors, so that they "seem to 'lodge' in these windows at night." A similar conceit is apparent in the lattices of the Mughal tent, through which the stars appear. In the Alhambra itself a similar conceit is expressed in the verses by Ibn Zamrak inscribed on the walls in the Hall of the Two Sisters and elsewhere in the palace.\(^{363}\) The stars also dwell, in a different sense, in the wooden ceiling of the Hall of the Ambassadors, which features a dazzling array of starbursts (ill. 136). The inscriptions in the room suggest that the ceiling is an image of the heavens, and it has been recognised that the structure of the ceilings and the colours used on it correspond to cosmological descriptions of a cosmos composed of different layers of coloured gems.\(^{364}\) Grabar has pointed out

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359 Beveridge, Akbarriama I, p. 361; Jairazbhoy, Taj Mahal, p. 81; P. Alford Andrews, The Generous Heart or the Mass of Clouds: the court tents of Shah Jahan, Muqarnas (IV, 1987), pp. 149, 152. It is possible that the twelve windows in the twelve pavilions of Uljeitu mentioned above (p. 292) were intended to have a cosmological significance or function. The Mausoleum of Ghazan Khan at Tabriz (699-704/1299-1304) had a different sign of the zodiac depicted on the exterior of each of its twelve sides; D. Wilber, The Architecture of Islamic Iran. The Ilkhanid Period (Princeton, 1955), p. 126.


361 The cosmological palace, the Ming Tang ("Hall of Light"), built by the Chien Wu ruler in AD 56, and by others after him, had twelve halls with twelve doors. These had nine rooms, to symbolise the nine-fold division of the Empire. Each room had eight windows, each of which represented five days, the Chinese month being divided into six five-day periods; W.G. Soothill, The Hall of Light - a study of early Chinese kingship (London, 1951), pp. 89, 105.

362 Bargebuhr, Alhambra, p. 98.

363 Grabar, Alhambra, p. 145; Puerta Vilchez, Códigos, pp. 159-61.
that the structure of the polychromy used on the latter ceiling corresponds to that of the palace described by Nizāmī.\textsuperscript{365} The notion of colour is intimately connected with that of the dome of heaven. In the early Islamic world one may point to the numerous appearances of the Qubbat al-Khadra.\textsuperscript{366}

If, as was the case in the Nasrid palace, the windows mentioned by Ibn Gabirol were filled with claustra in which starbursts appeared (pl. 91), or were filled with star-shaped pieces of coloured glass (ill. 42), one may detect a pun in the idea that the planets dwelt within them. The motif of windows filled with shining jewels is a recurrent in descriptions of mythological palaces,\textsuperscript{367} and Ibn Gabirol's poem is firmly entrenched in the realm of legend and magic. The idea that the heavens were crystalline and that the planets and stars were therefore associated with particular jewels and colours has been mentioned previously. There was a close relationship between coloured glass and jewels in the medieval Islamic world,\textsuperscript{368} and it may be this association that, in certain contexts, enabled pieces of coloured glass to do duty for the stars.

Among the instructions given for the construction of a clock in al-Jazārī's \textit{Book of Knowledge of Ingenious Mechanical Devices} the following is the description of the rotating disc bearing images of the zodiac and the solar and lunar spheres;

"The faces of the disc and spheres are painted in a colour like the colour of the heavens, and the pictures of the signs of the zodiac are adorned with gold and other beautifying colours. In every sign of the zodiac holes are bored to the number of its [accompanying] stars, approximately in their positions, large and small. These are filled with white, yellow and reddish glass to [suit] the colours of the stars."\textsuperscript{369}

\textsuperscript{364} P. Cabanellas Rodriguez, \textit{El Techo del Salón de Comares en la Alhambra: Decoración, Policromía, Simbolismo y Etimología} (Granada, 1988), pp. 80-90. References to jewels occur frequently in the Alhambra - the architecture itself is said to be composed of pearls and Ibn Zamrak compares the entire palace to a ruby in the diadem of the Sabika; Puerta Vélez, \textit{Codigos}, pp. 154-7. For a later Hispano-Muslim cosmological cupola in which images of the stars are depicted on glazed tiles see J. Zick-Nissen, Der Fliesenschmuck der Capilla de San Gregorio am Convento de la Concepcion Francisca, Toledo (1422), und die Endphase arabischer Sternkunde in der Kunst der Zeit, \textit{Europa und die Kunst des Islam 15.-bis 18. Jahrhundert, XXV Internationaler Kongress für Kunstgeschichte Wien 4.-10.9 1983} (Vienna, 1985), pp. 73-81.


\textsuperscript{366} Above, note 70. See also Heinicke, \textit{Islamic Cosmology}, pp. 171, 206; A. Morabia, Recherches sur quelques noms de couleur en Arabe Classique, \textit{Studia Islamica} (XXI, 1964), p. 79.

\textsuperscript{367} See above, pp. 199-202.

\textsuperscript{368} See below, pp. 290-7.

\textsuperscript{369} Ibn al-Razzāz al-Jazārī (tr. D. Hill), \textit{The Book of Knowledge of Ingenious Mechanical Devices} (Reprint of 1974 edition, Islamabad, 1989), p. 39. The find, in Egypt, of a Roman glass panel on which roundels containing images of the zodiac are painted suggests that a similar association may have existed earlier; Petrie, \textit{Tut}, pp. 48-9; Harden, Roman glass, p. 303. A six/twelfth-century text mentions a glass temple in Rome, the Holivitreum, which was decorated with astrological images; Lethaby, \textit{Architecture}, p. 223.
The sun is represented by a golden roundel, as it was on the cosmological carpet of Humayûn,³⁷⁰ and the moon by a glass roundel. The "moon-like" qualities of vitreous and translucent roundels has been discussed in Chapter I.

In the same clock the nocturnal hours are marked by the appearance of a light behind twelve circular glass discs similar to the windows in which the cosmic luminaries were believed to appear (ill. 137).³⁷¹ The word used for these roundels is jâmâtī. This term is also used for circular goblets or cups of glass and, more germanely, for the glass roundels set in the domes of hamamms.³⁷² It has been suggested above that these circular openings are related to the windows which open in the heavens. The occurrence of similar features, also filled with jewel-like discs of glass, in a device designed to mark the passage of time - that is, the movements of the heavenly bodies - supports such a suggestion. It is true however that in the hamman domes such cosmological ideas are expressed in a less sophisticated form and a more mundane context than in the clock of al-Jazârī. While the resemblances between the starry sky and the hamman dome filled with shining coloured discs are self-evident, that every individual using such utilities was aware of the complex associations of this apparently simple notion is to be doubted.

Such ideas are directly relevant to the glass cupolas and jewelled baldachins under discussion. The Sasanian baldachin mentioned above was decorated with roundels (jâmâtī) of coloured crystal,³⁷³ which must have given it an appearance not far removed from that of medieval hamman domes. One might also mention the Sasanian cup in the Bibliothèque Nationale in Paris, the so-called "Cup of Khusrâu" (ill. 138). On this cup the ruler appears on a rock-crystal disc surrounded by rosettes and lozenges of crystal and precious stones, arranged in such a way as to suggest rays emanating from the enthroned ruler.³⁷⁴ The ruby rosettes appear as stars orbiting around the monarch enthroned in a crystal heaven, even as the glass-filled zodiacal discs in the clock of al-Jazârī actually rotated around a glass moon and a golden sun. Once again the nature of the medium serves to reinforce the iconographic content.

One may conclude that the use of jewels and glass could, in certain contexts, assume a cosmological significance; moreover the static image on the Sasanian cup finds a dynamic counterpart in court ritual. The Takht-i Taqqîs, beneath which the living ruler sat, functioned as a clock, enabling one to tell the time of day and the zodiacal positions.³⁷⁵ The Chinese cosmological palace, the Ming

³⁷⁰ See p. 225 above.
³⁷² Grotfeld, Das Bad, p. 43; above p. 232.
³⁷³ See above, p. 191.
³⁷⁴ Hillenbrand, Rayed nimbus, p. 75, fig. 52.
³⁷⁵ Lehmann, Dome of Heaven, pp. 24-5; H.P. L'Orange, Cosmic Kingship, p. 21.
Tang, also functioned as a monumental clock. The cosmological models on which such jewelled "heavens" are based are directly related to those on which al-Jazārī drew. Just as the device designed to measure time reproduces the structure and form of the cosmos in miniature, so too the throne, and ultimately the entire palace, can function a microcosm. It is surely no coincidence that many of the clocks depicted in al-Jazārī's work take the form of palaces.

It is with this in mind that one should approach the following description of the glass pavilion erected by the Dhu'l-Nunid ruler al-Ma'mūn, part of a panegyric written by Abū Muḥammad Ibrāhīm al-Miṣrī, one of the Toledan court poets:

"It possesses the [light of the] sun and moon simultaneously; the mind becomes bewildered when it seeks for a comparison. One might say that al-Ma'mūn is the full moon of the nocturnal gloom, and it is the firmament which revolves about him."377

It is true that the notion of the ruler as a source of light, particularly a cosmic luminary, is something of a cliché of courtly panegyric. In the context of the foregoing discussion, however, one wonders whether there was more to al-Miṣrī's description of the Dhu'l-Nunid kiosk in cosmological terms than poetic cliché. Indeed the intriguing possibility exists that the same engineer or architect who was responsible for the construction of the pavilion also erected the famous water clock of Toledo.378 Interesting in this respect is Benjamin of Tudela's account of a palace adjacent to the Great Mosque of Damascus. The palace had,

"...a wall of crystal glass of magic workmanship, with apertures according to the days of the year, and as the sun's rays enter each of them in daily succession the hours of the day can be told by a graduated dial."

No other accounts mention a glass palace here, and the description sounds suspiciously like the clock which stood outside the Bāb Jayrūn of the same mosque. The clock was constructed between 541/1146 and 564/1169 and was later restored by Fakhr-al-Dīn Ridwan al-Sa'ūdī.380 It was seen by Ibn Jubayr, and his description of its nocturnal functioning recalls both the clock of al-Jazārī and the crystal wall seen by Benjamin of Tudela:

377 After Pérès, Poésie, p. 151.
379 Adler, Itinerary, p. 30.
380 Elisséeff, Description, p. 71.
"In the archway that bends over these (twelve small) arches are twelve perforated brass discs at each of which, inside the wall of the gallery, is set a plate of glass. All this is arranged behind the (hour) arches mentioned above. Behind each glass is a lamp which is turned by water on an hourly system, so that when an hour has passed the light from the lamp illumines the glass and throws its rays upon the disc in front of it, making it appear to the eyes as a red circle. The lamp then changes on to another disc until the hours of the night are ended and all the discs have been reddened."

That Benjamin of Tudela, even as an unreliable informant, could confuse a clock with a glass palace is a fascinating witness to the close relationship between the two. Moreover the strength of the connection between the jewelled pavilion and the cosmos is indicated by its survival into the Ottoman period. The name and paradisal allusions of the "Pearl Kiosk" constructed by Murâd II at Topkapi in the second quarter of the eighth/fourteenth century are familiar, as is the language which the eleventh/seventeenth century historian Hasanbeyzade uses to describe it:

"From this dome representing the revolving vault of the heavens hung bejeweled and gilded pendant globes with pearl-strung tassels that resembled the celestial spheres."382

7.5.6 The chain of associations.

One may see such jewelled pavilions as bowers of light designed to house monarchs well-versed in the language, or at least the clichés, of cosmic kingship. They are the architectural equivalents of the cosmic settings in which the ruler often appears in the minor arts of the Islamic world.383

The idea of the centre is intimately associated with the pavilion as microcosm, for the stars and planets need a fixed point about which to rotate.384 This may be one reason why such pavilions were often constructed in the middle of lakes and pools. The idea of the fixed centre is very much apparent in al-Misrî's description of the Toledan kiosk. Similarly, the poetic inscriptions in the Alhambra which make frequent reference to the Nasrid Sultans as suns, moons, and planetary bodies also specify that the Mirador de la Daraxa is the eye of the palace, with the Nasrid Sultan as the pupil of that eye.385 If the palace or pavilion is a model of the cosmos then, by implication, the ruler is the

381 Broadhurst, Travels, p. 281.
382 Necipoğlu, Architecture, p. 227. "Pearls-strung tassels" were also found in the tents of the Mughal Emperor Shah Jahan and were equally imbued with cosmological significance: Andrews, Generous Heart, p. 152.
383 Baer, Cosmic Setting, pp. 13-9; Hillenbrand, Rayed Nimbus, pp. 32-7. The idea that the cosmological motifs found on medieval Islamic metalwork had some connection with the Dome of Heaven was suggested in Dorothy Shepherd, Banquet and Hunt in Medieval Islamic Iconography, Gatherings in Honor of D.E. Miner [eds. U.E. McCracken, L.M.C. Randall and R.H. Randall] (Baltimore, 1974), p. 92.
384 The heavenly domes of the Alhambra are "rotating around a prince who has become part of the constellations", O. Grabar, Review of Bargebuhr, Art Bulletin (LI, 1970), p. 199.
luminary at the centre of that cosmos. This implicit claim is the key to understanding the cosmological cities, palaces, pavilions, thrones, carpets, cups and mirrors which have just been discussed. The same idea is expressed with such frequency in courtly literature, art and architecture that one wonders if it had quite the same impact on contemporaries as it did on later art historians.

One might even go so far as to offer the paradoxical suggestion that, in their own context, references to Solomonic or cosmic kingship in the medieval world, East and West, were so commonplace a cliché of courtly art and literature as to constitute a rather banal sine qua non of kingship, no matter how petty. The implications of this may appear disturbing. It is, however, unlikely that notions of cosmic kingship or Solomonic dominion, whether expressed in literature or architecture, held the same significance for medieval Muslims as they do for a Western art historian endeavouring to reconstruct fragments of meaning in an age which has rejected the notion of universal values, not to mention universal kingship. To focus attention on one aspect of such ideas, to objectify one's subject-matter, is to distort its significance, for as Krautheimer accurately surmised:

"Rather than being either the starting point or else a post festum interpretation, the symbolical significance is something which merely accompanied the particular form which was chosen for the structure."

One might add that language, as a linear tool, necessarily removes one further from the simultaneous expression of complex and multi-layered references in the structures under discussion. That these references, and the relationships between them, are, like the details of Solomon's palace, neither clearly defined nor outlined in precise detail in no way detracts from their potency.

What appears to us as exotic bombast or pretentious hubris may be neither. The resemblance of Solomon's throne and its setting to the throne of God, or the Ka'ba, which appears to us as an act of hubris, is not identified as such in the medieval sources. Instead one should see the resemblances as part of an attempt to create, through structural emulation, a prevailing harmony between heaven and earth. The same idea is apparent in the palace of Bahram Gūr, in the Takht-i Taqīš and in the countless other palaces which reproduce the structure and form of the cosmos. The numerous descriptions of actual palaces designed with a nod in the direction of the forces governing the cosmos

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385 Dickie, Alhambra, p. 134. For the inscriptions in which the ruler is compared to a light see Garcia Gómez, Poemas, pp. 98, 104, 126. For an analysis of the iconographic references to cosmic kingship in the inscriptions and architecture of the Alhambra see Puertas Vilchez, Códigos, pp. 112-7.


387 The resulting tendency is to focus on a single iconographic theme and to isolate it as the dominant meaning. For a critique of similar tendencies in the study of medieval Christian architecture see P. Crossley, Medieval architecture and meaning: the limits of iconography, Burlington Magazine (CXXX, 1988), pp. 116-21.
are ample proof that the palace in the *Haft Paikar* was not merely the product of Nizāmī's imagination.

Such ideas are firmly linked to the idea of a "chain of associations" between the stars and human activities. At its most extreme this is typified by al-Thaʿalībī's assertion that there is no creature on earth for whom a star does not exist in its image. The influence of such Platonic ideas reveals itself in the numerous attempts to establish a correspondence between the structure of the zodiac or planets and that of the sublunary world, its contents and the activities which are carried out within it. Al-Birūnī states that "all earthly phenomena are but a reflection of the organization of the heavenly bodies above." Accordingly, one finds attempts to model the structure of cities, palaces, minor objects, music, the human body, and even language on that of the planets and zodiac. Consequently it comes as no surprise to find that similar correspondences are found in the political order; the ruler being equated with the sun and his ministers with the lesser cosmic luminaries. Given the profound impact which such ideas had on medieval societies, East and West, it would, to put it mildly, be surprising if they found no expression in palace architecture. It is to ensure the reign of harmony that the palace must, through structural emulation, become a sublunary model of the cosmos. Thus what appears as bombast or hubris is in fact a necessary corollary of beliefs which enjoyed a widespread popularity in the medieval Islamic world.

The glass pavilion may, either in general, or in certain contexts, be seen as a variant on the theme of the cosmological palace. The use of translucent materials such as glass and crystal adds a further dimension to the cosmological allusions implicit in the names or decoration of royal pavilions, for these have particular associations with the stars. The seven heavens are each compared of a different jewel, and so the use of these jewels or their characteristic colours is especially effective as a means of establishing a favourable correspondence between heaven and earth. Moreover this correspondence is not just structural but also has a dynamic aspect, for jewels are formed "from exhalations and vapours which fall under the influence of the stars". As has been pointed out above, the close relationship between jewels and coloured glass enabled the latter to substitute for the former, even where the


391 Bürgel, Feather, pp. 20-2; Badiee, *Islamic Cosmography*, pp. 11-4.


context was more meaningful than decorative. In the light of the evidence cited above one may detect a further dimension to Solomonic and paradisal resonances of the glass pavilion.

7.6 Conclusion.

That the palace of glass became something of an archetype has to do with its ability to evoke simultaneously a whole series of related structures in which the constituent materials and associated effects are more important than architectural details. Among such structures are the shining pavilions of Paradise, legendary pre-Islamic palaces such as Ghumdān or that described in the Haft Paikar, the illusionistic palace of Solomon, and even the crystal qubba of the cosmos itself. One must assume that something of the splendid decoration of pre-Islamic palaces was preserved in descriptions of places such as Ghumdān or that of Solomon, however much the bare facts may have been embellished in later texts. In the course of such embellishments the historical palaces assumed the role of quasi-magical archetypes, indistinguishable from semi- or wholly-mythical structures such as Khwārnaq or the Palace of Prester John. Comparisons between built palaces, Paradise, and paradigmatic heavens such as Iram, Ghumdān, Khwārnaq, and the Palace of Bahram Gūr no doubt fuelled endeavours to mould reality to myth or metaphor.394 The use of similar names for built palaces suggests that such comparisons could be more than mere conceits.395 As Krautheimer demonstrated in his seminal paper on architectural iconography, in its simplest form the desire to emulate or copy influential buildings expresses itself in the adoption of the names of those buildings.396 In the medieval Islamic palace one might add that a semantic identification with its Solomonic prototype is often made by the repetition of linguistic formulae which make the connection even in the absence of a name. This observation is particularly relevant to a series of legendary and quasi-mythical buildings which, although they functioned as powerful archetypal images, were not characterised by specific features so much as general effects and what might be termed a magical ambience.397

While I have focused on light and the orchestration of illusionistic visual effects, one might equally well point to the frequency with which the great height of both pre-Islamic and medieval Islamic palaces are stressed in the sources. Indeed if one had to summarise the characteristics of

394 It should be noted that the same legendary palaces could be used as the standards against which even religious monuments were measured; Ibn Khaldūn compares the Madrasa al-Zahiriyya in Cairo (886-8/1481-3) to both Ghumdān and the Iwan of Khusrau; Ibn Khaldūn (tr. A. Cheddadi), Le Voyage d'Occident et d'Orient (Paris, 1980), p. 175.

395 Bloom, Origins, p. 29.

396 R. Krautheimer, "Iconography", p. 16.

397 Even if the iconographic connections between legendary and built structures tend to operate at an abstract level, this does not mean that they are imperceptible. See for example N. Khoury, The Ka'ba and Ghumdan: Arab myths and Umayyad monuments, Muqarnas (X, 1993), pp. 57-65.
palaces described in medieval Islamic texts in just two words, they would be height and light. The comments of Grabar are as relevant to crystal palaces in general as they are to Qaṣr al-Ḥayr in particular:

"One is to see in the site an illustration of an Arabian taste for striking architectural effects, which appears in traditions promising huge palaces in Paradise to good men and in the accounts of books like Hamdani's Ikīl, in which the monuments of Yemen are transformed into extraordinary mythical creations of the past." 398

Descriptions of such palaces seem to have inspired later rulers such as Humayūn, the Nasrids of Granada, 399 or the Ottoman Sultans. One may conjecture that descriptions of glass palaces built by earlier rulers were equally influential. A corollary of this is that, even where glass palaces were not built, the idea of an illusionistic glass pavement or a palace of glass was kept alive in the names of palaces and in metaphorical descriptions of their extravagant decoration. The intertwining of court ritual, literary metaphor, and art often results in the idea, or a nuanced detail, serving for the whole. The appeal of the image lies not in specific detail, but in the illusionistic visual appeal inherent in constructing a palace from as unlikely a material as crystal or glass. Nonetheless the numerous historical accounts of glass pavilions suggest that such metaphors were something more than cliché and indicate the power of myth to make itself manifest. The fortuitous survival of the glass-ceiled mirador in the Alhambra is a case in point. It is no doubt significant that the milieu in which it was created was a highly literary one, fertile with the accumulated traditions of three related cultures. Of the three it may be that the Jewish strand was ultimately the most influential for, with rare exceptions, 400 the jewelled palaces and glass temples of this tradition remained in the realm of literature and the imagination, 401 where they had the ability to both haunt and inspire. It is in story cycles such as A Thousand and One Nights, where it is continuo to dazzle and disturb, that the gem-studded architecture discussed above survives until the present day. 402

398 Grabar, City in the Desert, p. 168.

399 While these comments are intended in a general sense, more particular associations have been discerned in the Nasrid Palace of the Alcazars in Granada; R. Basset, Les Alcazars de Grenade et le Château de Khawarqas, Revue Africaine (CCLX, 1906), pp. 22-36. Similar influences have been detected in the Taj Mahal: Jairazbhoy, Taj Mahal, p. 88.

400 The palace of Samuel han-Nahšīl for example.

401 John Onians, discussing the importance of the Jewish Temple, concludes that "the visual representation of real buildings was relatively unimportant ... it is as verbal constructs which pass straight from the text into the head of the reader or listener that these structures infuse the Jewish consciousness"; Tabernacle and Temple and the Cosmos of the Jews, Cosmos (VIII, 1992), p. 135.

CHAPTER EIGHT
SANCTUARIES OF LIGHT.

8.1 Introduction.

The discussion has concentrated so far on the use of glass and light in profane architecture. In the final two chapters I would like to consider the associations of light in the architecture of the mosque. Since it is generally accepted that the image of the lamp in the mihrab has a transcendental significance, the historical associations between the mihrab and light are examined in this chapter. This is done to provide the context for a general discussion of the window and its potential to act as a bearer of meaning, in the final chapter.

8.2 The radiant mihrab.

In the architecture of the mosque one may detect an increasing directional focus on the qibla, and the mihrab in particular, from the late first/seventh century onwards. This is particularly true of many cathedral mosques, where the mihrab was emphasised by the use of a wider axial nave and a dome, or the reservation of an empty bay directly in front of it. This directional focus was frequently accompanied by a decorative elaboration. In the words of Papadopoulos:

"The mihrab is always the most richly-decorated location in the mosque and this decoration includes the whole area of the wall which surrounds it."  

Among the media used in the decoration of Early Islamic mihrabs one might mention the use of glass mosaic and precious stones. Both Istakhri and al-Idrīsī describe the mihrab of the Umayyad Mosque in Damascus and its surrounds as being gilded and set with precious stones (jawāthir). Muqaddasi is more specific, mentioning the use of agates (‘aqṭīqiyat) and turquoises (fayrūziyyat) "of the size of the finest stones that are used in rings" within the mihrab. It is conceivable that these

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1 For example, in the Great Mosques of Damascus (96-7/714-5) and Madina (88/706).

2 In the Great Mosques of Samarra (234-38/848-52) and Qairawan (222/836). On the increasing orientation towards the mihrab see I. Notkin, Genotypes of spatial form in the architecture of the East, Muqarnas (XI, 1989), p. 53.


4 Le Strange, Palestine, p. 236.


6 Rabitat, Dome of the Rock, p. 71.
authors were confusing the decoration of the mihrab with the mosaics above it, for we are told that sapphires and carnelians were set in the golden vine above the mihrab. Al-'Umar, however, mentions that the inscription surrounding a mihrab in the royal mosque of the Alhambra was studded with hyacinths, which suggests that the practice continued subsequently. The use of jewels in Late Antique architectural decoration may have provided the inspiration for such decoration.

If one may talk of an "iconography of effect" then the presence of the sparkling gems in the mihrab and qibla of the Damascus mosque should be attributed to their luminescent and reflective qualities as much as to their more temporal connotations of wealth and royal patronage.11 Later Ibn Jubayr describes the effect of coloured light from the qamariyyat of the mosque reflected off the mihrab in terms which are glowing. One may also cite an extant example of an early Islamic mihrab in which the luminescent effect of the media used in its decoration appears to be more important than the iconographic content of that decoration. This is the case in the Great Mosque of Qairawan (c. 248/862), where over one hundred and fifty lustre tiles were used to frame the opening of the mihrab.13 The tiles are decorated with stylised vegetal motifs, but are placed without regard to these motifs, which appear inverted or at angles of 45°. Presuming that the placing is original, one gains the impression that the lustrous nature of the tiles, visible in ill. 39, took precedence over their decorative content. In the words of Grabar,

"...what mattered was the golden brilliance and the ever-changing optical effects of the lustre, with its inherent possibilities for transcendental associations."14

While few Early Islamic mihrabs have survived from cathedral mosques such as Qairawân, one can point to descriptions of Umayyad mihrabs which mention their association with reflective or light-
giving objects. We are told, for example, that the *mihrab* in the Umayyad mosque at Madina was richly decorated with plaques of gold and a block of agate.\(^{15}\) In addition, Ibn 'Abd Rabbih mentions a glistening yellow stone set in the sculpted frieze which crowned the marble revetment of the *mihrab*.\(^{16}\) The latter scholar refers to this as the "mirror of Khusrau" and, somewhat paradoxically, attributes its ownership to 'A'isha. Ibn Jubayr is more specific, offering the following description:

"Above the *mihrab* ..., one sees a square yellow stone, measuring one span by one span, which shines and glistens: they say that this is the mirror of Khusrau, but God knows the truth of this assertion better than us."\(^{17}\)

From the description, and in view of the geographical location of the mosque, one might surmise that the stone was a slab of alabaster. The translucent properties of this stone had long been exploited in the palatine architecture of pre-Islamic Arabia,\(^{18}\) and the panel of alabaster set in the dome of the Cathedral known as al-Qal'at at Sana'a was also square.\(^{19}\) Rectangular panels of alabaster used as skylights in the roof of the Ka'ba after the renovations of Ibn al-Zubayr were brought from the same city.\(^{20}\) Several sources record that, in the time of Adam, on the site of the future Ka'ba there stood a pavilion of ruby which glowed with the brilliant light of a lamp lit within it.\(^{21}\) It is reported that the Angle of the Black Stone and the Angle of Abraham were originally two sapphires of Paradise,\(^{22}\) and a single translucent skylight was placed above each angle.\(^{23}\) The provision of a translucent ceiling in the Ka'ba may conceivably have been related to such traditions, for we are informed that the alabaster

\(^{15}\) Sauvaget, *La Mosquée de Medine*, pp. 83-4, 149. This appears to have commemorated the place where the Prophet led the prayer. For a reconstruction of the *mihrab* see Jairazbhoy, Shires, p. 31, fig. XIII.

\(^{16}\) Sauvaget, *La Mosquée*, p. 84. The same story is repeated later by Qazwini; Masdjid, El, p. 338.

\(^{17}\) Sauvaget, *La Mosquée*, p. 84; Wright, *Travels*, p. 194.

\(^{18}\) In the alabaster ceiling in the much-eulogised palace of Ghumdan; above, p. 193, n.72. The accuracy of such poetic descriptions has been borne out to some degree by recent finds of translucent alabaster slabs used to cover a ceiling in the third-century palace of Shahwa in southern Yemen; J-F Breton, R. Audouin & J. Seigne, Rapport préliminaire sur la fouille du de Shahwa (1980-81), Raydan (IV, 1981), p. 170. Al-'Umari reported that the Ka'ba was decorated by Ibn al-Zubayr in the manner of Ghumdan, and the translucent ceiling of the palace has been connected with the alabaster skylights of the Ka'ba; B. Finster, Zur der Neuanflage von K.A.C. Creswell's "Early Muslim Architecture", *Kunst des Orient* (IX, 1973/4), pp. 96-7.

\(^{19}\) Serjeant & Lewcock, *Sana'a*, p. 45. The term used by al-'Azraqi to denote the panel is *badag*, a word which is also used in connection with the alabaster skylights of the Ka'aba; Ibn Ibn Rustah (tr. G. Wiet), Les Atours Précieux (Cairo, 1955), p. 31; O. Grabar, Upon reading 'Azraqi, *Moqarnas* (III, 1985), p. 3.

\(^{20}\) *EMA II*, p. 63

\(^{21}\) Above, p. 229.


\(^{23}\) Ibn Rustah, *Atours*, pp. 30-1; according to Tabari the roof of the Ka'ba was believed to be the terrestrial equivalent of the roof of heaven; Wensinck, *Navel*, p. 52.
panel in the dome of al-Qa'ifs, "next to the place of the rising sun" served to flood the chamber below with light.24 The suggestion of a connection between the luminous dome of al-Qa'ifs and the translucent ceiling of the Ka'ba is strengthened by the fact that mosaics were taken from the Cathedral of Sana'a to adorn the Ka'ba at the same time as the alabaster panels.25

Similar methods of lighting were used in the Umayyad Mosque at Sana'a, where alabaster slabs were used to cap three lantern domes directly in front of the mihrab.26 Although now blackened, the slabs would have originally served, like the mysterious panel above the mihrab in the mosque at Madina, to suffuse the space in front of the mihrab with a glowing yellow light, so that "light poured in on the centre of the qibla wall".27 At a much later date the translucent properties of alabaster were exploited in the extended references to divine light found in certain Iranian mihrabs.28

One may also gain some impression of what the "mirror of Khusrav" may have resembled from the mihrab beneath the Dome of the Rock.29 The mihrab (pl. 156), of white marble, has an inset medallion which is made of a highly-reflective shiny black stone. The mihrab was originally dated to the late first/seventh century,30 but a date in the fourth/tenth or fifth/eleventh century has recently been proposed.31 It is possible, however, that the medallion was reused from an earlier mihrab.32 The setting of such a shining stone within the mihrab is reminiscent of the stone set above the mihrab in the mosque of Madina. Here, however, the circular form gives the impression of a sun, a suggestion heightened by the appearance of a radiating star- or sun-motif on the medallion itself.33 The light reflected from the stone medallion thus appears to come from the motif upon it. The form of the

24 Serjeant & Lewcock, Sana'a, p. 45. A clue to the significance of this feature may be found in the apsidal domes of medieval Ethiopian churches which symbolise "the eastern part of the firmament of heaven in which Christ, as sun, rises"; Gerster, Churches in Rock, p. 117.

25 Mas'udi, Prairies II, p. 199.

26 Serjeant & Lewcock, Sana'a, pp. 335-6, figs. 18.35-18.38; B. Finster, Der Freitag Moschee von Sana'a, Baghdader Mitteilungen (IX, 1978), p. 98, pl. 29.

27 Serjeant & Lewcock, Sana'a, p. 337.


30 EMA ii, p. 100, fig. 374.


32 Melikian-Chirvani, Light of Heaven and Earth, p. 118.

medallion and its colour recall Ibn Rustah's account of a circular piece of black onyx framed by a golden band which was set in the wall facing the entrance to the Ka'ba. Like the block of agate set in the mihrab of the mosque in Madina, the black disc is said to mark a place where the Prophet had once stood.

