

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

Finbarr Barry Flood.



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Finbarr Barry Flood

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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 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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ABBREVIATIONS.

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

ADAJ - Annual of the Department of Antiquities of Jordan.

AION - Annali dell' Istituto Orientale di Napoli.

AJA - American Journal of Archaeology.

BASOR - Bulletin of the American Schools of Oriental Research.

EI - Encyclopaedia of Islam.

EMA - K.A.C. Creswell, Early Muslim Architecture, Volume I (2 parts): Umayyads AD 622-750, Volume II: Early 'Abbāsids, Umayyads of Cordova, Aghlabids, Tūlūnids and Samānids AD 751-905 (reprint, New York, 1969).

Exercice - Annual reports of the Comité de Conservation des Monuments Arabes du Caire.

JAOS - Journal of the American Oriental Society.

JWCI - Journal of the Warburg and Courtauld Institutes.

JRAS - Journal of the Royal Asiatic Society.

MAE - K.A.C. Creswell, The Muslim Architecture of Egypt, Volume I: Ikshīdīs and Fāṭimids AD 939-1171, Volume II: Ayyūbids and Early Bahrite Mamlūks AD 1171-1326 (reprint, New York, 1979).

MCIA - *Materiaux pour un Corpus Inscriptionum Arabicarum*.

QDAP - Quarterly of the Department of Antiquities of Palestine

RCEA - Répertoire Chronologique d'Épigraphie Arabe.

SPA - A.U. Pope (ed.), A Survey of Persian Art from Prehistoric Times to the Present, 14 volumes (fourth impression, Ashiya, 1981).

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: *qamarīyyat*; *shamsīyyat*; *mashrabīyyat*; *miḥrāb*; *iwān*; *khānqāh*; *sūra*; *ḥammām*; *amīr*; *sultān*; *shī'a*, *sūfi*. They have also been omitted from the following proper nouns: Qur'ān; 'Abbāsīd; Fāṭimid; Ayyūbid, Mamlūk, Tīmūrid; Ṣafavid; Madīna; Baghdād; Sana'a; Wādī Natrūn; Sāmarrā; 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.

FOREWORD TO SECTION ONE.

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 *shamsiyyat*. 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 *shamsiyyat*, 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.¹ Medieval Islamic painted window-glass makes use instead of "cold" painting, with the pigment left unfired.²

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,³ 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.⁴

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,⁵ 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-Ḥaqq took the term *shamsiyya* as referring to "une cadre de bois rectangulaire", *qamariyya* as designating "une plaque de plâtre ajourée derrière

¹ For details of the painted decoration on medieval European stained glass see J. Lafond, *Le Vitrail* (Paris, 1966), pp. 36-8; L. Grodecki, *Le Vitrail Roman* (Paris/Fribourg, 1977), pp. 29-34; C. Brisac, *A Thousand Years of Stained Glass* (Tokyo, 1984), pp. 182-4.

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".⁶ 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.⁷ In Mamluk Egypt *qamariyya* referred to an upper opening which could be round, rectangular or square.⁸ 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*,⁹ 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 *bāban muzajjajatan*.¹⁰ Ibn Rustah uses the same word for the windows in the Mosque of the Prophet at Madina.¹¹ Similarly Ibn Bassām, describing what appear to be *shamsiyyat* in the Dhū'l-Nūnid palace in Toledo, writes of *buhūrun muntaẓimatun min al-zujāji*.¹² 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.¹³

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-ʿulwuhā qamariyyātun min al-zujāji al-afranjiyyi ft ghāyati al-bahjati wa al-*

⁶ S. ʿAbd al-Ḥaqq, Contribution à l'Étude de la verrerie Musulmane du VIII^e au XV^e siècle, *Les Annales Archéologiques de Syrie* (VIII-IX, 1958/9), p. 9. See also R. Dozy, *Supplément 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.

⁷ As noted by Salam-Liebich in O. Grabar, R. Holod, J. Knustad & W. Trousdale, *City in the Desert: Qasr al-Hayr East*, Volume I (New Haven, 1978), p. 203, n.68.

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

⁹ M. Canard, Cérémonie Fatimite et Cérémonie Byzantine, *Byzantion* (XXI, 1961), pp. 361-2.

¹⁰ Ibn al-Faqīh al-Hamadānī, *Kitāb al-Buldān* [ed. M.J. de Goeje] (Lugduni-Batavorum, 1885), p. 101.

¹¹ J. Sauvaget, *La Mosquée Omeyyade de Medine* (Paris, 1947), p. 78.

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

¹³ Below, p. 120.

itqāni.¹⁴ The term occurs in the Breslau edition of *A Thousand and One Nights*, where it clearly refers to a row of upper windows closed with fixed grilles containing glass.¹⁵ In Mamluk Egypt the term was used to refer to windows of various shapes and the lattices which filled them, whether of stone or stucco, filled with glass or left open.¹⁶ During the Ottoman period the term *qamariyyat* was commonly used in Egypt to refer to windows filled with coloured glass set above *mashrabiyyat*,¹⁷ and even stucco and glass window-fillings in general.¹⁸

1.3 *Shamsiyyat*.

The use of the term *shamsiyyat* to denote window-grilles can be traced at least as far back as the sixth/twelfth century. Ibn Jubayr uses the term to describe stucco and glass window-grilles,¹⁹ while in the eighth/fourteenth century Ibn Battuta describes the windows in the Great Mosque of Damascus as *shamsāti al-zujāji al-malawunnati*.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-Maqqarī.²² The same word was also used in connection with the stucco window-fillings which appeared in the Marīnid and Sa'adīan palaces of Fez²³, and elsewhere in the Maghrib.²⁴ From this is derived the term *shamsiyyat*, used in Morocco until the

¹⁴ M. van Berchem, *MCIA, Deuxième Partie: Syrie du Sud*, Volume I (Cairo, 1922), p. 369, n.5.

¹⁵ M. Habicht, *Tausend und eine Nacht*, Volume XI (Breslau 1843), p. 371.

¹⁶ Amin & Ibrahim, *Architectural Terms*, p. 91. The geographers frequently specify *shamsiyyat min al-zujāj*, which also suggests that *shamsiyyat* were not always filled with glass.

¹⁷ B. Maury and A. Raymond, *Palais et Maisons du Caire, II: Époque Ottomane (XVI-XVIII^e siècles)* (Paris, 1983), glossary.

¹⁸ E.W. Lane, *An Account of the Manners and Customs in Modern Egypt* (London, 1860), p. 18; M.S. Briggs, *Muhammedan 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.

¹⁹ W. Wright (ed.), *The Travels of Ibn Jubayr* (London, 1907), pp. 264-5; R.J.C. Broadhurst, *The Travels of Ibn Jubayr* (London, 1952), p. 275.

²⁰ C. Defrémery & B.R. Sanguinetti, *Voyages d'Ibn Batoutah*, Volume I (Paris, 1853), p. 199.

²¹ E. Levi-Provençal, Une Description de Ceuta Musulmane au XV^e siècle, *Hesperis* (XII, 1931), p. 153.

²² R. Dozy, G. Dugat, L. Krehl & W. Wright, *Analectes sur l'Histoire et la Littérature des Arabes d'Espagne par al-Makkari*, Volume I (Leiden 1855-60), p. 305.

²³ J. Revault, L. Golvin, and A. Amahan, *Palais et Demeures de Fes I: Époques Merinides et Sa'adienne (XIV^e - XVII^e siècles)* (Paris, 1985), p. 223.

²⁴ A. Zouari, *Le Dar Jalluli et le Dar Hintati à Sfax, l'habitat traditionnel dans les pays Musulmans autour de la Méditerranée*, Volume I (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-Mi' rāj in Jerusalem, written before the middle of the eighth/fourteenth century, al-'Umarī 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 *shamsiyyat* were in use in the medieval Islamic world simultaneously, they were specific to different parts of that world. The available evidence indicates that *shamsiyyat* 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 *shamsiyyat* 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 *shamsiyyat* and *qamariyyat*. For these reasons I have used *shamsiyyat* in the text to refer to the window-grilles of the Western Islamic world, and

Volume I (Cairo, 1988), p. 163.

²⁵ A. Paccard, *Traditional Islamic craft in Moroccan Architecture*, Volume II (Saint Joloz, 1974), p. 566; A. Rhaddioui, *Le mihrab au Maroc, Le mihrab dans l'Architecture et la Religion Musulmanes* [ed. A. Papadopoulo] (Leiden, 1988), pp. 144-5.

²⁶ *Va jamhā-yi latīf nihāda*; B. O'Kane, Timurid Stucco Decoration, *Annales Islamologiques* (XX, 1984), p. 82, n. 4.

²⁷ L.A. Meyer (tr.), A Medieval Arabic description of the Haram of Jerusalem, *Quarterly of the Department of Antiquities of Palestine* (I, 1931/2), p. 74.

²⁸ J.M. Bloom, *Meaning in Fatimid Architecture: Islamic art in North Africa and Egypt in the Fourth Century A.H. (Tenth Century A.D.)*, Unpublished Ph.D. thesis, Harvard University 1980, p. 85.

²⁹ *MAE* I, pl. 9b.

³⁰ The term *shamsiyyat* 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.

qamariyyat 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."³¹ 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.³² A fine source of alabaster existed at al-Harra, 30 kms. north of Sana`a', from where the panes of alabaster used in the capital were quarried.³³ The use of alabaster in the windows of Yemeni houses appear to be of considerable antiquity. A Sabaeen alabaster window-embasement in the National Museum of San`a' (pl. 1)³⁴ is similar to another reused in a building near Zafar.³⁵ 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 Huqqa.³⁶ A text dated 457 AD describing the palace of HRGB built by the Himyarite king Sharahbīl Yafūr at Zafar appears to indicate that the windows of the palace were filled with alabaster.³⁷ A particularly fine example of an alabaster window-frame decorated in relief with vines and sea monsters is now in the museum at Zafar.³⁸ It has been suggested that the windows of Axumite buildings were similarly filled with panes

³¹ J.M. Bloom, On the Transmission of Designs in Early Islamic Architecture, *Muqarnas* (X, 1993), p. 25.

³² Below, p. 31. Alabaster slabs were also used in the windows of medieval Iranian mosques; below, p. 327, pl. 207.

³³ K. Fricke, Bergbau auf Alabaster und Gips im Jemen, *Gluckauf Bergmannische Zeitschrift* (LXXXIX, 1953), pp. 1061-3. Alabaster is confined to northern and central Yemen.

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 Orients: Arabien* (Munich, 1963), p. 203, fig. 86. The form of this embasement 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.

³⁷ R.D. Tindell, Zafar: Archaeology in the land of Frankincense and Myrrh, *Archaeology* (XXXVII, 2, 1984), p. 43. The alabaster windows are not mentioned in another translation of the inscription; G. Garbini, Une nuova iscrizione di Sarahbi'il Ya'fur, *AIOUN* (XXIX, 1969), pp. 559-66. See also A.F.L. Beeston, M.A. Ghul, W.W. Muller & J. Ryckmans, *Sabaic Dictionary* (Beirut, 1982), p. 82, *LHG*.

³⁸ ZM 1000, published in R. Tindell, Zafar: Yemen 1984, *Oriental Institute of Chicago News and Notes* (March-April, 1985).

of alabaster.³⁹ 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."⁴⁰

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 Ḥaulān (figs. 2-3). Barbara Finster has suggested that these come from an earlier building on the site and date from the⁵Abbasid period.⁴¹ The stucco frames surrounding the windows of the mosque consist of a series of receding rectangular panels executed in relief.⁴² The appearance of these 'embrasures' with a central pane of alabaster is almost identical to that of the Sabaeen 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).⁴³

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

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 Ḥaulān, 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 Kunstdenkmäler 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 Haulan. The windows in the Qubbat al-Sinani are unpublished, but one is visible in a photograph published by an Italian team surveying medieval Yemeni buildings; A. Maigret, G.M. Bulgarelli, F.G. Fedele, B. Marcolongo, V. Scerrato & G. Ventrone, 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.⁴⁴ 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.⁴⁵ 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*.⁴⁶ 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.⁴⁷ This attractive property undoubtedly explains why alabaster was traditionally used for Yemeni lamps (pl. 4).⁴⁸ In addition the surface of the alabaster panes is crystalline and veined, like the appearance of the moon itself (ill. 2).⁴⁹ The resemblance extends to the second moon-like qualities of such windows, namely their circular or semi-circular form.⁵⁰ 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*.⁵¹ In medieval Arabic poetry the same openings are frequently compared to moons.⁵²

⁴⁴ G.R.H. Wright, *Mud Buildings in Yemen*, *Archäologische Berichte aus dem Yemen* (IV, 1987), p. 216. Lewcock mentions early references to the use of alabaster in the windows of San`a' but does not cite these: R. Lewcock, *Towns and Buildings in Arabia, North Yemen*, *Architectural Association Yearly* (VIII, 1976), p. 15.