It can hardly be coincidental that in the decoration of the few surviving Early Islamic mihrabs, and even some of those mentioned in the sources, there are consistent and often very specific references to light. One may perhaps point to associations between the cultic niche and light in the pre-Islamic Judaeo-Christian tradition. A curious group of objects from Roman Palestine and Syria offers a striking parallel for the use of reflective materials in the decoration of the mihrab in general, and the decoration of the mihrab in the Dome of the Rock in particular. These are plaques on which a niche is depicted, often flanked by a pair of menorah (pi. 157). Within the niche itself is set a rosette, a square or circular piece of reflective glass or, occasionally, a mirror. The significance of these objects and their decoration has been assessed as follows;

"The rosette within the shrine may be a clue to the meaning of the Jewish shrines with their little glass centres. For the rosette was a symbol... of the sun or of light, the divine Light. ... The plaques may well have presented these little glass centres of the shrines because, by their reflection of a bit of light, they even more vividly than the rosettes showed the reality of the Light."

The idea of the sun as a transparent glass disc reflecting light is found in the work of the fourth-century Alexandrian philosopher Zosimus, and later in Islamic tradition, and may also be relevant. With little alteration the above statement could have been written of the mihrab in the Dome of the Rock and its shining shamsa, and it is seems likely that the mihrab is drawing on a pre-existing symbolic language to make its reference to divine light. It has been suggested that the torah shrine may have been one of the sources of inspiration for the mihrab. In this regard it is undoubtedly significant that some of these plaques appear to be the prototypes of pictures hung on the eastern walls of Orthodox Jewish houses to indicate the direction of prayer.

34 Ibn Rustah, Alours, p. 32.
35 See below, pp. 266, 280.
In view of the suggested link between the concave mihrab and the throne apse of pre-Islamic palaces, one might also mention the association between the throne niche and light. In the Byzantine world this is typified by the jewelled crown hanging from the apse which is itself described as a powerful source of reflected light. The suggestion of the ruler as a source of light may be detected in Umayyad palace decoration, and the description of the ruler in terms of a light or a sun became common in subsequent periods. The construction of gubernatorial palaces which abut the qibla wall, and which often have entrances adjacent to the mihrab, symbolises the close relationship between the architecture of palace and mosque in the Early Islamic period. It comes as no surprise therefore to find the theme of effulgence stressed in the domes directly in front of the mihrab in certain cathedral mosques, where the ruler led the prayers as imām. In certain cases such domes, through their decoration, assume the role of cosmological baldachins, "domes of heaven" similar to those found in early Islamic palaces. As has been noted above, methods of illumination used in the mosques at Madina and Sana'a, and in the Ka'ba, during the Umayyad period derive from the pre-Islamic palace architecture of Arabia.

While one may point to pre-Islamic parallels for the association between the mihrab and light, this is not in itself sufficient to explain the significance of the phenomenon in an Islamic context. In later periods this association was maintained, most notably in the form of the use of a lamp or a lamp-image within the mihrab. The latter functioned as a graphic symbol of spiritual illumination and divine light. On the basis of the symbolic significance attaching to the associations between the

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41 Mayer & Reifenberg, Reliefs, p. 139.
42 Sauvaget, La Mosquée, pp. 145-9.
43 Benjamin of Tudela describes the jewelled crown hanging above the head of the Byzantine Emperor as being of such brightness that even at night no lamps were required in its presence: cited in Ettinghausen, From Byzantium, p. 29. The idea of the crown which, by its brilliance, acts as a light, is also found in the medieval Islamic world; A.G. & E. Warner, The Shahnama of Firdausi, Volume III (London, 1908), p. 296. "Crowns of light" are mentioned in connection with the illumination of many churches, and an example of a hanging lamp in the form of a crown, presumably influenced by Christian prototypes, was found in a mosque at Elvira in Andalusia; M. Gómez-Moreno, Iglesias Mozárabes (Madrid, 1919; reprinted Granada, 1972), p. 393, fig. 218.
44 Ettinghausen, From Byzantium pp. 36-43.
45 See above, p. 192.
46 In the mosques at Kufa and Baghdad, to name but two; EMA II, p. 26; EMA II, p. 33.
47 Hillenbrand, Rayed nimbuses, pp. 28-9.
48 The muqarnas dome in front of the mihrab in the Great Mosque of Tinmal (548-9/1153-4) has seven levels. It has been suggested that the dome was intended as a symbol of the seven-tiered structure of the heavens; C. Ewert & J-P Wisshak, Forschungen zur Almohadischen Moschee II: Die Moschee von Tinmal (Mainz, 1985), p. 159. A similar idea can be found in the seven domes of seven different colours mentioned in the Hai'at Pa'kar, and later in the Alhambra, where both the structure and form of the decoration found on a ceiling transform it into a symbol of the multi-tiered cosmos; above, p. 235.
49 See below, pp. 264-71.
mihrab and the lamp, perhaps as early as the fourth/tenth century, one may suggest that the decoration of the Early Islamic mihrabs discussed above had a transcendental dimension. Ultimately it is the light which it provides that allows the lamp to act as a symbol. Grabar, commenting on the luminescent decoration of the Qairawan mihrab suggests that it contains the germ of an idea "which would reach full fruition in a sacred setting only much later." The evidence cited above suggests that this idea was being given varied and simultaneous expression in different parts of the Islamic world at a very early date. Even in subsequent periods the lamp, although the most ubiquitous, was by no means the only motif or method used to symbolise such effulgence.

One final piece of evidence may be cited for the use of light-emitting or -reflecting objects and materials in the decoration of Early Islamic mihrabs. In his description of the Great Mosque of Damascus Ibn 'Asākir relates the following story:

"Abd al-Rahlīn al-Ansāf said: 'I heard the bedouin who visited the mosque say: "how can one pray after having seen the qulayla, that is to say the 'Pearl' (diurr) ?" I asked them: "have you seen the qulayla ?". They responded: "Yes, it shines like a lamp (sirāj).""

The qulayla was stolen during the reign of al-Anlīh (194-8/809-13), but was subsequently returned to the Mihrab of the Companions by al-Mamʻūn. It later disappeared and a glass vase (burmāyya), seen by Ibn ʻAsākir, replaced it. It is not the precise nature of the qulayla which concerns us here, but rather the mention of an object placed within the mihrab which shines like, or perhaps even is, a lamp. The description of the qulayla recalls the hanging pearls depicted in the mosaics of the mosque (ill. 133), which Creswell suggested were probably imitating lamps hanging in doorways. In terms of its primary characteristic, namely luminescence, the qulayla is related to the "mirror of Khusrau" and the objects discussed above.

8.3 The illuminated mosque.

Light is a recurrent theme in the Qur'an, where references to divine light occur more than forty...
times. The Qur'an itself is said to be a light, and the heavenly luminaries are compared to lamps. Since the times for prayer are determined by the movement of these luminaries, there is an intimate connection between light and the mihrab. This connection is frequently evoked by the use around early mihrabs of verses which refer to the sun, moon, and stars. It may be that the luminescent decoration of the early mihrabs mentioned above reflects this dovetailing of the utilitarian and transcendental aspects of light. The lamp itself is used in the well-known simile:

"God is the Light of the heavens and the earth. The parable of His light is as if there were a niche (miskāt) and within it a lamp (mishāb): the lamp enclosed in glass: the glass as it were a brilliant star: lit from a blessed tree, an Olive, neither of the East nor of the West, whose oil is well-nigh luminous, though fire scarce touched it..." (XXIV:35)

On the basis of this comparison, the lamp hanging in the mihrab subsequently assumed the ability to act as a potent symbol of divine light. The identification of God with light is of considerable antiquity in the cultic traditions of the Near East. The Assyro-Babylonian deity Ninurta is described as "the light of the heavens and the earth", an epithet echoed in Sura XXIV. Similarly, in Assyro-Babylonian art the solar deity Nusku came to be represented by the image of a lamp. Light, and the lamp in particular, is also frequently associated with pre-Islamic cultic niches. The lamp is the source and symbol of light par excellence. In Jewish art the hanging lamp often appears in front of the torah shrine (pl. 167). Similarly lamps were suspended above the altar in the apse of churches. Early

56 Qur'an IV:174, XLII:52.
58 Sura VII:54, which mentions the sun, moon and stars appears on a mihrab in the Mausoleum of Sayyida Ruqayya in Cairo (e. 550/1150) and on another in the Masjid-i Jami' of Zavara (530/1135); Van Berchem, MCLA, Egypte I, No. 44; A. Godard, Athar-e Iran (I, 1936), p. 305. A quotation from the same verse appears within a mihrab form on a column in the Cathedral of Palermo which comes from an earlier mosque; Gabrieli & Sceratto, Gli Arabi, fig. 132. The same verse also appears on later Iranian mihrabs; RCEA No. 566. One could also mention the use of Sura XCI (al-Shams) around the mihrab in the Taj Mahal; W. Begley, The myth of the Taj Mahal and a new theory of its symbolic meaning, Art Bulletin (LXI, 1979), p. 36. This might be seen as the epigraphic equivalent of the sun motifs found in other mihrabs.
59 From the translation of Yusuf Ali. Some of the motifs in this verse find a parallel in earlier texts. Philo, for example, states that "olive-oil is the material of lights, and radiant in form is the heaven in which are the lightning stars". Questions and Answers on Genesis IV:1.
63 Goodenough, Jewish Symbols III, figs. 632, 639.
Christian lamps were occasionally transformed into symbols of divine illumination through the use of inscriptions such as "the Light of Christ shines for all " or "Light from Light". The latter may be compared to the use of the Light Verse later on Islamic lamps.

In pre-Islamic poetry the image of the lamp suspended from a chord or rope is found in the Diwān of Labīd and the Mu'allaqat of Imr al-Qais, where the stars are compared to lamps hung in the sky. A similar metaphor occurs in the Qur'an, where the sun, moon, and stars are said to be lamps which God has hung from the heavens. The suggestion of some connection between the lamp mentioned in Sura XXIV and the cultic significance of the lamp in Christian practice also receives some support from pre-Islamic poetry, where the lamp is traditionally associated with the solitary figure of the desert monk:

"The fire of it gleams like the lamps of a hermit, when the oil, poured on them, shakes the chord by which they are suspended."

"The rays of the sun on its sides sends forth a radiance like the lamps of hermits, brightly kindled on candlesticks [to guide the wayfarer]."

65 Clermont-Ganneau, La Lampe, p. 224.
66 El. Allah, p. 303; see below, pp. 277-8.
68 XXV:61, XL:12, LXVII:5, LXVI:13-6. In Sura LXVII:5 the term used, masūdūh, is the same as that used in XXIV:35. A related notion was found in the Early Christian and Byzantine worlds, where the stars were believed to be lamps held aloft in the heavenly dome by angels; E. Baldwin Smith, The Dome: a Study in the History of Ideas (Princeton, 1971), p. 91.
69 Pre-Islamic depictions of the Christian priest holding a lamp or censer may have inspired this tradition. For an example of such an image see D. Behrens-Abouseif, The Minarets of Cairo (Cairo, 1987), fig. 5. Similar images are found later; C.J. du Ry, Art of Islam (New York, 1978), p. 83. One wonders whether the association between the anchorite and the lamp owes something to the ability of the latter to symbolise spiritual illumination. The idea that divine illumination manifested itself as a light was widespread in the East Christian world; M. Eliade, A History of Religious Ideas. Volume III (London, 1985), p. 57. A similar idea is found in the Islamic world from an early date. The third/ninth century mystic al-Bagawi, known as Nuri because of his radiance, had a cell in the desert to which he repaired each night and from whence a great light was seen shining forth; M. Smith, A study of the life and teaching of Ħārith b. Asad al-Muḥāṣibī (London, 1933), pp. 31-2.
71 C.J. Lyall, The Mafaddalīyat, An Anthology of Ancient Arabian Odes. Volume II (Oxford, 1918), pp. 60, 63. The association between the anchorite and the lamp survives to a surprisingly late date, for the motif recurs in the work of Manuchihri Damghani in the fifth/eleventh century; Kazimirski, Manouchehri, p. 164.
The suggestion of a Christian connection also finds support in the tradition that it was Tanîfîn al-Dârî (d. 40/661), an importer of oil and lamps from Syria, who was the first to suspend oil lamps (qandîfî) in the Mosque of Madîna;

"The Prophet, entering the mosque and finding the lamps shining brightly, asked: 'Who did this?' To the response that it was Tanîfîn, the Prophet, turning towards him, said to him: 'You have illuminated Islam, may God light your way'."72

According to Baladhûrî, however, lamps (masûbî) came into use in the same mosque only during the time of Umar.73 The illumination from such lamps cannot have been very great, for in A.H. 60 the lamps in the mosque at Kufa provided insufficient light for Ibn Ziyad to search for his enemies, and needed to be augmented by torches.74 In subsequent periods the numbers of lamps in use in mosques and other religious institutions increased considerably. Ibn 'Abd Rabbih mentions the use of 1500 lamps in the haram at Jerusalem, with 464 hung by copper chains in the Dome of the Rock and 600 in the Aqṣa mosque.75 In addition to these, the latter mosque contained seven stands (samaubara) for lamps or candles. Approximately nine pounds of oil was allocated monthly to feed the lamps of the haram, and a yearly allowance was made for wicks and lamp-glasses. Ibn al-Faḍîl mentions 1600 lamps in the haram,76 while by the time of Nasir-i Khusrâu hanging lamps of silver and gold were used in conjunction with standing tapercandles in the Dome of the Rock.77 The Great Mosque of Damascus appears to have been well-lit from an early date; oil lamps were first used in the mosque in the last quarter of the first/seventh century,78 and by the time al-Ya'qûbî was writing there were 600 golden chains for holding lamps in the mosque.79 From the third/ninth century onwards the light from such lamps could be augmented by the use of candles.80 Evidence exists for the use of giant

72 Clermont-Ganneau, La Lampe, p. 259.
73 EMA II, p. 10; Golvin, Essai I, p. 244. However the term msbh appears in Sabaic inscriptions, where it signifies a votive object, perhaps a lamp; Beeston et al., Sabaic Dictionary, p. 140. It may be that hanging lamps only came into vogue later, but the use of the image in the Light Verse suggests that the hanging lamp must have been familiar enough to those for whom the verses were intended.
74 Masjid, p. 343.
75 Le Strange, Palestine, pp. 162-3. Curiously, both Christian and Jews appear to have donated oil for the lights of the haram; Golvin, Jerusalem, p. 178. A later account, cited by both al-Suyutî and Mujîr al-Dîn, informs us that the glass plates and vessels, rods, lantern bowls, and wicks for the lamps were manufactured by a group of Jews; Le Strange, Palestine, p. 149.
76 Ibid., p. 161. It is not clear how these were distributed.
77 Ibid., pp. 128-9.
78 Golvin, Essai I, p. 244.
79 Le Strange, Palestine, p. 233.
80 Golvin, Essai I, p. 241; E. Levi-Provençal, Le Péninsule Iberique au Moyen Age d'apres le Kitâb ar-Rawd al-Miṣrûr fi Ḥabar al-
chandeliers from the following century.\textsuperscript{81}

The provision of hanging lamps and other sources of illumination may be related to the multiple social and religious functions of the mosque. The mosque needed to be well-lit during the hours of darkness to enable prayer to be performed. Muqaddas\textsuperscript{T} mentions that in Syrian mosques hanging lamps were kept perpetually alight, "even as at Mecca".\textsuperscript{82} The illumination of the mosques acted as a deterrent to crime.\textsuperscript{83} The nocturnal illumination of Islamic cities only became widespread from the fourth/tenth century,\textsuperscript{84} and the use of lighting also facilitated the numerous other social and commercial activities which took place within the mosque.\textsuperscript{85} Extra brilliance could be introduced by the use of additional sources of illumination on festive occasions.\textsuperscript{86} It is possible that illumination could also have an honorific significance.\textsuperscript{87}

The mihrab, or mihrabs, as the focus of the mosque seem to have been singled out for particularly brilliant illumination. Yaqt\textsuperscript{W} mentions that, having decorated the mihrab in the Damascus mosque with jewels, 'Umar hung lamps of gold and silver about it.\textsuperscript{88} In Ibn Rustah's account of the Mosque of Madina the only chandelier (thurayya) in the mosque is said to be that which hung directly in front of the qibla.\textsuperscript{89} This practice finds a parallel at a slightly later date in the suspension of enormous metal

\textsuperscript{81} Ibn Rustah mentions a chandelier (thurayya) hanging in the Mosque of Madina; see note 89 below. Nasir-i Khusrau reports that a single enormous lamp containing seven hundred lights was donated to the Mosque of 'Amr by the Caliph al-Hakim in 403/1012; Schefer, \textit{Voyage}, pp. 148-9.

\textsuperscript{82} Le Strange, \textit{Palestine}, p. 233. Similarly, Nasir-i Khusrau informs us that more than one hundred lamps were kept alight during the night in the mosque of 'Amr; Schefer, \textit{Travels}, p. 149.

\textsuperscript{83} \textit{EI}, Masjid, p. 343.

\textsuperscript{84} A. Mazaheri, \textit{La vie quotidienne des musulmans au Moyen Age, X\textdegree au XIII\textdegree siècle} (Paris, 1951), p. 173.

\textsuperscript{85} \textit{EI}, Masjid, p. 343-4.

\textsuperscript{86} A ninth/fifteenth-century source reports that in addition to the 5000 lamps in the buildings of the haram at Jerusalem 2000 wax candles were lit on Friday nights, in the middle nights of Rajab, Sha'ban, Ramadan, and on the nights of the 'Ids; Le Strange, \textit{Palestine}, p. 148.

\textsuperscript{87} Nasir-i Khusrau mentions a silver lamp suspended on a chain above the zukhra in the Dome of the Rock; Schefer, \textit{Travels}, pp. 91-2. This was apparently replaced in 452/1040 by a lantern (tannur) containing 300 lights; Le Strange, \textit{Palestine}, p. 130.

\textsuperscript{88} Ibid., p. 264; F. Wüstenfeld, \textit{Jacut\textquoteright s Geographisches Wörterbuch} (Leipzig, 1867), p. 595.

\textsuperscript{89} Ibn Rustah, \textit{Kata\textsuperscript{b} al-Bul\textsuperscript{a}m}, ed. M.J. de Goeje (Leiden, 1892), p. 76. As Golvin noted, the chandelier is mentioned in a numerical listing of the lamps hanging in different parts of the mosque, but appears to have been distinguished by its great size and the number of lamps which it held; Golvin, \textit{Essai I}, p. 246.

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chandeliers (thurayyās) from the dome directly in front of the mihrab in Maghribi mosques. We are told that in the Great Mosque of Cordoba the largest chandelier hung from the dome directly in front of the mihrab. Such chandeliers, which contained as many as 1000 lights or more, also served, no doubt, to provide heat for the worshippers gathered around the mihrab in the early morning and during the winter months.

The illumination of the mihrab, like that of the minaret, and the mosque in general, was particularly associated with certain festivals. During the month of Ramadan the lamps in the Great Mosque of Cordoba used half their annual allocation of oil, while an enormous wax taper, weighing fifty to sixty pounds, burned night and day by the side of the insān,94 that is, adjacent to the mihrab. A spectacular example of an illuminated mihrab was seen by Ibn Jubayr at Mecca on the night of the 21st of Ramadan 579/1183:

"In the middle of the Haram, towards the Bab Banu Shāyba, was a sort of quadrilateral mihrab with a wooden balustrade standing on four pedestals and having at its summit wooden shafts, from which hung lamps, and on which stood lighted lanterns and torches. Round the mihrab were driven sharp-headed nails onto which were fixed the candles that surrounded the mihrab.95

The provision of settings for lamps in and around the mihrab continued into the Mamluk period and beyond.96 In addition to the functional, festive, and honorific aspects of such illuminations one must also consider the possibility that they had a symbolic significance. By the time that Ibn Jubayr was writing, the image of the lamp in the mihrab was widely recognised as a symbol of divine light from Egypt eastwards.97 It is difficult to imagine therefore that there is no transcendental significance attaching to

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92 The chandelier hung in front of the mihrab in Cordoba is said to have contained 1450 lights, while the total number of lights in the mosque is set between seven and ten thousand; Golvin, Éclairage, pp. 308-9. Among the chandeliers (thurayyās) to be found in Granada and Seville the largest contained 1000 lamps (mazūḥ), and the smallest just 12; Golvin, Essai 1, p. 246, Éclairage, p. 305.
93 See below, pp. 260-1.
94 Ibn Idhārī, Histoire, p. 479; Golvin, Essai 1, p. 313. The lamps and candelabras used on this night were normally stored in a room to the left of the mihrab; Dozy & de Goeje, Description de l'Afrique, p. 260; Juahert, Géographie, p. 61. A room in a similar position in the Great Mosque of Madina was used to store oil for the lamps of the mosque; Ibn Rusteh, Atours, p. 84.
95 Broadhurst, Travels, p. 151. The illuminations culminated on the last night of Ramadan, when the entire Haram was lit with candles, torches, and lanterns.
97 See below, pp. 264-71.
the use of lamps, lanterns, torches, and candles on the mihrab which he describes. In a practical sense the light in the mihrab, or coming from the chandelier hanging in front of it, serves, during the hours of darkness, to guide worshippers to the qibla. There is a symbolic dimension to this utilitarian aspect of mosque illumination which is implicit perhaps in the very origin of the mihrab.

8.4 The symbolic lamp.

It has often been suggested that the raison d'être of the first mihrab was to commemorate the place where the Prophet led the prayer,98 if not the Prophet himself.99 A hadith, according to which Muhammad prayed at Mecca between two columns, may explain why Early Islamic mihrabs are frequently flanked by single columns.100 Moreover in Sura XXXIII:46 Muhammad himself is described as a lamp (sirāj) spreading light.101 Thus the image of the Prophet as imām, leading the prayer between columns, has a certain symbolic equivalence with that of the lamp hanging in the mihrab. Such interpretation finds support from Tabari's fourth/tenth-century commentary on Sura XXIV:35, where the lamp is said to represent the Prophet.102 The lamp of the Light Verse is also compared to the heart of the Prophet,103 or the heart of the faithful man in which burns the light of belief.104 In certain early versions such interpretations were even incorporated into the Qur'anic text.105 Paramount in this identification of spiritual knowledge with light is the idea of the lamp as a symbol of spiritual illumination. While the lamp can, as mentioned in Sura XXIV:35, function as a guide, it does so because it is explicitly designated as a simile for, or symbol of, divine light in the same verse. Implicit in this is the notion of the lamp as a guide, one which accords well with both Qur'anic scripture (XXIV:40) and the utilitarian aspects of mosque illumination. It has even been

98 G. Bisheh, Mosque of the Prophet, p. 264; A. Papadopoulos, La Grande Mosquée de Médine et l'invention du mihrab en forme de niche, Le Mihrab, p. 89.
100 G.C. Miles, Mihrab and 'Anazah, a study in early Islamic iconography, Archaeologia Orientalis in Memoriam Ernst Herzfeld (New York, 1952), p. 164.
101 This was often reflected in popular belief. In the Hadramawt, for example, the Prophet is known as "the light-diffusing lamp" (al-sirāj al-mutīr). R. Serjeant, Hud and other pre-Islamic Prophets of Hadramawt, Le Musée (LXVII, 1954), p. 155. According to Mas'udi, Muhammad was created from a particle of God's light; A Sprenger (tr.), El-Mas'udi's Historical Encyclopaedia entitled "Meadows of Gold and Mines of Gems", Volume III (London, 1841), p. 51.
102 Tabari, Jami' al-Bayan Ta'wil ay al-Qur'an, Volume XVIII (Cairo, 1968), p. 134
103 Ibid., p. 137.
105 A. Jeffrey, Materials for the History of the Text of the Qur'an (Leiden, 1937), pp. 65, 149.
suggested that a light may have been placed within the *mihrab* in the Great Mosque of Cordoba to act as a "beacon for the faithful", guiding them to God's light.

On a popular level also there are indications that God was identified with light in the early Islamic world. The idea is implicit in a story told by Narshâkî. When large crowds gather outside his palace in Bukhara demanding so see him, the usurper Muqanna orders a group of women-servants to climb to the roof of his palace with mirrors;

"Then they were told to hold them next to one another at the time the sunlight struck the ground. When the sunlight fell on these mirrors the crowd was filled with light from the reflection of the mirrors. Then he told the slave to tell his followers that God is showing has face to them, and look! They looked and saw all of the world full of light."  

Among the more extreme Shi'a sects God was frequently identified with light. This notion began to be explored as early as the second century *hijra*, influenced by the ancient Iranian dualism between light and dark. From about the same time the influence of Neoplatonic ideas equating God and the good with light began to exert an influence on such thinking. Among those early commentators in which the motif of light recurs are Saḥl al-Tustārī (d. 273/886) and Al-Hakim al-Tirmīzī (320/932). At the opposite end of the Islamic world an Illuministic (*Ishrāq*) school was founded at Cordoba by Ibn Maṣīrā (d. 319/931), foreshadowing the better-known Illuministic School of al-Suhrawardī (d. 587/1191) which drew its influence from both Zoroastrian and Neoplatonic doctrines. Among the early commentators on Sura XXIV:35 are al-Makkī (d. 386/996) and Ţabarī. The esoteric interpretations of these scholars find a more pragmatic and

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106 O. Grabar, Notes sur le *mihrab* de la Grande Mosquée de Cordoue, *Le Mihrab*, p. 115. The golden mosaics and striated vousoir surrounding the *mihrab* suggest the radiation of light, a theme stressed in the decoration of the dome above; Hillenbrand, Rayed Nimbus, pp. 28-9. It should be borne in mind that it was from this dome that the largest chandelier in the mosque, with almost one and a half thousand lights, hung; above, p. 254.

107 Frye, *Bukhara*, p. 73. The connection between the ruler and light, which is also implied in this story, is in keeping with the other examples of this association discussed in Chapter VII.


encyclopædic counterpart in the work of al-Biruni who mentions the same verse in his works on pearls and glass.117

It has frequently been asserted that the depiction of the lamp in the mihrab was inspired by al-Ghazalī’s Mishkāt al-Anwār.118 This is a tract on the symbolic equation between the five faculties of the human spirit and the five elements mentioned in the Light Verse; the niche, glass, lamp, tree, and oil.119 The work is generally thought to have been written in the late fifth/eleventh or early sixth/twelfth century and was presumably capable of exerting an influence only later, when it had been widely disseminated. As I have indicated above however, the association between mihrab and light is of much greater antiquity. Tradition seems to suggest an association between the Ka’ba, towards which the mihrab is only an indicator, and the lamp which stretches back to the beginning of time, and the depiction of the lamp within the niche is merely the most canonical manifestation of the association between the mihrab and light.121 Furthermore, one can challenge the assertion of a Ghazalī connection on three grounds. Firstly, the association between the mihrab and lamps predates al-Ghazalī. Secondly, the association between the mihrab and Sura:XXIV is established is early as the fourth/tenth century by the use of quotations from the same sura on mihrabs. Around the same time the misbāḥ in the mishkāt came to be associated with the hanging lamp (qandī) in the mihrab. Thirdly, even the practice of depicting the lamp within mihrabs seems to predate the Mishkat al-Anwār. In the following discussion each of these points will be dealt with in turn.

8.5 The Light Verse.

The use of great chandeliers in front of the mihrab has been mentioned above, as has the setting of lamps and tapers beside it. Manuchihri Damghānī who, writing in the fifth/eleventh century, or

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114 Lazarus-Yafeh, Studies, p. 231.
115 Tabari, Jami’ al-Bayan XVIII, pp. 135-40.
117 Kahle, Bergkristall, p. 343.
119 W.H.T. Gairdner (tr.), Al-Ghazalī’s Mishkat al-Anwar (London, 1924); A.J. Wensinck, Ghazalī's Mishkat al-Anwar (Niche of Lights), Semietische Studiën uit de Nalatenschap (Leiden, 1941), pp. 192-212. Although al-Ghazalī’s authorship has been questioned by some scholars, the attribution to a particular individual is not essential to the discussion which follows.
120 See p. 229 above.
121 See pp. 271-6 below.
earlier, apparently uses the image of the lamp hanging in the mihrab as a metaphor for the radiance of feminine beauty.\textsuperscript{122} The image was not peculiar to the eastern Iranian world. A mosque with a mihrab in which a prominent glass lamp hangs appears on the frontispiece of a Qur'an found in Sana'a' (pl. p. 158, ill. 139) the date of which has been placed as early as the Umayyad period.\textsuperscript{123} Three hanging lamps appear in a mihrab depicted on a fragment of paper from the western Islamic world, dated to the fifth/eleventh or sixth/twelfth century (pl. 159).\textsuperscript{124} It thus appears that al-Ghazālī was drawing on a familiar image, and if the Mishkāt al-Anwār inspired anything, it can only be the depiction of the lamp within the niche, and not the practice of hanging the lamp in the mihrab.

That this practice had a symbolic dimension is suggested by the use of quotations from Sura XXIV around the mihrab itself. From the available evidence it appears that the earliest quotations from Sura XXIV were not from verse 35, but from verse 36;

"(Lit. is such a lamp) in houses, which God has permitted to be raised to honour, for the celebration of His name: in them is He glorified in the mornings and in the evenings (again and again)."\textsuperscript{125}

Curiously, and this may only reflect an imbalance in the published material on mosque inscriptions, this verse appears to have been particularly popular on North African mihrabs. It appears first, along with the following verses, on a fourth/tenth-century mihrab in the Great Mosque of Sfax.\textsuperscript{126} In the following century part of verse 36 and the beginning of verse 37 appeared in six epigraphic bands on one side of a stucco mihrab in a palace at the Qal'a of the Banu Ḥamād.\textsuperscript{127} In the Great Mosque of Tlemcen verses 36-7 appear to the left of the mihrab.\textsuperscript{128} The same verses appear around the mihrabs in two later mosques at Tlemcen.\textsuperscript{129} One wonders to what extent the early use of these verses determined the choice of Qur'ānic quotations in the mihrabs of Fatimid Cairo.\textsuperscript{130} Verse

\textsuperscript{122} Afshar, Persian Classical Texts, p. 615. I have not however found this verse in Kazimirsky de Biberstein's translation of Manuchîrî Damghânî's \textit{Divān}.


\textsuperscript{124} Grube, \textit{Islamic Paintings}, No. 4, pp. 33-5, pl. IV.

\textsuperscript{125} After the translation of Yusuf' Ali.


\textsuperscript{128} Ibid., p. 213.

\textsuperscript{129} In the mosque of Sayyid Abū al-Hasān (696/1296) and the mosque of Sayyid Abū Maydān (789/1338); Bouriba, \textit{Apports}, p. 199; \textit{L'Art Religieux}, pp. 118, 146, 199.

\textsuperscript{130} Attention has also been drawn to parallels between the decoration of Fatimid mihrabs and their earlier counterparts in the.
36 of the Surâ of Light is used around the mihrab in the Mosque of al-Juyûshî (478/1085) and on a mihrab from the Mausoleum of Sayyida Ruqayya (c. 550/1155). Verses 36-7 appeared on a slab in the Jami' al-'Amûf at Qus, possibly taken from a mihrab of the Fatimid period. In the Ayyubid period verses 36-8 were inscribed around a mihrab in the Madrasa al-Halawîyya in Aleppo (642/1244). Slightly earlier the Light Verse itself, and the verses following it, had appeared on a mihrab in the Citadel of Aleppo commissioned by Nur al-Dîn Maâkıûd (pl. 179). The presence on a mihrab of Sura XXIV:36, with its reference to prayer, is clearly appropriate. However verse 36 depends for its sense on the preceding verse, and on the mention of the lamp in particular. Most commentators discuss the meaning of verse 36 in conjunction with the preceding verse, taking the "houses" (buyût) to denote mosques, in the mihrabs of which hang lamps. It has been suggested elsewhere that the use of verses 36-7 in the absence of verse 35 reflects the aspect of the mihrab as a shrine (bayt). It seems equally probable that the latter verse was "held to be implicit in the reader's mind".

Given the evidence just cited for the illumination of the mihrab from an early date, one may also offer the suggestion that the suspension of a lamp within, or directly in front of, the mihrab would "complete" the Qur’anic inscription. It has been suggested that a mihrab in which a lamp was suspended might "function as a metaphor of spiritual illumination even in the absence of a Qur’anic text". One may point to a later juxtaposition of word and image which supports this view. On a funerary stele from Mosul a lamp is depicted hanging from the muqarnas hood of a stylised mihrab (pl. 160). The piece is undated, but comparison with Mausili mihrabs on which the lamp appears.


131 M. van Berchem, MCIA, Premiere Partie, L’Egypte II (Paris, 1903), No. 32, p. 55. The same verse appears on the south-west wall of the central aisle in the Mosque of al-Azhar; Bloom, Meaning, p. 122.

132 Ibid., p. 726, No. 527.

133 E. Herzfeld, MCIA, Deuxième Partie, Syrie du Nord: Inscriptions et Monuments d’Alep II (Cairo, 1954), No. 102, p. 218.

134 See below, pp. 273-4.


136 Melikian-Chirvani, Light of Heaven, p. 120.

137 Idem.


139 N.M. al-Tâbîrî, al-Maghârîb al-Iraqîyya (Baghdad, 1976) pl. 40, fig. 68. It has been pointed out that the nisba of the craftsman responsible for the carving, al-Tabrizi, suggests an Iranian origin; Melikian-Chirvani, Light of Heaven, pp. 120-2, fig. 22.
would suggest a date in the seventh/thirteenth century. The presence of the name "Allah" on the lamp leaves us in no doubt as to its symbolic significance. As one might expect, a quotation from Sura XXIV appears around the border. It is not verse 35 which is chosen however, but verse 36. Here then we have a lamp hanging in a minbar inscribed with a verse which both confers on it the status of a symbol and depends for its own sense on the presence of the lamp.

One may cite later parallels for the use of lamps and other mosque furnishings to complete or continue an epigraphic message. The use of Sura XXIV:35 on minarets is found in both Iran141 and Egypt142 as early as the fifth/eleventh century. The idea of the minaret as a source of light is connected with the etymology of al-manara, which is variously said to "place of fire" or "emplacement for light".143 The use of the minaret as a beacon tower provided with lamps may explain the presence of Sura XXIV:35-8 on the northern minaret of the Ḥakim Mosque in Cairo (386-412/996-1021).144 The practice of placing a light on the summit of a minaret was, by the last quarter of the sixth/twelfth century, "sufficiently common in Khorasan to occasion no comment."145 Ibn Jubayr mentions the use of lanterns on the minarets of Mecca,146 a practice which continued when Ibn Battuta visited the same city.147 Similarly, the popularity of the Light Verse on minarets of the Mamluk period148 may be attributed to the practice of illuminating the minaret with hanging lamps on festive occasions, or during Ramadan, a practice which continues until today (ill. 143).149 As many as sixty lamps at a time are said to have been hung from the Mamluk minarets of Cairo, and the appearance of the "towers sparkling with light" made a vivid impression on western visitors to the city.150 Medieval minarets in many parts of the Islamic world were also provided with finials which were capable of

141 On the minaret of the Masjid-i Jamāʿ in Dāmongān, which was completed in 423/1032; Melikian-Chirvani, Light of Heaven and Earth, p. 110.
142 On the northern minaret of the Mosque of al-Ḥakim (386-412/996-1021); Bloom, al-Hakim, p. 20, inscriptions 5-8.
143 Melikian-Chirvani, Light of Heaven, pp. 109-110. According to Yaqūt, in pre-Islamic times the western minaret of the Great Mosque of Damascus belonged to a fire temple, and a flame rose from its summit; Le Strange, Palestine, p. 264.
144 Bloom, al-Hakim, p. 20. Given the relationship between the minaret, beacon-tower, and lamp it is interesting to note that, in the Late Antique world lamps were produced in the form of perforated towers of lighthouses; S. Loeschke, Antike Laternen und Lichthäuser, Bonner Jahrbücher (C XVIII, 1909), pp. 401-5.
146 Bloom, al-Hakim, pp. 22-3.
147 The traveller mentions the erection of wooden poles on the minarets. On these were suspended pairs of glass lamps which served to indicate the hours of darkness during the month of fasting; Gibb, Travels, pp. 239-41.
148 For example, on the minaret of Qanibāy al-Muhammadī (816/1413); Behrens-Abouseif, Minarets, p. 194.
149 Ibid., pp. 12-3; J. Feeney, Ramadan’s Lanterns, Aramco World (March-April, 1992), pp. 14-23.
150 Behrens-Abouseif, Minarets, pp. 12-3, 30.
holding oil and acting as lamps. Certain early Islamic minarets were decorated with glazed faience tile which caught the light of the sun. At certain times therefore the minaret could be transformed into a literal and symbolic tower of light.

In many seventh-/thirteenth- and eighth-/fourteenth-century Mamluk minarets it is not the Light Verse, but Sura XXIV:36 which is found. The mention of morning and evening prayer renders the use of this verse relevant to its context. In view of the earlier, and continuing, use of the Light Verse on minarets one can also suggest that there was an added significance attaching to the choice of verse 36.

On many of the glass lamps used in Mamluk mosques, and presumably on their minarets, the Light Verse itself appears. It may be therefore, that the use of lamps bearing this verse on minarets bearing the following verse lent a further depth to the Qur'anic simile. Seen from a distance, the Qur'anic quotations on both lamp and minaret would be illegible. It is conceivable that the mere presence of the lamps in such a context was sufficient to connect the minaret with the Light Verse, thereby transforming it into a symbol of divine illumination. One occasionally finds symbolic lamps depicted on medieval minarets (pl. 161). It is hardly coincidental that the earliest appearance of Sura XXIV:36 on both minbars and minarets is almost simultaneous.

One might also point to the use of quotations from the Sura of Light on minbars, beginning with the appearance of Sura XXIV:36 on either side of a fourth/tenth-century minbar made for the Andalusiyin Mosque in Fez. Verses 36-8 of the same sura appear on the right-hand side of the minbar commissioned by Nūr al-Dīn Zengī for the Aqṣā mosque in Jerusalem. The minbar was to

151 Behrens-Abouseif, Minarets, pp. 30-2, pls. 3-4. Many of the Cairene finials were in the form of boats. Since crescent finials were also used, it is noteworthy that the idea of the moon as a vessel in the form of a boat is found in the pre-Islamic myths of the Near East; Butterworth, Tree, p. 123. The phenomenon was by no means restricted to Cairo, for in the Great Mosque of Cordoba the minaret had a finial in the form of three superimposed silver and gold apples, the largest of which could hold 60 ratl of oil and act as a lamp; Levi-Provençal, La Peninsule Iberique, pp. 62. Such golden finials were common on minarets, and it has been suggested that the use of the word manara relates not to the associations of the minaret with a beacon, but to these finials "which reflected the light with an overpowering effect that dazzled the eye"; Bissho, Mosque of the Prophet, pp. 326-7, n.164.

152 The minaret at the Qula' of the Banu Ḥamīdāb; above, p. 98.

153 On the minaret in the Complex of Qal'ūn (late seventh/thirteenth century), the minaret in the Mausoleum of Sanjar al-Gawrī (704/1304), the minaret of Quṣūn (738/1337), the "Southern" Minaret in the Southern Cemetery (740s/1340s), the minaret of Tankizbugha (764/1362), and on both the eastern and western minarets in the complex of al Mu'ayyad (first quarter of the ninth/fifteenth century); Behrens-Abouseif, Minarets, pp. 191-7.

154 See below, pp. 277-8.


156 The earliest appearance of Sura XXIV:36 in connection with a minaret is on a slab which bears the date 374/984 on the minaret of the Makmūr Mosque in Homs; RCEA No. 1899.

be set in place after the liberation of Jerusalem. Nur al-Din had never visited the mosque and it has been suggested that the Qur'anic quotation on the minbar was designed to continue that on the mihrab of the Aqsa in the belief that it contained the Light Verse:

"The position of the minbar, to the right of the mihrab ... makes it impossible that the choice of verses 36-7 was not taking into account that silent verse 35."\(^{159}\)

In fact such a presumption on the part of Nur al-Din would have been reasonable, since one of the earliest recorded uses of verse 35 is on a wooden mihrab commissioned by the same ruler for the maqam in the citadel of Aleppo (pl. 179).\(^{160}\) A further Qur'anic reference to lamps appears on a minbar in the Great Mosque of Aleppo which dates from the same period.\(^{161}\) At a slightly later date one finds depictions of mihrabs and hanging lamps on minbars themselves (pl. 202). It may also be significant that lamps were sometimes lit in the space beneath the steps of minbars,\(^{162}\) although it is not clear how widespread this practice was.

8.6 The illuminated arcade.

Having established that the textual and epigraphic evidence concur in suggesting that the illumination of the mihrab, through its connection with Sura XXIV, had assumed a symbolic dimension by the fourth/tenth century, I would like now to consider the artistic evidence for the connection between the lamp and the mihrab and its symbolic significance. The first point to be made is that the mihrab is intimately connected with the idea of a continuous arcade.\(^{163}\) This is abundantly clear if one examines the Qur'an frontispieces in Sana'a, the date of which has been placed as early as the Umayyad period.\(^{164}\) Two of the frontispieces depict the arcading of a mosque. Beneath each of the arches of the arcade hangs a single globular glass lamp containing a flame. On one of the frontispieces (ill. 139) a large arch appears at the top of the page in line with the main axis of the building. This appears to represent a mihrab, within which hangs a lamp. Noteworthy is the fact that

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158 van Berchem, MCIA II 2 (Cairo, 1927), No. 278.
159 S. Auld, The minbar of al-Aqsa, form and function (forthcoming).
160 Herzfeld, MCIA, Syrie du Nord: Alep I. p. 120.
161 Qur'an (XXV:62-3); Herzfeld, Damascus: Studies II. p. 43
164 Von Bothmer; see above, note 123.
the mihrab is merely a single unit extracted from the arcade and given greater emphasis by its location, increased size, and the elaboration of its decoration. In other mihrabs the connection with the arcade is emphasised by the appearance of a blind arcade within the mihrab itself. In view of this relationship, it may be that images of arches with hanging lamps "do not necessarily denote mihrabs but can be representations of arches or abbreviated versions of arcades." There is however an enduring ambiguity in the relationship which is unlikely to have escaped the notice of contemporary observers, and may even have been consciously exploited.

The motif of the continuous arcade was widely disseminated in Sasanian, Late Antique, and Early Christian Art and is likely to have paradisal connotations. The depiction of lamps hanging from the arches of such arcades is equally common from as early as the fourth century AD, when the lamp is found hanging from some of the units in the pedimented arcades used on sarcophagi. The motif of the arcade with hanging lamps also appears in pre-Islamic Jewish art. One finds numerous parallels for the distinction between the arcade and the mihrab in Early Christian art. On the Pola Casket (c. 400 AD), for example, small lamps in the form of open crucibles hang from the arches of a martyrion (pl. 162). The central arch of the entrance is distinguished from the units on either side by its greater size and the suspension of a polycandelon with many lights from its summit. In early depictions of mosques the mihrab can be distinguished from the illuminated arcade not only by its greater size, but by the presence of a great lamp (ill. 139), or even the multiplication of the number of lights within it (pl. 163). The association between the illuminated arcade and the mihrab with its light continued in subsequent periods.

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165 Noteworthy in this regard is Robert Serjeant's suggestion that in the Early Islamic period the term mihrab signified a row of columns and their intervening spaces; R. Serjeant, "Mihrab", BSOAS (XXII, 1959), p. 453. This suggestion was made on the basis of South Arabian usage and would seem appropriate to the image presented to us in the frontispieces found in Sana'a.

166 Denny Saffand Sejjadeh, p. 96, figs. 9-10.


168 See below, pp. 324-9.


170 On the Sarcophagus of Junius Bassus (c. 359) for example, de Fleury, La Menée VI, pp. 4-5. After this date appearances of the lamp in such contexts are frequent.

171 The lamp is one of the symbolic motifs set within a continuous arcade on a glass plate from Catacomb 15 at Beth Shearim which was closed in the fourth century or earlier; Engle, Lamps, Light, p. 26, fig. 15.

172 F. van Der Meer, Early Christian Art (London, 1967), p. 134, pl. 18 a-b. The motif of the hanging lamp may have had an honorific significance, since it frequently appears in connection with saints or martyrs; ibid., p. 135, pl. 20.

173 In contrast to the single lamps hanging in the arches of the surrounding arcade, three lamps appear in the mihrab depicted in a painting of the fifth/eleventh or sixth/twelfth century; Grube, Islamic Paintings, pp. 33-5, No. 4, pl. III.

174 See below, p. 278.
In view of its popularity in pre-Islamic art, it is hardly surprising that the illuminated arcade entered the repertoire of Early Islamic art. A continuous arcade with lamps hanging from the summit of each arch appears on a steatite lamp cover found at Mafraq in Jordan (pl. 164). This has been dated to the Umayyad period. The use of the illuminated arcade on a lamp cover suggests that the motif was not merely decorative but, like other motifs on the cover, functioned as a symbol of the light emanating from the actual lamp. That the arcade with hanging lamps could function as a meaningful symbol may explain its appearance in an early Qur'an manuscript (pl. 165) which is, in a very real sense, illuminated. Given the relationship between the mihrab and the illuminated arcade, the appearance of the latter motif at an early date provides further support for the suggestion that the mihrab was associated with light as early as the Umayyad period.

It should also be pointed out that depictions of the mihrab have a basis in actual practice. As the two early depictions of the mihrab mentioned above show, even where a mihrab was singled out by the suspension of a lamp within it, an observer would view the mihrab through a series of lamps hung on chains from the ceiling or arcades of the musalla. Nasir-i Khusraw describes both hanging lamps (qarnādīlā) and standing oil lamps (masrūjāhā) in the arcades of the Dome of the Rock. The lamps were, like those found in early representations, suspended from chains attached to the body of the lamp at three points. This usage may underlie the appearance of the illuminated arcade in Fatimid art (pl. 159, 166).

8.7 The lamp image.

I would like to turn now to consider the depiction of the lamp within the mihrab itself. It should be clear that the setting of a lamp within the mihrab was intimately related to the illumination of the mosque as a whole. On the basis of the foregoing discussion one might conclude that, by its association with Sura XXIV:35, the light of the mihrab could assume a transcendental significance.

176 Among these are six-petalled rosettes similar to those found in connection with pre-Islamic window- and door-openings; see above, p. 14. The design of the panel in which these rosettes appears looks as if it has been borrowed from pre-Islamic Jewish ossuaries.
177 B. Moritz, Arabic Paleography, a Collection of Arabic Texts, Volume I (Cairo/London 1905), pls. I-II. Moritz dates the manuscript to the first or second centuries of the hijra, but it is conceivably later.
178 Hillenbrand, Epigraphy, p. 181.
180 Grube, Islamic Paintings, pp. 32-3, No. 3, pl II. The motif of the arcade with hanging lamps appears on two fragments of Fatimid lustre pottery, an unpublished piece on display in the British Museum, and one in the Benaki Collection; H. Philon, Early Islamic Ceramics 9th to 12th Centuries (London, 1980), No. 538. On another Fatimid lustre bowl a priest is shown holding a lamp of similar type; du Ry, Art of Islam, p. 83. It may be that the context gave extra lustre to the lamp images.
perhaps as early as the fourth/tenth century. The *misbāḥ* mentioned in the Light Verse is often used in the generic sense of flame or light,\(^\text{181}\) and came to be associated with the hanging lamp (*qandīṭ*) in particular.\(^\text{182}\) This came about perhaps by the connection of the *misbāḥ* with the *mishkat*, which many commentators interpret as a piece of iron (*at-hudūṭī fīd*), presumably a chain, used to suspend the *misbāḥ*.\(^\text{183}\) We know that the lamps used in Early Islamic mosques were usually suspended by metal chains,\(^\text{184}\) and these chains are often conspicuously displayed in early depictions of the lamp in the arcade or the *mihrab*. The depiction of the lamp entails a series of multi-layered references, with the two-dimensional image doing service for the real lamp which functions as an illustration of Qur’anic metaphor. The symbolic presence of a perpetual light within the *mihrab* may be compared to the perpetual light associated with Jewish and Christian cultic niches (pl. 167, fig. 70),\(^\text{185}\) or the perpetual flame of the *chahar-taq*.\(^\text{186}\) In certain Timurid *mihrabs*\(^\text{187}\) this idea is given eloquent expression by the depiction of the hanging lamp on an alabaster slab filling an aperture in the *mihrab* through which light shines, filling the mosque with a warm yellow glow (ill. 140-2).

The evidence cited so far suggests that the *mihrab* was associated with light, and often with a hanging lamp, as early as the Umayyad period. The use of quotations from Sura XXIV around *mihrabs* from the fourth/tenth century further suggests that the lamp within the *mihrab* may have assumed a symbolic significance at this date, if not earlier. Depictions of lamps hanging in *mihrabs* may also have been known from an early date. In addition to the frontispiece in the Yemen (pl. 158, ill. 139) one might mention the fact that woollen prayer rugs decorated with *mihrab* images were being produced in Bukhara in the fourth/tenth century.\(^\text{188}\) Although no lamp is mentioned, these appear to be prototypes of the *saṭ* carpets on which, at a later date, lamps were frequently depicted.\(^\text{189}\)

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181 See note 92 above.

182 By the fourth/tenth century or earlier, *Ṭabarî*, *Jamiʿ al-Bāvār* XVIII, p. 139.


184 Above, pp. 252-4.

185 Goodenough, Jewish Symbols II, fig. 639; R. Hachili, The Niche and the Ark in Ancient Synagogues, BASOR (CCXXIII, 1976), figs. 8-9. The recurring motif of the lamp hanging in front of the torah shrine has been compared to the eternal light depicted in Early-Christian art; Y. Yarden, The Tree of Light, a Study of the Menorah (London, 1971), p. 25. Even earlier, a lamp was kept burning through the night in the Temple of the Moon (*Noctiluca*) in Rome; Varro De Lingua Latina (V:68). The resemblance between the Muslim symbol and its Judaico-Christian predecessors has not gone unnoticed; Dickie, Prayer Rug, p. 43; EI, Allah, p. 303.

186 Melikian-Chirvani has argued that the etymological and iconographic aspects of the *mihrab*, and its connection with light in particular, derive from the Zoroastrian fire cult; Light of Heaven and Earth, pp. 113-23. A similar suggestion was made earlier by Oscar Reutter, cited by Pope; Garden Palace, p. 82.

187 In a shrine and mosque at Biḍḍaḥkūvid and a shrine at Tulan Pusht. To the best of my knowledge only the *mihrab* in the mosque at Biḍḍaḥkūvid has been published; Hillenbrand, Epigraphy, p. 182, fig. 5; l. Afshar, *Vid̄gobharvī Zard* (Teheran, 1970), p. 560.

The earliest surviving mihrah on which a hanging lamp is depicted is in the mosque of Ahmad ibn Tulun in Cairo (pl. 168). The carving on the surface of the mihrah is badly damaged, but shows an object suspended from the arch of the mihrah by a twisted chain. The object has been interpreted variously as a lamp and a star. Both have been used as symbols of divine light within the mihrah, and one may be seen almost as an avatar of the other. In view of the consistency with which the lamp is seen to hang from a chain or chord on later mihrabs it seems likely that the object hanging in this mihrah was a lamp. The mihrah is dated to the fourth/tenth century, but it is conceivable that the decoration was executed later. However a fourth/tenth-century date accords well with independent sources of evidence which suggest that the light in the mihrah had assumed a symbolic dimension by this date. The depiction of the lamp on this mihrah may therefore be seen as a further attempt to make symbolic reference to Sura XXIV:35 in the decoration of the prayer-niche.

The relative dearth of surviving mihrabs of this date make it difficult to determine how widespread the phenomenon was. Slightly later, lamps are depicted hanging from the apices of a series of segmented niches on the walls of one of the Kharraqān tomb towers (460/1067-8) [fig. 69]. The lamps, appearing in conjunction with other light symbols such as shamsas, may be seen as a reference to Sura XXIV:35. The form of the arches from which they hang recalls the arched form of the mihrah. The theme of divine light and, more specifically the lamp, have a particular funerary significance. It is worthy of note that the earliest surviving mosque lamp on which the Light Verse appears is a Rum Seljuq lamp.

190 Denny, Staff and Sejadeh; Ettinghausen, Prayer Rug; Dickie, Prayer Rug.
191 Email pl. 123b.
194 See below, pp. 271-6.
195 It is reported that an unpublished mihrah from Nishapur on which a lamp appears dates from the third/ninth or fourth/tenth century; E. Esin, On the early history and symbolism of the Turkish carpet, Ars Turcica, Akten des VI. Internationalen Kongresses fur Türkisches Kunst (Munich, 1987), p. 506.
197 Daneshvari, Stylistic and iconographic study, p. 74.
198 D. Rice, Studies in Islamic Metalwork V, BSOAS (XVII, 1955), pp. 207-12, pls. I-VII.
Slightly later the image of a mihrab with a lamp hanging from the apex of its arch appears on the facade of the Aqmar mosque in Cairo (519/1125) [pl. 169]. The motif is one of a number of references to divine light, and to the Light Verse in particular, on the facade of the mosque.\textsuperscript{199} Even if one disputes the dating of the Tulûnîd mihrab, the evidence from Kharrâqân and the Aqmar Mosque suggests that the image of the mihrab with its hanging lamp was becoming familiar in the eastern Islamic world by the second half of the fifth/eleventh century or the beginning of the sixth/twelfth. Even when the depiction of the lamp within actual mihrabs became common, one still finds small-scale symbolic images of the mihrab and its lamp.\textsuperscript{200}

From the sixth/twelfth century the image of the mihrab and its lamp appear on a series of flat slabs, some of which come from, or served as, mihrabs but the vast majority of which had a funerary function.\textsuperscript{201} Among the earliest mihrab-plaque to use the motif is a marble slab from Ghazûf (pl. 171), dated to around 494/1100, but which might conceivably be later.\textsuperscript{202} In Anatolia the lamp appears above the mihrab in the Kale Çami at Divrîgî in 567/1170-1 (pl. 170),\textsuperscript{203} and within a mihrab in the Ulu Çami of Dunaysîr (601/1204).\textsuperscript{204} After its initial apperance the lamp image recurs in the mihrabs of other Anatolian mosques during the seventh/thirteenth and eighth/fourteenth century (pl. 172).\textsuperscript{205} The image of the lamp appears in Mesopotamia in a series of mihrabs within funerary monuments of the seventh/thirteenth and eighth/fourteenth centuries at Mosul and Sinjîr (pl. 173).\textsuperscript{206}

\textsuperscript{199} Williams, Cult I, 45-7.

\textsuperscript{200} On the western facade of the Ulu Çami at Eski Malatya, (645/1247), for example: E. Baer, Notes on the Iconography of Inscriptions and Symbols in the Ulu Çami of Eski Malatya, Ars Turcica: Akten des VI. Internationalen Kongresses für Türkische Kunst (München, 1987), p. 137, figs. 2a-b.

\textsuperscript{201} Among the indications that certain plaques come from, or were used as, mihrabs is the absence of funerary inscriptions. The setting of such plaques on the rear wall of the mihrab was common in Northern Mesopotamia and Iran from the late sixth/seventh century onwards. On the question of whether some of the earliest mihrabs assumed the form of flat plaques see A. Dauolatli, Le mihrab: signe où symbole ?, Le mihrab., pp. 76-82.

\textsuperscript{202} David James in \textit{Louisiana Revy} (XXVII, 3, 1987) No.46. The suspension of the lamp from a line dividing the niche and its hood is paralleled in a mihrab in the Mausoleum of Imam ‘Awn al-Din in Mosul (646/1248); al-Tuntunchi, al-Mâbirî, fig. 59, pl. 34.

\textsuperscript{203} Omer Bakirer, \textit{Ondure ve ondurdümce Yüzylillarda Anadolu Mihrablari} (Ankara, 1976), No. 8, fig. 8, pls. 33-5. The lamp, however, is not visible in these illustrations. A single flame emerges from the lamp, an effective reminder of its function, and one found later; al-Tûntûnchî, al-Mâbirî, fig. 64, pls. 36-7.


\textsuperscript{205} Ulu Çami, Akçhîr (616-34/1220-36); Konya, Alevi Sultan Mescidî (eighth/fourteenth century); Bakirer, \textit{Anadolu Mihrablari}, Nos. 65-6.

Similarly, around 612/1215 a hanging lamp bearing the name "Allah" appears in a mihrab carved in the Tomb of Cyrus at Pasargadae. Simultaneously the motif features on a lustre mihrab in the shrine at Mashhad. This is one of the first in a long series of lustre mihrabs and funerary plaques on which the lamp appears. It may be that the medium added a further resonance to the light symbol. Some of the most dramatic and effective evocations of divine light are found in a series of alabaster mihrabs from Timurid mosques and mausolea around Yazd mentioned previously (ills. 140-2). In these the lamp appears in a niche depicted on an alabaster slab which is set into an aperture in the qibla, so that a golden light shines through it.

Although the image of the mihrab with its lamp appears on Egyptian funerary stelai from the end of the sixth/twelfth century (figs. 71a & b), it is found on mihrabs only from the eighth/fourteenth century (fig. 73). In the same century the image of the lamp appeared on mihrabs in Yemen and Western India, especially Gujarat.

The image of the mihrab with its hanging lamp appears simultaneously on Egyptian, Northern Mesopotamian, and Iranian (pl. 174) funerary stelai from the second half of the sixth/twelfth century.

207 Melikian-Chirvani, Light of Heaven and Earth, p. 120, fig. 21. The name of God appears on either side of the lamp on the plaque in the David Collection (pl. 171), and on the body of a lamp depicted on a slab from Mosul (pl. 160). See also E. Baur, Metalwork in Medieval Islamic Art (New York, 1983), pp. 37, 313 n. 73, fig. 25.

208 O. Watson, Persian Lustreware (London, 1985), pp. 124, 185, 190, pls. 104 a-b.


210 See note 177 above.

211 G. Wiet, Catalogue Générale du Musée Arabe du Caire, Stèles Funéraires, Volume VI (Cairo, 1939), Nos. 100, 6738-9, 6892, 9767, 13079, 11142.

212 On a mihrab-plaque from the Madrasa al-Budayriyya (759/1357); Herz-Bey, Catalogue, No. 19, p. 10. On the mihrab in the Mosque of Asanbougha (772/1370); Hautecoeur & Wiet, Les Mosquées I, p. 295.

213 Images of lamps executed in relief occur on the projecting exterior of the mihrab and the south-eastern minaret of the Ashrafiyah in Tá'izz (778-803/1376-1401 or 694-697/1295-1297) - pl. 161.

214 One of the earliest in the series is the so-called Lar Mihrab now in Shiraz on which the hanging lamp resembles the censer which hangs above the Shiva lingam in Hindu temples. R. Howard, The Lar Mihrab, AARP (IX, 1976), pp. 24-5. See also A. Fuhrer, ASI, North-West Provinces and Oudh (Calcutta, 1889), pp. 53, 55, 111 pl. LX; J. Burgess & H. Cousens, ASI XXXIII, Western India IX, Archaeological Antiquities of Northern Gujarat (London, 1903), p. 54, pl. XXV.

215 See note 211.

216 Sarre & Herzfeld, Archäologische Reise II, pp. 286-7, fig. 276; al-Tüttencht, al-Maharrän, fig. 68, pl. 40; Melikian-Chirvani, Light of Heaven and Earth, pp. 120-2, fig. 22.

217 See, for example the marble plaque in the Metropolitan Museum dated variously to between the late fifth/eleventh and the second half of the sixth/twelfth century; G. Feinmarm, Tombstone or Mihrab?: a speculation, Islamic Art in the Metropolitan Museum of Art (ed. R. Ettinghausen) (New York, 1972), pp. 241-3, pl. I.
century onwards. The motif occurs on stelai in Afghanistan\textsuperscript{218} and Anatolia\textsuperscript{219} from the seventh/thirteenth century, and on Yemen\textsuperscript{220} and Gujarati\textsuperscript{221} tombstones from the first half of the eighth/fourteenth. It seems likely that the appearance of the mihrab with its lamp in this context is related to the ability of the lamp to symbolise both the soul in the tomb\textsuperscript{222} and the actual lamps dedicated at mausolea by pious visitors.\textsuperscript{223} To suggest that there was a commemorative function associated with the use of the motif is not however to deny its connection with the mihrab and divine light. The fact that the image of the lamp on tombstones became common at the same time as it appeared in mihrabs suggests that the decoration of one was capable of recalling the other. Moreover, the origins of the mihrab may lie in its commemorative role,\textsuperscript{224} and the same word could signify both a prayer-niche and a burial place.\textsuperscript{225} It seems likely that the funerary plaques could even, on occasion, serve as mihrabs.\textsuperscript{226} The use of the lamp as a symbol of divine light in a funerary context is entirely appropriate, since votive lamps were lit at tombs since pre-Islamic times.\textsuperscript{227} One might add that the symbolism of light and dark permeates Qur'anic descriptions of Paradise\textsuperscript{228} and the Day of Judgement, when the brilliant faces of the elect will be contrasted with the blackened faces of the damned.\textsuperscript{229} "May God illumine his face" and "May God illumine his tomb" are phrases found on tombstones from the early third/ninth century in Egypt,\textsuperscript{230} and in many parts of the Islamic world.

\textsuperscript{218} J. Sourdel-Thomine, Stèles Arabes de Bust (Afghanistan), Arabic (III, 1956), pp. 299-300, No. 4, pl. IIIb.


\textsuperscript{221} J. Burgess, Archaeology of Western India VI: on the Muhammedan Architecture of Gujarat (London, 1896), p. 25, pl. XIX.

\textsuperscript{222} According to a hadith the souls of the blessed take refuge in lamps (qantidall) which hang around the throne of God; Khoury, Mihrab image, pp. 18-9.


\textsuperscript{224} See p. 255 above.

\textsuperscript{225} Fehervari, Tombstone, pp. 249-52; for a critique of this view see Bisheh, Mosque of the Prophet, pp. 257-9.

\textsuperscript{226} Although graves were usually set parallel to the qibla, with the stele thus perpendicular to it, funerary plaques were sometimes included in the qibla wall of mosques; Archeologische Reise II, pp. 286-7, fig. 276.


\textsuperscript{228} See above, pp. 195-6.

\textsuperscript{229} Qur'an LXXV:22-4. According to al-Ghazali on the Day of Judgement the righteous will shine like lamps, with a brightness appropriate to their virtue; J.I. Smith (tr.), The Precious Pearl (Harvard, 1979), p. 49.

\textsuperscript{230} RCEA Nos. 153, 272, 385, 3288, 3585, 3895, 5405.
subsequently. Frequently throughout that world the tombs of saints, or even mosques, are said to be characterised by a brilliant light.231

As the evidence just cited indicates, there are some anomalies in the use of the lamp-image as a symbol of light in medieval mihrabs. In Syria the lamp is conspicuous by its absence on mihrabs, although its use in a funerary context was known.232 Similarly, in the western Islamic world the image of the lamp does not appear in mihrabs, despite the use of quotations from the Sura of Light in their decoration.233 This may be related to the fact that the qandil which came to be associated with the miṣbāḥ of the Qur'anic verse was not widely used in al-Andalūs and ʾIfrīqiyah. Instead polycandela and large chandeliers (thurayyās) were the preferred methods of mosque illumination.234 However, the miṣbāḥ is not a qandil, and the presence of the Light Verse on some of the Maghribi chandeliers suggests that they were equally capable of being seen as symbols of divine illumination.235

While the mihrab and its lamp occurs on a series of Egyptian tombstones between 576/1181 and 684/1283,236 the mihrab in the mosque of Ibn Ṭūlūn (pl. 168) is the sole surviving example of an Egyptian mihrab on which the lamp is depicted before the eighth/fourteenth century. Given that the image of the mihrab and its lamp appears on the facade of the Aqmar Mosque (pl. 169), one wonders why the lamp was not used in Fatimid mihrabs, which make much of the theme of light.237 It may be that at this period the lamp was only one symbol used to make reference to divine light or to Sura XXIV in the decoration of the mihrab. The use of star medallions to serve the same end in Fatimid mihrabs finds a parallel elsewhere in the Islamic world, and in certain cases the star may even be considered as an avatar of the lamp.238 As has been stressed in the preceding discussion, the depiction of the lamp within the mihrab was an accurate representation of contemporary practice.239 It may be

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232 For example on the late seventh/thirteenth-century sarcophagus of Khalid ibn al-Walid (Herzfeld, Damascus: Studies II, fig. 86) and the facade of the late sixth/twelfth-century Mashad al-Husayn in Aleppo (Sauvaget, Sanctuaires, p. 229, fig. 3). The mihrab-lamp image also appears on a ceramic plaque of the sixth-seventh/twelfth-thirteenth century said to be from northern Syria; M. Bernas, Céramiques du Proche-Orient Arabe, Revue du Louvre (1, 1973), pp. 42-3, fig. 3.