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.

⁴⁶ R.B. Serjeant and R. Lewcock, *San`a' an Arabian City* (London 1982), pp. 425a, 427b, 442 and glossary.

⁴⁷ C. Rathjens, *Jewish Domestic Architecture in San`a, Yemen* (Jerusalem, 1957), pp. 39-41; F. al-Khoury, San`a', *Architectural Review* (CLIX, 1976), p. 338. In the medieval lexicographers the terms *qamr* and *qamriyya* are said to designate moonlight or any flecked greenish-yellow colour; al-Firūzabādī (b. 729 H), *Al-Qamūs al-ḥait wa al-qamūs al-waṣīṭ*, Volume II (Cairo, 1902), pp. 125-6, Ibn Manẓūr (d.ca. 711 H), *Kitāb lisān al-'Arab* (Cairo, 1985), pp. 3735-7.

⁴⁸ The manufacture of such lamps appears to predate Islam, for an inscribed Axumite alabaster lamp has been found in Yemen: Y.M. Kobischanov, *Axum* (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. Bonenfant, *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 Grattes-Ciel Orientaux*, *Urbanisme* (LIX, 9, 1937), p. 240. The role of such translucent slabs may be compared to the Byzantine *phengites* which were used in conjunction with wooden shutters; below, p. 35.

⁵¹ A. Barthélemy, *Dictionnaire Arabe-Français des Dialectes de Syrie* (Paris 1935), p. 681.

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 millenia, and occurred at a time when the manufacture of *qamariyyat* 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 *qamariyyat*,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 *qamariyyat* 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 *qamariyya* 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. 'uqūd), after the arched openings which they fill.⁵⁷ Smaller arched grilles of plaster and coloured glass are however known as *qamariyyat* or *shamsiyyat*, and the head of the workshop producing such grilles is known as *mu`allam `ala*

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 I (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.

⁵⁴ On the manufacture of these grilles see P. & G. Bonenfant, *Les Artisans du Plâtre a Sanaa, Yemen*, *Revue des Études Islamiques* (XLV, 1977), pp. 247-62; L. Golvin, *Aperçu sur les techniques de construction à San`a' (République Arabe du Yémen)*, *Bulletin d'Études Orientales* (XXXI, 1979), pp. 96-8, figs. 8-11; S. & M. Hirschi, *L'Architecture au Yemen du Nord* (Paris, 1983), pp. 305-8.

⁵⁵ Above, p. 6.

⁵⁶ Below, pp. 81-2.

⁵⁷ E. Rossi, *Terminologia dell costruzioni del Yemen*, *A Francesco Gabrieli* (Rome, 1964), p. 353; Bonenfant, *Les artisans*, p. 248. The same term appears in an early eighth/fourteenth-century description by al-'Umari of some windows in the Citadel of Cairo; below, p. 120.

qamariyyat.⁵⁸ 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 *shamsiyyat* 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-Azraqī and Ibn Rustah both note that in the third/ninth century the ceiling of the Ka'ba was pierced with four rectangular openings (*rauzān*) filled with alabaster (*balaq*) brought by the Caliph Ibn al-Zubāyr (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.⁶⁰ 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 (*zujājun 'iraqiyyun badi'u 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.

⁵⁹ *EMA* II, p. 63; F. Wüstenfeld, *Geschichte und Beschreibung der Stadt Mekka* (Leipzig, 1858), p. 141; G. Wiet (tr.), *Les Atours Précieux d'Ibn Rustah* (Cairo, 1955), p. 30; R.A. Jairazbhoy, *The History of the Shrines at Mecca and Medina*, *Islamic Review*, I, Jan-Feb 1962, pp. 22-3.

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

⁶¹ C. Schefer, *Relation du Voyage de Nasiri-Khusrau* (Amsterdam, 1970 - reprint of Paris 1881 edition), p. 203; Jairazbhoy, *History of the Shrines*, p. 24.

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,⁶⁴ 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.⁶⁵ 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*.⁶⁶ 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 ?".⁶⁷

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.

⁶⁴ Jairazbhoy, *History of the Shrines*, figs. 11b, IV.

⁶⁵ In the *madrasa* of Jamāl al Dīn Maḥmūd al-Ustādār 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 *qamarīyyat qandilūn* 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 *muqandal*, 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".⁶⁸ 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.⁶⁹ The parasol associated with 'Abbasid and Fatimid ceremonial, which can be considered as a sort of portable royal baldachin, was also known as the *shamsīyya*.⁷⁰ The *shamsīyya* 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.⁷¹ The main cupola in the Great Mosque of Damascus was also topped with a golden pomegranate,⁷² and similar spheres appeared atop other domes and minarets. These were also known as *shamsas*,⁷³ 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'mūn, the Dhū'l-Nūnid ruler of Toledo is also described as a *shamsīyya*.⁷⁴ 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 Dhū'l-Nūnid palace and other western Islamic buildings.⁷⁵ One must conclude that even where *shamsiyya* is used in connection with a screen, this

⁶⁸ See below, pp. 303.

⁶⁹ S. Spiro, *An Arabic-English Dictionary of the Colloquial Arabic of Egypt* (Beirut, 1973), p. 322.

⁷⁰ Canard, *Cérémonie fatimite*, p. 389, n.3. Jonathan Bloom suggests that Canard confused the *muzalla* and the *shamsa*; J.M. Bloom, *The Origins of Fatimid Art, Muqarnas* (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 II i (Paris, 1842), pp. 280-1, n.2, 2^o.

⁷¹ H. Cassels Kay, *Yaman, its early medieval history by Najm al-Din 'Omarah* (London, 1892), pp. 241-2.

⁷² Al-Muqaddasī, *Aḥsān al-Taqāsīm*, ed. M.J. de Goeje (Luduni-Batavorum, 1877), p. 108; *EMA* I, p. 168; G. Le Strange, *Palestine under the Moslems* (Boston 1890, reprinted New York, 1975), p. 228. In pre-Islamic Iran the pomegranate was, in certain contexts, regarded as a solar symbol; *SPA*, p. 856.

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 *kiswah* 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

⁷⁶ `Abd al-Malik is reported to have sent two golden suns to the Ka`ba; F. Wüstenfeld, Geschichte und Beschreibung der Stadt Mekka von Abu al-Walid Muhammad ibn Abdullah al-Azraqi (Leipzig, 1857), p. 156 and Geschichte der Stadt Mekka und Ihres Tempels (Leipzig, 1857), p. 148; Ibn al-Faqih, Abrégé du Livre des Pays, tr. H. Massé (Damascus, 1973), p. 26.

⁷⁷ J.M. Bloom, The Mosque of al-Hakim in Cairo, Muqarnas (I, 1983), p. 27.

⁷⁸ Idem. Quatremère confuses this with the *kiswah* 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; Cérémoniale Fatimite, p. 389, n.3.

⁷⁹ U. Rubin, The Ka`ba: aspects of its ritual functions and position in pre-Islamic and Early Islamic times, Jerusalem Studies in Arabic and Islam (VIII, 1986), pp. 115-6.

⁸⁰ J. Ryckmans, Religion en l'Arabie Préislamique, Histoire Générale des Religions (IV, 1947), p. 529, n.260; Beeston et al, Sabaic Dictionary, p. 133, *S²MS*.

⁸¹ EI, Ka`ba. It has been suggested that the red colour of the Fatimid *kiswah* 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.

⁸² M. Lings, The Quranic Art of Calligraphy and Illumination (Westerham, 1976), pp. 74, 204; D. James, Qur'ans of the Mamluks (London, 1988), p. 22. From the eighth/fourteenth century or earlier the *shamsa* also appeared on the frontispiece of profane texts; B. Gray (ed.), The Arts of the Book in Central Asia (London, 1979), pp. 35-6.

⁸³ A circular medallion at the centre of a garden carpet is described in a *sufi* 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.

caliphal parasol, could also be described as *shamsas*,⁸⁵ presumably on account of their spherical shape and reflected glitter.⁸⁶

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.⁸⁷ The latter are thought to have borne solar and lunar emblems at their summits.⁸⁸ Window-grilles of similar form to those found in the medieval churches of Tigre are depicted on certain of the Axumite stele (fig. 1).⁸⁹ 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),⁹⁰ a phenomenon by no means confined to Ethiopia.⁹¹ 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.⁹² Technically and iconographically the grilles accord well with the *qamariyyat* 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

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.

⁸⁷ I. Bidder, *Lalibela* (London, 1959), p. 123.

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.

⁹⁰ Bidder, *Lalibela*, pl. 3a; G. Gerster, *Churches in Rock: Early Christian Art in Ethiopia* (London, 1970), p. 117, pl. 134.

⁹¹ See below, pp. 303-4.

⁹² Bidder, *Lalibela*, p. 123, pls. 40a & b.

temples,⁹³ it is conceivable that the window, as an opening for light, had some symbolic significance in the pre-Islamic cultic architecture of the region.⁹⁴

In view of the probability of Syrian influence on the Ethiopian churches⁹⁵ 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).⁹⁶ 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.⁹⁷ 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).⁹⁸ 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.⁹⁹ 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.¹⁰⁰

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.¹⁰¹ Similar stone grilles were undoubtedly one of the sources of inspiration for Umayyad *qamariyyat*,¹⁰² and were frequently reused in the windows of mosques and mausolea in the Hauran (pl. 50) and Damascus (fig. 6).¹⁰³ 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).¹⁰⁴

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.

⁹⁵ D.R. Buxton, The Rock-hewn and other Medieval Churches of Tigré Province, Ethiopia, *Archaeologia* (CI, 1971), p. 98.

⁹⁶ See below, pp. 303-4.

⁹⁷ H.J. Dow, The Rose-Window, *JWCI* (XX, 1957), p. 250.

⁹⁸ M. De Vogüé, *Syrie Centrale, Architecture Civile et Religieuse du I^{er} au VII^e siècle* (Paris, 1877), p. 54, pls. 13-4.

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" (*zuhra*), 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'izz 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.

¹⁰⁵ E. Herzfeld, *MCI A, Syrie du Nord. Inscriptions et Monuments d'Alep*, Volume I (Cairo, 1955), p. 124, n.1; *Damascus Studies II*, p. 66. See also S. Ogel, Einige Bemerkungen zum Sternsystem in der Steinornamentik der Anatolischen Seldschuken, *Beiträge zur Kunstgeschichte Asiens. In memoriam Ernst Diez* [ed. H. Aslanapa] (Istanbul, 1963), p. 167.

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, *Abrégé*, 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.¹¹¹ 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-Faḳīh'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

¹ EMA Ii, p. 79; Ibn al-Faḳīh, *Kitāb al-Buldān*, ed. M.J. de Goeje, (Lugduni-Batavorum, 1885), p. 101.

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, vitreae, sicut in ecclesiis*; EMA Ii, p. 79.

⁴ Below, pp. 120-2.

⁵ E.T. Richmond, *The Dome of the Rock* (Oxford, 1924), pp. 85-6.

⁶ EMA Ii, p. 79.

which glass appeared.⁷ This is unlikely, although similar modes of fenestration were known in Byzantine architecture,⁸ and marble *claustra* were used in the Great Mosque of Damascus (pl. 40).⁹ 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-Sharīf.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 *mihrab* and the adjacent wall, fourteen; along the length of the wall right and left of the *mihrab*, 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 *riwāq* (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

⁷ Ibid., p. 79.

⁸ Below, pp. 36-40.

⁹ EMA II, p. 202-4.

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*, *Persica* (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.¹⁴ 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.¹⁵ 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 Quşayr ‘Amra.

Window-grilles containing coloured glass were also used at Quşayr ‘Amra.¹⁶ 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 tradition¹⁷ 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 Quşayr ‘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.¹⁸

Qamariyyat and stucco *claustra* were also used in the windows of Umayyad bath-houses at Jerusalem,¹⁹ Qaşr al-Hayr East²⁰ and West²¹ and Khirbat al-Mafjar.²² While the use of such grilles

¹⁴ A. Schneider & O. Puttrich-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.

¹⁶ A. Almagro, L. Caballero & J. Zozaya, *Qusayr ‘Amra. Residencia y Baños Omeves en el Desierta de Jordania* (Madrid, 1975), p. 80.

¹⁷ See note 60 below.

¹⁸ *EMA* Iii, 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. Traces of plaster found on the edges of the fragments suggest that they were held in plaster tracery. Many of the glass pieces were carefully cut, producing neatly-trimmed corners or 90° angles. Although it was stated in the excavation report that no fragments of stucco tracery were found,²⁵ the finds from the excavation do include several unpublished pieces of stucco tracery (pls. 13-4, fig. 7). The fragments show that the glass was set between two plaster frames. While no surviving fragment still contains its glass, the presence of this glass is indicated by grooves along the edges of the stucco tracery, or by the imprint of glass pieces on the surface of the stucco tracery.

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

²⁰ H. Salam-Liebich, *The Glass*, in O. Grabar, R. Holod, J. Knustad & W. Trousdale, *City in the Desert: Qaṣr al-Ḥayr East* (New Haven/London, 1978), pp. 144-5.

²¹ D. Schlumberger, *Les fouilles de Qaṣr el-Heir el-Gharbi*, *Syria* (XX, 1939), p. 219.

²² R. W. Hamilton, *Khirbat al-Mafjar, an Arabian mansion in the Jordan Valley* (Oxford, 1959), pp. 281-5.

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 *qamariyya* 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 VIa 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.

²⁷ S. Frank, *Glass and Archaeology* (London, 1982), p. 11.

²⁸ E. Lambert, *Vitraux de couleur dans l'art musulman du Moyen Age*, *Mélanges d'Histoire et d'Archéologie de l'Occident Musulman*, Volume II (Algiers, 1957), p. 108.

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

³⁰ D.C. Baramki, *Excavations at Khirbet el-Mefjer III*, *QDAP* (VIII, 1939), p. 52.

³¹ N. Brosch, *Glass window fragments from Khirbet al-Mafjar*, *Annales du 11e Congrès de l'Association Internationale pour l'Histoire du Verre*. Bâle 29 août-3 septembre 1988 (Amsterdam 1990), pp. 247-56.

"...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 ^{layers} of 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 (ll. 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 Qaṣr al-Ḥallābāt.

Fragments of window-glass and stucco *qamariyyat* were found alongside the remains of open stucco *claustra* at Qaṣr 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.

³⁷ G. Bisheh, Excavations at Qasr al-Hallabat 1979, *ADAJ* (XXIV, 1980), p. 73, pl. LV 1.

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-Ḥallābāt 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 D.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.

³⁹ D.B. Harden, Domestic window glass: Roman, Saxon and Medieval, *Studies in Building History* [ed. E.M. Jope] (London, 1961), pp. 41-3. A description of this method can be found in the sixth/twelfth-century manual of Theophilus; J.G. Hawthorne & C. Stanley-Smith, *On Divers Arts* (New York, 1979), p. 57.

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 Qaṣr 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

⁴⁰ Harden, *Domestic window glass*, pp. 39-41; R. Chambon, *L'Evolution des procédés de fabrication manuelle du verre à vitres du dixième siècle à nos jours*, *Advances in Glass Technology III, Third International Congress on Glass - Washington 1962* (New York, 1963), pp. 165-78.

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

⁴² W.E. Turner, *Studies in ancient glass and glass-making procedures*, *Journal of the Society of Glass Technology* (XL, 1956), p. 174, Table VIII. Samples of the glass used in the Abbasid *qamariyyat* from Raqqa have been taken for analysis and it is hoped that the results will appear in the final publication of the excavations there. See also W. Geilmann, *Die chemische Zusammensetzung einiger alter Gläser insbesondere deutscher Gläser des 10. bis 18. Jahrhunderts*, *Glastechnische Berichte* (XXVIII, 1955), pp. 146-56. For analyses of medieval European window-glass see W. Geilmann & H. Jenemann, *Der Phosphatgehalt alter Gläser und seine Bedeutung für die Geschichte der Schmelztechnik*, *Glastechnische Berichte* (XXVI, 9, 1953), pp. 259-63; G. Chesneau, *Contribution à l'étude de la technique des vitraux du Moyen Age*, *Bulletin Monumental* (1933), p. 267. For an analysis of Roman window-glass see P. Hahn-Weinheimer, *Über spektrochemische Untersuchungen an römischer Fenstergläsern*, *Glastechnische Berichte* (XXVII, 12, 1954), pp. 459-64.

⁴³ Frank, *Glass and Archeology*, p. 11.

⁴⁴ *Idem*.

⁴⁵ Lafond, *Le Vitrail*, p. 14.

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 Qaşr al-Ḥayr East and Qaşr al-Ḥallābāt 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. Bonenfant, *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 Bonenfant, *Les artisans*, p. 255, fig. 5, pl. XIX.

⁴⁹ *Ibid.*, p. 260, pl. XXIIa.

⁵⁰ C. Bouras, *Les Portes et Fenêtres en Architecture Byzantine. Étude sur leur morphologie, leur construction et leur iconographie*, unpublished Ph.D. thesis, École Pratique des Hautes Études (Paris, 1964), p. 204.

⁵¹ Below, pp. 67-8.

qamariyyat 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 Hishām 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 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 *qamariyyat*

⁵² Below, p. 54. 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.

⁵⁴ G.T. Scanlon, *Fustat Expedition: Preliminary Report 1978*, *Journal of the American Research Centre in Egypt* (XXI, 1984), p. 8., fig. 13. My thanks to Professor Scanlon for permission to use his photograph of the *claustra*.

⁵⁵ These are not mentioned, but are visible on some of the *claustra* from Khirbat al-Mafjar on display in the Rockefeller Museum, Jerusalem.

⁵⁶ *EI*, *Masjid*, p. 333.

⁵⁷ O. Grabar, *Ceremonial and Art at the Umayyad Court*, unpublished Ph.D. thesis (Princeton, 1954), p. 87.

⁵⁸ J. Sauvaget, *La Mosquée Omeyyade de Médine* (Paris, 1947), pp. 78-9.

⁵⁹ *EMA* 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.⁶⁰ The quantities and location of the window-glass found in the palaces suggests that *qamariyyat* were not used in all windows,⁶¹ but in the windows of the most important rooms. This is partly due no doubt 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.⁶² 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.⁶³ In the Dome of the Rock however it appears that a single *qamariyya* was set at the centre of each window-opening.⁶⁴ 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

⁶⁰ On the use of glass in Roman baths see Herbig, R. Herbig, *Das Fenster in der Architektur des Altertums* (Athens, 1929), pp. 10-2; O. Völckers, *Glas und Fenster* (Berlin, 1939), pp. 16-17; R.J. Forbes, *Studies in Ancient Technology*, Volume V (Leiden, 1966), p. 186. For the finds of *qamariyyat* and *claustra* from Umayyad baths see Schlumberger, *Les Fouilles*, p. 219; Hamilton, *Khirbat al-Mafjar*, pp. 281-5; Grabar, *City in the Desert*, pp. 144-5; Almagro et al, *Qusayr 'Amra*, p. 80; Engle, *Light, Lamps*, fig. 56.

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-Hallābāt were concentrated in two rooms in the eastern corner of the building; Bisheh, *Excavations*, p. 73.

⁶² In addition to those referred to above finds of Umayyad stucco *claustra* are recorded in the following publications; Schlumberger, *Les Fouilles*, p. 219; S. 'Abd al-Haqq, , *I'āda tashyīd janāh Qasr al-Ḥayr al-Gharbī fī maṭḥaf dimashq*, *Les Annales Archéologiques de Syrie* (I, 1951), pp. 1-57; A.M. Schneider, *Hirbet al-Minje*, *Les Annales Archéologiques de Syrie* (II, 1952), p. 43, fig. 26; Almagro et al, *Qusayr 'Amra*, p. 80; Bisheh, *Excavations*, pl. LIII.

⁶³ See below; pp. 92, 167.

⁶⁴ Above, p. 17. Some of the rectangular *claustra* from Qasr al-Ḥayr West were carved on both faces, which suggests that they were designed to be seen from both sides; Schlumberger, *Qasr el-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-Hallābāt 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-Maḥjar, Qaṣr al-Hallābāt 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

⁶⁵ B. Singh Saini, *Building in Hot Dry Climates* (New York, 1980), p. 45.

⁶⁶ On this aspect of fenestration see Singh Saini, *Building*, p. 46, and H. Fathy, *Natural Energy and Vernacular Architecture* (London, 1986), pp. 46-9, 54-5.

⁶⁷ See above, pp. 21-3.

the stucco *claustra* of the Umayyad palaces appeared in the mosaics and painted decoration of the same palaces.⁶⁸ 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.⁶⁹ 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.⁷⁰ Latticework screens are frequently mentioned in Roman literature⁷¹ and are depicted in Early Christian Art.⁷² 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 H. 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.

⁷⁰ A. Nesbitt, On the Churches of Rome earlier than the year 1150, *Archaeologia* (XL, 1866), p. 199, pls. XI-XII; S. Gsell, Tipasa, ville de la Mauretanie Césarienne, *Mélanges d'Archéologie et d'Histoire* (III/IV, 1894), p. 377, figs. 32-4; R. Herbig, Fensterstudien an Antiken Wohnbauten in Italien, *Römische Mitteilungen* (XLIV, 1929), p. 288; R. Demangel, Fenestrarum Imagines, *Bulletin de Correspondance Hellenique* (I, 1931), p. 152; L. Leschi, Basilique et Cimetière de Numidie (Ain Ghorab), *Revue Africaine* (LXXVIII, 1936), pp. 32-3; G. Webster, Roman windows and grilles, *Antiquity* (XXXIII, 1959), pp. 10-4; A. Mutz, Römische Fenstergitter, *Jahrbuch für Schweizerische Geschichte Urgeschäft* (XLVIII, 1960/1), pp. 107-12; N. Duval, *Les Basiliques de Sbeitla* (Paris, 1971), pp. 84, 97, fig. 89a.

⁷¹ Plautus, *Miles Gloriosus* 380; Cato, *De Agricultura* XIV:2; C. Davis-Weyer, *Early Medieval Art 300-1150* (London, 1986), p. 22. The use of metal grilles to close door- and window-openings was known in the Mediterranean world since the fifth century BC; R. Demangel, Surs un vers d'Euripide, *Revue des Études Grecs* (XLIV, 1931), p. 321; G.P Stevens, The sills of the grilles of the Pronaos and Opisthodomus of the Parthenon, *Hesperia* (XI, 1942), pp. 354-64; Grilles of the Hephaisteion, *Hesperia* (XIX, 1950), pp. 165-73.

most popular designs used was a fish-scale or imbricated pattern which appeared on both chancel screens and pierced lunette-grilles.⁷³ Both diagonal lattices and imbricated tracery were used to fill the lunettes above doors (pl. 21).⁷⁴ 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)⁷⁵ and the same pattern appears on one of the marble *claustra* in the Great Mosque of Cordoba.⁷⁶ 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*.⁷⁷

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.⁷⁸ This glass appears to have been used in the rectangular lattices frequently depicted in Late Antique art (ill. 10).⁷⁹ A wooden lattice from a rectangular window with an arched head has survived at Ravenna (pl. 23),⁸⁰ and similar lattices were in use at Pompeii.⁸¹ 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.⁸² 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

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.

⁷³ Nesbitt, *Churches of Rome*, pl. Xib; S. Gardner, Metal Grilles, *Transactions of St. Paul's Ecclesiological Society* (II, 1888), p. 185-91, fig. 1; A. Venturi, *Storia dell'Arte Italiana*, Volume I (Milan, 1901), fig. 58. F. Cabrol & H. Leclercq, Fenêtre, *Dictionnaire d'Archéologie Chrétienne* (Paris, 1922), pp. 1357-63; Volbach & Hirmer, *Early Christian Art*, fig. 55; W.F. Volbach, *Elfenarbeiten der Spätantik und des Frühen Mittelalters* (Mainz, 1952), fig. 242.

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 Sourdél-Thomine & Spuler, *Kunst des Islam*, pl. 18.

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

⁷⁷ H.G. Franz, Transennae als Fensterverschluss, ihre Entwicklung von der frühchristlichen bis zur islamischen Zeit, *Istanbuler Mitteilungen* (VIII, 1958), pp. 65-81; Brisch, *Die Fenstergitter*.

⁷⁸ Herbig, *Das Fenster*, pp. 10-5; Völckers, *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.

⁸⁰ F.W. Deichmann, *Ravenna: Hauptstadt des Spätantiken Abendlandes*, Volume II (Wiesbaden, 1976), figs. 116-7.