233 See below, p. 303.

234 Golvin, Éclairage; Baer, Metalwork, p. 39.


236 See ibid., p. 212 and figs. 71a-b.

237 Hillenbrand, Rayed Nimbus, pp. 29-31.

238 Dealt with in the following section.

239 The fact that some of the earliest representations of mosque lamps appear above, and not within, the mihrab (pl. 170) suggests
this fact which ensured the wide distribution and long life of the lamp above any other motif used to symbolise divine effulgence within the mihrab.

On the basis of the evidence cited above one may draw three conclusions. The first is that the Mishkāt al-Anwār is more likely to have been drawing on a familiar image than to have inspired the practice of hanging a lamp within the mihrab. The second is that the practice is unlikely to have assumed a symbolic significance solely on the basis of al-Ghazālī’s work. In fact one can detect a connection between the mihrab and light at a much earlier date which is likely to have transcendental connotations. The use of quotations from the Light Verse around the mihrab from the fourth/tenth century supports such a suggestion. Even the depiction of two-dimensional lamps in the mihrab cannot be ascribed to al-Ghazālī, since the earliest surviving example of a mihrab with such decoration appears to predate the Mishkāt.240 If one seeks to attribute any role to the Mishkāt al-Anwār it may be that the dissemination of the tract ensured the triumph of the lamp over other symbols of light. After the sixth/twelfth century the lamp appears as an almost universal symbol of light in the Islamic world while, with some exceptions,241 the prominent rosettes, stars and other light motifs frequently found in Early Islamic mihrabs become much less common.

8.8 The star and the lamp.

It is clear from the foregoing discussion that the lamp in the mihrab, and indeed the image of the mihrab and its lamp, may have functioned as a symbol of divine illumination from as early as the fourth/tenth century. It has been suggested above that a similar significance may have attached to the luminescent decoration of earlier mihrabs, even in the absence of the lamp. In support of this suggestion I would like to pause briefly to consider the frequency with which star motifs appear in Early Islamic mihrabs. The shining star rosette in one early mihrab (pl. 156) has been mentioned above.242 Prominent six-pointed stars also appear in mihrabs, one of the earliest being on a plaque set within the mihrab of the Great Mosque of Tunis (fig. 74), which is dated to 250/864.243 Two star

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240 Even if one does not accept a Ṭūlūnī date for this mihrab, the early appearance of the motif in north-west Iran, and later in Cairo, suggests that the image of the lamp hanging from an arch or niche was known at least as early as the Mishkāt was written. Presuming that al-Ghazālī is the author, if one seeks to attribute a causal role to this work one must allow an interval of time between the date of its completion (before 505/1111) and its dissemination, which would seem to take us beyond the date of these other appearances of the motif.

241 In the mihrabs of Gujarat large rosettes and sunflowers continue to appear in conjunction with the lamp into the ninth/fifteenth century; see above, note 214. It may be that although the star is no longer found within the mihrab, the connection survived into the Mamluk period; see below, pp. 311-2.

242 See pp. 246-7.

medallions appear on the plaque, fringed by a series of interlocking arches which give the illusion of radiance.

The appearance of single medallions containing hexagonal stars in the mihrabs of Fatimid Cairo has been well documented. These star medallions are usually set at the centre of a series of radial ribs which create a similar impression of effulgence (pl. 175). In the Fatimid mausoleum at Qift (pls. 176-7) light streams through the dome through apertures in the form of six-pointed stars. The six-pointed stars which are carved on either side of the mihrab (pl. 178) leave one in no doubt as to the significance of the star motif. The hexagonal star may in fact be considered something of a hallmark of Fatimid religious art. Sufficient evidence exists to indicate that the motif was used as a symbol of the light of God, Muhammad, or 'Ali, and as a reminder of the Shi'a belief in the transmission of divine light from generation to generation, imām to imām. In this context the star may be seen both as a general reminder of divine light and, by implication, as a legitimisation of the Fatimid regime.

In Sura XXIV:35 the light of the lamp is said to shine with a star-like brilliance and evidence exists to show that the six-pointed star was also seen to have particular connections with Sura XXIV:35. On the facade of the Aqmar mosque the six-pointed star appears in the centre of a geometric grille, the lines of which appear to radiate from the star (pl. 169). The grille occupies the lower field of a stylised mihrab from the apex of which hangs a lamp. The carving has been taken as a reference to the Light Verse and the appearance of the star in connection with the lamp is surely not coincidental. In view of the association between the star and the lamp on the Aqmar facade,

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244 Star medallions appear in the mihrabs on the exterior of the mausoleum of Sayyida Ruqayya (538/1133). In the main mihrab of the same building a star appears which is composed of six repetitions of the name "Muhammad" around a central 'Ali; Williams, Cult II, p. 45, pls. 7-8. Star medallions also appear in mihrabs in the al-Ḫagawī Tomb (c. 545/1150) and the mausoleum of Yahya al-Shāfi‘ī of about the same date; Williams, Cult II, p. 50-2. The lower part of the mihrab in the mausoleum of Umm Kulthum (516/1122) is filled with eight-pointed stars, each of which contains the name of either Muhammad or 'Ali; Williams, Cult 1985, p. 41, fig. 1.

245 Hillenbrand, Rayed Nimbus, pp. 29-31.

246 Similar stars appear on the walls of some of Fatimid mausolea at Aswan; U. Mommeret de Villard, La Necropoli Musulmana di Aswan (Cairo, 1930), p. 22, fig. 33.

247 In addition to the mihrabs mentioned above, the hexagonal star medallion appears at the centre of Fatimid domes. Among these are the dome in the entrance vestibule at al-Azhar, (pl. 62), and that in the Masbah al-Iṣhārī (1085). The latter, like the star in the mihrab at the Mausoleum of Sayyida Ruqayya, is composed of repetitions of the names Muhammad and 'Ali; Williams, Cult I, p. 40.

248 Williams, Cult I, p. 46; Cult II, p. 44.

249 Dodd & Khairallah, Image of the Word, Volume I (Beirut, 1981), pp. 45-7. For an alternative interpretation see Behrens-Abouseif, Facade, p. 33. The idea of illumination is implicit in the name of the mosque and is a recurrent theme in the decoration of the facade, Williams, Cult I, pp. 46-9.

250 In the case of a mihrab from the mausoleum of Sayyida Ruqayya the appearance of a prominent six-pointed star is rendered significant by the use of Sura XXIV:36, with its implicit reference to the preceding verse, around the mihrab; Van Berchem, MCIA, L'Égypte I, No. 638.
and the absence of the lamp in surviving Fatimid mihrabs, one might surmise that the former motif could do service for the latter. The appearance of the star in such contexts is not peculiar to Shi’a Islam and it is conceivable that the Fatimids were using a visual language developed earlier in non-Shi’a or even non-Islamic contexts. After the Sunni revival the radiant decoration of these Fatimid mihrabs appears to have influenced the design of mihrabs in which similar references to divine effulgence are made using a different, if related, visual language.

Slightly later than the Aqmar Mosque, in the Friday Mosque at Eski Malataya (645/1247), the hanging lamp appears within a stylised niche against a background filled with five- and six-pointed stars (fig. 72). One might even suggest that the occurrence of single, prominent star motifs in association with the mihrab may constitute a symbolic reference to divine light even in the absence of the hanging lamp. Single hexagonal stars appear directly above the mihrab in the several Syrian mosques and madrasas of the early sixth/twelfth-century. Approximately contemporary are two tombstones from the funerary complex of Shaikh Fatlif in Mosul on each of which is depicted a niche decorated with six-pointed stars containing the name of the Prophet. The star motif recurs in the wooden mihrab formerly in the citadel of Aleppo (563/1168) (pl. 179). A vertical series of six-pointed stars runs down the centre of the geometrical ornament on the back wall of the mihrab. A large five-pointed star containing the shahāda appears in the niche-hood. The references to light and radiation in the decoration of the mihrab have been taken as a reference to divine light, a theme stressed in the Qur’anic quotations found on the mihrab. The presence of the Light Verse among

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251 Although one might point to the frequency with which Qur’anic verses making reference to the cosmic luminaries appear on mihrabs from Iran; see note 58 above. More work needs to be done before one can draw any firm conclusions.

252 The pendentives of the dome in front of the mihrab in the Great Mosque of Qairawan, which are visually similar to the Fatimid mihrabs, have been described as scalloped shells "simulating sunrays flaming out from a central navel", Jairzchiby, Outline, p. 46.

253 One finds rayed niche-hoods in pre-Islamic Coptic architecture. In certain cases the rays appear to emanate from a symbolic motif such as a cross; É. Driotton, Art Syrien et Art Copte, Bulletin de la Société d’Archéologie Copte (III, 1937), p. 33, fig. 8; Flood, Iconography of Light, pp. 173-5, fig. 5. One might also mention the use of stars and other astral motifs on Zoroastrian fire altars which, it is suggested, are connected with the origins of the mihrab; Rempel, La Maquette, pp. 85-6.

254 Flood, Iconography, pp. 173-5.

255 Baer, Eski Malatya, p. 141, fig. 2a-b. The author concludes that the stars may have "more than a purely ornamental significance".

256 In the Madrasa al-Nasiryya in Damascus and the Salihîn Madrasa in Aleppo for example; Herzfeld, Damascus: Studies II, figs. 77, 62. In Mamluk mosques one often finds a single circular qamariyya in which a large six-pointed star appears directly above the mihrab; see below, p. 312. This practice may be derived from the decoration of the Fatimid mihrabs discussed above.

257 Sarre & Herzfeld, Archäologische Reise II, pp. 280-2, figs. 272-3.

258 Herzfeld, Damascus: Studies II, pp. 48-9, fig. 81.

259 Auld, Minbar.

260 Qur’an XXIV:35, II:256, XXV 62-3, II 257-8; Herzfeld, MCIA Alep I, p. 120.
these strengthens the suggestion that the star motifs should be interpreted as a reference to divine light as described in Sura XXIV. One can point to examples of the same phenomenon at the opposite end of the Mediterranean, in the Great Mosque of Tinmal (548-9/1153-4) for example, where a prominent six-pointed star, flanked by two eight-pointed stars, appears directly above the mihrab (pl. 180).261

In addition to the connection with the theme of light in general, and with Sura XXIV in particular, there may be a cosmological dimension to the use of the hexagonal star in such contexts. The interstices in the world-map of al-Birūnī, which shows the regions of the world as six circles grouped around a seventh, form the points of such a star (fig. 75). For similar reasons the hexagonal star was often attributed a special significance; al-Suyūtī states that this type of star has a special amuletic value.262

Further connections between the star and the lamp may be cited in support of the view that both or either could function as a symbol of divine light. The notion that the stars were lamps suspended from the heavens is found in the Qur'an and has been mentioned above.263 It is also the case that six-pointed stars similar to those found in fifth/eleventh- and sixth/twelfth-century mihrabs are frequently found in the pierced lattices of metal mosque lamps. A single large six-pointed star medallion appears on the base of an eleventh-century lamp from Qairawan (pl. 181, 7).264 When the lamp was suspended, the light, seen from below, would have outlined the star, heightening the analogy. Just how widespread the use of hexagonal star medallions was in the Early Islamic world is indicated by finds similar metal lamp bases at Rayy (pl. 181, 1-4).265 These have a terminus ante quem in the late sixth/twelfth century. A Seljuq hanging brass lamp in Istanbul, dated 483/1090, has two similar medallions on either side of its neck (pl. 182).266 Similar hexagonal star medallions appear contemporaneously on Seljuq Qur'ans, sometimes framed in a shamsa for added emphasis (ill. 108).267

The latticework body of the lamp from Damascus also features open hexagonal stars.268 The lamp came from the Great Mosque of Damascus and it may be lamps of this type that Ibn Jubayr had in

262 Strika, La «cattedra», p. 44.
263 See above, p. 251.
264 G. Marçais & L. Poinset, Objets Kairouanais IXe au XIIIe siècle (Tunis, 1952), pp. 411-33, figs. 87-8, pls. LXIII-LXV; Rice, Studies V, pp. 214-7, pl. IXa; Golvin, Éclairage, p. 305, fig. 2.
265 Rice, Studies V, pp. 221-3, pl. XII 1-4.
266 Ibid., pp. 217-21, pls. X-XI. Both sides of this lamp are shown in V. Erginsoy, İslam Maden Sanatinin Gelişmesi (Istanbul, 1978), pp. 361-3, figs. 189 a-c.
267 M. Lings, The Qur'anic Art of Calligraphy and Illumination, pls. 12, 16.
268 Apertures in the form of six- and eight-pointed stars are pierced in a hexagonal lantern of the sixth/twelfth or seventh/thirteenth century, probably from Iran; G. Feuchtwanger, Islamic Metalwork, No. 98.
mind when he described two pierced brass lamps in the court of the mosque as shining like the Pleiades. It may be significant that the earliest preserved lamp on which the Light Verse appears is another Seljuq lamp from Konya (pl. 183).

Comparisons between hanging lamps and stars are frequent in descriptions of mosques. The effect of light streaming through the star-shaped apertures of such mosque lamps may be seen as an extended visual pun, comparable to that found in the Fatimid mausoleum at Qus (pl. 177), or, in a less immediately graphic way, to the extensive use of light symbols on later candlesticks (pl. 200). In both cases the pun derives its force from Qur'anic metaphor.

In view of the many associations between the lamp and the star in scripture, popular belief, and indeed in the Light Verse itself, it seems reasonable to suggest that where the star is given prominence in the decoration of a mihrab this should be seen as the symbolic equivalent, if not the avatar, of the lamp. It has been suggested that the symbol hanging from a chain in the Tulūnīd mihrab discussed above is a star and not, as generally believed, a lamp. If so, the use of the star as a light symbol in the mihrab predates the earliest surviving appearance of the lamp in a similar context by almost two centuries.

In the Light Verse the brilliance of the star is used as a simile for the light of the lamp, which is itself a metaphor for divine illumination. Thus the star in the mihrab, no less than the lamp, functions as a symbol of spiritual illumination and, by implication, divine Light. Similar ideas are found in other traditions. Philo, for example, explains that a lamp was kept perpetually alight in the Holy of Holies of the Temple in Jerusalem to symbolize the stars. One might even go so far as to see the star in the mihrab as the aniconic equivalent of the image of Christ in the apses of medieval churches. The image of Christ as it appears in apse mosaics is frequently compared to a glittering star. The inscription accompanying the first/seventh-century apse mosaics in the Church of S. Stefano Rotondo in Rome, in which the face of Christ appears, states:

"Thou lookest on a roof golden with heavenly apex and a face gleaming like a star."  

269 Le Strange, Palestine, p. 251. It is also noteworthy that "The Pleiades" (al-Thurayyā) was the name given to a type of metal chandelier used in the Western Islamic world; above, pp. 254-5.

270 See below, p. 318.

271 Behrens-Abouseif, Fatimid Ceremonial, p. 33. On balance, though, I believe that the lamp is a more likely explanation of the design.


Whether or not this analogy is accepted, the evidence just cited suggests that the symbolic references to light in the decoration of the mihrab, although drawing on a limited repertoire, were not rigidly canonical. The hanging lamp, although the most widespread, was not the only motif used to symbolise divine light in the mihrab. This fact may explain why the image of the lamp in the mihrab appears to have been in a constant state of evolution almost from its earliest appearance, and the rapidity of the change which it subsequently underwent.

8.9 Transformation of a symbol.

The first way in which the image evolved was by the multiplication, or layering, of the references to light within it. This tendency is perhaps implicit in the phrasing of the Light Verse itself,²⁷⁵ and manifests itself in two ways; firstly, in the use of inscriptions on the lamp itself and, secondly, by the multiplication of the number of light sources associated with the mihrab. Religious formulae are found on metal lamps from the sixth/eleventh century or earlier.²⁷⁶ The word "Allah" appears on the body of many of the lamps depicted in sixth/twelfth- and seventh/thirteenth-century mihrabs (pls. 160, 171).²⁷⁷ Its presence may be taken both as an abbreviation for the longer inscriptions used on actual lamps and as an affirmation of the symbolic significance of the lamp itself. The earliest surviving lamp on which the Light Verse appears is a bronze lamp manufactured in Konya in 679/1280-1 (pl. 183).²⁷⁸ The verse appears around the neck of the lamp with the spaces between the letters pierced so that the very words identifying the lamp as a symbol of divine illumination appear against a ground of light. It seems probable that metal lamps such as this provided the prototypes for the enamelled glass lamps found in Egypt and Syria during the Mamluk period.²⁷⁹ Between the late seventh/thirteenth century²⁸⁰ and the ninth/fifteenth²⁸¹ quotations from the Light Verse form the most common type of

²⁷⁵ See below, pp. 328-9.
²⁷⁶ Rice, Studies V, pp. 213, 221-3.
²⁷⁷ See p. 260 above.
²⁷⁸ Rice, Studies V, pp. 207-12, pls. I-VII.
²⁷⁹ James Allan in Louisiana Revy (XXVII, 3, 1987), No. 27; Atil, Renaissance of Islam, No. 58, p. 140.
²⁸⁰ The Light Verse was commonly used on glass lamps during the reign of Sultan Muhammad ibn Qalaun; G. Wiet, Les Lampes en Verre de la Collection Gulbenkian, Annales de l'Institut des Études Orientales (VI, 1937), pp. 19-26, Nos. 4-6, pls. II-III; Anon., Islamic Art in Egypt 1969-1971 (Cairo, 1969), No. 179, pl. 31; Atil, Renaissance, No. 139, p. 139. Heiz-Bey (Catalogue, p. 31) pointed out that lamps of this type were known as qamariyyat Qala'unīy. In the Ottoman period, if not earlier, the coloured glass used in the qamariyyat of Cairo was known as ezupī qalātī ğnr, N. Hanna, Construction work in Ottoman Cairo 1517-1798 (Cairo, 1984), p. 41.
Qur'anic inscription on these lamps (pl. 123). The verse usually appears in the same place as the inscription on the lamp from Konya. Even after its appearance on glass lamps the Light Verse was still used occasionally on metal lanterns. In other parts of the Islamic world more subtle means were found to associate lamps with the Light Verse.

The presence of the Light Verse transformed the lamp within the mihrab into a potent symbol of divine illumination, and may explain why both the image of the lamp and quotations from Sura XXIV are rarely found on Mamluk mihrabs. Mamluk glass lamps bearing this verse survive in sufficient quantities - sometimes from the one building - to indicate that their use was not restricted to the mihrab. One may surmise that almost all the lamps hanging in Mamluk mosques could, to varying degrees, function as symbols of divine light. That this is so is further suggested by the production of metal (pl. 189) and, later, ceramic lamps which are incapable of providing light, but serve instead as symbols of illumination. The broadening of the terms of reference may have served either to reinforce the impact and symbolic force of the lamp hanging in the focal niche, or to weaken it.

Contemporary practice was faithfully imitated on a marble plaque of the mid-eighth/fourteenth century which assumes the form of a mihrab (fig. 73). On the lamp which hangs from the summit of the niche the words "God is the Light of the heavens and the earth" appear. The multi-layered reference to divine illumination is compounded by a second feature, the appearance of a single

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281 Among the latest examples are a lamp made during the reign of al-Mu'ayyad (815-24/1412-21) and one from the mosque of Qanibay which bears the name of the same emir; G. Wiet, Lampons en verre émaillés, Bulletin de l'Institut d'Égypte (XIV, 1932), pp. 117-26, No. 4, pls. IV-VI. G. Wiet, Catalogue Générale du Musée Arabe; Lampons et bouteilles en verre émaillées (Cairo, 1929), No. 332.

282 Wiet, Lampons, Nos. 282, 285-9, 291, 299-311, 313, 315-32, 336, 4066, 5875, 4070, 4257. It is usually only the opening words of the sura (down to "star") which are present; Herz-Bey, Catalogue, No. 30, p. 37; Lane-Poole, Art of the Saracens, p. 211; W. Hein, Eine datierbare Moscheelampe aus der Mamlukenzeit, Wiener Zeitschrift für die Kunde des Morgenlandes (LIII, 1957), p. 89; Atlı, Art of the Arab World, No. 76, pp. 140-1. More rarely the inscription continues onto the body so that the whole verse is present; Lane-Poole, Saracens, pp. 218-9. Among the other verses found on contemporary mosque lamps are XXIV:36 and IX:18. For a summary of the Qur'anic verses on Mamluk lamps see Schmoranz, Old Oriental Gill, p. 20.


284 An oil lamp on a stand (chiraghehān), possibly commissioned by Uzun Hasan (856-82/1452-78) for a sufi tomb, bears an inscription in which God is described as both a radiant lamp (mislāh) and a luminary (siyāq). The former term is used in the Light Verse, and is likely to have been associated with it by those reading the inscription; Melikian-Chirvani, Lights of Sufi Shrines, p. 129, pls. VII-VIII.

285 The large number of lamps surviving from the mosque of Sultan Hasan and the khanqah of Barquq is particularly striking.

286 Wiet, Objets en Cuivre, No. 130.


288 Herz-Bey, Catalogue, No. 19, pp. 10-1; Atlı, Renaissance, No. 111, pp. 218-9.

289 Although on the body and not the neck, as was the case on most mosque lamps. An inscribed band appears in a similar position on an earlier Iranian bronze lamp; Rice, Studies V, No. 2, pp. 212-4, pl. VIII.
candlestick holding a candle on either side of the lamp.

Evidence for the multiplication of the light sources within the niche is found as early as the fifth/eleventh century (pl. 163), and as many as five lamps may be depicted on the sides of certain concave mihrabs. It may be therefore that the addition of the candles is part of a general tendency in the development of mihrab decoration. One of the earliest appearances of the flanking candles is in a mihrab in the Mausoleum of Imām Yahya ibn al-Qāsim in Mosul (637/1240). A similar image is found on a carved wooden panel of Ayyubid date from Cairo (pl. 184). Slightly later the candles appear in a mihrab image in the Ulu Çami of Eski Malatya (645/1247) and in other Anatolian mihrabs (pl. 172). In Egypt the flanking candles are found on tombstones in the second half of the seventh/thirteenth century. Their use continued in the Mamluk period, most notably on the wooden cenotaph of Khalid ibn Walid from Homs (pl. 185). The cenotaph, decorated along its sides with a series of mihrab images, retains the ancient iconographic connection between the mihrab image and the arcade.

The use of standing lamps and candles flanking the mihrab finds a parallel in Judaeo-Christian art and ritual. In numerous pre-Islamic mosaics the torah shrine is shown not only with a lamp hanging before it, but with menorah flanking it (pl. 167). Similarly, on Byzantine sarcophagi one finds the cross or other symbolic motifs set in a niche flanked on either side by tall candlesticks containing lighted candles (pl. 186). The cross is often presented as a source of light, thus the entire composition, like its Jewish counterpart, is structurally very similar to the later image of the lamp in the mihrab flanked by candles. Given the chronological gap between the images, it is difficult however to see a direct connection between them.

It seems more likely than the addition of the candles should, like the depiction of the lamp itself, be seen as a faithful imitation of liturgical practice. The lighting of large tapers beside the mihrab on

290 In a depiction of a mihrab dated to the fifth/eleventh or sixth/twelfth century three lamps hang within the niche; Grube, Islamic Paintings, No. 4, pp. 33-4, pl. III.

291 In the Mosque of Panja 'Ali in Mosul (686-7/1287-8), Sarre & Herzfeld, Archäologische Reise II, fig. 268. A similar increase in the number of lamps in the mihrab is found on later prayer rugs; Atil, Anatolian Civilisations, p. 96, D.183.

292 Al-Tutturic, al-Mahānī, fig. 58, pl. 33.

293 G. Migeon, Manuel d'Art Musulman. Arts Plastiques et Industriels, Volume I (Paris, 1927), fig. 125.

294 Baer, Eski Malatya, p. 137, fig. 2a-b.

295 Wiet, Stèles VI, Nos. 6892, 11142, 13079; Anon., Islamic Art in Egypt, No. 199, p. 207.

296 The candles are also found on another wooden cenotaph of similar date in the Mausneq al-Diqaq in Aleppo; Sauvaget, Deux Sanctuaires, pl. LXXIII.


298 See also the sixth-century sarcophagus of Barbatianus from Ravenna; Fleury, La Messe VI, p. 38, pl. CDXLVIII.
particular occasions was known as early as the fourth/tenth century.\textsuperscript{299} These, however, appear to have been single. It is possible that the alteration in the iconography of the image is to be attributed to Turco-Iranian influence.\textsuperscript{300} In the Turkic domains a perpetually lit candle was placed to the right of the \textit{mihrab} which was designated by the term \textit{ocag} (fire place),\textsuperscript{301} and the theme of the candle as a \textit{qibla} is one which occurs frequently in the work of \textit{sufi} writers such as Rumi.\textsuperscript{302} Equally, it has been argued that the origins of the \textit{mihrab} and its connection with light are to be sought in the sacred fires of Zoroastrian Iran which were often set within recesses or niches.\textsuperscript{303} The enormous candles which flanked the \textit{mihrab} in Ottoman mosques continue to be used in Anatolia (pl. 141.), offering support for the suggestion that there was a Turkic dimension to the practice. In the eleventh/seventeenth century such lights were described thus:

"Lightning struck the golden realm of the sun and the revolving sphere with gold. And caused the vault of heaven again to manifest a halo of light. The rainbow assumed the delightful form of the \textit{mihrab}. The world became like a mosque with its star candles. The sun and the moon are two bright candles to the mosque of the world."\textsuperscript{304}

The depiction of such additional light sources can, however, detract from the power and simplicity of the \textit{mihrab}-lamp image, producing a cluttered impression. This impression was heightened by a second dimension to the subsequent development of the image; namely a tendency towards abstraction or vegetalisation of the lamp and its surroundings.

The latter makes itself felt as early as the seventh/thirteenth century. The body of the lamp, the rope by which it is suspended,\textsuperscript{305} and even the flame emerging from the lamp can sprout leaves or assume the form of budding vegetation (pl. 187).\textsuperscript{306} On contemporary tombstones from the eastern Iranian world it appears that the lamp could even be replaced by hanging vegetal motifs.\textsuperscript{307}

\textsuperscript{299} See p. 254 above.

\textsuperscript{300} As suggested by James Dickie, \textit{Prayer Rug}, n. 17.


\textsuperscript{302} Arberry, \textit{Mystical Poems}, No. 170, p. 142.


\textsuperscript{304} Crane, \textit{Risale}, p. 65.

\textsuperscript{305} In the Mausoleum of Imam al-Bahir in Mosul (647-57/1249-58), al-Tutunchi, \textit{al-Mahārī}, fig. 64, pls. 36-7.

\textsuperscript{306} Ibid., fig. 42, pl. 23.

\textsuperscript{307} On a stele from Bust dated 630/1232 the hanging lamp which appears on contemporary stele from the same area is replaced by
Subsequently the tendency for the lamp to sprout vegetation becomes even more pronounced. The lamp, sometimes hanging and sometimes standing on the ground beneath the mihrab, is transformed into a vase, an ibrīq, or a combination of the two, and frequently sprouts abundant sprays of vegetation (pl. 201). Simultaneously the background acquires the appearance of a garden and is often covered with elaborate foliage and flowers. These latter developments are followed not only on mihrahs, but on prayer rugs of the ninth/fifteenth and tenth/sixteenth centuries. The depiction of mihrahs had been common on such rugs from the fourth/tenth century, and those that survive often faithfully depict the mihrab with its hanging lamp long after the image had ceased to appear in actual mihrahs. Just as the symbol of the lamp within the mihrab was often augmented by the addition of candles, so did the candles appear on prayer rugs (pl. 188). The number of lamps hanging in the mihrahs on carpets could also be increased. Similarly, the association between the mihrab and a garden on the prayer rugs is paralleled by the frequency with which the garden theme is stressed in the decoration of the qibla from an early date. That the scenes depicted on such carpets are often accurate reflections of mihrab decoration is indicated by the occurrence of similar images on surviving mihrahs. On a ceramic panel in the mihrab of the Yesil Türbe in Bursa (828/1424) a lamp flanked by candles hangs from an arch. The background is decorated with floral motifs, while the lamp appears to sprout flowers, echoing the small flower-filled vase on the ground below. A similar scene appears later in the mid. eleventh/seventeenth-century tiles decorating the mihrab in the Mosque of Aqsunqur in Cairo (pl. 201). This panel is unusually late, for although lamps continue to appear in the mihrahs depicted on prayer rugs, they are rarely shown in actual mihrahs after the ninth/fifteenth century.

It may be that visual resemblances and functional similarities between the lamp and the vase

"un maigre fleuron trilobé"; Sourdel-Thomine, Steles Arabes, No. 5, pp. 300-1, pl. Vla.


309 Ettinghausen, Prayer Rug; Dickie, Prayer Rug.


311 Depictions of lamps in actual mihrahs are rare after the ninth/fifteenth century. One of the latest is in Mosque of Aqsunqur in Cairo (pl. 201) where a hanging lamp appears in the tiles of the mihrab (1063-5/1652-4).

312 Ettinghausen, Prayer Rug, p. 291.

313 Ibid., p. 291, fig. 15. The lamps hanging on the Ardabil carpet have been connected not with the Light Verse, but with Sura LXXI:15-16; Cammann, Symbolic meanings, p. 45.

314 See below, pp. 316-7.

315 Dickie, Prayer Rug, p. 43, fig. 6.

316 This despite the fact that lamps continue to be hung in mihrahs until today; see ill. 95.
enabled one to assume the role of the other. Metal vases with a profile resembling that of mosque lamps were used in sixth/seventh-century Khurasan. According to Ibn Asakir the mysterious qulayla hanging in the mihrab of the Damascus Mosque was replaced by a glass vase (burnīyya). The lamps which were used in medieval Islamic mosques sometimes contained perfumed oil and the fragrant scents which they emitted may be compared to the fragrance suggested by the image of flowers issuing from vases. One might also mention those closed metal vessels produced during the Mamluk period which can be described either as vases or non-functional lamps (pl. 189). The two vessels on the clock of al-Jazari (III. 137), clearly shown to be vases, are referred to in the text as qanādīl which suggests that the formal and functional overlap between the lamp and vase were reflected in linguistic usage. It may well be then that the ambiguities in later depictions of the lamp are an accurate reflection of its ability to resemble, or even serve as, the vase.

In some cases both are represented within the niche (pl. 201) which suggests that they did not have an exactly equivalent meaning. It seems likely that one should in the gradual floralisation or vegetalisation of the mihrab-lamp image an equivalent change in meaning, or at least a change of emphasis. This is perhaps related to the ability of the niche to act as both an actual mihrab and a symbolic gateway opening on paradise. The Islamic notion of paradise is intimately connected with

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317 See for example a bronze lamp in the form of a ewer decorated with a vase from which sprays of flowers spring; Ettinghausen & Grabar, Art and Architecture, p. 339, fig. 359.
318 Goitein, Mediterranean Society IV, p. 134. Goitein identifies this type with the metal qanādīl published by Rice (Studies V).
319 Ibid., p. 150.
320 Elisséeff, Description, p. 68.
321 Le Strange, Palestine, p. 147; Elisséeff, Description, p. 67.
322 Wiet, Objets en Cuivre, No. 130.
323 Al-Jazari, Book of Knowledge, p. 18.
324 Also in the mihrab of the Yesil Törbe in Bursa; Dickie, Prayer Rug, p. 43, fig. 6.
325 It may be that the iconography of the vase is related to its earlier history in the Near East as an image of abundance and fertility; M. Eliade, Patterns in Comparative Religion (Cleveland, 1958), p. 283. Given the relationship between the vase and lamp one might also mention the existence, in the Byzantine world, of candelabras in the form of trees issuing from silver vases; Grabar, Qartamin, p. 87.
326 The transformation of the image does not necessarily imply the triumph of decoration over meaning, although this has been suggested; Ettinghausen, Prayer Rug, p. 291; Legacy of Islam, p. 282. Their are contexts, however, contexts in which the lamp image seems to play a decorative rather than a symbolic role. See, for example, a ninth/tenth-century Egyptian textile on which single mosque lamps are set at the heart of palmettes; O., von Falke, Decorative Silks (London, 1936), fig. 318.
327 See p. 328 below.
the idea of a garden (jirdānī or jannā), and paradisal themes are often stressed in the decoration of earlier mosques. It seems likely that the luxuriant garden foliage glimpsed within these later prayer-niches is a foretaste of paradise seen through the symbolic gateway of the mihrab. Descriptions of paradise characterise it as a place of light, and even the Light Verse is not lacking in references to vegetation. It may be therefore that the associations between the lamp, light, and paradise enabled the iconography of the mihrab-lamp image to be transformed on the basis of formal similarities between the vase and the lamp.