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

⁸³ M. Formigé, *Le vitrage des baies chez les Romains*, *Bulletin de Société des Antiquaires de France* (???, 1934), pp. 82-4.

⁸⁴ A. Kisa, *Das Glas im Altertum*, Volume I (Leipzig, 1908), pp. 363-6; Harden, *Domestic Window Glass*, pp. 44-52; Boon, *Roman Window Glass*, pp. 41-5; T-E Haevernick, *Römische Fensterscheiben*, *Glastechnische Berichte* (XXVII, 12, 1954), pp. 464-6.

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 Gaius* 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.

⁸⁸ A. Muñoz, *Il Restauro della Basilica di S. Sabina* (Rome, 1938), pp. 17, 23, 29-36, pl. III.

⁸⁹ Nesbitt, *Churches of Rome*, p. 196, pls. XII 3; Muñoz, *Il Restauro*, p. 19; Lafond, *Le Vitrail*, p. 27, n. 31.

⁹⁰ R. Krautheimer, W. Frankl & S. Corbett *Corpus Basilicarum Christianarum Romae*, Volume IV (Vatican City, 1970), p. 90, n.4.

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.⁹² The early references to glass windows in the Christian sources have been gathered elsewhere.⁹³ On the basis of such references one may conclude that glass windows were in use from the fourth century or earlier.⁹⁴ By the early first/seventh century, glass was being used in the windows of churches in Gaul, Saxony and Italy.⁹⁵

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.⁹⁶ 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.⁹⁷ 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.⁹⁸ 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.⁹⁹ 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 comes 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.¹⁰⁰

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.¹⁰¹ The colours of the glass

⁹² M. David-Roy, *Les Claustra, Ancêtres des Vitraux*, *Archaeologia* (LXXIII, 1974), pp. 49-5; Franz, *Transennae*, p. 78.

⁹³ Völckers, *Glas und Fenster*, pp. 18-9; M.I. Trowbridge, *Philological Studies in Ancient Glass*, *University of Illinois Studies in Language and Literature* (XIII, 5, 1930), pp. 186-90; Forbes, *Studies*, p. 187; L. Grodecki, *Le Vitrail Roman* (Fribourg, 1977), pp. 42-3.

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 Romae*, Volume II (Vatican City, 1959), pp. 54, 109, figs. 25, 39. See also S. Pfeilstücker, *Spätantiken und germanischen Kunstgut in der Frühangelsächsischen Kunst* (Berlin, 1936), pp. 222-3.

⁹⁵ Grodecki, *Vitrail Roman*, p. 42.

⁹⁶ Davis-Weyer, *Early Medieval Art*, p. 55. In the late second/eighth or early third/ninth century St. Peter's Basilica in Rome is said to have "*fenestras de vitro diversis coloribus decoravit*"; N.H.J. Westlake, *History of Design in Painted Glass*, Volume I (London, 1881), p.4.

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

⁹⁸ Grodecki, *Vitrail Roman*, p. 43.

⁹⁹ S. Pelekanides, *I esdo ton teikon Palaiocristianiki Basiliki ton Phillipon*, *Archeologiki Ephemeris, Zeitschrift der Archäologischen Gesellschaft in Athens* (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.¹⁰² The former site has a *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.¹⁰³ The window may have been attached to a wooden frame with lead spigots or clamps. The earliest mention of figures in a stained glass window is in a third/ninth-century text,¹⁰⁴ but it is possible that some of the window-glass from Jarrow comes from a figured window.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

¹⁰¹ J. Pilloy & E. Soccard, Séry-les-Mézières, *Bulletin Monumental* (1910), pp. 14-23; Lafond, *Le Vitrail*, p. 19; Grodecki, *Vitrail Roman*, p. 45.

¹⁰² R.J. Cramp, Decorated Window Glass and Millefiori from Monkwearmouth and Jarrow, *The Antiquaries Journal* (L, 1970), pp. 327-35; Window Glass from the Monastic Site of Jarrow, *Journal of Glass Studies* (XVII, 1975), pp. 88-96.

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

¹⁰⁴ Grodecki, *Vitrail Roman*, p. 43.

¹⁰⁵ For a colour reproduction of this window see D. Klein & W. Lloyd, *The History of Glass* (London, 1984), p. 44. The latter authors mention finds of window-glass of similar date at two churches in Derbyshire.

Minor¹⁰⁶ 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).¹⁰⁷ 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."¹⁰⁸

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.¹⁰⁹ 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.¹¹⁰ 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).¹¹¹ 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 Haghia Sophia in Istanbul may have been filled with similar lattices of marble.¹¹² Paul Silentiarius' description of the church mentions the use of glass in the windows of the dome.¹¹³ In some of the windows three types of filling are used; the lower part is closed with a semi-

¹⁰⁶ A. Gerkin & F. Krischer, *Milet. Ergebnisse der Ausgrabungen und Untersuchungen seit den Jahre 1899*, Band I, Heft 9: Thermen und Palästen (Berlin, 1929), p. 79, fig. 99.

¹⁰⁷ R.M. Harrison, *Excavations at Sarachane in Istanbul*, Volume I (Princeton, 1986), pp. 140-2. See also, T. Macridy, The Monastery of Lips, *Dumbarton Oaks Papers* (XVIII, 1964), fig. 58.

¹⁰⁸ Harrison, *Excavations*, p. 140.

¹⁰⁹ *Ibid.*, pp. 204-6.

¹¹⁰ *Ibid.*, p. 142. Cf. Pierced terracotta grilles set with circular panes held in place with plaster were used in the Monastery of Olymptissa at Elasson 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 conches 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.¹¹⁴ The translucent marble panels set in the lower part of such windows are known as *phengites* (from the Greek *phengos*, light).¹¹⁵ The glass in the upper windows of Hagia Sophia is recent,¹¹⁶ 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.¹¹⁷

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.¹¹⁸ 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.¹¹⁹ A similar use of plaster to hold panes of flat glass in place was made in contemporary Palestinian churches sites in the Levant.¹²⁰

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. Wheeler, *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. Nielson & F.G. Andersen, The Excavation of Byzantine Baths in Umm Qeis, *ADAJ* (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 mullions constructed from stacks of tiles which were covered with plaster. Glass panes were held against the mullions 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 Siyar el-Ghanam e il Monasteri 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 Ba¹²⁴ 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

¹²¹ D.J. Chitty, *The Church of St. Euthymius at Khan El-Ahmar near Jerusalem, Palestine Exploration Quarterly* (1928), p. 177; Y.E. Meimaris, *The Monastery of Saint Euthymios the Great at Khan el-Ahmar in the Wilderness of Judaea: Rescue, Excavation and Basic Protection Measures, 1976-1979* (Athens, 1989), p. 36, fig. 85.

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.

¹²⁴ J.W. Crowfoot, *Churches at Bosra and Samaria-Sebaste* (London, 1937), p. 39; *Idem.*, *The Objects from Samaria Sebaste*, Volume III (London, 1957), p. 420, n.1.

¹²⁵ G.M. Fitzgerald, *A Sixth-Century Monastery at Beth-Shan [Scythopolis]* (Philadelphia, 1939), p. 10.

¹²⁶ C.H. Kraeling (ed.), *Gerasa, City of the Decapolis* (New Haven, 1938), pp. 54-6, pl. XXXVb; D. Harden, Roman window-panes from Jerash and later parallels, *Iraq* (VI, 1939), p. 91.

¹²⁷ C. Meyer, Glass from the North Theater Byzantine Church and Soundings at Jerash, Jordan, 1982-3, *BASOR* supplement (XXV, 1988), pp. 207-9.

¹²⁸ Engle, *Windows*, figs. 57-9.

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.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.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.¹³² An exception to this are fragments of over twenty-five panes of crown glass at Ravenna.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.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.¹³⁵ However, Cecchelli did not believe that the painting was executed in the manner of the medieval painted window-glass described by Theophilus,¹³⁶ which suggests that it may, like the paint on Umayyad

¹²⁹ *Ibid.*, figs. 54-56a.

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

¹³¹ C. Meyer, *Crown Window Panes: Constantinian or Justinian ?*, *Essays in Ancient Civilization Presented to Helene J. Kantor* [eds. A. Leonard Jr. & B. Beyer Williams] (Chicago, 1989), pp. 213-9.

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.

¹³³ C. Cecchelli, *Vetri da finestra del S. Vitale di Ravenna*, *Felix Ravenna* (NS XXXV, 2, 1930)pp. 1-20; G. Bovini, *Gli antichi vetri da finestra della chiesa di S. Vitale*, *Felix Ravenna* (XCI, 1967), pp. 98-108 & *Les anciens vitraux de l'église Saint-Vital a Ravenne*, *Annales du Troisième Congrès des Journées Internationales du Verre. Damas 14-23 novembre 1964* (Liège, 1965), pp. 85-90; G.B. Montanari, *Vetri Antichi dell Museo Nazionale di Ravenna*, *Felix Ravenna* (XCV, 1967), pp. 36-8; Deichmann, *Ravenna: Hauptstadt des Spätantiken Abendlandes*, pp. 139-41, pls. 81-3, plans 48-9.

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

¹³⁵ Bovini, *Gli antichi vetri*, p. 99.

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.¹³⁷ That the finds of crown glass in Italy are clustered along the northern Adriatic coast suggests that they were imported directly from the Levant.¹³⁸ They may alternatively have come from the Balkans. After its appearance in the Levant, the use of crown glass appears to have spread gradually to Anatolia and Greece. Window-grilles composed of stucco and glass were used in the Church of Haghia Demetrios in Thessaloniki in the sixth century.¹³⁹ Fragments of crown glass were found in an Early Byzantine church at Kastoria.¹⁴⁰ At Sardis flat glass was the main type of window-glass in use until the first/seventh century, while crown glass was used extensively only from the fourth/tenth century onwards.¹⁴¹ Similarly crown glass appear to have been manufactured at Corinth in the fifth/eleventh and sixth/twelfth centuries.¹⁴²

While the extensive building programmes of the sixth century may have provided the immediate catalyst for the production of bull's-eye transennae,¹⁴³ the ultimate sources of such grilles are probably to be sought in modes of fenestration which had been devised in the Near East even earlier. Clay window-grilles pierced with simple circular openings were used at Tell Asmar in the second millennium BC (pl. 32).¹⁴⁴ Circular openings appear in the walls of a seventh-century BC terracotta model of shrine from Cyprus (pl. 31).¹⁴⁵ Stone grilles with circular openings were used alongside bull's-eye *transennae* filled with glass in the basilica on Mount Nebo,¹⁴⁶ and similar grilles continued to be used in Christian churches into the Middle Ages.¹⁴⁷ The use of plaques pierced with small

¹³⁷ Certain of the glass panes in Aquileia are apparently similar to glass of local manufacture; Calvi, *I vetri*, p. 175. 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.

¹³⁸ Bovini, *Gli antichi vetri*, p. 104.

¹³⁹ H.G. Franz, *Neue Funde zur Geschichte des Glasfensters*, *Forschungen und Fortschritte* (XXIV, 1955), p. 309, n. 25; Lambert, *Les vitraux de couleur dans l'art Musulman du Moyen Age*, *Bulletin de la Société National des Antiquaires de France* (1957), pp. 53-4.

¹⁴⁰ R. Ljubinkovic, *Sur un exemplaire de vitraux du Monastère de Studenica*, *Archaeologica Jugoslavica* (III, 1959), p. 138.

¹⁴¹ A. von Saldern, *Ancient and Byzantine Glass from Sardis* (Cambridge Mass., 1980), pp. 91-2.

¹⁴² G.R. Davidson, *Corinth XII: The Minor Objects* (Princeton, 1952), pp. 143-5.

¹⁴³ Meyer, *Crown window glass*, pp. 217-8.

¹⁴⁴ H. Frankfort, *Oriental Institute discoveries in Iraq (1932/33)*, *Oriental Institute Communications* (VII, 1934), p. 14, fig. 9.

¹⁴⁵ D. Hunt (ed.), *Footprints In Cyprus, an illustrated history* (London, 1982), p. 86. See also E. Fugmann, *Hama. Fouilles et Recherches de la Fondation Carlsberg 1931-1938 II: L'Architecture des périodes pré-Hellénistiques* (Copenhagen, 1958), pp. 202-4, fig. 257.

¹⁴⁶ 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 vessels¹⁵³, 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

¹⁴⁷ O. Wulff, *Die Altchristlichen und Mittelalterlichen Byzantinischen und Italienischen Bildwerke* (Berlin/Leipzig, 1923), pp. 55-6, Nos. J 6764-5; Franz, *Transennae*, pp. 70-1, pl. 26; J.M. Thierry, *Les Arts Arméniens* (Paris, 1987), fig. 48.

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 Chrétienne* (Leiden, 1966), p. 24, pl. XX.

¹⁵³ A. Grabar, *La verrerie d'Art Byzantin au Moyen Age*, *Monuments Piot* (LVII, 1971), pp. 115, figs. 18-21. Similar features appear on Iranian glass; A. von Saldern, *Achaemenid and Sassanian cut glass*, *Ars Orientalis* (V, 1963), pp. 10-2, figs. 7-11.

¹⁵⁴ E.H. Swift, *Haghia Sophia* (New York, 1940), p. 78. Many of the intarsia in Haghia 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).¹⁵⁵ 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.¹⁵⁶ 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 *qamariyyat*. 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.¹⁵⁷ 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-Aḥmar (pl. 27)¹⁵⁹ 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 *spetla*.¹⁶⁰ 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.¹⁶² The surface of the grille

¹⁵⁵ C. Popa, *Christian Art in Romania*, Volume III (Bucharest, 1983), pls. 47-8.

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 Campanili, *Burlington Magazine* (XI, 1907), pp. 209-11; G. Berti & L. Tongiorgi, Aspetti 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 mediévaux 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 kai Politismos*, Volume Ili (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),¹⁶³ 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 Haghia 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 & Barnsley, *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,¹⁶⁹ and metal tracery was used in the windows of Haghia Sophia.¹⁷⁰ 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 Çamii and Kariye Çamii in Istanbul during the sixth/twelfth century,¹⁷¹ or probably later, is likely to reflect the influx of western influence during the Latin occupation of the city.¹⁷² 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.¹⁷³ 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.¹⁷⁴

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 *qamariyyat*. 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,¹⁷⁵ metal¹⁷⁶ and wood.¹⁷⁷ 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. Forsyth & K. Weitzmann, *The Monastery of St. Catherine at Mount Sinai, the Church and Fortress of Justinian* (Ann Arbor, 1965), pl. XC.

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

¹⁷¹ A.H.S. Megaw, Notes on recent work of the Byzantine Institute in Istanbul, *Dumbarton Oaks Papers* (XVII, 1968), pp. 349-67.

¹⁷² J. Lafond, Découvertes de vitraux historiés du Moyen Age a Constantinople, *Cahiers Archéologiques* (XVIII, 1968), pp. 232-8.

¹⁷³ Megaw, Notes, p.364

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

¹⁷⁵ R. Demangel, Grilles de Fenêtres en Egypte et Triglyphes Grecs, *Syria* (XVI, 1935), pp. 358-74.

¹⁷⁶ F. Petrie, *Tanis I 1883-4* (London, 1895), p. 28.

¹⁷⁷ Kisa, *Das Glas*, p. 361; H.E. Winlock & W.E. Crum, *The Monastery of Epiphanius at Thebes* (New York, 1933), p. 57, pl.

Ramses III at Medinet Habu (early twelfth century BC) use tracery in the form of cartouches, ankhs and winged figures (pl. 38).¹⁷⁸ 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.¹⁷⁹ Similar grilles were found in Meroitic levels at Faras,¹⁸⁰ and continued in use in the Christian period.¹⁸¹ The rectangular terracotta window-grilles in use in the "Bishop's Palace" at this site are particularly interesting.¹⁸² 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)¹⁸³ 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*.¹⁸⁴

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.¹⁸⁵ 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.¹⁸⁶

Similarly, many of the geometric patterns used in Umayyad architectural decoration appear to derive from Coptic sources.¹⁸⁷ Franz has demonstrated the Coptic ancestry of a group of motifs used

XVIa.

¹⁷⁸ U. Hölscher, *Medinet Habu, Morgenland Darstellungen aus Geschichte und Kultur des Ostens* (XXIV, 1933), p. 26, fig. 19; R. Herbig, *Fenster an Tempeln und Monumentalen Profanbauten, Jahrbuch des Deutschen Archäologischen Institut* (XLIV, 1929), fig. 20.

¹⁷⁹ C.L. Woolley, *Karanog: the Town* (Philadelphia, 1911), pp. 46-7, pls. 16-17.

¹⁸⁰ K. Michalowski, Polish Excavation at Faras - fourth season 1963-4, *Kush* (XVIII, 1965), p. 179, pl. XXXVIIIb.

¹⁸¹ U. Monneret de Villard, *La Nubia Medioevale*, 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 fourth/tenth-century Nubian church; P.L. Shinnie & H.N. Chittick, *Ghazali - a monastery in the Northern Sudan* (Khartoum, 1961), p. 28, pl. XIVa & b.

¹⁸³ Michalowski, *Nubische Kunst*, No. 86.

¹⁸⁴ See below, p. 57.

¹⁸⁵ E. Anglade & M.H. Rutschowsky, *Les bois égyptiens du Musée du Louvre, AARP* (XV5, 1979), p. 4, figs. 18-9.

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.¹⁸⁸ Similar patterns, consisting of squares and swastikas with interstitial rosettes, were used on two of the stucco *claustra* from Khirbat al-Mafjar.¹⁸⁹ Analogous motifs were used on Coptic pillars,¹⁹⁰ frescos,¹⁹¹ wooden screens,¹⁹² and window-frames.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.¹⁹⁴

2.7.2 Glass windows.

The use of glass windows in Egyptian public buildings, particularly baths, was known from the Roman period onwards.¹⁹⁵ Excavations at the Coptic monastery of Apa Jeremias produced fragments of plaster window-grilles 4 cm thick pierced with circular apertures.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."¹⁹⁷

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'Archéologie Copte* (V, 1939), pp. 29-42.

188 H.G. Franz, *Wesenszüge 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 Sasaniden* (Mainz, 1969), p. 79, fig. 47. See also Anglade & Rutschowskya, *Bois égyptiens*, pp. 4-5.

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

190 A. Badawy, *Coptic Art and Archaeology* (Massachusetts, 1978), p. 152, fig. 3.70.

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

192 Quibell, *Saqarra 1908-10*, pl. XXXIX 7.

193 Franz, *Transennae*, pl. 27, 4.

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.

195 G. Husson, *Carreaux des fenêtres dans les papyrus grecs*, *Chronique d'Égypte* (XLVII, 1972), pp. 278-82; D. Harden, *Roman Glass from Karanis* (Ann Arbor, 1936), p. 303.

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

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 *qamariyyat* 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.¹⁹⁸ Crown glass panes were used in the windows of Nubian churches from the first/seventh century onwards.¹⁹⁹

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.²⁰⁰ The crown glass panes had folded rims and reached a maximum diameter of 28 cms. At Adafima 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 blueish hue), pale green and deep blue window-glass.²⁰¹ 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.²⁰² 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).²⁰³ These in turn are closely related to some of the frescos from Bawit (pl. 42),²⁰⁴ 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).²⁰⁵ A similar animal appears on a circular pane of glass of unknown provenance, now in the Louvre.²⁰⁶ Shades of black, pink, yellow and green paint are used, but it is not known

¹⁹⁸ Lambert, *Les vitraux*, p. 53 & *Vitraux de couleur dans l'Art Musulman du Moyen Age*, *Mélanges d'Histoire et d'Archéologie de l'Occident Musulman*, Volume II (Algiers, 1957), p. 108; Lafond, *Le Vitrail*, p. 14, n.14.

¹⁹⁹ P.L. Shinnie, *Excavations at Soba, Medieval Nubia* (London, 1955), pp. 64, 66-7, pl. XXVII; P.L. & M. Shinnie, *Debeira West - A Medieval Nubian Town* (Warminster, 1978), pp. 88-9, Nos. 77-82.

²⁰⁰ S. Sauneron & J. Jacquet, *Les Ermitages Chrétiens du Desert d'Esna* (Cairo, 1972), Volume I, p. 44, Volume II, p. 16, Volume III, p. 92, pl. CCXVIII.

²⁰¹ S. Sauneron, *Les travaux de l'Institut Français d'Archéologie Orientale en 1973-1974*, *Bulletin de l'Institut Française d'Archéologie Orientale* (LXXIV, 1974), pp. 189-90, pl. XXXVIII.

²⁰² Sauneron & Jacques, *Les Ermitages*, Volume I, pp. 43-4, figs. 14-5, pl. XV.

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

²⁰⁴ Clédat, *Monastère*, pl. XXXVI.

²⁰⁵ Franz, *Palast*, pl. XVII, 34.

²⁰⁶ H. Peirce & R. Tyler, *L'Art Byzantin*, Volume II (Paris, 1934), p. 122, pl. 164b.

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.²⁰⁷ This piece has frequently been discussed in connection with the painted crown glass pane from Ravenna.²⁰⁸ 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.²⁰⁹

Numerous examples of stucco tracery filled with circular panes of glass are to be found in the monasteries of the Wadi Natrun.²¹⁰ 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.²¹¹ 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^{derivable} 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 Byzantine 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.

²⁰⁹ J.W. Salomonson, *La Mosaïque aux Chevaux de l'Antiquarium de Carthage* (The Hague, 1965), p. 46, pl. XXXVI 2.

²¹⁰ H.G. Evelyn-White, *Monasteries of Wadi 'N Natrun*, Volume II (New York, 1933), pp. 95, 97, 99, 151, 190, 235, 240 & pls. XXIIIb, XXIVb, LVic, LXX, LXXIIa, LXXVIII, LXXXIXa. Similar window-grilles contained to be used in later Coptic churches; A.J. Butler, *The Ancient Coptic Churches* (Oxford, 1884), p. 224.

²¹¹ The arrangement of two touching circular openings (Evelyn-White, *Wadi 'N Natrun*, pl. LXXVIII) 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 Qaşr 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. Chehab, *The Umayyad Palace at 'Anjar*, *Ars Orientalis* (V, 1963), p.23, figs. 12-6. Many of the frames around the stucco *claustra* from Qaşr 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.

²¹⁷ M. de Vogué, *Syrie Centrale, Architecture Civile et Religieuse du Ier au VIIe siècle* (Paris, 1877), pl. 50. The origins of Romanesque sculpted tympana seem to lie in the elaboration of such supra-portal decoration; U. Monneret de Villard, *Per la storia del Portale Romanico*, *Medieval Studies in Memory of Kingsley Porter*, Volume I (Cambridge, 1939), pp. 113-24; V.I. Atroshenko & J. Collins, *The Origins of the Romanesque: Near Eastern influences on European Art, 4th-12th centuries* (London, 1985), pp. 149-50.

²¹⁸ Butler, *Early Churches*, p. 244, ill. 280.

²¹⁹ Pelekanides, *Philippon*, 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.²²² 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.²²³ Similar grilles were used in the Coptic monastery at Saqqara (pl. 48), and in Roman sanctuaries in north-western Syria.²²⁴

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).²²⁵ 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.²²⁶ The motifs used on such chancel screens were transposed in stucco on the facade of Qaṣr al-Ḥayr al-Gharbī,²²⁷ and rectangular *claustra* with geometric tracery were used in the same palace.²²⁸ The balustrades from Khirbat al-Mafjar represent a reworking in stucco of the carved stone chancel screens and *transennae* used in Syrian churches.²²⁹

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.²³⁰ 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.

²²² De Vogüé, *Syrie Centrale*, p. 54, pls. 13-14; Butler, *Early Churches*, fig. 282; H.G. Franz, Die Fensterrose und Ihre Vorgeschichte in der Islamische Baukunst, *Zeitschrift für Kunstwissenschaft* (X, 1956), figs. 6-15; G.R.D. King, Some Churches of the Byzantine period in the Jordanian Hawran, *Damaszener Mitteilungen* (III, 1988), p. 63, pl. 22b.

²²³ De Vogüé, *Syrie Centrale*, pls. 13-4. The rosette and whirling disc in particular appear to have had a cosmological significance; M. Avi-Yonah, *Art in Ancient Palestine, Selected Studies* (Jerusalem, 1981), pp. 104-5.

²²⁴ D. Schlumberger, *La Palmyrène du Nord-Ouest* (Paris, 1951), pp. 29, 52-3, 99, pls. XLIV 3 & 5, XLV 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, Kraeling, *Jerash*, pl. Lb.

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*, pl. LIVb; Badawy, *Coptic Art*, fig. 2.21; Venturi, *Storia dell'Arte*, p. 536.

²²⁷ Schlumberger, *Qaṣr 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.

²²⁹ R.W. Hamilton, Plaster Balustrades from Khirbat al-Mafjar, *QDAP* (XIII, 1947-9), pp. 1-58.