8.10 Conclusion.

In conclusion, the increasing complexity of the mihrab-lamp image from the seventh/thirteenth century onwards may be detected in two areas. Firstly, there is a tendency to multiply both the references to light and the number of light sources. This may do no more than reflect contemporary practice. Secondly, there is a tendency towards abstraction or 'vegetalisation' of both the lamp and its surroundings. Ultimately the lamp becomes lost in decoration and competes with, or is replaced by, other elements. One might argue that the potency of the original image depended on its very simplicity and its connection with unadorned reality. The image of the mihrab and lamp is closely related to that of the illuminated arcade, both of which are representations of scenes common in mosques.

The utilitarian aspects of mihrab illumination have been touched on above. Just as the mihrab and its lamp could act as a potent symbol, in certain contexts the simple and utilitarian arcade appears to have assumed a symbolic, indeed a sacral significance. This significance is intimately connected with the previous history of the arcade which may explain why hypostyle mosques continued to be built even when the form was archaic. The parallel histories of the illuminated arcade and the mihrab with its lamp are good examples of an 'iconography of structure' - that is, "the tendency for forms that originate in practical ... needs to take on symbolic functions." In the case of the illuminated mihrab

328 EI, Djanna, p. 1014-5.
329 See below, pp. 316-7.
330 As suggested by Dickie, Prayer Rug, p. 43.
331 See above, pp. 194-6.
332 Ettinghausen suggested that the multiplication of the number of lamps hanging in the mihrabs on carpets was an indication that the underlying symbolism had been lost; Prayer Rug, p. 291. This is not necessarily true. It would, for example, be somewhat contradictory to argue that the appearance of additional light sources in actual mihrabs should be taken as evidence that the symbolic significance of such decoration had been lost. As stated above, there is, however, a sense in which the cluttering of the image detracts from its potency.
333 See above, pp. 253-5.
334 Denny, Saff and Sejjadeh, p. 94.
one might add the corollary that the further removed from their utilitarian origins such forms become, the more their symbolic forces alters, or even diminishes. It seems that the accretional evolution of the mihrah-lamp image dissipated or altered its original meaning, transforming its specificity into a generic paradisal reference. After the ninth/fifteenth century the image of the lamp is rarely found on mihrahbs, although it continues to appear in the mihrahbs and arcades depicted on prayer rugs until the present day. Equally, electric bulbs and neon strips in mihrahbs and minarets continue to evoke the brilliance of the misbāh just as the qandāli did in times past (ill. 143). In view of what has just been stated, however, it can be no coincidence that the symbolism of light survives at its most eloquent not in the mosques of the great urban centres, but in the small vernacular mosques of the Islamic world.335

335 For example, in the symbolic use of natural and artificial light in the vernacular mosques of Mali and Senegal; J-P Bourdier, Houses of Light, Mimar (XXXIX, June, 1991), p. 67.
CHAPTER NINE
THE WINDOW AS SYMBOL.

9.1 Introduction.

In Section I the ubiquitous role played by *shamsiyat* and *qamariyyat* in the decoration of medieval palaces, *hamams*, mosques and mausolea has been examined in detail. Despite the use of coloured glass roundels in the windows of pre-Islamic buildings, it appears that the elaborate stucco and glass grilles which appear in the Umayyad palaces were a genuine innovation. While these window-grilles have frequently been omitted from discussions of Islamic architectural decoration, their impact on the interior of the buildings in which they appeared renders them of prime importance for any understanding of medieval Islamic architecture. The many parallels cited above between *shamsiyat/qamariyyat* and other forms of architectural decoration that they were often designed as part of an integrated decorative scheme.

Functionally the development of *qamariyyat* and *shamsiyat* has been related to the prevailing climatic conditions in many parts of the Islamic world. The window-fillings used in Islamic buildings serve to screen the harsh sunlight light entering a building, patterning it and dispersing it into a series of smaller, more diffuse units. Aesthetically, the use of such window-fillings is a further manifestation of a decorative tendency which may be termed an "aesthetic of artifice". In courtly panegyric this reveals itself in the description of the organic components of the natural world in terms of gold, jewels, and other rich shimmering stuffs. Such metaphorical perceptions frequently found a parallel in courtly ritual which delighted in spectacles of light, golden gardens, jewelled fauna, and automata.\(^1\)

In the domain of religious art one may point to the glittering vegetation found in Umayyad mosaics, the polychrome stucco 'gardens' of numerous later mosques and the ultimate abstraction of the arabesque. Both aspects of the phenomenon may ultimately have their origins in descriptions of paradise as a garden filled with gilded and jewelled flora, a setting for bejewelled palaces and translucent pavilions.\(^2\) In both the palace and the mosque this love of stylisation and artifice was underlined by the close relationship between natural and artificial light. The former was usually transformed by its passage through patterned screens of coloured glass, the design of which frequently make reference to the decoration of the lamps in contemporary use.\(^3\) Thus not only is a relationship established between the light admitted to a building and that generated within it, but just as lamplight is filtered through patterned metal shades, or enamelled glass, so too is natural light harnessed, patterned, coloured and its natural beauty enhanced.

\(^1\) See above, pp. 199-203.

\(^2\) See above, pp. 194-7.

\(^3\) See below, pp. 318-20.
Having considered some of the functional, technical and aesthetic dimensions to the fenestration of medieval Islamic buildings, in this final chapter I would like to explore the possibility that the windows and window-fillings used in mosques and religious architecture were imbued with more transcendental associations. Starting with literary accounts of the window and a brief examination of the significance of the window in Christian architecture, the use and significance of coloured glass windows in the sacred architecture of the medieval Islamic world will be considered in turn.

9.2 The window in literature.

The natural function of the window as a threshold between exterior and interior space, and its intrinsic connection with illumination, meant that it was frequently used as a spiritual metaphor by both Christian and Muslim writers. In the works of Early Christian writers the eyes are the "windows of the soul", admitting images imperfectly like the sheets of mica or selenite filling the windows of churches.4 The metaphor of the window is used in the Islamic world at an early date. The window appears in the work of the Jewish Neoplatonic philosopher Isaac Israeli (d. 320/932), where it serves as a metaphor for the brilliance of the intellect, reflecting a higher glory even as sunlight is reflected off the windows of palaces and bath-houses.5 The origins of the metaphor may lie in a saying, attributed to Plato, that "the soul resembles the light of the sun entering through a variety of windows ...".6 A similar use of window symbolism appears slightly later in the work of the Andalusian Neoplatonist, Solomon ibn Gabirol. Speaking of the ability of solid matter to impede the diffusion of light from its source, the philosopher uses the image of

"the light which penetrates three glass windows - the second window has less light than the first and the third less than the second; it is evident that this is not the result of any weakness in the light itself, but results from the glass, which impedes the penetration of the light because of its thickness."7

Similar window motifs appear in the works of later writers influenced by Neoplatonic and Sufi thinking, among them al-Ghazālī8 and Rūmī.9 In such works the window usually serves to illustrate

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4 Leon, Window glass, p. 456.
5 See above, p. 96.
6 Altmann & Stern, Isaac Israeli, pp. 119, 127.
8 AL-Ghazālī mentions a tradition that after death a door or a window opens in the top of the tomb; The Precious Pearl, p. 98, n.46. Although the dome opening has a long history, it may be that the use of the oculus in the funerary architecture of the eastern Islamic world relates to this tradition.
the Platonic doctrine that the material world is a shadowy reflection of a more archetypal reality. Alternatively, the window can function as a more straightforward symbol of knowledge, for the view on the world which it provides.¹⁰

Neither the musings of specific individuals on the meaning of light entering the mosque through its windows nor the use of the window as a symbol in the works of particular mystics, however, necessarily imply that the fenestration of all mosques was considered equally meaningful by all observers. In seeking to discern any connection between the mystical symbolism of the window as expounded in literary texts and the fenestration of actual mosques, the problem would appear to be one of intentionality. One of the difficulties with this is the dearth of information connecting the fenestration of particular buildings with specific individuals. According to a *hadith¹¹* the Prophet himself is said to have ordered that the window created by Abu Bakr should be the only window in the Mosque of Madina. Similarly, we are told that Ghazan Khan decided such details as the size and position of the windows in the crypt of his mausoleum, begun in 697/1297.¹² Later Muḥammad ibn Qalīwān (r. 710-42/1310-41) ordered a window to be pierced on either side of the main *mihrab* in the Aqsa mosque.¹³ These, however, are exceptions and it seems likely that architects and craftsmen usually followed precedents set by the fenestration of earlier influential buildings. Equally, if these windows served a function other than illumination this is not alluded to in the texts which mention them.

That certainty in such matters invariably eludes one’s grasp may be due as much to the multi-layered nature of the meanings associated with certain types of medieval buildings and their decoration as to the lack of an accompanying text. Indeed the fact that the medieval geographers rarely interpret what they describe may be more easily attributed to its familiarity, or even its unfamiliarity, than to the absence of meaning. As has been demonstrated in the preceding chapter, the identification of God with light is a constant theme of Qur’anic scripture and exegesis and is stressed in the decoration of *mihrabs* from the fourth/tenth century onwards, or earlier. Since these beliefs permeated the decoration of the mosque and resonated within it, it seems not unreasonable to suggest that the perceptions of those using mosques were, albeit to varying degrees, informed by the prevailing cultural attitudes. The fact that so few observers explicitly connect the *shamsīyyat* and *qamartiyyat* of medieval mosques with divine light does not necessarily indicate that they lacked the potential for transcendental associations. In view of the dearth of research on this aspect of medieval

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¹⁰ "Is there nothing which you do not know on earth, no window through which you have not peered . . .?"; T. Fitzherbert, Khwaju Kirmani (689-753/1290-1352), an *éminence grise* of fourteenth century Persian painting, *Iran* (XXIX, 1991, p. 147.

¹¹ Cited by both Muslim and Bukhari; Goldsack, *Muhammadan Traditions*, p. 305.


¹³ Le Strange, *Palestine*, p. 110.
Islamic architectural symbolism, before going on to consider this issue further it may be useful to summarise the evidence for window symbolism in medieval Christian architecture.

9.3. The window in Christian architecture.

Light is a universal sacred symbol, and in Judaeo-Christian scripture, as in Islamic tradition, God and the Word are frequently identified with light. Luminosity is consequently seen as both an essential characteristic or quality and a fundamental symbol of God. Just as mosque lamps often bore quotations from the Sura of Light, so too did Early Christian lamps bear inscriptions such as "The Light of Christ shines for all" and "Light from Light".

In the Late Antique period the Imperial cult assumed an increasing solar aspect, largely under the influence of religious cults spreading from the Near East. Chief among these was Mithraism, which, with its inherent dualism, made much of the distinction between light and dark. One of the most graphic representations of Mithras as a god of light is in a marble relief from the Baths of Caracalla where the rays surrounding the head of the deity are pierced through so that points of natural light appear to stream from the head (pl. 190). Analogous motifs were quickly integrated into the secular and religious art of the Christian world; one of the earliest depictions of Christ shows him in a solar quadriga with a rayed nimbus. Similar ideas were evoked literally in palaces of the Carolingian period and later, where a circular window could provide a ‘mandorla of light’ around the head of the ruler.

It has frequently been suggested that similar ideas underlay the decoration and fenestration of Christian basilicas. The use of clerestory windows to flood the basilica with light was frequently associated with the solar aspects of the imperial cult. Among the many aspects of Imperial iconography reinterpreted by the new religion, it may be that this form of fenestration served as a

14 See above, pp. 250-2.
15 Clermont-Ganneau, La Lampe, p. 224.
16 For a detailed study of the phenomenon see Kantorowicz, Oriens Augusti.
17 Herbig, Fenster, p. 255; fig. 2; J.R. Hinnells, Mithraic Studies. Volume II (Manchester, 1975), pl. 13a.
18 Beckwith, Early Christian Art, fig. 1.
19 Baldwin Smith, Architectural Symbolism, p. 89. It is probable that the origins of such graphic allusions to light are to be sought in the sophisticated symbolism of light surrounding the ruler in the Iranian world. The depiction of Mithras cited above may have found a counterpart in court ritual, for it has been suggested that one of the buildings at Persepolis was designed in such a way as to permit the sun to appear as a halo around the head of the ruler on the occasion of Nauruz; W. Lentz, A recently discovered Mithraic implement and its possible relationship to the Iranian cultic tradition (summary), Akten des VII Kongresses für Iranische Kunst und Archäologie, München 7.-10. September 1976 (Berlin, 1979), p. 348.
reminder that Christ was the "Light of the World".20 The orientation of the Christian basilica towards the East, the direction of the rising sun, is intimately connected with the symbolism of light and the windows of the apse have often been connected with the theme of spiritual illumination.21 Similarly the proliferation of glass windows in the churches of the eastern Mediterranean during the reign of Justinian may have "the theological connotation of letting in the light of God".22

Such interpretations receive support to some extent from contemporary writings. One of the earliest documented references to the symbolism of church windows is in a panegyric written by Eusebius of Caesarea (c. 265-340) for the dedication of a church in Tyre in which the writer compares inner illumination to the illumination of a church by its windows.23 In the well-known sugitha describing Justinian's cathedral at Edessa, the three windows of the apse are said to symbolise the Trinity - three in number although its light is one -while those on the side walls represent the light of Christ, the Apostles, and martyrs.24 The same idea recurs in a semi-legendary account of the construction of Haghia Sophia.25 In the ekphrasis of Paul Silentiarius, the windows at the base of the great dome of Haghia Sophia are said to give it the appearance of a heavenly dome floating on air.26 There is some support for this interpretation in the fenestration of the building, as the number and size of window-openings increase as the gaze ascends towards the dome. Many of the marble window-lattices may have been originally filled with coloured glass,27 producing mosaics of light which undoubtedly contributed to the aesthetic of luminosity which is such a pronounced feature of Byzantine church decoration. It has even been suggested that the orientation of the apse was determined by a desire to let sunlight penetrate its windows directly from the longitudinal axis of the church during the Christmas morning liturgy.28

20 Krautheimer, Early Christian Architecture, p. 46. See, for example, the discussion of this theme in the work of the fourth/tenth-century commentator Eutychius of Alexandria; W. Montgomery Watt, The Book of Demonstrations. Volume I (Louvain, 1960), p. 132, n.303.


24 A. Dupont-Summer, Une Hymne Syriaque sur la Cathédrale d'Edesse, Cahiers Archéologiques (II, 1947), p. 31; A. Grabar, Le Témoignage d'une Hymne Syriaque sur l'architecture de la Cathédrale d'Edesse au Ve siècle et sur la symbolique de l'édifice chrétien, Cahiers Archéologiques (II, 1947), pp. 46-7; Mango, Art of the Byzantine Empire, p. 59. A similar significance has been attributed to the windows in the medieval rock-cut churches of Ethiopia; Bidder, Lalibela, p. 25.


26 Ibid., p. 83. It has also been suggested that the placing of the windows of the dome was determined by structural considerations; R. Mark & A. Westagard, The first dome of the Hagia Sophia, myth vs. technology, Domes from Antiquity to the Present, Proceedings of IASS-MSU International Symposium (Istanbul, 1988), p. 169.

27 See above, pp. 34.
The notion of the dome as an image of heaven received a more canonical expression in the later churches of Byzantium. The image of Christ Pantocrator seen peering through the symbolic oculi at the centre of such domes is frequently illuminated by well-placed windows.\(^{29}\) The idea can even be made to work in a converse way, for images of the evangelists were frequently placed in the pendentives of Byzantine churches,

"to underscore that they have no need of man-made agents, like windows, to see the Light in its full glorious brilliance."\(^{30}\)

While coloured glass was used in church windows as early as the fourth century,\(^{31}\) the depiction of symbolic motifs or figurative scenes in stained glass from the Carolingian period onwards lent a further dimension to such symbolism. It should be noted, however, that even when the depiction of figurative scenes was the norm, symbolic significance is usually attributed not to the subjects depicted in the window glass, but to the window-openings, to the light passing through them, or to the quality of the light within the church. Honorius of Autun, writing before 525/1130, compares the sparkling glass windows of the church to the minds of those charged with preserving the orthodoxy of scripture, which see "heavenly things as in a glass darkly".\(^ {32}\) St Hugh of Lincoln, writing c. 622/1225, sees the windows and their light as symbolising the clergy, while the two rose windows symbolise the sun and the moon.\(^ {33}\) In the writing of William Durandus the glass windows of the church are said to symbolise the scriptures, admitting light while keeping inclement weather at bay, while the lattices in which they are set represent the prophets.\(^ {34}\) The extensive use of stained glass windows enabled the very fabric of the Gothic cathedral to recall the jewelled and vitreous walls of Heavenly Jerusalem even in the absence of any iconic references to the Heavenly City in the windows themselves.\(^ {35}\) The association was made not through iconographic reference, but through what I have referred to above as the "iconography of effect". One may draw the conclusion that the inherent potential for the


\(^{29}\) On the symbolic oculus as a window see Trowbridge, *Window*, pp. 105-13.

\(^{30}\) Ibid., p. 105.

\(^{31}\) See above, p. 32.


\(^{33}\) Dow, *Rose-window*, p. 280.


\(^{35}\) Gage, Gothic Glass, pp. 44-6; Stookey, Gothic Cathedral.
windows, qamarīyyat and shamsīyyat to play a meaningful role in the decoration of medieval mosques is in no way lessened merely by the fact that figurative art was abjured.

9.4 Windows of jewels.

As was demonstrated in Chapter VIII, there appears to be a generic connection between the miḥrāb and light from an early date. This is often expressed through the rich decoration of the qibla, and the miḥrāb in particular. Numerous sources describe the splendid decoration of qibla walls and miḥrābs, especially in the cathedral mosques. The use of rich polychrome decoration and gilding transformed the mosque, madrasa or mausoleum, no less than the palace, into a dazzling receptacle of light. The effect is noted by several medieval writers, among them Ibn Battūta, who remarks of the Dome of the Rock:

"The greater part (of its decoration) is covered with gold; the whole sanctuary sparkles with light and shines like lightning."37

The sentiment comes close to that expressed much earlier in an inscription in the Church of SS. Cosmas and Damian In Rome (526-30):

"This hall of God shines in its adornment with enamels, a hall where the precious light of faith gleams even more brightly."38

Gold has a natural and symbolic equivalence with sunlight39 and one sees effects similar to those just described in the glittering gold-ground mosaics of the Great Mosque of Damascus, or in the golden lustre of the tiles surrounding the miḥrāb in the Great Mosque of Qairawān (ill. 39). Ibn Jubayr describes the wall surrounding the Ka'ba as being decorated with the forms of miḥrābs, inlaid in gilded copper on marble slabs. When the sun struck them

"such light and brightness shine from them that the beholder conceives them to be gold, dazzling the eyes with their rays."40

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36 See above, pp. 244-5.
37 After Defremery & Sanguinetti, Voyages 1, p. 122.
38 Oakeshott, Mosaics, p. 94.
40 Broadhurst, Travels, p. 195.
In the imperial mosques the decoration of the qibla, and particularly the mihrab, included the use of gilding and shining jewels.41 The use of qamar-iyyat and shamsiyyat along the qibla should be seen in this context. Even where the windows did not contain coloured glass, the marble claustra which filled them were often richly gilded.42

The notion of translucence or luminescence in temples and palaces has been discussed above. Jewelled windows are a recurrent motif in descriptions of both eschatological and mythological architecture.43 The promise in Isaiah (LIV: 11-12), "I will make thy windows of agates", was translated into reality in the Gothic cathedral which, with its jewel-like stained glass windows, or more correctly, diaphanous walls of polychromatic light,44 was transformed into a model of Heavenly Jerusalem. Descriptions of the latter city were frequently taken at face value. Gems were laid in the foundations of Saint-Denis, while the clergy chanted "all your walls are of precious stones".45 Similarly, in certain Gothic churches the windows were filled with actual jewels rather than jewel-like glass.46 Both eschatological metaphor and architectural practice unite in descriptions of the Chapel of the Grail, the windows of which are described as follows:

"The windows were the remarkable product of a rare art; I believe that none has ever seen or could speak of such a marvel. They were not decorated with glass made from ashes, but with transparent beryls ... beryls and crystals took the place of glass, and a vibrant light emanated from them, hurting the eye of he who looked upon them for long."47

41 See above, pp. 244-5.
42 As was the case with the marble window-grilles in the Great Mosque of Cordoba, and on the qibla wall in the Great Mosque of Madina; above, p. 26.
43 See above, p. 206.
44 Sedlmayer, Entstehung, pp. 50-3; V. Nieto Alcaide, La Luz - Símbolo y Sistema Visual (Madrid, 1989), p. 24. Just as Neoplatonic ideas were taking hold in the Islamic world in the sixth/twelfth and seventh/thirteenth century, the interest in concrete light effects and their potential for symbolic meaning in Gothic architecture finds a counterpart in contemporary theological and philosophical texts; E. de Bruyne, Études d'Esthétique Médiévale III: Le XIIe siècle (Bruges, 1946), Chapter I.
45 Von Simson, Gothic Cathedral, p. 134.
46 In the chapel of Charles IV at Karlstein not only were the walls covered with a veneer of semi-precious stones, but the windows were originally filled with beryls and amethysts held in gilded lead tracery; van der Berghe, Graal, p. 221. The windows of Saint-Denis were said to be composed of saphirorum materia; Gage, Gothic Glass, pp. 42-5. The term zaffre, used for the cobalt which pigmented such glass is said to be derived from Arabic, for the material was imported from the Levant; Franks, Glass and Archaeology, p. 23. Theophilus discusses the embellishment of stained glass with artificial glass gEMS; Diverse Arts, pp. 71-2.
The notion that jewels were luminous was widespread in the medieval world; this idea is preserved in the radiant glass walls of Gothic cathedrals, which appear to glow with a light from within:

"... the glass is not transparent, but only translucid: that is to say that the source of the light which is behind the glass is not perceived as such, the light is dispersed in an even fashion by the structure of the glass; this gives the impression of shining by itself, it becomes the source of light." 49

In the vitreous architecture of the Gothic cathedral we have the ultimate realisation of an earlier tendency to see certain forms of decoration or materials as capable of producing the effect of self-generating luminosity. This is a characteristic of the marble from which the temple adjoining the Domus Aurea was constructed, for the stone appeared to have light trapped within itself. 50 The same theme is a favourite one of Byzantine writers for, as as been noted above, the decoration of Byzantine churches is designed to evoke an ambience of glittering interior illumination. 51 The sugitha describing Justinian's cathedral at Edessa states that its marble "gathers light within itself like the sun", 52 while Prudentius describes Hagia Sophia as being illuminated not by sunlight, but by "a radiance generated within". 53 In the Gothic cathedral the use of glass is more architectural than architectonic; the transmitted luminosity of translucent window-glass replaces the reflected brilliance of glass mosaic, increasing the effect of self-generating luminescence. In both its Byzantine and Gothic incarnations, the motif of self-radiant architecture may be traced to descriptions of Heavenly Jerusalem, which has no need of the sun, moon, or any other external light source, for it shines with the Light of God. 54

Just as the use of stained glass in the Gothic cathedral created an ambience ripe with transcendental nuance, it may be that the qamariyyat and shamsiyat of the mosque, like those of the palace, enabled it to partake of the translucent fabric of Paradise. Both the terrestrial and the heavenly prototypes of the Ka'aba are said to be composed of shining translucent jewels which radiate the light of golden lamps. 55 Descriptions of the translucent architecture of Paradise have been discussed above

48 See note 74 below. According to some medieval European writers gems were created from light itself; Gage, Gothic glass, p. 47.
49 After Frodl-Kraft, Vitrail, p. 1. See also Alcaide, La Luz, p. 24; Gage, Gothic glass, p. 36.
51 See above, p. 41.
52 Mango, Art, p. 58.
53 Ibid., p. 74.
54 Revelation XXI:23.
55 See above, pp. 228-9.
and it is possible that other forms of vitreous decoration, such as the mina used at Samarra, were intended to evoke the brittle splendours of Paradise. The stucco and glass windows of the Islamic world may be compared with Gothic stained glass to the extent that they glow with a diffuse jewel-like light. The walls of most medieval Islamic buildings, however, are not diaphanous in the same way as those of Gothic cathedrals. In the medieval Islamic windows coloured glass was used in much smaller units, in line with a more controlled attitude to lighting. The careful control of light in the mosque and the concentration of windows in certain areas is more akin to the fenestration of Romanesque churches than Gothic cathedrals.

Despite this, there is much evidence to suggest that jewel-like properties of coloured window-glass were appreciated in the medieval Islamic world no less than in the West. There is what might be termed a magical quality in both the translucent nature of glass as a substance and its production from opaque materials. In the Magāmat of al-Ḥarīrī a glass vase is described as

"Congealed of air, condensed of sunbeam motes, molded of the light of the open plain, or peeled from a white pearl."

The tiny jewel-like pieces of coloured glass used in windows frequently seem to glow with a life of their own. This impression is often enhanced by the exclusion of brilliant sunlight from the buildings in which they are set. The chief characteristics of such window-glass are colour and light, qualities which also characterise gems. The medieval Islamic use of alabaster, onyx and other semi-

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56 See pp. 62-3 above.
57 To the suggestion that the mosaics in the Dome of the Rock were intended to evoke such ideas (above, pp. 200-1) one might add that, originally, the jewelled effect of the interior was heightened by the use of coloured glass in its windows.
58 Gage's comment that Gothic window-glass acts "less as a conductor of daylight than as a fine-meshed filter against it" (Gothic glass, p. 36) is equally applicable to qamarīyat and shamsīyat.
59 For this reason, as Martin Lings has pointed out, one must make a distinction between stained glass windows and Islamic grilles of stucco and glass; M. Ling, Symbol and Archetypes: a study of the meaning of existence (Cambridge, 1991), pp. 134-5.
60 It is noteworthy that where Gothic cathedrals have been converted for use as mosques their tracery has been filled not with coloured glass, but with perforated panels of stucco which further subdivide the interior space of the window-openings; N. Coldstream, The Church of St. George the Latin, Famagusta, Report of the Department of Antiquities, Cyprus (1975), pl. XVIII, fig. 4.
61 This is particularly apparent in al-Ghazālī's exposition of the symbolism of the glass mentioned in Surah XXIV: "For glass also is originally an opaque substance, but is clarified and refined until it becomes transparent to the light of a lamp, which indeed it transmits unaltered". Miskhāt, p. 151. The same fact is used by St. Bonaventure to show that all things, even opaque substances, possess luminosity; de Bruly, Études III, p. 22.
63 The non-hypostyle mosques of the Islamic world have been described as "man-made caverns ... full of mystic light"; J. Tonna, The Poetics of Arabo-Islamic architecture, Musqamas (VII, 1990), p. 195.
precious translucent materials in place of glass has been mentioned above,64 and it may be no coincidence that some of the earliest European stained glass has the appearance of alabaster.65 Even the monochromatic grisaille glass favoured by the more austere Christian orders was not immune to comparison with gem-stones, for it "was more like onyx, agate, alabaster or thin mother-of-pearl than glass". 66

The comparison with jewels is less superficial than may appear, for the ability of glass to substitute for jewels has been discussed above. In the medieval Islamic world, as in the medieval West, attempts were made to synthesise jewels from coloured glass,67 and al-Rāzi (Rhazes), writing in the third/ninth century, claims that glass is as highly valued as gems.68 The use of small cut pieces of window-glass mounted in stucco further recalls the treatment of jewels. This resemblance is acknowledged until today in the use of the term ḍa‘qīf (cornaline) for certain modern Yemeni window-grille in which geometric tracery, the pattern of which resembles the faceted surface of jewels, is filled with pieces of coloured glass. 69

The similarities between the two substances did not escape the notice of medieval observers, as is indicated by the frequency with which one encounters the poetic cliché of a wine-filled glass as a jewel held in the hand.70 Such metaphors even extended to the description of glass windows; al-‘Umari compares the effect of light shining from the qamarīyyat of the Qaṣr al-Abdāq in Cairo (713/1313) to that of light filtered through strings of jewels.71 Similarly, the magical relationship between window-glass and jewels is stressed in a description of the windows in the palace built for Aladdin:

"But the most wondrous thing of all was the dome of the building, which was pierced with four-and-twenty windows encrusted with emeralds, rubies, and other precious stones."72

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64 See p. 31 above.
65 Cramp, Decorated window glass, p. 328.
66 Prof. Aitchison, Coloured glass, Journal of the Royal Institute of British Architects (XI, December, 1903) p. 57.
68 Gage, Gothic glass, n.44.
69 Bonnenfant, Vitraux, pp. 220-1. The similarities between the pieces of glass used in Islamic windows and jewels has been noted by several scholars; Aitchison, Coloured glass, p. 57; Briggs, Muhammedan Architecture, p. 228; Boothe, Great Mosque, p. 334.
70 Kahle, Bergkristalle, pp. 326-7.
71 See p. 120 above.
72 N.S. Dawood, Tales from the Thousand and One Nights (Harmondsworth, 1986), pp. 175, 212. In another account the number of jewelled windows is given as ninety-nine, and these are set in a crystal dome; Mardrus & Matthews, Thousand Nights III, p. 418.
Both the number of the window-fillings and the context in which they appear are consistent with actual usage, underlining once again the ambiguous ability of each material to resemble, or substitute for, the other.

In distinguishing between luminous and non-luminous bodies, later medieval writers such as Ibn al-Haitham mention water, glass and crystal as substances which are capable of absorbing or transmitting light. The implicit corollary is that window-glass, like that of a lamp, is capable only of transmitting light and not of generating it. In view of the jewel-like properties of the glass used in qamariyyat and the widespread belief that gems were luminous, one wonders whether Ibn al-Haitham's distinctions were equally apparent to all those observing the light emanating from qamariyyat and shamsiyat. Indeed the idea of radiance, if not self-radiance, seems implicit in the names of such grilles which embody the sun and the moon.

There is a further aspect of such windows to which a mystical significance may have been attached, for they affect a kind of reverse alchemical transmutation of light, changing, or appearing to change, golden sunlight back into its constituent colours. In general terms this may be seen as a further dimension to the medieval Islamic "aesthetic of artifice" discussed above. A similar aura of antinatural illumination characterises Byzantine and Gothic churches, but it is possible that the phenomenon had a particular significance in the medieval Islamic world.

Later mystical works divide light into different categories, depending on its colour. Divine light is, however, without colour since it is the primary light source. Rumi remarks,

"The marvel is that colour sprang from that which is without colour."
That the heavens were each composed of a precious stone or metal of a different colour was a standard belief of medieval Islamic cosmology.\(^{79}\) The hierarchical zones of colour culminate in the Throne which is a source of brilliant white light. The polychrome decoration of certain palatine domes and ceilings appears to reflect such ideas.\(^{80}\) One might also mention the hijāb, the seventy-thousand veils of light and dark which hid the blinding light of the Throne.\(^{81}\) Certain types of mosque decoration have been interpreted in this spirit.\(^{82}\) The notion of a screen of light and darkness is particularly appropriate to window-grilles composed of opaque stucco and translucent glass which serve to screen and filter the powerful light of the sun. Once again, however, I have found no contemporary textual evidence which connects this idea with the illumination of medieval mosques.

This is not to say that one cannot ascribe meaning to the use of colour, light and fenestration within certain buildings. For example, the conjunction of muqarnas vaulting, glass-filled oculi, and window-openings in certain sixth/twelfth and seventh/thirteenth century buildings has been related to contemporary atomist theories which held that colour, luminosity, and form are ever-changing and dependent on divine will.\(^{83}\) The main difficulty with this approach is the virtual impossibility of establishing a necessary connection between the text or the idea and the physical reality. Even to attribute symbolic significance to the polychrome light effects in particular buildings is not to imply that similar meaning attaches to the use of coloured glass in every window. It is nonetheless possible that, just as the passage of light through the glass of the lamp assumed a symbolic significance, at least in the eyes of some observers, the pseudo-prismatic effect of sunlight passing through a window filled with coloured glass could also be invested with meaning.\(^{84}\)

In trying to determine whether or not it is valid to attribute symbolic significance, either in a general sense, or in particular instances, to the windows of mosques or the grilles which fill them, the main problem might appear to be one of intentionality. To attribute, post hoc, a transcendent significance to windows, window-grilles, or the illumination which they bring is not to say that they were seen in the same terms by those who created them, those who ordered their creation, or those who used the mosques in which they appeared.