²³⁰ Herzfeld, Damascus: Studies in Architecture III, *Ars Islamica* (XI-XII, 1946), figs. 84-5.

40),²³¹ 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.²³²

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.²³³ 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).²³⁴ 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.²³⁵ Others have seen in the Umayyad window-tracery a star, a symbol equally charged with religious and political meaning.²³⁶ 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.²³⁷ Similarly, Brisch has shown the diverse ancestry of the geometric patterns used in the *claustra* of the Great Mosque of Cordoba.²³⁸ In the decorative arts of the Late Antique and Early Islamic world the same patterns served for mosaics, wall-painting, *transennae*, marble reliefs and smaller objects.²³⁹ 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. LIII 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.

²³⁵ R. W. Hamilton, *Khirbat al-Mafjar: Stone Sculpture II*, *QDAP* (XII, 1946), p. 13.

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 Ctesiphon; *SPA*, fig. 145.

²³⁷ *EMA* II, pp. 202-4. See also N. Aberg, *The Occident and the Orient in the art of the seventh century*, Volume II (Stockholm, 1947), p. 56.

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*.

shoos"²⁴⁰

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,²⁴¹ and the adoption of carved stucco as a major decorative medium,²⁴² 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.²⁴³ The stone tracery in the windows of the sixth-century church at Deir Sayta shows grooves for the insertion of glass.²⁴⁴ The same grooves were used in the marble lattices of Byzantine churches,²⁴⁵ and stone lattices of this type were found in the windows of a pre-Islamic house at Kafr Ambil.²⁴⁶

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.²⁴⁷ 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

²⁴⁰ Miller's Tale, 3318.

²⁴¹ G.R.D. King, The architectural motif as ornament in Islamic Art: the "Marwan III" ewer and three wooden panels in the Museum of Islamic Art in Cairo, Islamic Archaeology Studies (II, 1980), p. 26.

²⁴² R.W. Hamilton, Carved Plaster in Umayyad Architecture, Iraq (XV, 1953), pp. 43-55.

²⁴³ Butler, Architecture and Other Arts, pp. 195-6; De Vogué, Syrie Centrale, p. 54. Flat glass has been found in pre-Islamic contexts elsewhere in the Levant; pp. 41-2 above.

²⁴⁴ Butler, Architecture and Other Arts, p. 196.

²⁴⁵ Above, p. 35.

²⁴⁶ Butler, Architecture and Other Arts, p. 257.

²⁴⁷ Although it is possible that further archaeological investigation of pre-Islamic sites will fill this hiatus.

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

²⁴⁸ H.G. Franz, *Vorstufen zur Mittelalterlichen Fensterrose im Islamischen Orient*, *Forschungen und Fortschritte* (XXXI, 1957), pp. 176-81 & *Fensterrose; Dow, Rose-Window*, pp. 252-5.

²⁴⁹ J. Strzygowski, *Origin of Christian Church Art* [trs. O.M. Dalton & H.J. Braunholtz] (Oxford, 1923), p. 221.

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

²⁵¹ D. Whitcomb, *Before the Roses and the Nightingales: Excavations at Qasr-i Abu Nasr, Old Shiraz* (New York, 1985), p. 43, fig. 32d; J. Kröger, *Sasanidische Stuckdekor* (Mainz am Rhein, 1987), p. 274, pl. 91, 7. The dearth of stucco *claustra* from Sasanian Iran is noted by Hamilton; *Carved Plaster in Umayyad Architecture, Iraq* (XV, 1953), p. 54.

²⁵² See above, p. 30.

²⁵³ See N.C. Debevoise, *The Origin of Decorative Stucco*, *AJA* (XLV, 1944), p. 45; Hamilton, *Carved Plaster*.

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.



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

²⁵⁵ A fragmentary pane is kept in the study collection of the Museum für Islamische Kunst, Berlin; J. Kröger, Parthisches, Sasanidisches und Islamisches Glas. Die Glasfunde von Ktesiphon (Iraq) nach den Ausgrabungen der Ktesiphon-Expedition 1928/1929 und 1931/1932, unpublished manuscript, p. 219. I am grateful for Dr. Kröger's permission to use his manuscript.

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.

²⁶⁰ O. Grabar, The Formation of Islamic Art (revised edition, London/New Haven, 1987), p. 151.

²⁶¹ A. von le Coq, Bilderatlas 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 identified as early representations of *mashrabiyyat*; F. Gabrieli & V. Scherrato, Gli Arabi in Italia (Milan, 1979), p. 538.

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

²⁶³ L.I. Rempel, Reznoi Stuk Afrasiyaba (Tashkent, 1971).

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. LX) is very similar to a similar panel from Afrasiyab on which a hexagonal star medallion occurs; Rempel, Reznoi, 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.

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 Qaṣr al-Ḥallābāt. 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 *qamariyyat*. 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 *qamariyyat*. 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 *qamariyyat*.

The diameters of the crown glass quarries used in the manufacture of *qamariyyat* 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 Qaṣr 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 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 *qamariyyat* 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 *qamariyyat*. Moreover the use of moulds to impress patterns on the upper surface of Byzantine stucco grilles²⁶⁸ offers a possible source of inspiration for the relief patterning on the surface of some Umayyad *qamariyyat*. Similarly, painted decoration occasionally appeared on crown glass panes and may have inspired the Umayyad painted window-glass.²⁶⁹

One may conclude that those responsible for the creation of the first *qamariyyat* 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 *claustra* 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,²⁷⁰ led to the imitation of such *claustra* in stucco.²⁷¹ Simplified versions of the patterns used in these *claustra* 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 Debevoise, *Decorative stucco*, p. 45; Franz, *Stuckfenster*, p. 466.

²⁷¹ Hamilton, *Carved stucco*, p. 52. Some of the stucco *claustra* 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

claustra; Franz, *Neue Funde*, p. 307, figs. 2, 3.

²⁷² G. Mathews, *Byzantine Aesthetics* (London, 1963), p. 89.

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).²⁷⁵ 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.²⁷⁶ 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.²⁷⁷ Apart from the pane from Ravenna,²⁷⁸ 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 Séry-les-Mézières, painting is confined to limited areas of the window.²⁷⁹ 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.²⁸⁰

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.²⁸¹ This is not true of *qamariyyat*, where the lines of the design were necessarily formed by the stucco tracery. This tracery was often

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

²⁷⁶ Grabar, *Formation*, p. 151.

²⁷⁷ Lambert, *Les vitraux*; Franz, *Neue Funde*; Lafond, *Vitraill*, p. 15; V. Beyer, *Offenbarung der Farbe. Kunst und Technik der Glasmalerei* (Munich, 1963), p. 11.

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, *Vitraill*, Chapter 2.

²⁸¹ 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.

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 Qaṣr al-Ḥayr al-Ghārib were composed of strapwork which clearly imitates these Byzantine prototypes; Schlumberger, Les Fouilles, p. 351, fig. 24; 'Abd al-Haqq, *I'āda tashyīd*, p. 19, fig. 2.

²⁸⁴ See the remarks of Grodecki on this subject; *Vitrail Roman*, p. 39.

CHAPTER THREE

QAMARIYYAT 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.¹ 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-Ḥaqq 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.² 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)³ 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 192/808.⁴

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

¹ Above, p. 53.

² 'Abd al-Ḥaqq, Contribution, p. 10. The same paper can be found in Annales du 1^{ère} Congrès Internationale d'Étude Historique du Verre (Liège, 1958), p. 86.

³ This is unpublished, but I am grateful to Mr. Nasib Saliby 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-Ḥayr al-Sharqī (pls. 13-4) and Qaṣr al-Ḥalfābāt (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 Ṭulūn 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 Ṭulūnid 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.

⁶ *EMA* li, pp. 346-7.

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 Qaṣr 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 recur in the

⁹ EMA II, pp. 202-4.

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, *Qaṣr el-Ḥeir*, 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 Française 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 *qamariyyat*: 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 *qamariyyat* used at Raḡqa show close affinities with those used earlier at Qaṣr al-Ḥayr East and Qaṣr al-Hallābāt. 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 *qamariyya*.

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.¹⁵ 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, Karanis in Egypt and elsewhere.¹⁶

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: : ¹⁷ those having a rectangular section

¹⁵ C.J. Lamm, *Die Ausgrabungen von Samarra IV: Das Glas von Samarra* (Berlin, 1928), pp. 124-6, especially p. 126.

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.¹⁸ 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.¹⁹ Analogous pieces of glass were found in the throne-room of the Jausaq al-Khaqānī.²⁰ 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.²¹ This, or some similar form of vitreous decoration may well have covered the walls of the mosque; al-Muqqadisī, who travelled throughout Iran and Iraq, gives the following account of Samarra:

"And there is a Great Mosque (*jāmi'*) 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.²³ In Arabic the word came to be used to describe enamel on metal or, more rarely, faience.²⁴ Since the same author uses the more common term *fusāyifisa* for the mosaics of the Umayyad Mosque at Damascus elsewhere in this passage, it is unlikely that the two terms are exactly

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

¹⁸ F. Sarre & E. Herzfeld, *Archäologische Reise im Euphrat und Tigris-Gebiet*, Volume I (Berlin, 1911), p. 94, figs. 36-7.

¹⁹ *Ibid.*, p. 95, fig. 38.

²⁰ Lamm, *Das Glas*, p. 114, fig. 65.

²¹ Sarre & Herzfeld, *Archäologische Reise*, p. 95, n.2.

²² Al-Muqqadisī, *Aḥṣān al-Taqāsīm*, pp. 122-3, cited in Sarre & Herzfeld, *Archäologische Reise*, p. 95 in connection with their finds of filed glass from the mosque.

²³ M. Aga-Oglu, The origin of the term *mīnā* and its meanings, *Journal of Near Eastern Studies* (V, 4, 1946), pp. 241-56.

²⁴ Sarre & Herzfeld, *Archäologische Reise*, p. 95.

equivalent.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.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.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".²⁸ Certain of these panes bore the characteristic bullion of crown glass at their centres.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.³⁰ House Number VI produced a fragment of yellow-brown glass with a folded rim embedded in its gypsum frame.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).³² Many of these fragments had folded rims (fig.

²⁵ Although Aga-Oglu (*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.

²⁶ Lamm, *Das Glas*, p. 119.

²⁷ I owe this information to a personal communication from Dr. Alistair Northedge.

²⁸ Herzfeld, cited in *EMA* II, p. 268.

²⁹ Lamm, *Das Glas*, p. 127, fig. 73.

³⁰ *EMA* II, p. 283.

³¹ Lamm, *Das Glas*, p. 127, fig. 72.

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.

24).³³

The published references to these windows, and those 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,³⁴ 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,³⁵ 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.³⁶ 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).³⁷ 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 Qaṣr al-Ḥallābāt. Subsequent excavations at Samarra produced another fragment of a gypsum grille pierced with circular apertures of small diameter [< 5 cm] (pl. 60).³⁸ 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 Yaḳūl mentions "Byzantine windows" (*kīwa rumīyya*) 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 *kīwa rumīyya* 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. CXXXV. Although the provenance of the piece is not given, it may come from the Qaṣr 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; Sourdél-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,⁴⁶ 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.⁴⁷ 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.⁴⁸

While such glass and mother-of-pearl decoration appears to be without known precedents in Umayyad architecture,⁴⁹ 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".⁵⁰ 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.⁵¹ Small plaques of coloured glass and semi-precious stones were used as inlay in Byzantine architecture (pl. 149).⁵² 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,⁵³ it is difficult to avoid seeing the Sasanian palace as the immediate

Govt, report (1946), p. 8, pl. CXXV. Although their excavators suggested that they were used in *qamariyyat*, their pronounced concave form indicates that they are more likely to have been used in a similar fashion to the concave glasses discussed above.

⁴⁶ Lamm, *Das Glas*, p. 123, Nos. 357-61.

⁴⁷ *Ibid.*, Nos. 339, 341, 343-5, 353-5.

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.

⁵⁰ O. Reuther, The German Excavations at Ctesiphon, *Antiquity* (III, 1929), p. 445.

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-Buḥtūrī to Yūnis ibn Bagha mentions a "palace covered with crystal glasses",⁵⁴ a description which would admirably fit the Jausaq al-Khaqānī, 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,⁵⁵ 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.⁵⁶

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 Nishapūr.⁵⁷ 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.

⁵⁴ Cited in F. Bargebuhr, *The Alhambra: a cycle of studies on the eleventh century in Moorish Spain* (Berlin, 1968), p. 225, n.208.

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.