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\(^{79}\) See pp. 193–4 above.

\(^{80}\) See above, pp. 234–5.

\(^{81}\) Al-Ghazālī, *Muṣḥāḥ*, pp. 157–75. In later miniatures the hijāb is depicted as a series of curtains of different colours; Séguy, *Miraculous Journey*, pl. 36.

\(^{82}\) Burešchardt, *Sacred Art in East and West*, p. 111.


\(^{84}\) A Christian parallel exists in the form of St. Hugh’s seventh/thirteenth-century description of Lincoln Cathedral in which the effect of light passing through the rose windows is compared to the creation of a rainbow when sunlight passes through a cloud, Dow, *Rose Window*, p. 280. See also al-Qazwīnī’s description of the rainbow effect created by light passing through the glass-filled openings and steam in the *hammam*; above, p. 230.

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Against this it may be argued that meaning is not necessarily a function of intention. Equally, even if the ideas discussed in Chapter VIII informed the fenestration of certain mosques, in a society permeated by the one would not necessarily expect self-conscious discussions of such ideas. Like the Solomonic, paradisal, or cosmological allusions in medieval Islamic palaces, one suspects that the symbolic identification of God with light was such a fundamental, all-pervasive and, at least to medieval observers, self-evident notion that it was not often considered a suitable subject for comment.\footnote{For a discussion of similar ideas in the context of palatine iconography see above, pp. 238-9.} In the absence of specific texts all one may decide is that the transcendental associations of light and glass in the lamp may have resonated elsewhere in the decoration and illumination of medieval Islamic mosques. One can imagine no more prominent or dramatic conjunction of luminosity, glass and colour than in the qamariyyat and shamsiyyat which filled the windows of such mosques. The use of similar forms of decoration, such as stars and shamsas, on both glass windows and glass lamps suggests that some of the symbolic connotations of the lamp and its light may also have been associated with qamariyyat and shamsiyyat.

9.5 The window and the qibla.

As has been noted above, there is an increasing directional and decorative focus on the qibla in the architecture of the mosque from the late Umayyad period onwards. Among the architectural and decorative devices used to highlight the qibla one may cite the provision of selective fenestration. In the Great Mosque of Samarra for example, there is a marked concentration of windows along the qibla wall.\footnote{See above, pp. 61-2.} These were filled with panes of greenish glass which would presumably have admitted more light than the coloured glass discs used in the windows of the palaces. In the Great Mosque of Qairawān, the only windows on the qibla open directly above the mihrab.\footnote{See pp. 94-5 above.} This selective fenestration may be compared to the careful use of groups of windows in Romanesque churches to focus light on particular areas of the church, most notably the apse.\footnote{W. Boeckelmann, Zur konstruktion der Fensterbank-und-Leibungsschrägen in der Einhartsbasiliken zu Steinbach im Odenwald, Karolingische und Ottonische Kunst. Werden. Wesen. Wirken (Wiesbaden, 1957), pp. 141-9. Alcaide, La Luz; p. 20.}

The use of a single window-opening above the mihrab survived in subsequent periods,\footnote{For example, in the Great Mosque of Tlemcen (531/1136) [pl. 192] and the maqam in the citadel of Aleppo; below, pp. 303-4.} as did the use of window-openings and window-grilles to highlight the qibla or focus attention on the mihrab. In the Mamluk mosques of Damascus, the most elaborate qamariyyat are deployed along the qibla wall, with clear glass used to fill the windows in the side walls, and epigraphy being reserved...
exclusively for the window above the mihrab.90 One finds the same selective use of epigraphy in Marinid mosques,91 where shamsiyat were often used only in the windows of the qibla.92 In Ottoman mosques it is common to find window-grilles with coloured glass used only on the qibla wall, the remaining windows of the mosque being filled with plain glass.93 The effect of light entering the mosque through grilles of metal or stucco filled with coloured glass was all the more striking since in many mosques, even the traditional hypostyle type, the penetration of natural light was strictly controlled by the use of doors or curtains.94

The use of shamsiyat and qamariyyat to focus light and attention on the qibla and mihrab may be seen as a part of a general concentration on these areas in the decoration of mosques. In view of the frequency with which symbolic references to divine light were made in the decoration of the mihrab, it is worth considering whether the fenestration of the mosque was governed solely by functional and decorative considerations. As will be demonstrated shortly, one can point to specific uses of individual windows which appear to be connected with the theme of divine light stressed in the decoration of the mihrab. In the waqf documents of certain Ottoman mosques the fenestration of the qibla and the use of coloured glass window-fillings is explicitly connected with Sura XXIV:35 and the theme of divine light.95 One must therefore bear in mind the possibility that the grouping of windows and qamariyyat along the qiblas of earlier mosques was not governed purely by practical or aesthetic considerations.

Ibn Jubayr, visiting the Great Mosque of Damascus in 580/1184 was particularly struck by the brilliant effect of light shining through the qamariyyat of the qibla:

"Its mihrab is the most wonderful in Islam for its beauty and rare art, and the whole of it gleams with gold ... The glory of the qibla of this blessed mosque and the three cupolas adjoining it, irradiated by the gilded and coloured windows (shamsiyat) whose every colour is reflected on the qibla wall as the rays of the sun pour through them is such as to dazzle the eyes. It is all so grand as to beggar description, and words cannot express a part of what the mind can picture."96

Here the light effects are specifically connected with the qibla, although the emphasis appears to be on the decorative aspects of the windows. Since symbolic references to light were becoming

90 In the ninth/tenth-century windows of the Tayrūzī Mosque and the Jāmi‘ al-Hanābīlah in Damascus; see above pp. 137-9.
91 In the Bu ‘Inā‘īya Madrasa in Fez (746/1345); above, pp. 103-4.
92 In the Great Mosque of Ceuta; above p. 104.
93 In the Suleymaniye in Istanbul: below, p. 315.
94 See below, p. 306.
95 See below, p. 315.
96 Broadhurst, Travels, p. 279; Wright, Travels, pp. 264-5. For a similar account by Abū ‘l-Baqā‘, a later writer who draws heavily on the account of Ibn Jubayr, see Quatremère, Histoire, III, pp. 280-1.
common in the mihrabs of the eastern Islamic world at this time,\(^9\) it is to be regretted that the mental associations provoked by this splendour were such as to elude the descriptive capacities of the writer.

In addition to such medieval descriptions, one should also be aware of popular beliefs which attribute symbolic significance to such window-fillings, for it is possible that these preserve earlier traditions. In Morocco it is held that the chemassiat, whether open or filled with glass,

"... permits the passage of the two sacred elements of life: water and light, considered as a supreme gift of the Lord. Since this is so it incites more fervour in the faithful in these places of prayer, because it permits direct communication with the sky.\(^9\)

It is noteworthy that here, while the passage of light through the grille is seen as significant, it is not interpreted as symbolising divine radiance, but in more general terms.

9.6 The window and the mihrab.

The associations of the mihrab with light and the use of luminescent or reflective objects have been discussed Chapter VIII. The depiction of the hanging lamp, although quite widespread, was only one way of making reference to the theme of divine light in the decoration of the mihrab. One can point to specific uses of windows in conjunction with mihrabs which appear to be connected with the symbolic aspects of light. Among the most striking examples is the maqam in the citadel of Aleppo. Here, in the wooden mihrab commissioned by Nūr al-Dīn Mahmūd, the theme of light was stressed in the star and sun patterns with which the geometric ornament abounds (pi. 179).\(^9\) It seems probable that the prominent five-pointed star which appears in the hood of the niche was intended as a reference to the star-like light of God, described in Sura XXIV:35, for this very verse appears among the Qur'anic inscriptions of the mihrab.\(^10\) A single rectangular window opened directly above the mihrab.\(^1\) Given the multiple references to light in the mihrab below, this is hardly coincidental. It seems more likely that the light admitted through the window plays an analogous role to the that of the lamp which appeared in contemporary mihrabs. Both provide a graphic evocation of the light referred to in the Qur'anic inscriptions chosen for the mihrab, and reinforced by its decoration. It may

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97 See above, pp. 267-8.
99 Auld, Minbar.
100 Herzfeld, MCIA, Alep I (Cairo, 1955) p. 120.
be no more than coincidence that in some of the earliest mihrabs on which the lamp appears it is depicted not within the mihrab, but directly above it in a position corresponding to that of the window (pl. 176).102

In the Iranian world one finds earlier uses of the window in contexts which are both meaningful and eloquent. In the Masjid-i Jami' at Fahraj, built perhaps before the third/ninth century, a small rectangular window is pierced in the back wall of the mihrab, allowing sunlight to flood the niche.103 It has been suggested that the reference to light implicit in the presence of a window in the mihrab should be attributed to the survival of Zoroastrian traditions.104 Similar traditions may be detected in the Gunbad-i Qabus, where a small window in the inner dome faced east, permitting the rays of the rising sun to fall on the body of Qabus, which was suspended from the roof in a glass coffin.105 Similarly, Zoroastrian ossuaries were often provided with an aperture through which the rising sun would shine on the remains within.106 Analogous ideas found expression in Christian architecture.107

The role of the window may have had more widespread significance in pre-Islamic solar cults, for it is reported that when the hoopoe found Bilibs, she was worshipping the rising sun through a window in her palace.108 A very curious form of Himyaritic window-embrasure consists of a rectangular opening set within an arch carried on two columns (pl. 191).109 Although there is no obvious connection with later mihrabs, the appearance of these features is very similar to that of a two-dimensional mihrab within which a rectangular window opens.

One may equally point to significant uses of windows in the pre-Islamic cultic architecture of Palestine. High on the facade of the synagogue at Capernaum a window in the form of a recessed niche appears. The form of the window recalls that of the torah shrine, and it is through this window that the torah shrine in the synagogue received illumination. Among the suggestions as to the significance of the window is the idea

102 In the Kale Çami at Divrîği, and the mausoleum of Şihîn Kaftûn at Akhat (680/1281); Öney, Interpretation, p. 404.

103 Melikian-Chirvani, Light of the Heavens, p. 117. The appearance of the window in the mihrab recalls later Timurid mihrabs in which an aperture is filled with a translucent alabaster slab; ills. 140-2.

104 Ibid., p. 117.

105 SPA III, pp. 970-1. The star-like plan of the tomb is itself suggestive of radiation.


107 Krautheimer, Early Christian Architecture, p. 25.

108 Watt, Queen of Sheba, p. 97.

109 Tindell, Zafar, p. 44; Costa, Zafar II, Nos. 162, 170-2, pls. XXVI, XXIX. A window embrasure of similar form was re-used in the Great Mosque of Sana'a; R. Lewcock, La Cathedrale de Sana'a, Foyer du Christianisme en Arabie au Vle siecle, Dossiers de l'Archéologie (XXXIII, Mars-Avril, 1979), p. 83.
"that it represented a symbolism of Light, the blessed Logos-rays of God coming into the synagogue, which appropriately shone through such a frame.\footnote{Goodenough, Jewish Symbols I, pp. 185-6; III figs. 452, 462-3.}

It seems likely therefore that the particular form of the symbolic reference to light in the mosque at Fahraj was determined by the pre-Islamic associations of the window as it appeared in certain contexts. In the mihrab at Fahraj, the reference to divine light is compounded by the motif carved around the window. The motif, an elongated lobed rosette or turanj, is a sun symbol\footnote{Melikian-Chirvani, Light of Heaven, p. 117.} the symbolic allusion to light is thus complemented by the actual light streaming from it. The provision within the prayer-niche of a window surrounded by a solar symbol has been recognised as a reference to the divine light described in Sura XXIV.\footnote{B.M. Alfieri, La moschea Jami' di Fahraj, Studi Iranici (XVII, 1977), pp. 72-3, pl. Xla; Melikian-Chirvani, Light of Heaven, p. 117.} The Fahraj mihrab provides a further reminder that symbolic allusions to light did not necessarily require the presence or the image of a hanging lamp.

Melikian-Chirvani has drawn attention to the frequency with which single rosettes appear in a series of eastern Iranian mihrabs of the fifth/eleventh and sixth/twelfth centuries.\footnote{Light of Heaven, pp. 117-9.} One finds similar rosettes occurring earlier, most notably in the mihrab below the rock in the Qubbat al-Sakhra (pl. 156).\footnote{Idem.} The mihrab appears to continue an earlier tradition of placing radiant or reflective objects in prayer niches.\footnote{Idem.} Such rosettes are known in both Arabic and Persian as shamsas or "suns".\footnote{One thinks, for example, of the "Mirror of Khusrav" in the mihrab of the Madina mosque which appears also to have been a translucent or reflective stone, or the block of agate on the rear wall of the same mihrab; above, p. 246.} Golden shamsas appear frequently in Qur'an illumination (ill. 108), where they appear to symbolise the illumination contained in the book, which was itself believed to be composed of light.\footnote{Melikian-Chirvani, Light of Heaven, pp. 117-8.} The metaphor of the sun recurs frequently in the Qur'an\footnote{Qur'an IV:174, XLII:52.} and the shamsa may also be seen as an avatar of the lamp which appears in the literal illumination of some early Qur'ans (pl. 165).\footnote{Qur'an XXV:61, XLI:12, LXVII:5, LXXI:15-6.} In the mihrab of the mosque at Fahraj the cycle of association between literal, symbolic, and linguistic references to light is completed by the use of a sun motif to frame a source of natural light.
While the provision of actual windows within the mihrab is relatively uncommon one may point to several western Islamic mihrabs of the early sixth/twelfth century within which windows and panels resembling blind grilles appear. Three claustra appear on the rear wall in the mihrab of the Great Mosque of Tlemcen (531/1136) [pls. 192-3]. Their shape and design resembles that of open stucco grilles, and it has been suggested that they were influential in the design of a stucco claustrum from the mosque of al-Sâlih Tala‘în Cairo (555/1160) [pl. 77]. The elaborate foliage of the claustra recalls the stucco latticework of the dome directly in front of the mihrab, through which light pours. Although no light appears to be admitted through the claustra in the mihrab at Tlemcen, it may be that their function is not to admit light, but to imply it. Light pours through a single window which opens directly above the mihrab.

Around the same date, an actual window filled with a claustrum is pierced in the back of the mihrab in the Qarawiyyin Mosque in Fes (530/1135) [pl. 194]. Three windows filled with open claustra are pierced in the rear wall of the mihrab in the Sidi Bu Madina Mosque at Tlemcen (740/1339). The tradition continued in some of those Mozarabic churches which adopted the mihrab form for use as an altar apse (pl. 195).

In the Almohad mosque at Taza (530/1135) an arched claustrum contained in a larger polylobed panel appears on the rear wall of the mihrab (fig. 78). In contrast to the other stucco panels of the mihrab, this is executed in openwork of lace-like delicacy. It is hardly an accident that the design of the panel echoes the stucco panels of the dome above the mihrab (pl. 205). Panels analogous to that


122 Marçais, Manuel I, figs. 174-5.

123 The use of the claustra in this mihrab has been compared to the pierced marble ornament on the rear wall of the mihrab in the Great Mosque at Qairawan, for the existence of which "there is not any truly utilitarian reason"; Golvin, Mihrab, p. 29. Arched panels sometimes occur on the rear wall of sixth/twelfth century mihrabs in Cairo. See, for example, the mihrab in the mausoleum of Abu Mansur Isma‘îl (613/1216); MAE II, pl. 106a. In the tomb of the 'Abbasid Caliphs (before 640/1242), each of the walls is decorated with a central keel-arched niches. In the south-western and north-western niches are arched panels decorated with an axial arabesque; MAE II, pls. 31b, 32d. The lines of the niches appear to radiate outwards from these motifs, creating the impression of effulgence or emanation. The decoration, possibly influenced by Fatimid mihrabs, consists of a series of allusions to light. In the case of the arched panels this impression of radiation is underlined by the use of identical forms in the qamarîyyat which fill the windows opening directly above (pls.82-4) Thus the transmission of light implied by the use of blind claustra in the niches of the side walls finds a point of reference in the light entering the chamber through qamarîyyat of identical form.


125 Papadopoulos, Le mihrab, pl. 51.

126 Gómez-Moreno, Iglesias Mozárabes, pl. XCV.

in the *mihrab* also occur around the base of the great chandelier which hangs from the dome.129 The interior of this chandelier, which features a sixteen-pointed star filled with vegetal tracery, is a mirror image of the dome from which it hangs (pl. 206).130 Among the inscriptions on this powerful source of illumination are verses 35-8 of Sura XXIV.131 In view of the stylistic links between the *mihrab*, the dome, and the chandelier one may suggest, however tentatively, that the *claustrum* in the *mihrab* is part of an extended allusion to the divine light mentioned in the inscriptions of the chandelier. It may be significant that where the hanging lamp is depicted in the *mihrabs* of the eastern Islamic world, it often appears at the centre of a panel on the rear wall (pl. 174).

9.7 The threshold symbol.

The associations between the window and the solar rosette in the *mihrab* at Fahraj are by no means exclusive to the Iranian world. On the contrary, this and related light motifs appear to have long been associated with openings for light and ventilation.132 Both six-petalled and whirling rosettes appear with great frequency on the lintels of doors and windows in pre-Islamic Syria (pls. 8-9).133 The six-petalled rosette also appears on the lintels of synagogues, often accompanied by other light symbols such as the menorah.134 The use of solar and lunar motifs in such contexts may represent the survival of practices associated with the earlier solar cults of the region.135 The association appears to have continued subsequently, to judge from the appearance of a whirling disc above each of the window-openings in the thirteenth-century church at Haridjavark in Armenia.136

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128 Ibid., p. 60, pl. LXIX.
129 Ibid., pls. LXXVIII, LXXIX.
130 Ibid., pp. 60-1, pl. LXXXV. A similar phenomenon is found in the Qarawīyin Mosque at Fes, where the interior of the great chandelier replicates the ribbed form of the dome from which it hangs; Terrasse, *Fes*, pl. 88, p. 45.
132 See above, pp. 13-5.
The motif appears at a similar date above the windows in the Turbat al-Takritiya in Damascus (before 674/1275) (fig. 76), and over some of the openings in the Mausoleum of Zayn al-Din Yusuf in Cairo (697/1298). Slightly later, one finds whirling rosettes appearing above the window-openings in the Turbe of Khudavend at Nigde (712/1312) [pl. 196]. These have been recognised as solar emblems, and occur in conjunction with other cosmological motifs. The occurrence of solar and lunar motifs above window-openings is also found in the earlier tombs of Seljuq Anatolia. In certain parts of the Islamic world, similar rosettes and discs continue to appear in conjunction with window-openings until today (pl. 197).

Appearing above window-openings, such motifs may have an apotropaic function. The window, like the door, as the interface between exterior and interior space, the threshold between the natural and created worlds, is particularly suited to such symbolism. The rosettes and whirling medallions on the lintels and window-grilles of Syrian buildings have been interpreted in this light; the use of symbols such as the cross or zodiac around the doors and windows of Byzantine churches serves a similar function. The knots which appear in the geometric design of the monumental tracery window from Khirbat al-Mafjar (pl. 51) may have had a similar function, influenced perhaps by pre-Islamic tradition. It is noticeable that the medallions which appear in Mamluk qamariyyat are often framed by knots (figs. 41a, 42a, 43b). The obvious parallel for such window symbolism is the frequent appearance of apotropaic motifs on the entrances to medieval buildings and cities from the Maghrib to Iran. The apotropaic function of such threshold motifs is, like those used on window-openings, often related to their cosmological associations.

In addition to any apotropaic function it is clear that the appearance of solar and lunar symbols in conjunction with window and doors is entirely appropriate to their function as conduits for light. In

137 Herzfeld, Damascus: Studies III, p. 52, fig. 82.
138 MAE II, pl. 82d.
140 For example, on the window of a Turbe at Ilgin, dated 662/1263; G. Oney, Sun and moon rosettes in the shape of human heads in Anatolian Seljuq architecture, Anatolica (III, 1969-70), p. 197, fig. 4. Rosettes containing stars appear above the windows in the Sirin Khatun Mausoleum in Akhlat (680/1281); Oney, Interpretation, p. 404.
141 Dow, Rose Window, pp. 250-1; Goodenough, Jewish Symbols VII, p. 191.
143 On the apotropaic use of knots see Jairazbhoy, Outline, pp. 196-7. For the suggestion that marqueterie knots ('uqda) above the windows of Ayyubid buildings have such a significance see Herzfeld MCIA, Alep I, p. 137.
144 Hillenbrand, Recent work, p. 210, n.4 for a list of such city gates.
145 For example, the lunar dragons on the destroyed Talisman Gate of Baghdad, or above the entrance to the Citadel of Aleppo. In the Seljuq architecture of Anatolia sun and moon rosettes are often set on either side of iwani- and door-openings; Oney, Sun and moon rosettes.
the context of sacred architecture this function was often recognised not by the use of cosmological motifs, but by the presence at the entrance of quotations from the Sura of Light. The association between the portal and the Light Verse is found as early as the Abbasid period, when verse 35 appears on the metal revetment of a door in the Dome of the Rock dated 216/831.146 Usually, however, it is verse 36 which is used, the earliest recorded occurrence being on a slab beside the main portal in the Great Mosque of Cordoba.147 The verse, referring to the mosque as a place of prayer, is entirely appropriate to its entrance; it carries, however, an implicit reference to divine light which is also appropriate to a location where light and air enter the mosque. Indeed, in this context, the verse may be seen as the epigraphic equivalent of the geometric and figurative symbols mentioned previously. Occasionally one finds hanging lamps depicted above the entrance where one might expect to find Surah XXIV:36 (pl. 198).148 The depiction of the lamp above the entrance to the Mashhad al-Husayn in Aleppo may represent the continuation of a pre-Islamic tradition, for hanging lamps occasionally appeared in the medallions decorating the lintels of pre-Islamic buildings in the area around Aleppo (fig. 77). When it appears in this context the lamp itself may, among other things, function as an apotropaic symbol. This power is attributed to the lamp in the Qur'an,149 where it is stated that the lamp has the power to repel Satans.

The epigraphic reference to light above the entrance is often compounded by the design of the portal,150 or connected with the appearance of verse 35 from the same Surah in the interior of the building.151 The connection thus established between the facade and the qibla may relate to the ambiguous status of the mihrab as a symbolic gateway to Paradise,152 just as on prayer rugs it is often


147 Dodd, Image of the Word, Volume I, p. 45. The association appears to have survived in al-Andalus, to judge by the appearance of the same verse by the side of the entrance of a madrasa in Granada dated 750/1356; Almagro Cardenas, Estudio, pp. 210-11. In the Fatimid period verse 36 appears above the entrance to the Aqmar mosque in Cairo; Williams, Cult I, p. 47. The use of this verse above portals was common in Mamluk Cairo. One of its earliest occurrences is above the entrance to the khannakah of Baybars (709/1309); James, Qur'an, p. 29, fig. 10. Subsequently the verse was used above the entrances to the khannaqah of Sheikh Nizam al-Din al-Ishaq (757/1356) and the mausoleum of Princess Tafiyya (765/1363); van Berchem, MCIA, Egypte I, Nos. 163, 536). The association continues until the present day; R. Ettinghausen, Arabic Epigraphy: communication or symbolic affirmation?, Near Eastern Numismatics, Iconography, Epigraphy, and History Studies in Honor of George C. Miles [ed. D.K. Kouymjian] (Beirut, 1974), p. 305, fig. 8.

148 Sauvaget, Deux Sanctuaires, p. 229, fig. 3. The lamps served as a reminder both of the symbolic illumination of contemporary mihrabs and of the votive lamps brought to the shrine.

149 Qur'an XXVII:7, XL:13. It has been suggested that the lamp images in the Kharrawan tomb towers served such a function; Daneshvar, Stylistic and Iconographical Study, p. 70.

150 Dodd, Image of the Word I, pp. 43-5.

151 As is the case in the Aqmar Mosque (519/1125); Williams, Cult I, p. 47.

152 S.V.R. Cammam, Symbolic meanings in oriental rug patterns I, Textile Museum Journal (III, iii, 1972), pp. 17-8; V. Strika, Intorno a un di Mosul, AJOUM (XXV, 1975), pp. 201-14. Mas'udi says that Adam was created as a mihrab, a Ka`ba, a sacred door or a qibla; Prairies I, pp. 57-8.
difficult to determine whether the lamp hangs in a stylised mihrah or in an entrance arch (pl. 188).153 In the eastern Iranian world one even finds doorways opening in the mihrah itself.154

The connection is made, however, via an explicit reference to divine light; The implication appears to be that, just as the light from the lamp or the window in the mihrah may serve as a symbol of divine light, so too may the light entering via the door. The doorway is clearly a source of light, even where that light does not enter the sahn directly, and its significance in the illumination of the mosque should not be underestimated. Nasir-i Khusrau's account of the Aqṣā mosque implies that the doorways frequently provided the main source of natural light:

"When all these gates of the mosque are set open, the interior of the building is light, even as though it were a court set open to the sky. When there is wind and rain they close these gates, and then the light comes from the window (above)."155

In many Maghrbi mosques the connection between the mihrah and the main entrance is established by the repetition of triads or pentads of windows above both the mihrah and the entrance portal.156 Within the mosque such groupings are usually exclusive to these contexts. The number three, the favourite number of the Middle Ages157 has particular associations with light in many cultures.158 Several Christian writers connect triads of windows in churches with the Trinity,159

153 Cammann, Symbolic meanings, pp. 17, 20; Dickie, Prayer rug, p. 46; Strika, Intorno; R. Joseph, The Semiotics of the Islamic mosque, Arab Studies Quarterly (III, 1981) pp. 290-1; Grabar, Cordoue, p. 115. On the connection between the pishtaq and the mihrah in Central Asia see S.G. Chmelinetskij, Peshtak and Mihrah, AIOUN (XLVII, 1987), pp. 39-56. It has been argued, however, that such symbolism is exclusive to Shi‘ism; see A. Daoulatli responding to Grabar's paper on the Great Mosque of Cordoba, Le Mihrah (ed. Papadopoulos), p. 119. A similar ambiguity is sometimes found in Early Christian sarcophagi, where a small doorway often opens within a scalloped niche; Peirce and Tyler, L'Art Byzantin, Volume II, (Paris, 1934), pl. 29c.


155 Le Strange, Palestine, p. 107.

156 For units of three windows above the mihrah see Marrais, Manuel I, pp. 386-7, figs. 216-7 (Tinmal); B. Maslow, Les Mosquées de Fès (Paris, 1937), pls. XIV 33, XXX 60, XLI 90-3, XLII 102; Golvin & Hill, Islamic Architecture, pls. 212, 284. In the Bu 'Inaniya Madrasa in Fes three windows open above the mihrah, and above the door opposite; ibid., pl. 315. The use of windows above entrances is found in pre-Islamic architecture and continued in Umayyad Syria; above p. 47. The Maghrbi penchant for groups of three lights has been traced to the basilicas of Syria; Terrasse, L'Art Hispano-Mauresque, p. 67. Three arched windows appeared above the entrance to the Great Mosque of Samarra; EMA II, p. 255, fig. 202. The use of three rectangular windows above the entrance to the main hall in the palace of Ukhaidir has been connected with the appearance of the same feature at Cordoba; K. Brisch, Zum Bab al-Wazara (Puerta de San Esteban) der Hauptmoschee von Cordoba, Studies in Islamic Art and Architecture in Honour of Professor K. A.C. Creswell (Cairo, 1965), p. 41. It should be noted, however, that the use of Qur'anic epigraphy to link the mihrah and the entrance is also found in medieval Maghrbi mosques. In the mosque at 'Ummad near Tlemcen (739-40/1338/9) the same Qur'anic verse (1:13) is repeated by the main portal and above the mihrah: S.S. Blair, Sufi saints and shrine architecture in the early fourteenth century, Muslimas (VII, 1990), p. 42.


158 Hopper, Number Symbolism, p. 7; SPA II, pp. 876, 889.
which is itself characterised by light.\textsuperscript{160} Three lamps are depicted in the niches on the cenotaph of Khalid ibn al-Walid from Homs (late seventh/thirteenth century) [pl. 185].\textsuperscript{161} The influence of numerology on the religious architecture of Islam remains unexplored,\textsuperscript{162} but it is not inconceivable that the preference for such triads in Maghribi architecture has some particular significance.\textsuperscript{163} The same preference for triads of windows was pervasive enough to exert an influence on Andalusian synagogue architecture.\textsuperscript{164}

Qur'anic inscriptions were not exclusive to entrances, but were also used around the window-openings of mosques, madrasas, and mausolea. Where these inscriptions are recorded there is no obvious connection between the context and the in which they appear. It should be stressed that information on the types of Qur'anic quotations used in architecture is not available for every part of the Islamic world. Where this information is available there is a distinct bias in favour of areas in which Western scholars have traditionally worked, notably Egypt and Syria. Attention has been drawn elsewhere to the recurrence of quotations from Sura LXXXVI around the windows of several Ayyubid and Mamluk madrasas and mausolea.\textsuperscript{165} Despite the fact that quotations from this 

\textsuperscript{159} See p. 289 above; Thomson, Architectural Symbolism, pp. 110-11. In view of the prevalence of groupings of three windows in Maghribi architecture, and its suggested origin in the Christian architecture of Syria, it is noteworthy that the side chapels in the basilica at Santiago de Compostella each had three windows, while three lamps were suspended above the main altar; Davis-Weyer, Early Medieval Art, pp. 148, 155. The mystical associations of triads of windows continued to exert a fascination on writers until the present century; E. Gore-Booth, The House of Three Windows (London, 1926), p. 1.

\textsuperscript{160} M. Schapiro, Late Antique, Early Christian, and Medieval Art (New York, 1979), p. 117; Eutychius of Alexandria, Demonstrations I, p. 27.

\textsuperscript{161} See above, p. 278.

\textsuperscript{162} For an unconvincing elucidation of numerical symbolism in the mosque of Cordoba see N. Britz Lephrindeur, Analyse Esthetique et Symbolique du mihrab de Cordoue, in Papadopoulou (ed.), Le Mihrab, pp. 129-35, 130-1. See also Williams, Cult II, p. 44, on numerology in Fatimid architecture. It has been suggested that the number of windows and blind bays in the Dome of the Rock has a paradisal significance, Rosen-Ayalon, Early Islamic Monuments, pp. 66-7.

\textsuperscript{163} It may be worth mentioning that the entrance to Paradise is often depicted as a triple gateway; Denny, Seff and Sejedeh, p. 102; Séjouy, Miraculous Journey, pl. 39. .

\textsuperscript{164} For a torah shrine in the form of three window-openings, the decoration of which was clearly inspired by Islamic prototypes, see T.L. Freudenheim, A Persian faience wall mosaic in the Jewish Museum, New York, Kunst des Orient (V, 2, 1968), pp. 62-4.

\textsuperscript{165} Hillenbrand, Qur'anic Epigraphy, p. 177.

\textsuperscript{166} A persual of Dodd & Khairallah's Image of the Word, Volume II, for the Qur'anic verses used around windows shows a single occurrence of each of the following verses which contain paradisal themes: XXV.11, XLI.30-1, LXXVI.5-7, LXXVI.21, LXXXIII.25-8. Sura IX.21, which mentions the Day of Judgement, occurs four times in Ayyubid and Mamluk mausolea in Damascus (pp. 54-5). Sura LV.26-7 is found around windows in three buildings, all Ayyubid and all in Damascus (p. 126). There are three occurrences of Sura II.181, three of them in Ayyubid and Mamluk mausolea in Damascus (pp. 7-8). The Throne Verse (II.255) is used above the windows of several Ayyubid and Mamluk buildings; ibid., pp. 10-5. The use of this verse in connection with a window may derive from its mention of the heavens, but it was also used in other contexts, most often domes, in mausolea.
that Paradise is characterised by light, and that the funerary symbolism of Islam lays much emphasis on the theme of light, but it is difficult to see any specific connection between the verses chosen and the context in which they appear.

Where Qur'anic quotations are not chosen, the recorded inscriptions around window-openings make no reference to light. Instead one sometimes finds benedictory formulae which may, in the context of a window-opening, have an apotropaic function. Religious inscriptions serving the same function appear on the window-grilles of northern Yemen until today.

9.8 Qamariyyat and Shamsiyyat.

Having considered the decoration of window-openings, it is worth pausing to consider in more detail the stucco and glass grilles which filled them. One should perhaps distinguish between the design of qamariyyat/shamsiyyat and the contexts in which they appear. Unfortunately few qamariyyat or shamsiyyat have survived from Early Islamic mosques, although sufficient evidence has been cited to show that they were used in both secular and religious architecture from the Umayyad period onwards. If the evidence from Mamluk Cairo is representative of trends in the medieval Islamic world in general, one suspects that similar designs were used contemporaneously for qamariyyat and shamsiyyat in both religious and secular contexts. Exceptions to this are those qamariyyat on which religious epigraphy appears or, and the single example of this appears to be anomalous, those on which religious symbols such as the lamp appear (ill. 53). Both of these categories are examined below. Conversely, figurative window-grilles are hardly ever used in religious

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167 See above, pp. 269-70.

168 One does occasionally find the use of profane inscriptions around windows and doors where the context seems to relate to the content. For example in the Mahal-i Khās at Fatehpur Sīkri (977-1010/1569-1601) a series of inscriptions inscribed around the upper parts of windows and doors make multiple references to the idea of Akbar as a source of light; Smith, Moghul Architecture, p. 3.

169 For example formulae in which the words al-yumn (prosperity) and kamalat (benediction) are repeated occur in the stucco surrounds of the interior windows in the Almohad qubba at Marrakesh; Marçais & Meunier, Marrakesh, pp. 52-3. Religious and benedictory formulae are found on later Maghribi claustra; Revault et al, Palais et Demeures I, p. 37, n. 81.

170 Bonnenfant, Vitraux, p. 35.

171 One thinks, for example of the occurrence of heraldic blazons on the qamariyyat used in palaces, mosques and madrasas.

172 See below, pp. 312-5.

173 See above, p. 119.
contexts, although they do appear in palace architecture. The three forms of decoration found in the tracery of the shamsiyyat and qamariyyat used in the windows of religious buildings are geometric, vegetal and epigraphic.

Although textual evidence attests the use of vegetal and animal motifs in fifth/eleventh-century window-tracery, the material evidence indicates that, before the Ayyubid period, qamariyyat and shamsiyyat make use of geometric tracery exclusively. It appears that from the late sixth/twelfth century onwards abstract vegetal motifs became more popular, although geometric tracery continued to be used. Even in Early Islamic qamariyyat floral or vegetal motifs were usually painted on the glass set in geometric tracery (ills. 5-7). In the shamsiyyat of the western Islamic world vegetal tracery does not seem to have enjoyed the popularity which it had in the Near East and Iran, although it does appear in stucco claustra.

9.8.1 Geometric motifs

From the excavated remains of Umayyad qamariyyat, it appears that the geometric tracery used in their construction consisted of repetitive grids in which radiating star motifs often featured (ill. 6). This is even more apparent in the newly-discovered Abbasid qamariyyat, where the stars are highlighted by their size and the use of framing medallions (fig. 22).

The terms used to denote Islamic window-grilles, qamariyya ("moon-like") and shamsiyya ("sun-like") are themselves redolent of light. Analogies between the design of lamps and qamariyyat, including the repetition of star motifs, are discussed below. It is possible that the consistent popularity of the star motif in window-grilles, repeated either in a continuous pattern or in large medallions, is to be attributed to a delight in visual puns on light. One may perhaps compare the coloured glass stars in medieval qamariyyat/shamsiyyat to the stars depicted in the glass mosaics of Early Christian and Byzantine domes; the one transmitting light, the other reflecting it.

The use of large shamsas in Mamluk qamariyyat may also play on the notion of a coloured glass grille being "sun-like". Two type of shamsa are found: twelve-pointed stars (figs. 43a, 47a, 51a) and circular medallions (figs. 43a, 47a). The twelve-pointed stars are similar to those which appear on the frontispieces of Mamluk Qur'ans.
That twelve-pointed stars were capable of acting as bearers of meaning is suggested by their appearance in contexts where they function as symbols of illumination. In the Tomb of Uljaytu at Sultaniyah (706-17/1306-17), for example, similar stars are used to frame the name of Muhammad, and the lines which radiate out from the star form a larger hexagonal star which frames the shamsa. The use of hexagonal stars, shamsas, pentagrams and other symbols of light to contain the names of God and Muhammad in the Ilkhanid mausoleum is in the tradition of those Fatimid mihrabs (pl. 175) and domes (pl. 62) in which the same types of star medallions are put to similar use. Although shamsas appear to have been less commonly used in architectural decoration of the Fatimid period than in Mamluk art, a twelve-pointed shamsa appears on a wooden mihrab from the mashhad of Sayyida Ruqayya (549-56/1154-60).

The shamsas in the form of circular medallions are usually filled with glass roundels. In the shamsas which appear in the large central field of Mamluk qamarriyat these roundels are usually twelve in number (fig. 47a). In others, or in the smaller shamsas which fill the arched tympana of such windows, there are usually seven roundels (fig. 41a). Where twelve-disc rosettes are found on contemporary metalwork they are usually filled with images of the zodiac (pl. 127) and are often depicted with seven-disc rosettes containing images of the planets. The cosmological connotations of the seven-disc rosettes which appear on Mamluk metalwork has been noted elsewhere. Even when the latter rosettes do not contain images of the planets, they can be used in contexts which suggest that they function as symbols of light. The aniconic medallions filled with seven and twelve glass roundels which appear on Mamluk qamarriyat may therefore have had a similar significance. One thinks also of the twelve glass roundels on the clock of al-Jazar (ill. 137), an object which measures time by reproducing the structure of the cosmos in miniature. It should also be borne in mind that, where they appear on windows, such roundels are usually contained in a shamsa. The use of such

181 For example in the qa'a of Muḥiẓ ibn al-Dīn al-Muwaqqi in Cairo (751/1350); 'Abd al-Wahhab, Dome decorations, p. 96.
182 S.S. Blair, The epigraphic program of the tomb of Uljaytu at Sultaniyah: meaning in Mongol architecture, Islamic Art (II, 1987), pp. 43-96, fig. 16.
183 See above, pp. 272.
184 C.J. Lamm, Fatimid woodwork, its style and chronology, Bulletin de l'Institut d'Egypte (XVIII, 1930), pp. 85-6, pl. XII.
185 In the qamarriyat in the madrasa of Jamāl al-Dīn Yūnūs al-Ustadar, for example.
186 In the Qasr Bashtak, for example.
188 Allan, Islamic Metalwork, p. 53.
189 See above, pp. 234-5.
designs in a "sun-like" window, where polychrome light is seen to stream from them, serves as one more indication of a delight in extended linguistic and visual plays on light. A similar phenomenon is apparent in the decoration of medieval Islamic lamps.

In certain Mamluk mosques one finds radial inscriptions (epigraphic rosettes appearing in the tracery of a circular qamariyya above the mihrab (fig. 40c, 44c). It seems likely that the design of these windows was inspired by the use of similar blazons on Mamluk metalwork (pl. 126), where they were often part of an elaborate visual play on light. It may be that the very form of the opening above the mihrab was intended to recall a sun and that the design of the qamariyya was intended to reinforce this idea. It should be borne in mind that in Fatimid and Mamluk Egypt, and in other parts of the Islamic world, single stars, shamsas and rosettes were often depicted within the mihrab itself. I have suggested elsewhere that the six-pointed stars which appear in the circular qamariyyat above the mihrabs of some Burj Mamluk madrasas were intended to evoke the star-like brilliance of divine light as described in Sura XXIV:35.

The hexagonal star appears to have a particular association with light in general, and with divine light in particular. Hexagonal stars with central rosettes, similar to those in the Mamluk qamariyyat, appeared on the lintels of pre-Islamic buildings in Syria. Similar stars were used in the illumination of fifth/eleventh and sixth/twelfth-century Qur’ans (ill. 108). These are sometimes held in shamsas and therefore, by implication, shine with the extra brilliance of the sun. In the best-preserved example of this type of qamariyya, in the madrasa-khanqah of Barquq, a six-petalled

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190 See above, pp. 275-6.
191 In the mausoleum of Aslām al-Sīlahārī (746/1345) and the madrasa of Šāfi’ī al-Yūsufī (795/1392).
192 Allan, Islamic Metalwork, pp. 86-8. In the windows Qur’anic inscriptions replace the title of the Sultan or other individuals.
193 One of the earliest occurrences of a circular window above a mihrab is in the Umayyad mosque at Qaṣr al-Ḫallābīt; EMAl i ii, pp. 503-4, fig. 558. It is probable that its use derives from the pre-Islamic architecture of Syria; see above, p. 47. The use of such windows was established in Damascus by the late sixth/seventh century; a circular window opens above the mihrab in the Madrasa al-Shamiyya. See also the Takrīfiyya; Herzfeld, Damascus: Studies II, p. 61, fig. 83.
194 See above, pp. 245-8.
195 Flood, Iconography of Light, p. 179. Although similar stars appear in the tracery of earlier circular windows, for example in the tomb of al-Asḥaf Eḥālī (687/1288), it seems likely that the use of the hexagonal star above the mihrab was also influenced by the decoration of Fatimid mihrabs.
196 Qamariyyat of this type appear above the mihrab in the khanqah of Barquq (788/1386), and in the almost contemporary mosque of Šāfi’ī al-Yūsufī. Since the few original examples of such circular grilles use a star motif it seems likely that such windows were once more common than may seem to be the case.
197 See above, pp. 272-6.
198 Avi-Yonnah, Oriental Elements, p. 102, fig. 17.
199 Ling, Quranic Calligraphy, Pl. 12, 16.
rosette, another symbol of light, appears at the centre of the star (fig. 44a). A similar motif is found on a Mamluk candlestick of the early eighth/fourteenth century (pl. 200). Not only is the motif similar, but in both cases the symbol appears in a context where it is directly associated with the quality which it symbolises, namely light. The very object which radiates or transmits light is itself decorated with symbols of that light.

The choice of such a highly-charged motif to fill a single circular window opening directly above a mihrab, a place intimately connected with physical and spiritual light, is hardly coincidental. The hexagonal star could occasionally function as a symbol of the sun; its appearance in a "sun-like" window above a niche which had a long association with sun rosettes and star medallions lends a further dimension to the iconographic references to light in earlier mihrabs. In these Mamluk qamariyyat one finds the rosettes, stars and windows found in earlier mihrabs combined to give new expression to an ancient idea.

9.8.2 Epigraphy.

Short inscriptions often appear amidst the geometric and vegetal tracery of shamsiyyat and qamariyyat; these are usually contained in rectangular panels or ovoid cartouches. The epigraphic repertoire of qamariyyat and shamsiyyat is limited, consisting of the name of God or his qualities, the bismillah, parts of the shahāda, short Qur'anic quotations, or the names and titles of particular individuals. Where Qur'anic quotations are used, these often run continuously from window to window. In the rare instances where these are recorded or legible they make no reference to light. That is not to say that the Qur'anic inscriptions chosen have no particular significance, or were not chosen with regard to context.

One of the earliest mentions of a Qur'anic inscription on glass is found in a story cited by Yaqūt and attributed to Miṣā ibn Ḥammad al-Berberī. According to his account, Sura CII was executed in gold on glass in the Great Mosque of Damascus. It is not clear where or what this glass was. Although some scholars have taken zujāj to refer to the glass of the windows in the mosque, there

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200 Allan, Islamic metalwork, No. 9, pp. 66-9.
201 A similar phenomenon is apparent in the use of rosettes and whirling discs as conduits for light in pre-Islamic window-grilles; see pp. 14-5 above. See also Allan, Islamic Metalwork, p. 69.
202 Ibid., p. 61.
203 For example, in the mausoleum of Aṣlān al-Silāḥdār (746/1345) and the madrasa of Jamāl al-Dīn Yūsuf al-Ustādār (806/1408) in Cairo: above, pp. 125-6, 134-6.
204 Yaqūt, Mu'jam al-Buldān, p. 593.
205 Le Strange, Palestine, pp. 262-3.
is no mention of windows in the text. A red jewel was set in the letter q of al-maqābīr where it occurs in the sura, which condemns the excessive accumulation of wealth. The jewel belonged to a deceased daughter of al-Walid who, against the wishes of her mother, ordered it to be set within the window rather than be interred with her. In this way the potential conflict between the sumptuary laws of Islam and the wishes of the girl’s mother was avoided; while the jewel was placed in the “the grave”, it was not interred with the girl. Once again it appears that the choice of the sura was governed by general religious considerations rather any specific associations with light.

One can also point to the use of a Qur’ānic quotation which has a general significance, but one which does not appear to be specific to context. The central shamsiyya of a group of three formerly in the windows above the mihrab in the Bu ‘Inānīya Madrasa in Fez (746/1345) originally bore Sura CXII (al-Ikhlās). The words were formed in the tracery of the grille which, unusually, was of lead rather than stucco. The use of an inscribed grille above the mihrab was also common in Mamluk mosques. While this short sura, which deals with the oneness of God, makes no mention of light, it is given a special status in the hadith. According to a hadith preserved by Tirmāzī, love of this sura will admit one to heaven; it is reported by both Bukhārī and Muslim that to recite this sura is the equivalent of reciting one third of the entire Qur’ān. Its appearance on the shamsiyya above the mihrab may thus be taken as shorthand for a longer quotation, impossible in the tracery of a window-grille. Given its associations, it is worthy of note that the sura occurs amidst a group of three shamsiyyat, neither of the remaining two seem to have borne inscriptions.

One also finds Qur’ānic texts used in the circular shamsiyyat set above the mihrab in certain Mamluk mosques. The radial inscription in the circular qamariyya above the mihrab in the mausoleum of Aslām al-Sīlahdār in Cairo (ill. 64) contains a quotation from Sura III:37 in which the mihrab is mentioned. The quotation is thus appropriate to the context in which it appears, even if there is no necessary connection with a window. Quotations from Sura III (al-‘Imran) are also used in the grille above the mihrab in the mosque of Gānī Bek (830/1426-7) [pl. 116]. This sura was

206 See above, p. 104.

207 For example in the Jāmi‘ al-Tayrūzi, Damascus, and the Mamluk qamariyya above the mihrab in the Jāmi‘ al-Hanāfī, Damascus. The circular grilles above the mihrab in Cairene mosques often bore Qur’ānic quotations (for example, in the mausoleum of Aslām al-Sīlahdar and the mausoleum adjoining the madrasa of Ḥasan al-Yusufī). Unlike the windows in Damascene and Maghribī mosques, however, the use of epigraphy in Cairo is not usually confined to the window above the mihrab; indeed this may be the only window in which an inscription does not appear (e.g. in the khanqah-madrasa of Barqūq).


210 See above, p. 126.
commonly used in or around the *mihrab*, and was used earlier in Cairo to frame the window above the *mihrab* in the Mosque of al-Ṣafīrī Ṭaḥṭā (pl. 98). In the circular grille above the *mihrab* in the mausoleum of Ṣulṭān ʿAlī al-Ṭīsī (795/1392) a quotation from Sura XVI is used. Although no mention is made of light, the letters of the inscription radiate outwards from a central rossette in a manner comparable to the solar blazons found on contemporary metalwork.

If the Qur'ānic inscriptions used on the window-grilles themselves seldom make explicit reference to light, one is left to consider more general connections between Qur'ānic text and luminosity. One finds the use of precious materials such as gold and precious stones to form the letters of Qur'ānic inscriptions in the Early Islamic period, for example in the *shamsa* sent to the Ka'ba by al-Muʿizz in 362/972. The use of such precious materials is evidently related to the sacred nature of the text and the self-consciously conspicuous context in which it appears, but may have some further significance; later commentators such as al-Ghazālī refer to the words of the Qur'ān as jewels or pearls. This idea is connected with the notion of the Qur'ān as light or a source of light, an idea expressed in the Qur'ān itself and often repeated by later commentators. The use of gilding, *shamsas*, and arcades with hanging lamps in early Qur'ān manuscripts (pl. 165) may be seen as a literal allusion to the spiritual illumination emanating from the text. Later manuscript painters go further, depicting the Qur'ān as a light or as a container for light.

The earliest surviving *qamariyya* on which a portion of the *shahāda* appears is in the madrasa of Ilgay al-Ṭīsī (775/1373) in Cairo. After this date portions of the *shahada* frequently appear on *qamariyyat*. The *shahāda* frequently appears in religious inscriptions and the use of the formula in the window-grilles of mosques and mausolea may be attributed to its role as a pillar of the faith. Since one of the ninety-nine names of God is "Light" (*nūr*), the appearance of His name in the tracery of a window-grille is entirely appropriate. Whether its use in this context is more significant than in any other remains a moot question. Since no particular correlation seems to exist between the Qur'ānic verses used on *qamariyyat/shamsiyyat* and the theme of divine light any significance is likely to be of the most general kind. One might cite as a parallel the appearance of the names and titles of Mamluk sultans in *qamariyyat*. In contemporary metalwork such titles are sometimes depicted in a manner

211 Twenty-four recorded occurrences of quotations from the same *sura* occur in connection with *mihrahs*; Dodd & Khairallah, Image of the Word II, pp. 22-35.

212 Ibrahim, Four Cairene *mihrahs*, p. 34.

213 Bloom, Meaning, pp. 194-5; Al-Hakim, p. 27.

214 Al-Ghazālī, Jewels of the Qur'ān.


216 Milstein, Light, fire and the sun, p. 542.

217 In the *khanqah-madrasa* of Barquq (786-8/1384-6). Although these are the sole surviving *qamariyyat* in which such titles appear, it seems unlikely that they were unique.
suggestive of the emanation of light.\textsuperscript{218} It may be, therefore, that the use of such titles in the tracery of a grille, where light shines through the voids of the letters, is the Mamluk equivalent of 'having one's name in lights'.\textsuperscript{219} In a cultural ambience pervaded by the associations of both the ruler and God with light this remains an open possibility.

9.8.3 Vegetable motifs.

To judge from the remarks of Ibn Bassām, trees and stylised vegetation appeared in the tracery of qamariyyat and shamsiyyat as early as the fifth/eleventh century.\textsuperscript{220} The earliest surviving qamariyyat which make use of vegetal tracery are those in the Madrasa al-Shamīyya (before 582/1186) and the Jāmi‘ al-Hanāfīyya (599-610/1202-13) in Damascus (ills. 30-2). The axial arabesque which appears on these qamariyyat is by no means confined exclusively to window-tracery, but its popularity in this context continued into the Ottoman period. Although tracery featuring vegetal motifs appears only from the sixth/twelfth century, floral and vegetal motifs were painted on the glass used in Umayyad qamariyyat. Among the motifs painted on the window-glass from Khirbat al-Mafjar are four-petalled rosettes similar to those which occur elsewhere in the decoration of the palace.\textsuperscript{221} Based on their occurrence in pre-Islamic Iranian art Ettinghausen suggested that these should be interpreted as royal symbols of light.\textsuperscript{222} It may be therefore that the depiction of such motifs on window-glass, where light emanates from them, added a further dimension to such iconographic references to light. If so, this would suggest that the design of the earliest qamariyyat could be meaningful.

We have more evidence to suggest that the windows which stand at the upper end of the timescale covered by this study could play a meaningful role in the decoration of the mosque. Floral motifs, including the axial arabesque, appear in the qamariyyat of the qibla wall in the Suleymaniye mosque in Istanbul (ill. 121).\textsuperscript{223} In the waqf document, the concentration of qamariyyat on the qibla wall is specifically related to divine light, a theme taken up in the Qur’ānic inscriptions used in their tracery. The floral theme repeated in the ceramic tiles of the Suleymaniye mosque has been taken as a representation of the Garden of Paradise;\textsuperscript{224} it may be that the radiant vegetation depicted in the coloured glass grilles was intended to evoke the luminescent jewelled flora of the Garden.\textsuperscript{225} typified

\textsuperscript{218} Allan, Islamic Metalwork, pp. 86-9.

\textsuperscript{219} Flood, Iconography of Light, pp. 185-6.

\textsuperscript{220} See above, pp. 98-100.

\textsuperscript{221} See p. 29 above.

\textsuperscript{222} Ettinghausen, From Byzantium, pp. 36-9.

\textsuperscript{223} Necipoğlu-Kafadar, Suleymaniye, p. 100.

\textsuperscript{224} Idem.
in later depictions by the gem-encrusted tuba tree (ill. 132). To what extent the same is true of the similar qamarīyyat used in earlier mosques remains an open question. One might however point to early depictions of jewelled vegetation with paradisal overtones,226 and to the frequency with which trees and gardens recur in the decoration of qibla walls.227

One wonders whether such stylised vegetation might not even be intended to recall, at least in a general sense, the tree mentioned in Sura XXIV:35. While such a possibility may appear unlikely, it should be borne in mind that in the Sûleymaniye the same verse features in the qamarīyyat of the qibla.228 On the northern minaret of the mosque of al-Hâkim in Cairo (394/1003) the Light Verse and the three following it frame four stucco claustra on which an axial arabesque occurs (pi. 76). One might also mention the numerous Mamluk mosque lamps on which the Light Verse appears in conjunction with polychromed floral and vegetal ornament, which glowed with colour when the lamp was in use.229 The appearance of the arabesque within the golden shamsas used in Qur'an illumination (ill. 108) has been connected with the tree mentioned in the Light Verse.230 It might be argued that such abstract vegetation bears no resemblance to a tree, but a similar axial vegetal motif in the coloured glass windows of northern Yemen is known today as 'tree' (shajara).231

Similarly, the frequency with which the cypress appears in Mamluk and Ottoman qamarīyyat232 may relate to its paradisal connotations and its associations with light. The flames of the candles flanking the miḥrab, and even the form of the candles themselves, often resemble cypresses (pls. 173, figs. 71b, 73). In some cases the candles are even replaced by such trees (compare pls. 201 and 202).

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225 Goodwin describes the windows as depicting "fields of flowers of Paradise"; Ottoman Architecture, p. 481, n.153. In contemporary descriptions of certain Ottoman mosques the garden metaphor is extended to the lights, which are compared to clusters of fruit: Crane, Risâle, p. 74.

226 See above, pp. 200-1.

227 A parallel exists in the paradisal gardens depicted in the apse mosaics of Early Christian and Byzantine churches; Grabar, Qartamo, p. 88. The idea of the Garden is inseparable from the Muslim conception of Paradise (janna). Trees, plants and flowers frequently appear along the qibla wall. One might cite two examples which lie roughly at either end of this survey; the frontispiece in Sana‘a, on which a luxuriant growth sprouts from the qibla wall (ill. 132), and the Sûleymaniye Mosque, discussed in the text above. The vegetation sprouting from the qibla in the illuminated Qur'an recalls the gardens which sprout from the roofs of the paradisal tholos depicted in Carolingian and Byzantine manuscripts which, like the mosque in the manuscript, are often decked out with hanging lamps; P. Underwood, The Fountain of Light in manuscripts of the Gospels, Dumbarton Oaks Papers (V, 1950), pp. 41-138, figs. 35-8.

228 Necipoğlu-Kafadar, Sûleynamiye, p. 100.

229 See below, pp. 320.

230 M. Lings, Quranic Art, p. 74.

231 Bonnenfant, Vitraux, p. 15.

232 See above, pp. 118, 141-3.

233 Hanaway, Paradise on Earth, p. 47.
Ibn Jubayr describes a candle like a cypress in the Haram at Mecca. In certain Mamluk mosques one finds the image of the vase flanked by cypresses appearing not, as one might expect, within the mihrab, but drawn in light in the qamarīyya used above the mihrab. Although it is true that the use of the cypress was widespread in Burji Mamluk and Ottoman art, it may be that its appearance in certain contexts held particular significance. In his description of the glass mosaics in the dome of the Aqsa mihrab, Evliya Çelebi mentions fruit-trees and "the Paradise cypress tree (tuba). The waqfīya of Süleymaniye compares the mosque to Iram, the earthly imitation of Paradise built by Shaddad. Descriptions of Iram mention jewelled pavilions and palaces standing amidst a radiant landscape filled with flora composed of gold and precious stones. It has been suggested above that a similar vein of metaphorical artifice is associated with the use of light and colour Early Islamic architectural decoration. It may even be that legends surrounding the fantastical decoration of pre-Islamic temples and palaces in which the richness, colour, and luminosity of the decoration is frequently stressed provided the standard against which the decoration of certain palaces and mosques was measured. The iconographic references in the Süleymaniye, standing as they do at the end of a long tradition, would appear to support such a view. That similar references are discernible in the Alhambra, a building which, in a different sense, also stands at the end of a line, suggests that such a phenomenon was not exclusive either to religious architecture or to Ottoman Turkey.

9.9 The window and the lamp.

The light entering the mosque through its windows is, by night, and in the darkest parts of the mosque, replaced or augmented by forms of artificial illumination. The close relationship between natural and artificial light sources is acknowledged in the Qur'an, where the sun and moon are compared to lamps. The relationship between the star and the lamp has been discussed above in the

234 Broadhurst, Travels, p. 183.
235 In the madrasa of al-Nisîr Muḥammad in Cairo; above, p. 118.
236 St. H. Stephan, Evliya Çelebi's Travels in Palestine VI, QDAP (IX, 1939-42), p. 82. One thinks also of attempts to depict the golden trees of Paradise in the mosaics of the Great Mosque of Damascus and elsewhere; above, pp. 200-1. Ibn Jubayr mentions the glittering appearance of the vegetation depicted in the former mosaics; Broadhurst, Travels, p. 272.
238 See below, pp. 199-200.
239 That mosques, and not just palaces, could be compared to legendary pre-Islamic palaces has been noted above; p. 241, note 394.
context of symbolic references to light in medieval mihrabs.\textsuperscript{241} Stars are particularly common in both the geometric grillework of metal lamps (pl. 182) and in the medallions which decorate them (pl. 181). Similar medallions appear on other sources of artificial illumination (pl. 200). The association of star and lamp has wider implications, for in Sura XXIV:35 the light of the lamp is compared to that of a star. In the mihrab the star, like the image of the lamp, is an implicit symbol of illumination. In the design of the lamps one may discern a simple but effective visual play on light, with light shining forth in the shape of a star, or illuminating the outline of a star. Similar puns could even be incorporated into architecture, for example in the mausoleum at Qūṣ (pl. 176-8) where the dome is transformed into a literal image of the sky, with light pouring through star-shaped apertures within it.

There is also a secondary pun inherent in creating a lamp in the image of the stars, for it is an ancient Arabian metaphor that the stars are lamps suspended from the sky.\textsuperscript{242} A similar tendency to describe the natural world in terms of man-made objects is found in the Qur'anic comparison of natural luminaries to lamps burning in the heavens. In medieval descriptions of mosques the lamps are often compared to stars hanging in the sky;\textsuperscript{243} a similar pun is inherent in the name of the "Pleiades" (\textit{thurayya}), the great chandeliers hung in Maghribi and Andalusian mosques and palaces.\textsuperscript{244} On many lamps and candlesticks of the sixth/twelfth and seventh/thirteenth centuries an association between artificial light sources and the heavenly bodies is suggested by the presence of solar and astrological motifs on lamps and candlesticks.\textsuperscript{245}

Not surprisingly perhaps, one may often discern similarities between the design of \textit{qamarīyyat} and contemporary hanging lamps. Similar analogies between window-tracery and lamp designs may also be found in the medieval Christian world. Among these are the \textit{lampades claustrae} mentioned by Bede,\textsuperscript{246} or in the use of circular tracery closely related to the design of metal \textit{polycandela} in the windows of medieval churches.\textsuperscript{247} In both lamps and windows, light is filtered through a screen of glass set in a patterned casing. The associated function of both windows and lamps is stressed by the repetition of similar forms in both. A number of examples taken from different contexts will serve to

\textsuperscript{241} See pp. 273-7 above.

\textsuperscript{242} Above, p. 251.

\textsuperscript{243} See below, p. 322.

\textsuperscript{244} One of the earliest uses of the term is in Ibn Rustah's description of the Great Mosque of Madina, \textit{Kitāb al-Buldān}, p. 76. For an extensive discussion of the medieval usage of the term \textit{thurayya} see Lamare's translation of Idrīsī, \textit{Description}, pp. 20-1. The idea was by no means confined to the medieval Islamic world - Paul Silentiarius compares the \textit{polycandela} in Haghis Sophia to the heavenly stars, Mango, \textit{Art of the Byzantine Empire}, p. 90.

\textsuperscript{245} Atil, \textit{Anatolian Civilisations III}, D.138; Allan, \textit{Islamic Metalwork}, Nos. 7-8.

\textsuperscript{246} Forbes, \textit{Studies V}, p. 191.

\textsuperscript{247} Dow, \textit{Rose Window}, pp. 260-2, pl. 14. The same author quotes an early seventh/thirteenth-century description of Lincoln Cathedral which compares the light from its rose windows to that of the sun and moon, or two candelabra; ibid., p. 280.
illustrate the point and give an idea of how widespread this phenomenon was in the medieval Islamic world.

Openwork medallions with six-pointed stars occur on a series of fragmentary metal lamps from Rayy dated to the fourth/tenth century or earlier (pl. 181, 1-4). These occur on the bases of the lamps and would presumably have been visible from below when the lamps were suspended, heightening the star analogy. A similar medallion occurs on the base of a fifth/eleventh-century metal lamp from Qairawan (pl. 181, 7), which suggests that the use of such punning designs on metal lamps was quite widespread in the Early Islamic world. Hexagonal lattices in which six-pointed stars recur are commonly used for claustra from the Umayyad period onwards (pl. 199); the monumental stone grille from Khirbat al-Mafjar (pl. 51) has even been described as a stylised star.

More germanely, the new evidence from the Abbasid palaces at Raqqah indicates that that medallions containing six-pointed stars featured prominently in the tracery of Early Islamic qamariyyat. The star medallions are very similar to those found on the early metal lamps and may be seen as another play on the theme of light and illumination. Just as the light emanating from the lamps illuminated star motifs, so too the light entering these windows filled their stars with light. The window-grilles, like the lamps, "were intended to cast not a clear beam but a patterned projection on to already patterned surfaces, creating extra layers of design." This patterned effect was no doubt heightened by the use of geometric claustra on the exterior of window-openings, for the design of such claustra are often visible as a faint pattern superimposed on the glass of the qamariyya (ill. 150).

Similarities between the decoration of lamps and windows is apparent in the lamps and qamariyyat which lie at the upper end of the chronological range covered by this study. In the illumination of mosques in Mamluk Egypt and Syria, hanging glass lamps (qanadT) assumed a more prominent role than metal lanterns. Attention has been drawn above to the similarities between the medallions on the shoulders of these lamps, and the medallions filled with glass roundels which appear in Mamluk qamariyyat. In addition to such stylistic similarities one may point to technical affinities between Mamluk lamps and qamariyyat, most notably the use of random background piercings to produce a veil of light.