⁵⁷ C.K. Wilkinson, *Nishapur: Some Early Islamic Buildings and their Decoration* (New York, 1986), p. 151, fig. 1.174.

qamariyyat, 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 Nishapūr finds appear to reflect ʿAbbasid influence. The fact that no coloured window-glass is reported from Nishapur is a further indication that there was little tradition of using *qamariyyat* 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 Rayy, 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 Qazwīnī mentions the presence of coloured glass roundels (*jāmāt*) 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 *qamariyyat*. The lack of evidence suggests that coloured glass was not widely used in Iranian windows at this period. The finds from Nishapūr 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.

⁶⁰ C.J. Lamm, *Glass from Iran in the National Museum Stockholm* (Stockholm/London, 1935), p. 10, pl. 14.

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

⁶² Qazwini, *Āthār al-Bilād* II, p. 263.

⁶³ See below pp. 23f.

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 Ṭulūnid⁶⁴ and Fatimid architecture,⁶⁵ 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 al-Azhar by the Fatimid Caliph al-Ḥāfīz li-Dīn illāh (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-Ḥāfīz, 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 Abū 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

⁶⁴ S. Flury, Samarra und die Ornamentik der Moschee des Ibn Tulun, *Der Islam* (IV, 1913), pp. 425-6; *EMA* II, pp. 346-7.

⁶⁵ *MAE* I, p. 58, pl. 9a; A Fernandez Puertas, Dos ventanas decoradas en la mezquita de al-Hakim en el Cairo, *Al-Andalus* (XLIV, 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 *MAE* 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-Ḥākīm and al-Ṣāḥīḥ Talāḥ: *MAE* I; pls. 76-7; Fernandez Puertas, p. 425, pl. 8;

⁶⁹ Evelyn-White, *Monasteries*, p. 97, fig. 7.

* S.O. Gaitlin, *A MEDITERRANEAN SOCIETY*. Volume IV, *DAILY LIFE* (LONDON, 1983), p. 62.

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 *qamariyya* 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).⁷⁰ 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.⁷¹ 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".⁷² The colours of the glass were blue, green, and violet.⁷³ Marçais considered the glass to have been manufactured at Qairawān, where vitrified material from glass production has been found.⁷⁴ 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 Ifrīqīyya by the early fifth/eleventh century is demonstrated by the finds from the Qal`a of the Banu Ḥammād.⁷⁵ 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

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.

⁷³ J. Meunié & H. Terrasse, *Nouvelles Recherches Archéologiques à Marrakesh*, Publications de l'Institut des Hautes Etudes Marocaines (Paris, 1957), p. 39, n.3.

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,⁷⁶ 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 Maghribi tradition.

3.4.2 Jerusalem.

Fragments of stucco lunette-fillings containing glass were found in the Mosque of al-Aqṣā in Jerusalem (pl. 64).⁷⁷ 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 Aqsa 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 Aqsa 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 *claustra* and *qamariyyat*.

The most complex and complete example is the *claustrum* from a dome in the Church of San Giovanni degli Eremiti In Palermo (pl. 65).⁸⁰ 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.⁸¹ Like the Ṭūlūnid and Fatimid grilles in Cairo,⁸² 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 *qamariyyat* from Raqqa (fig. 22).

A similar open stucco rectangular grille of sixth/twelfth-century date now preserved in the Galleria Nazionale della Sicilia⁸³ shows marked similarities with the grilles found in the northern minaret of al-Ḥākim in Cairo (380-404/990-1013) (pl. 76).⁸⁴ 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.⁸⁵ Recently, restorations at the Duomo of Monreale have produced the remains of stucco window-grilles set in the original window-openings of the building.⁸⁶

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 *qamariyyat* 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 (*shamsiyyātī al-madhahhabātī min al-*

⁸⁰ A. Salinas, *Trafori e vetrate nelle finestre delle chiese Medioevali di Sicilia, Scitti 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 Ḥākim mosque; *MAE* I, p. 92. A similar formula was used on Coptic window-grilles (pl. 41).

⁸⁶ G. Naselli Flores, *Scoperte e rinvenimenti di elementi architettonici plastici e pittorici, I mosaici di Monreale: restauri e scoperte 1965-82* (Palermo, 1986), p. 48; Bellafiore, *Architettura*, p. 117.

zujāji) 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 Kūfic 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-Ḥākīm 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-Maḥdiyya,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 (*fenestras gypsaeas*) 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 *fenestras gypsaeas*, 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.

⁹¹ P.K. Hitti, *History of the Arabs from the earliest times to the present day*, 3rd revised edition (London, 1946), p. 609.

⁹² Lafond, *Vitrail*, p. 17, n.26.

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,⁹⁶ 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 *qamariyyat* of Egypt.

Two different processes were used in the manufacture of the Sicilian *qamariyyat*. 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 plaster⁹⁷ 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 ʿAbbasid *qamariyyat*. The former recalls Hamilton's description of the Aqṣā *qamariyyat*, 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 Alaeddin Palace in Konya itself. The excavations at Kobadabad produced twenty-five fragments of cobalt glass, two of yellow and one piece of green glass.⁹⁸ 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.⁹⁹ Fragments of coloured glass and stucco found in the Alaeddin Palace indicate that its windows were filled similar grilles.¹⁰⁰

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,¹⁰¹ and circular

⁹⁶ See above, p. 22.

⁹⁷ Salinas, *Trafori e vetrate*, p. 504.

⁹⁸ K. Otto-Dorn, *Bericht Über die Grabung in Kobadabad 1966* *Archäologischer Anzeiger* (IV, 1969), p. 480.

⁹⁹ S. Eyice, *La Verrerie en Turquie de l'Époque Byzantine à l'Époque Turque*, *Annales de 4^{ème} Congrès Internationale d'Études Historiques du Verre*, Venice 1966 (Liège, 1969), p. 173; E. Akurgal (ed.), *The Art and Architecture of Turkey* (Oxford, 1980), p. 206; E. Atil (tr.), *The Anatolian Civilisations III: Seluq/Ottoman* (Istanbul, 1983), p. 13.

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.¹⁰² 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 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 *madrassa* 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 Rusāfa.

Finds of *qamariyyat* in sixth/twelfth-century levels at Rusāfa were mentioned, without further details, by `Abd al-Ḥaqq.¹⁰³ In addition, recent excavations at Rusāfa 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).¹⁰⁴ 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 *iwān* 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 *iwān* is also of interest, although it never held glass (pl. 69).¹⁰⁵ 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 Qaṣr 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.¹⁰⁶ Most of these made use of hexagonal grids similar to those which have been favoured in

¹⁰² See above, p. 71.

¹⁰³ `Abd al-Ḥaqq, Contribution (1958/9), p. 10; Contribution (1958), p.86..

¹⁰⁴ N. Saliby, Une Maison Arabe a Resafa, *Resurrecting the Past: a Joint Tribute to Adnan Bounni* [eds. P. Matthiac, & M. van Loon] (Istanbul, 1990), p. 279, pl. 92a.

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 Abbasid 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 ^{of the building} survives, but finds of rectangular window-frames indicate that at least some of the windows were rectangular.¹⁰⁷ 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.¹⁰⁸

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

¹⁰⁶ K. Toueir, *Der Qasr al-Banat in ar-Raqqa: Ausgrabung, Rekonstruktion und Wiederaufbau (1971-1982)*, *Damaszener Mitteilungen* (II, 1985), pp. 310-15.

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 ⁶Abbasid *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 spigots 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.¹⁰⁹ 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 Nishapūr. This apparently minor part of the decor of Qasr al-Banat serves therefore as a reminder of the strong Mesopotamian and Iranian influences which make themselves felt in the architecture of the palace.¹¹⁰ One of the *qamariyyat* fragments has part of a pearl border executed in high relief attached along its outer edge.¹¹¹ 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-Shamīyya, Damascus (before 582/1186).

The earliest surviving Ayyubid *qamariyyat* are found in the Madrasa Shamīyya *extra muros* in Damascus, built by Sitt al-Shām, a sister of Ṣalāḥ al-Dīn, before her death in 582/1186.¹¹² Three

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

¹¹⁰ R. Hillenbrand, Eastern Islamic influences in Syria: Raqqa and Qal'at Ja'bar in the later 12th century, *Oxford Studies in Islamic Art* (I, 1985), pp. 25-6.

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

¹¹² Although it has been suggested that the stucco grilles in the *bimaristan* of Nūr al-Dīn (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).¹¹³ Two open stucco grilles are set below the *qamariyyat* 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.¹¹⁴ 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.¹¹⁵ 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).¹¹⁶ More germanely, a granite window-grille from the now-demolished Mausoleum of Saif ibn Dhī Yazān in Cairo,¹¹⁷ showing close affinities with the Early Christian basalt grilles from the Hauran,¹¹⁸ is decorated with a similar motif (pl. 74). The latter grille bears an

¹¹³ Mentioned by Sauvaget, *Monuments Historiques*, p. 57. See also 'Abd al-Ḥaqq, *Contribution* (1958/9), p. 10, *Contribution* (1958), p. 86.

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

¹¹⁵ For example in the Māridāniya Madrasa and the Jāmi' al-Tāwba; below, pp. 82-5.

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

¹¹⁷ G.M. Wiet, *Catalogue generale du Musée de l'Art Islamique du Caire: Inscriptions historiques sur pierre* (Cairo, 1971), p. 52, No. 2650, pl. X.

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 Jāmi` al-Hanābīlā (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 Jāmi` al-Tayrouzī. 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-Shamīyya. 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 Tayrūzī mosque in Damascus.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.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.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-Shamīyya 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 *qamariyyat*: 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 Māridanīya 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-Ḥayr 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-Ḥākīm in Cairo (380-404/990-1013) is composed of a grid of stars interwoven with vertical rows of vegetal ornament.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).¹²⁶ A *claustrum* on which a similar arrangement is used

¹²² See below, p. 136-7.

¹²³ See below, pp. 138-9.

¹²⁴ MAE I, pp. 91-2.

¹²⁵ MAE I, p. 81, fig. 29; Fernandez Puertas, Ventanas, p. 425, figs. 1-4, pl. 8.

¹²⁶ MAE I, pl. 24a-b.

survives from the mosque of al-Ṣalḥ Ṭalā'ī (555/1160) [pl. 77].¹²⁷ Similar ornament is also found on Fatimid wood carving.¹²⁸ The arabesque form is even more developed in the stucco *claustra* in the mausoleum of Imām al-Shāf'ī in Cairo (608/1211), which have been remade following fragments of the original grilles.¹²⁹ By the seventh/thirteenth century similar patterns were being used for glazed ceramic window-grilles in Iran (pl. 78).¹³⁰ 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 Jāmi' al-Hanābīlā. A fully-developed arabesque motif appears on the sixth/twelfth-century stucco *claustrum* from Rusāfa mentioned above (pl. 69).¹³¹ An arabesque was used on a perforated stone lunette-filling in the portal of the Madrasa al-Muqaddamīya in Aleppo (545/1150-1).¹³² Moreover, a similar design appears on the remaining *claustrum* above the north-eastern door of the Jāmi' al-Hanābīlā itself (pl. 79).¹³³ 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-Shāf'ī.

One may conclude that the use of arabesques on contemporary *claustra* influenced the design of the *qamariyya* in the Jāmi' al-Hanābīlā. It appears that the stylistic and technical affinities between *qamariyyat* and *claustra* found in earlier periods¹³⁴ 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 *claustrum* from Rusāfa was painted red, green and blue.¹³⁵ 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.¹³⁶ 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.

¹²⁸ C.J. Lamm, *Fatimid Woodwork: its style and chronology*, *Bulletin de l'Institut d'Égypte* (XVIII, 1936), pp. 69-71, pl. I a-c.

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.

¹³² T. Allen, *A Classical revival in Islamic architecture* (Wiesbaden, 1986), pp. 12-3, fig. 22.

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-Shamīya.

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.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-Hanābilā (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 Raqqa. 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-Shamīyya, 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-Jaharkasīya, 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 Jaharkasīya, 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.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-Shamīyya.

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

Further examples of *qamariyyat* of centralised arabesque type may be seen in the windows of the nearby Māridānīya 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.¹³⁹ It seems likely that *qamariyyat* were originally also used in the

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.

¹³⁷ See below, p. 91.

¹³⁸ J. Sauvaget, *Les Monuments Ayyoubides de Damas*, Volume I (Paris 1938), pp. 43-4.

¹³⁹ J. Sauvaget, *Les Monuments Ayyoubides de Damas*, Volume IV (Paris, 1950), p. 125, pl. XXIV 3.

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-Jaharkasīyya.