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248 Rice, Studies V, pp. 221-3, pl. XII, 1-4.
249 Marçais & Poinsot, Objets Kairounnais, figs. 87-8; Rice, Studies V, pl. XII, 7.
250 It has been suggested that the star-like apertures did not arise merely as residual spaces between other elements, but were themselves the main features of the designs in which they featured; A.J. Lee, Islamic star patterns, Muqarnas (IV, 1987), pp. 185-6.
251 Strika, La «cattedra», pp. 45-6.
252 Jones, Surface, pattern, and light, p. 173.
253 See above, p. 150. Given these similarities one wonders whether it was qamariyyat bearing such designs which were known as qamalT, qanadTain, Amin & Ibrahim, Architectural Terms, p. 91. See also note 304 below.
254 See p. 151 above.
Like the colours used in the enamelled decoration of Mamluk glass lamps, the predominant colours of the glass used in later Mamluk qamariyyat are red and blue. The similarities in the tone and quality of the light passing through the coloured glass of the windows and the enamelled glass of the lamps were noted by Lane-Poole:

"The effect of the yellow light shining through the gold and the blue and the red enamel, and showing off the inscription and ornament, must have been magnificent: the true Oriental delight in softened light, which we notice in the shady meshrebiyas, the subdued tones of the windows, the dull red and blue of the ceilings, is exhibited in this manner of introducing light into the mosques."256

The use of polychrome enamelling on Mamluk glass lamps, like the use of small pieces of coloured glass in Mamluk windows, produces a glow of light rather than a direct beam. This is not the case other forms of lamps used elsewhere. The polycandelon (thurayyâ) used in the western Islamic world was filled with clear glass lamps, which produced a very different effect. This is apparent from a contemporary description of the polycandelon in the Great Mosque of Calatrava:

"Look at its lights (suru) which, in the night, shine through the crystal of its glasses; you see them burning brightly. You would say that they were the tongues of serpents."257

Sura XXIV:35, or a selected portion of it, often appeared on the neck of Mamluk glass lamps, as it had earlier on the Seljuq lamp from Konya (pl. 183). Given the stylistic affinities between the window-grilles and the lamps, one wonders whether any general transcendental meaning was associated with polychromed light entering through the qamariyyat. For the Ottoman period at least there are numerous indications that, in certain mosques, this was the case. Evliya Çelebi describes the effect of coloured light reflected off the glass mosaics in the mihrab of the Aqsa mosque as filling "the whole congregation with light and meditation, inspiring them to reverent submissive prayers". The mosaics are said to be the work of Serkhosh Abdullah. This name is strangely reminiscent of Ibrahim

255 See above, p. 149.
256 Lane-Poole, Art of the Saracens, p. 221.
257 Péris. Poësie, p. 325.
258 See above, pp. 276-7.
259 The affinities between the glass lamps and the glass windows are recognised in the nomenclature associated with both: the lamps were known as qandil qaṭîq, while the window-glass was referred to as zuṯq qaṭîq; see p. 276, note 280 above. Since qamariyyat were used in Cairo during the Ayyubid and Fatimid periods, the implicit suggestion that windows of coloured glass were introduced by the Bahri Mamluks is mistaken. Such windows do, however, appear to have become more common from the the end of the seventh/thirteenth century.
260 Stephan, Travels, p. 83.
the Drunkard to whom are attributed the windows in the Süleymaniye Mosque in Istanbul which contain multiple references to the Light Verse. Within the dome in front of the Aqṣā miḥrāb this very verse was inscribed, transforming the cupola into "a rotunda of light". Çelebi extends the Qur'anic metaphor to the artificial lighting used in the mosque:

"About one thousand costly and artistic pendants hang from the ceiling, besides seven thousand small oil lamps. Every night about a thousand lamps are lit, and during the ḥaḍrāt al-ḥaḍar all are lit, so that the interior of the mosque, already luminous, becomes 'light on light', whilst the outside of it is also bathed in light."  

That such nocturnal illuminations were visible from the exterior is particularly interesting, since the light presumably emanated from the windows. The direction of the light flowing through the windows was reversed by night, when they served to transmit the light of the lamps within towards the exterior. Thus instead of absorbing light, the entire building itself became a source of light, a beacon. A self-conscious exploitation of this phenomenon is found pre-Islamic palatine architecture and the ability of glass to transmit light in two directions was exploited in the water-and-light spectacles which took place in the glass pavilions discussed above. The light emanating from Early Christian churches could serve as a reminder of God's presence; in the early first/eighth century Arculf observed that the light of the eight lamps which hung in front of eight windows in the Church of the Resurrection on the Mount of Olives created a dramatic impression in the dark streets of Jerusalem. One may detect a similar idea in the use of architectonic forms for metal lanterns and candelabra from the fourth/tenth century onwards in many parts of the Islamic world (pl. 203) and beyond (pl. 204). Such lanterns are often designed to hold a flame at the centre of the building.'
and acted as 'shrines of light', transmitting the light that shines within them. The same idea could also work on a macrocosmic level; the prototype of the Ka'ba was a jewelled pavilion which glowed with the light of the golden lamps lit within it.\textsuperscript{269} According to a saying attributed to Ibn 'Abbās, the mosques, illuminated by their lamps, appear to those in heaven as the stars do to us on earth.\textsuperscript{270}

It should be borne in mind that even when little or no light was passing through them \textit{qamariyyat} and \textit{shamsiyyat} continued to play a decorative role. By night they were transformed into negative images of themselves, with the stucco tracery becoming more prominent than the glass which filled it. This is particularly true of Mamülük \textit{qamariyyat}, where certain parts of the stucco tracery stands in high relief against a flat perforated background. One may compare this nocturnal decorative role with that of the blind \textit{qamariyyat} and \textit{shamsiyyat} which, for reasons of symmetry, are often found even where there are no window-openings.\textsuperscript{271} Even though no light passes through the glass used in such grilles, this glass is often highly polished and serves to reflect the light within.\textsuperscript{272} This Gestalt effect may be seen as a manifestation of the creative tension between solid and void, light and shade, which characterises other forms of Islamic architectonic decoration. Certain \textit{muqarnas} domes, for example, illuminated by windows around their base may, at night, be transformed into a negative image of their daytime self by the use of artificial lighting.\textsuperscript{273} In the fenestration of medieval Islamic buildings this dialectical tendency makes itself felt not only in the alternation of solid wall-surface and window, but in the solids and voids of the grilles which fill the latter.

That the comments of Evliya Çelebi on the Aqṣa Mosque are not merely the mystical musings of a weary traveller is suggested by the \textit{waqf} document of the Suleymaniye mosque in Istanbul (965-6/1557-8). This explicitly connects the light from its numerous windows with the Light Verse, suggesting that the mosque is bathed in divine light.\textsuperscript{274} Just as, by day, the natural light admitted through the windows of the Suleymaniye could evoke the brilliance of divine light so, by night, the lamps which illuminated it could also assume a symbolic significance. The Light Verse which is

\begin{itemize}
\item sixth/seventh century states that lamps of this type were created "that the Heavenly Jerusalem, after whose shape it is made, may be brought to our minds"; Harvey, \textit{The Medieval Architect}, p. 227.
\item \textsuperscript{269} See above, pp. 228-9.
\item \textsuperscript{270}\textit{Al-Raḍī, Mafatih al-Ghaib VI}, p. 286. Ibn Juyayr describes a mosque on Mount 'Arafat which, when its lamps were lit, looked "as if all the stars of the sky shone upon it"; Broadhurst, \textit{Travels}, p. 182. Such ideas were apparently widespread, for an inscription in a mosque at Kangra built by Jehangir describes it as being "radiant with light" shining on the worshippers; Hassan, \textit{Researches}, p. 191.
\item \textsuperscript{271} For example in Qasr al-Banat at Raqqa (ill. 28), or in the mosques of Aṣḥāb al-Stilāḏḏār and CīfīlTeck in Cairo (pl. 118).
\item \textsuperscript{272} It should be borne in mind that the sun itself could be seen either as a source of generated light or as a polished glass disc reflecting light; Haltrusatis, \textit{Spiegel}, p. 81. Certain types of medieval stained glass made use of the different qualities of transmitted and reflected light, displaying different colours in each; Cramp, \textit{Decorated window glass}, p. 327, n.2.
\item \textsuperscript{273} Grabar, \textit{Alhambra}, p.184.
\item \textsuperscript{274} Necipoğlu-Kafadar, \textit{Süleymaniye}, p. 100. Interestingly, it has been suggested that there is an increase in the level of illumination from window-openings in the mosques built by Sinan as his career progressed; Holak, \textit{Mosque Lighting}, pp. 14-6.
\end{itemize}
mentioned in the waqfiyya in connection with the windows is also invoked in a comparison between the lamps hanging in the mosque and the starry sky. Evliya Çelebi makes a similar connection between the artificial lighting used in the Aqsa mosque and divine light. The idea of the world as a mosque illuminated by both artificial and natural light is found in a twelfth/eighteenth-century Ottoman eulogy on Creation:

"What is this exalted mosque and retreat for witnessing? What is this lofty vault and lamp ornament? What is this bright window, what is this luminous taper?"

In Ottoman mosques such as the Suleymaniye the star-like brilliance of the lamps was often magnified by the use of reflective mirrored balls similar to the glass globes or eggs hung on the chains from which Mamluk mosque lamps were suspended.

A similar correlation between the symbolic use of natural and artificial illumination is often preserved in traditional or vernacular mosque architecture until the present day. One of the most effective examples is found in the mosques of Mali where the mihrab is lit by a beam of natural light channeled directly onto the name "Allah" from an opening in the roof. By night the same function is served by the simple but effective use of a lighted wick or a kerosene lamp.

In the Suleymaniye the windows of the qibla are distinguished by the use of coloured glass in the stucco screens which fill them. The connection with divine light is in fact woven into their design, the tracery of the windows incorporating extracts from the Light Verse as well as the various attributes of God. Written in light, the very words of the verse thus serve to symbolise the quality which they eulogise. Excerpts from the same verse appeared contemporaneously in the qamariyyat of the Dome of the Rock, which were also ordered by Sultan Suleiman. A later document recording the replacement of windows in the drum of the dome in the twelfth/eighteenth century specifies that those on the qibla side should be more colourful and elaborate. Although this evidence is late, and

275 Necipoğlu-Kafadar, Suleymaniye, p. 100.
276 Crane, Rizâile, p. 19.
279 Bourdier, Houses of Light, p. 67.
280 Necipoğlu-Kafadar, Suleymaniye, p. 110. The same verse appears in the main dome of the mosque. The epigraphy has been restored and it is not certain that it follows the original: Goodwin, Ottoman Architecture, p. 235. Sura XXIV:35 also appears in the Ottoman epigraphic medallion at the centre of the great dome of Hagia Sophia; Safadi, Islamic Calligraphy, fig. 47.
281 Stephan, Travels, p. 89.
282 St. Laurent & Riedlmayer, Restorations, p. 79.
unusually explicit, it tends to support the suggestion that the concentration of *qamariyyat* and *shamsiyyat* along the qibla walls of earlier mosques may be connected with the theme of divine light.

9.10 The lamp in the window.

In view of the widespread recognition of the lamp as a symbol of divine light and spiritual illumination, one might well why the lamp itself was not used in window tracery. A rare exception is in the mausoleum of Sanjar al-Gâwî in Cairo (704/1304) where the motif of a single lamp suspended from a chain is repeated in the tracery of the window-grilles (ill. 53).283 The body of the lamp is filled with blue glass. The tracery of these grilles is surprisingly fresh-looking and it is unlikely that they are original. Creswell,284 mentioning the lamp motif, says nothing about the date of the grilles and no mention is made of them in the reports of the Comité, which tends to suggest that they were not restored or replaced by that body. It may be that they date from the Ottoman period when, as we have seen, symbolic references to light were frequently incorporated into the design of such grilles. Even if the grilles were remade in the Ottoman period, the possibility remains that they follow the form of the original Mamluk grilles, for the lamp motif is found on wooden grillework of the Mamluk period.285 Its use in this context, with light passing through the lamp, may be seen as a visual play on light, by reference to the lamps hung in contemporary mosques. Given the widespread funerary associations of the lamp286 and its use as a symbol of divine illumination, its use would be appropriate to the windows of a tomb.

The idea of incorporating visual references to light into the design of a grille is found earlier in the facade of the Aqmar Mosque (519/1125). Here the open stone grillework covering the lower part of an arched window or stylised *mihrab* assumes the form of a geometric grid radiating from a hexagonal star (pl. 169). The star is both a generic reference to light and one which seems to have specific associations with Surah XXIV.287 The star recalls the stars which are found in Fatimid *mihrabs* (pl. 175), and the arched opening within which it appears may be seen as a stylised *mihrab*. From the summit of the *mihrab* hangs a lamp. The grille has also been interpreted as an image of the ceremonial grilled window behind which the caliph appeared. The the lamp may thus have had an

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283 See above, p. 119. Erica Dodd identifies a motif appearing on a modern *qamariyya* which follows the form of Mamluk window-grilles as a lamp, but this is in fact a cypress; Dodd, *Image of the Word*, I, p. 16, fig. 9.

284 MAE II, p. 244.

285 See, for example, a *mahrab* featuring a mosque lamp and *mihrab*, Jones & Michell, *Arts of Islam*, No. 455. the piece has been dated to the eighth/eleventh century, although it is conceivably later.

286 See above, pp. 268-70.

287 See pp. 271-6 above.
ambiguous function, serving both as a symbol of divine light and of the caliph himself. While no light passes through this arched opening, the effect of the symbolic references to light are heightened by their appearance on an open grille which one might reasonably expect to permit the passage of light. The grille is symbolic, not functional; it is there, like the blind claustra in Maghribi mihrabs, or the ceramic and metal lamps (pl. 189) suspended in Mamluk and Ottoman mosques, to imply light, not to transmit it.

A similar association is found even earlier in the decoration of four windows in the northern minaret of the Hakim Mosque (349/1003). Here the reference to light is made not by the design of the window-grilles, but by the use of verses 35-8 of Sura XXIV to surround the window-openings (pl. 76). The context suggests that a connection is being made between the light of the window and the light mentioned in the ayat. The appearance of this sura may be compared to the use of anepigraphic light motifs on window-openings elsewhere in the medieval Islamic world. The inscriptions are, however, placed on the exterior of the window-openings through which no light passes from the dark interior of the minaret. Their presence has been explained by the use of the minaret as a beacon tower. Thus the mention of the lamp may be seen as appropriate to the function of the minaret, "although the beacon light would have been seen in a window, not in the niche of the Qur'anic verse".

One may also point to more general associations between the minaret, lamps, and light. The ability of the window to permit the passage of light in either direction has been discussed above. While such light symbolism has a particular significance in the context of Shi'a Islam, the use of the lamp as a symbol appears to predate the Fatimids, and certainly continued long after the demise of that dynasty. Similarly, it is possible that the connection between the lamp and the window had a more widespread significance. As the several alternative meanings given by the medieval commentators imply, the term mishkāt used in Sura XXIV:35 is ambiguous. Among its several meanings are the iron chain by which a lamp is suspended, and even the metal casement of a lantern designed to hold a glass lamp. While the term used in Sura XXIV:35 is generally rendered

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289 Jones & Michell, Arts of Islam, Nos. 408-9; Atil, Anatolian Civilisations III, E. 154.

290 Bloom, al-Hakim, p. 20.

291 See pp. 304-5 above.


293 Bloom, al-Hakim, p. 20.

294 See pp. 260-2 above.

295 See above, p. 265.

296 Clermont-Ganneau, La Lampe, p. 218. This is also the translation given by Melikian-Chirvani; Lights of Sufi Shrines, p. 118.
into English as "niche", certainly scholars have translated it differently. In one of the earliest translations of the Qur'an the relevant part of the verse was translated as follows:

_Similudo lucis ejus est sicut fenestella in parieta a parte posteriori, in qua sit lampes_297

It has been suggested that the translation draws on the analogous effect of the light seen through the metal grillwork of a lantern enclosing a glass lamp, and the light filtering through a grilled window.298 Among the meanings of the term _mishkat_ several Qur'anic commentators, including Tabari, mention a blind niche or a recess designed to contain a lamp.299 This interpretation accords well with both the translation of Maracci and the practice of hanging a lamp within the closed prayer-niche. The idea of the _mishkat_ as either a niche or a window has survived in a recent translation of the verse by Barbara Finster.300 While it may be argued that a niche is not a window, neither is a _mishkat_ a _mihrab_, although this did not prevent the Light Verse becoming associated with the illumination of the prayer-niche. If the _mishkat_ bears any resemblance to a window it seems probable that, as the Qur'anic commentators suggest, this is a blind window opening only on an illuminated recess.301 There is a strong functional resemblance between an opening from which lamplight spreads outwards and a window-opening through natural light is admitted. While this is self-evident, one may also cite a linguistic parallel in support of the suggestion. In Classical South Arabian the term _taq_ or _taqa_ denoted an arched niche in the wall of a house or tomb designed to hold a lamp.302 The function of the _taq_ is thus not dissimilar to that associated with the _mishkat_ in some accounts. It appears that at some later date the term came to be associated with a window, for in his description of the Great Mosque of Damascus, Ibn `Asākir uses the term _taqāt_ in connection with one of the arched window-openings.303 The tall, narrow openings flanking the arched windows on the facades of Yemeni houses (pl. 208) are known as _qandil_, and are often deliberately decorated to resemble candles with flames

297 L. Maracci, _Alcoran Textus Universus_ (Padua, 1698), p. 482.
298 A. Prévost de Longpré, _Oeuvres_, Volume I (Paris, 1883), pp. 456-9. Clermont-Ganneau (La Lampe, p. 218) disputes the interpretation of Longpré, claiming that Maracci had in mind a small niche designed to hold a lamp. In view of what follows this is more likely.
300 Finster, _Maṣūfāf al-'Abbās_, p. 177.
301 One thinks, for example, of the arched recesses in the walls flanking the entrance to the Sala de la Barca and the Hall of the Ambassadors in the Alhambra. The appearance of each niche resembles that of a _mihrab_ and in the accompanying inscriptions they are described as such; D. Cabanelas & A. Fernandez-Puertas, _Los Poemas de las Taceas del Acceso a la Sala de la Barca_, _Cuadernos de la Alhambra_ (XIX-XX, 1983-4), pp. 147-9.
303 Elisseff, _Description_, p. 33.
emerging from their summits. The structural resemblance to a mihrab and its flanking candles is suggestive. It may also be significant in this regard that where the hanging lamp is depicted on funerary stelai, flat mihrabs, or carpets there is often a visual ambiguity as to whether it hangs in an arched opening or in an enclosed niche. This ambiguity characterises even the earliest symbolic depictions of the hanging lamp. The arched recess on the Aqmar facade, for example, has been interpreted as a representation of both a mihrab and a window.

In certain mihrabs of later periods this ambiguity becomes even more apparent. In the Timurid alabaster mihrabs mentioned earlier, for example, the hanging lamp appears on an arched panel. While the lamp itself and the area surrounding the arch are richly carved, the background within the arch is left completely blank. Equally the lamp itself is richly ornamented and executed in relief, standing out against the brilliant luminosity of the thinner plain background. This is particularly apparent in the mosque at Būdakhvād (ill. 140), where one might say that the significance of the lamp as a source of light is marginal when compared to the light streaming from the arch in which it hangs. It is as if one is presented with the image of a lamp hanging from an open arch or window through which a brilliant light pours. Some of these mihrab panels are divided into an upper and lower panel, with different motifs visible in each. The same arrangement is found earlier in Anatolian mihrabs (pl. 172) where a single lamp is seen to hang within each of two superimposed "openings". That the design of the Timurid mihrabs was intended to evoke an arched opening is further suggested by the use of similar slabs of alabaster decorated with polylobed arches in the windows of contemporary mosques.

The phenomenon is by no means confined to Timurid Iran, although the use of alabaster in these mihrabs renders it particularly apparent. Indeed, where the lamp is depicted in mihrabs of the sixth/twelfth and seventh/thirteenth centuries from Iran and Mesopotamia, it usually appears within an arched panel on the rear wall of the mihrab. Strictly speaking, therefore, the lamp is not depicted in the mihrab, but in a mihrab image within the mihrab. On many mihrabs and funerary stelai the lamp appears on the innermost of a concentric series of arched panels (pl. 174). Even in the Maghrib,
where the lamp does not appear, one finds both actual windows, and claustra which give the impression of windows, opening in the rear wall of the mihrab.310 The concentricity which is such a noticeable feature of Iranian and Mesopotamian mihrabs is echoed in the design of the mihrab in the Great Mosque of Taza (fig. 78).

This form of mihrab with a window was sufficiently well established in the region to exert an influence on the apses of mozarab churches (pl. 195) and the torah shrines of medieval Andalusian synagogues.311 The notion of concentricity is perhaps inherent in the Light Verse itself, where the light of the flame is said to be contained in a glass, which belongs to a lamp which is itself suspended in a nitched opening. A similar structure recurs in the commentaries, where the flame in the lamp in the niche is compared to the belief in the heart in the breast of the believer. The same idea carries with it an implicit progression from smaller to larger units which is faithfully echoed in the depiction of the lamp at the heart of a series of panels of diminishing size.312 Indeed one might include the mihrab and the mosque itself in this progressive series, for the relationship of the mihrab and its light to the mosque may be compared to that of the lamp to the niche.

The depiction of the lamp in such panels often gives rise to an ambiguity as to whether the lamp is seen hanging in an open arch or against a solid background. A similar ambiguity is apparent in the design of later carpets and prayer rugs (pl. 188), where it is often difficult to tell whether the lamp hangs in an open arch, a mihrab, or a doorway.313 In certain cases such textiles were hung on walls to provide the illusion of a series of windows opening up a solid surface.314 These, like the panels in the mihrabs mentioned above, suggest a window opening on the beyond. This impression may be related to the idea of the mihrab as a gateway to, or affording a glimpse of, Paradise.315 The relationship between the mihrab and the door has been mentioned above, and in certain cases the appearance of the mihrab itself suggests "a darkened opening into another world".316

It is possible that the ambiguity associated with depictions of the lamp in many mihrabs derives from the fact that it is not a mihrab which is mentioned in the verse, but a mishkāt. In the early mosque at Fahraj it is not a hanging lamp which appears within the mihrab, but a window surrounded

310 See above, p. 302, n.187.
311 Freudenheim, Wall mosaic, pp. 62-4.
312 In certain cases the image of the lamp is rendered in such a way that even the flame within appears through the glass; ill. 139, fig. 71a.
313 Denny, Saffand Sejjadeh, pp. 95-6. See also an eleventh/seventeenth-century Jewish rug from Cairo in which a "tree of hanging lamps stands beneath an arch inscribed "this is the Gate of the Lord"; Cammann, Symbolic meanings, p. 17, fig. 6.
314 Denny, Saffand Sejjadeh, p. 98.
315 Strika, Intorno a un "mihrab".
316 Ettinghausen & Grabar, Islamic Architecture, p. 137.
by a sun motif. The image of the heavenly luminaries as lamps recurs in the Qur'ān and might be cited in support of the suggestion that the fenestration and decoration of the mihrab were designed to connect it with the mishkāt al-anwār. Implicit in this idea is the ambiguous association of window and lamp. One may offer the suggestion that the panel in which the lamp is depicted in later mihrabs should be seen as a symbolic counterpart for the actual window opening in the earlier mihrab at Fahraj.

9.11 Conclusion.

Several conclusions may be drawn from this survey of the window and its associated meanings in the religious architecture of the Islamic world. Firstly, where references are made to light in the tracery of qamariyyat and shamsiyyat, these may be seen as part of a general delight in visual puns connected with light which are not exclusive to religious contexts. Even the Qur'ānic quotations used on such grilles or in connection with window-openings rarely make reference to light, but have more general religious associations. The exceptions to both these generalisations are found in Fatimid mosques, where the ubiquitous use of light imagery had both sacred and temporal overtones. There is, however, the possibility that transcendental meanings were associated with the window itself, and with the light admitted through it.

The survival of the pre-Islamic custom of decorating window-openings with light symbols in some parts of the Islamic world leaves this possibility open. Moreover, the window as it appears in certain contexts, in the mihrab at Fahraj or above the mihrab in the maqam of the Aleppo citadel for example, may be seen as part of an extended play on light. Where this is the case, the light of the window is usually connected with references to the light of God, or to Sura XXIV, in the decoration of a mihrab. There is an enduring association between light and the mihrab which one may detect perhaps as early as the Umayyad period. In the following centuries the theme of light is stressed in the decoration of mihrabs from contexts as diverse as the royal cathedral mosque of Qairawān and its more humble equivalent at Fahraj in eastern Iran. While the presence of a window in the latter mihrab is noteworthy, it is by no means unique. It may be that the somewhat ambiguous decoration of later mihrabs was inspired by the multivalent terminology used in the Light Verse.

More problematic is the question of whether the concentration of windows along the qibla walls of certain mosques has a transcendental significance. The reference to light in the waqfiyya of the Sileymaniye suggests that the fenestration of the mosque is connected with the theme of divine light in general, and the Light Verse in particular. How far this connection is valid for earlier mosques from other parts of the Islamic world is unclear. This is especially true since epigraphic references to

\[317\text{ Qur'ān XXV:61, XLI:12, LXVII:5, LXXI:15-6.}\]
divine light frequently appear in Ottoman window tracery but are conspicuously absent from earlier qamariyyat and shamsiyyat.

It may be that in the minds of pious observers, or the mystically inclined, the light admitted by the windows of the qibla served as a reminder of divine light. Since the transcendental connotations of light were apparently exploited in the decoration of mihrabs from the fourth/tenth cent, if not earlier, this remains an open possibility. One hesitates, however, to generalise from the experiences or post hoc interpretations of particular individuals, and it remains unclear to what extent this held good for other contemporary observers, or even those responsible for the construction of the mosque.

To these points one might also add the possibility that the medium of glass itself and the colourful light effects it produced could be invested with general transcendent associations. The theological connotations of luminosity and colour have been touched on above, although it is difficult to associate such refined theoretical approaches with the ubiquitous medium of window-glass. It may be that, in a generic sense, the use of coloured glass to fill the windows of buildings which served a religious function enabled those buildings to partake of the fabric of Paradise.318 A parallel may be found in Early Christian and Byzantine churches which, by the use of decorative materials such as glass, marble, and precious stones, provided a foretaste of Paradise.319 There is also a strong paradisal theme underlying the decoration of many medieval mosques, and a similar association may be suggested for certain uses of glass decoration in palace architecture.

With the possible exception of a recurring, but not universal, connection between the window and the mihrab, in the medieval Islamic world the window does not appear to have developed the complex and canonical symbolic nuances which it had in Byzantium and the medieval West.320 This is not to say that the symbolic potential of the window was not appreciated; on the contrary, whether providing a view, as an opening for illumination, or a source of polychromatic light one finds occasional uses of the window in contexts where it functions as a potent symbol. The window is, however, merely one of a number of motifs which could be used to symbolic effect in the architecture of the mosque. The window is symbol in a secondary sense, for ultimately it is the light which it admits, or implies, and not the window itself which is significant. While the same may be said of other symbols of light such as the star or the lamp, the window, being characterised more by absence than presence, is, in a strict sense, less graphic. It may be for this reason that, while the symbolic role of lamps or lamp-images has frequently been acknowledged, the possibility that the window could be used to similar effect has rarely been considered.


319 Roberts, The Jeweled Style, p. 76.

CONCLUSION.

The appeal of glass lies in its mysterious nature, at once jewel-like and aqueous, and its ability to transform light. The spectacular visual effects associated with screens of translucent coloured glass explain the rapid dissemination and enduring popularity of qamarîyyat and shamsîyyat in the medieval Islamic world. The desire to harness, transform, colour and pattern natural light is related both to functional considerations and to a penchant for stylisation and artifice which pervades much of medieval Islamic architectural decoration. At its most extreme, this is characterised by a tendency to describe the natural world in terms of rich textiles, precious metals and jewels. The petrified atmosphere of a world in which base organic forms have been transmuted into their vitrified or bejewelled equivalents is conjured in many poetic descriptions of medieval Islamic courts; descriptions which echo accounts of Paradise itself. It is clearly understood that the triumph of luxuriant artifice over nature produces an ambience suited to the realm of those who rule on earth, or of those who inherit the delights of the Garden. In such an ambience the visual effects associated with certain materials are often seen to be as important as the specific forms which they assume; the substitution of effect for precise detail characterises accounts of both eschatological and mythical paradises.

The aesthetic dimension alone is insufficient to explain either the consistent popularity of illusionistic vitreous architecture, or the surprising uniformity in accounts of crystal pavilions and glass palaces. One must look instead to the potent symbolic connotations of such illusionistic structures. In the case of the glass pavilion the strength of the image, however vague its details, lay in its ability to evoke a series of related ideas. The effects associated with the use of certain materials are stressed in accounts of pre-Islamic palaces, and the particular associations of the glass palace were firmly rooted in the immutable imagery of the Qur'an. Indeed the glass palace is a clear case of a literary motif which, time and again, was translated into physical reality. Such attempts to build Paradise on earth were fuelled no doubt by quasi-historical accounts of earlier endeavours. The influence of the text exerts itself to differing extents and on different levels. These range from attempts to use textual descriptions, however impressionistic, as architectural blueprints, to the evocation of the image by the use of a symbolically-charged name.

If one seeks a paradigm to explain the connections between the Qur'anic palace of Solomon, the mythological glass palace and the crystal pavilions built by Islamic rulers, then one may point to the relationship between Heavenly Jerusalem, the Temple of the Grail and the Gothic cathedral in the medieval West. Indeed the archetypal nature of the glass palace or temple is revealed by the recurrence of similar motifs in the traditions of numerous other cultures. Although accounts of jewelled windows or crystal floors have some basis in reality, it is a reality which has been transformed by an act of imagination. The creation, or apparent creation, of similar marvels in the domain of the palace provided a magical ambience appropriate to the monarch. The impression made by such illusionistic architecture has been preserved in popular stories and folk tales.
The non-canonical nature of medieval Islamic architectural symbolism has been pointed out elsewhere. The various attempts to create a symbolic Palatium Salamonis, ranging from the use of a name to the construction of entire pavilions of glass, exemplify this phenomenon. The most obvious candidate for the role of universal symbol is the lamp, which is clearly designated as a symbol in Sura XXIV:35. Even this symbol was not adopted in all areas of the Islamic world, and was merely the most popular of several light symbols. These are symbols in a secondary sense, evoking a quality which is an attribute of God. The notion of a hierarchy of symbols is implicit in the Light Verse itself, where the brilliance of the lamp which symbolises the light of God is itself evoked by the luminosity of the star. If one seeks to identify a universal Islamic symbol, neither the lamp nor the star, the rosette nor the window qualify. Instead one might point to the quality which all these symbolise, namely, light. The idea that light is both a quality and a symbol of the Godhead is common to many cultures and is emphasised in Qur’anic scripture, notably, but not exclusively, in the Sura of Light. The symbolic force of light per se results from the identification of physical effulgence (both natural and artificial) with divine illumination. As was noted in chapter VII, the symbolic associations of light are often inseparable from its utilitarian aspects. In an era in which the nature and meaning of light has been completely transformed by an abundance of electric lighting it is perhaps difficult to appreciate the universal power of this symbolic equation. That the signs used to convey the message were not fixed does not detract from the fact that the quality itself was widely recognised as a symbol, both religious and secular.

The window, as a conduit for light, and the qamariyya/shamsiyya, as a means of transforming it, both had potential for symbolic associations. The examples cited in Chapter IX indicate that this potential was sometimes exploited to great effect. It may even be that certain uses of the window were inspired by the multivalent terminology of the Light Verse. Equally, one may detect a delight in visual plays on light in the design of certain medieval mosque-lamps and window-grilles.

Despite this, one must conclude that the role of qamariyyat and shamsiyyat was often as much decorative as symbolic. As a type of window which provided neither views nor air, and in many cases did not provide much light, the raison d’être of the qamariyya/shamsiyya was the colour and pattern which it lent to natural light. The use of such windows also helped to regulate the intensity of natural light, and to provide illumination while preserving privacy. In Umayyad and ’Abbasid architecture grilles filled with coloured glass were usually set above doors. It was these doors and not the windows, which provided most of the natural light required to illuminate the interior of buildings. One finds subsequent attempts to balance the attractions of the qamariyya with the need for adequate interior illumination. The conflict between the functional and decorative aspect of qamariyyat and shamsiyyat was eventually resolved by locating such grilles above windows of more strictly functional type, which could be closed with mashrabiyyat (ill. 149) or wooden shutters (frontispiece). The final

impact of such windows was often dependent on a wide range of associated decoration in different media.

One need not go so far as Le Corbusier, who saw the history of architecture as ultimately that of the window, in order to appreciate the importance of Islamic "stained glass", or the profound impact which such glass must have had on interior space. This being so, it is somewhat surprising that the many architectonic and architectural uses of glass cited above have largely been overlooked. These may be said to constitute a lost dimension of medieval Islamic art. The quantatitive aspect of this loss is witnessed by the fact that a single small building such as Qasr al-Banat could produce over 11 kilograms of window-glass. One need hardly add that inherent in this neglect is the loss of a great deal of information on the relationship between different forms of medieval Islamic architectural decoration, on the meaning of this decoration and, ultimately, on the paradigms governing certain aspects of medieval Islamic architecture. The omission is all the more unfortunate since coloured glass ornament, of which glass mosaic was only one dimension, was an integral and innovative element of Islamic architecture from its inception. In pursuit of a more holistic approach to the study of medieval Islamic architectural decoration, it is to be hoped that this research has gone some way towards rectifying the omission.
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