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 *qamariyya* 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 *qamariyya* used to fill an oculus pierced above the two arched windows in the western gable of the prayer-hall (pl. 80).¹⁴⁰ This is the earliest surviving example of such a *qamariyyat*, but it cannot be doubted that others like it existed.¹⁴¹ 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).¹⁴² 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 from 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,¹⁴³ and on the marble *claustra* in the Great Mosque of Cordoba.¹⁴⁴ Similar polylobed apertures are used on

¹⁴⁰ Ibid., p. 125, pl. XXIV 2.

¹⁴¹ A circular window opens above the *mihrab* in the Madrasa al-Shamīyya, but its grille does not survive.

¹⁴² See above, p. 49.

¹⁴³ Wilkinson, *Nishapur*, pp. 152-4, figs. 1.176-1.184.

¹⁴⁴ Brisch, *Fenstergitter*, p. 30, fig. 8.

contemporary Byzantine window-fillings (pls. 35-6),¹⁴⁵ and occur on certain of the window-grilles represented in later Persian miniature paintings.¹⁴⁶ 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-Tāwba, 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-Tāwba in Damascus.¹⁴⁷ 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-Jaharkāsiyya. 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; Schultz & Barnsley, *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 décoration 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.

Ḥamā.¹⁴⁸

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.¹⁴⁹ Although no further details are given, it is possible that the Crusader houses were illuminated by means of *qamariyyat* 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.¹⁵⁰

It is, however, equally possible that the windows mentioned were of the more orthodox Christian type, with pieces of coloured glass inserted in lead cames. 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.¹⁵¹ 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).¹⁵² To allow for the inevitable variations in the thickness of the crown glass pieces, the lead cames employed at Atlit were provided with a wide groove. As has been indicated above,¹⁵³ 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,¹⁵⁴ 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

¹⁴⁸ P.I. Riis & V. Poulsen, *Hama: Fouilles et Recherches 1931-1938*, Volume IV 2 (Copenhagen, 1957), p. 39.

¹⁴⁹ *Ac domus ad intra uniformiter fenestris vitreis*; M. Hermanni Corneri, *Chronica novelle usque ad Annum 1435 deducti*, in J.G. Eccardo (ed.), *Corpus Historicum Medii Aevi* (Lipsi, 1723), p. 941. Cited in E.G. Rey, *Les colonies Franques de Syrie au XII^{me} et XIII^{me} siècles* (Paris, 1883), p. 6.

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 Constantinople 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'āj (597/1200-1) in the Haram of Jerusalem.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.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.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,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.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-Shāf'ī. Certain elements of the design, including the apical bud, protrude into the border (pls. 84-5), a

¹⁵⁵ M.H. Burgoyne, *Mamluk Jerusalem: an architectural study* (London, 1987), p. 99, n.35.

¹⁵⁶ See below, p. 100.

¹⁵⁷ See above, pp. 71-4.

¹⁵⁸ Similar windows are found earlier in the mausoleum of Imām al-Shāf'ī (608/1211) and the mausoleum of Amīr Abū Mansūr Ismā'īl (613/1216); *MAE* II, pls. 25a, 27b.

¹⁵⁹ *MAE* I, pp. 91-2, 134.

detail which is also found in the *qamariyya* of the *Jāmi' al-Hanābilā* 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.¹⁶⁰ 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 *qamariyyat*.¹⁶¹

Creswell's statement that the original *qamariyyat* 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 *qamariyyat* 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,¹⁶² 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 *qamariyyat*. The painted *qamariyyat* 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).¹⁶³ 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,¹⁶⁴ 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'ba in 579/1183, mentions that its skylights were filled with stained

¹⁶⁰ *Ibid.*, pp. 91-2.

¹⁶¹ See below, p. 146.

¹⁶² With the exception of the rectangular *qamariyyat* on the side walls of the *Jāmi' al-Hanābilā*, and these seem to be Mamluk or Ottoman; see below p. 138.

¹⁶³ *MAE*, II, p. 89, pls. 31b, 32b.

¹⁶⁴ See above, p. 28.

and decorated glass (*zujājūn ʿiraqiyyun badiʿu al-naqshi*),¹⁶⁵ 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.¹⁶⁶ 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 gilt 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".¹⁶⁷ 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 ʿAbbasid Caliphs. Earlier finds of painted window-glass have been made in Iran, although these seem to reflect the eastern extension of Umayyad decorative traditions,¹⁶⁸ At a much later date the accounts of European travellers often mention the use of painted window-glass in Persia.¹⁶⁹

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 ʿAbbasid 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*.¹⁷⁰ 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 Aḥmad ibn Sulaymān al-Rifāʿī [690/1291] (ils. 37-8). The form of the painting has been compared to fragments the painting found on fragments of glass vessels from Fustat.¹⁷¹ It may be therefore that the painted glass in the mausoleum of the ʿAbbasid 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 ʿAbbasid 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 Ådahl 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.

¹⁷¹ C.J. Lamm, A Moslem decoration in stucco and glass, *Burlington Magazine* (II, 1927), pp. 26-43.

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.¹⁷² 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*.¹⁷³ 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 Ṣāliḥ Najm al-Dīn al-Ayyūb, Cairo (640-8/1242-50).

In contrast to their predecessors in the mausoleum of the 'Abbasid Caliph ^{art of more orthodox form.} the *qamariyyat* in the mausoleum of al-Ṣāliḥ Najm al-Dīn al-Ayyūb in the Sūq al-Nahasīn.¹⁷⁴ 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

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*,¹⁷⁵ 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.¹⁷⁶ 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.¹⁷⁷ 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.

¹⁷⁵ M. Herz-Bey, *Catalogue of the National Museum of Arab Art* (London, 1896), pp. 3, 31.

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. Qazwīnī (d. 682/1283) mentions the use of coloured glass roundels in a bath house at Sinjār.¹⁷⁸ 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.

¹⁷⁸ Qazwini, *Āthār al-Bilād*, ed. F. Wüstenfeld, Volume II (Wiesbaden, 1869), p. 263.

In the 'Abbasid palaces at Raqqa, as in the in Umayyad palaces of Syria, *qamariyyat* were^{set} 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 Nishapūr 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,¹⁷⁹ 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.

¹⁷⁹ See p. 27.

Similarly the arabesques used in Ayyubid *qamariyyat* 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 Rusāfa 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'āt*) 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 Madīnat 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 *qamariyyat* 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-Sharīf al-Idrīsī, tr. A. Dessus Lamare, *Description de la Grande Mosquée de Cordoue* (Algiers, 1949), p. 11.

² Sauvaget, *Mosquée Omeyyade*, pp. 78-9.

³ Brisch, *Fenstergitter*; G. Marçais, *Manuel d'Art Musulman*, Volume I (Paris, 1926), pp. 286-7.

⁴ F. Hernandez Gimenez, *Madinat al-Zahra, arquitectura y decoración* (Granada, 1985), p. 94; B. Pavón Maldonado, *Memoria de la excavación de la mezquita de Madinat al-Zahra* (Madrid, 1966), p. 92, pl. LXVII.

between columns (pl. 89),⁵ 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 eastern Mediterranean this method of manufacturing *qamariyyat* became widespread only from the eighth/fourteenth century.⁶ A similar method is used in some of the *shamsiyyat* in the Marīnid *madrasas* of Fez (pl. 41), which would appear to confirm Marçais' doubts that these grilles were original.⁷

Above the *mihrab* of the mosque three rectangular stucco grilles are still in place (figure 33).⁸ 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).⁹ 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.¹⁰ 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

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.

⁸ L. Golvin, *Le mihrab de Kairouan*, *Kunst des Orients* (V, 2, 1968), p. 33, fig. 13. The best photograph published is that found in P. Sebag, *The Great Mosque of Kairouan* (London/New York, 1965), pp. 64-5. The windows are mentioned in L.W. Boothe, *The Great Mosque of Qairawan*, *Oriental Art* (XVI, 4, 1970), p. 334.

⁹ Marçais, *Coupole*, fig. 8.

¹⁰ Visible in Golvin, *Mihrab*, p. 14, fig. 8.

the glass was attached, but Marçais, discussing Marīnid *shamsiyyat* in Fez, notes that the glass is attached "non au moyen de cloisons de plâtre, comme des *claustra* kairouanaïses du X^e-XI^e siècle...",¹¹ 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 *shamsiyyat* were known in Ifrīqīyya 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 *shamsiyyat* 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.¹³ 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 *shamsiyyat* can be paralleled in western Islamic geometric *claustra* and *shamsiyyat* 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 Zīrīds and Hammādīds.

Archaeological evidence suggests that stucco *claustra* were used in Zīrīd architecture. Fragmentary finds of stucco decoration from the fourth/tenth-century Zīrīd 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

¹¹ G. Marçais, *L'Architecture Musulmane d'Occident* (Paris, 1954), p. 338.

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'Ifrīqiya: 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 [*Coupoles*, p. 21, n.1] also appears to have had reservations about these *claustra*, suggesting that they were later than the third/ninth century. Golvin (*Le Mihrab*, p. 35) suggests, probably correctly, that they are Hafsid.

¹⁷ L. Golvin, *Le palais de Ziri a Achir* (dixième siècle JC), *Ars Orientalis* (VI, 1966), p. 72, figs. 51-2.

fragments of window-grilles recovered from the Qal'a of the Banu Ḥammād (pl. 90). Two window-grilles, apparently of the Ḥammādid period, survive in the western wall of the Great Mosque of Constantine.¹⁸ 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 *shamsiyyat* in the early medieval architecture of Ifriqiyya has been furnished by various explorations at the Qal'a of the Banu Ḥammād (begun c. 401/1010). Blanchet's excavations at the site produced the remains of pierced stucco grilles filled with coloured glass.¹⁹ 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 *shamsiyya* set above the *mihrab* on the exterior wall of the *zulla*, facing towards the *sahn*.

The two published fragments (pl. 90)²⁰ 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 *qamariyyat*. Instead the apertures of the grille vary in size and shape, giving the piece quite 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 *qamariyyat*. The use of red glass is noteworthy, since this colour was rarely used in the *qamariyyat* of the eastern Islamic world before the Ayyubid period.

The evidence suggests that the use of such *shamsiyyat* was widespread on the site. De Beylié found numerous fragments of pierced plaster grilles, many still containing coloured glass.²¹ More recently, the excavations of Golvin produced the remains of moulded, and possibly cut, stucco window-grilles, some still containing coloured glass.²² 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-Mansouriya²³ 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 *qamariyyat* of Umayyad

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

¹⁹ M. Blanchet, Note sur la Kalaa des Béni Hammad, *Comptes Rendus de l'Académie des Inscriptions et Belles Lettres* (XXV, 1897), p. 469; Bourouiba, *L'Art*, pp. 47-8.

²⁰ L. de Beylié, *La Kalaa des Beni-Hammad* (Paris, 1909), p. 87, pl. XXVII; Bourouiba, *L'Art*, fig. 21, Nos. 23-4.

²¹ De Beylié, *Kalaa*, p. 87.

²² L. Golvin, *Recherches archéologiques à la Qal'a des Banu Hammad* (Paris, 1965), p. 238.

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 *qamariyya* in al-Azhar makes similar use of basic geometric patterns.²⁹

4.5 Dhū'l-Nūnids.

Ibn Bassām's description of the palace of Yaḥyā Ibn Ismā'īl al-Mam'ūn (435-468/1043-75), one of the Dhū'l-Nūnid rulers of Toledo is a valuable source of information on early Islamic architectural decoration in al-Andalūs. 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 (*buhūrun muntazimatun*) of glass gilded with pure gold (*al-mulabbasi b'il-dhahabi al-'ibrīzi*), 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 pure gold filigree (*awwrāqi al dhahahabi al-'ibrīzi*) 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-Dakhīra*, 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*.³¹ 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).³² 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-Mamūn had a penchant for coloured glass creations, and al-Maqqarī 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.³³ 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 Marīnid period.³⁴ 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.³⁵ However, it is to be wondered whether the metal tracery of the Toledan windows was in fact of gold. Ibn Jubayr frequently mentions windows of gilded glass (*shamsiyyāti al-mudhahhabāti min al-zujāji mulawnati*).³⁶ This 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.³⁷ 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,³⁸ and it may be that the tracery of the Dhū'l-Nūnid *shamsiyyat* was similarly gilded.³⁹ Alternatively, the surface of the glass

³¹ E. Lévi-Provençal, Alphonse VI et la prise de Tolède (1085), *Hesperis* (XII, 1, 1931), p. 40; idem., *Islam d'Occident* (Paris, 1948), p. 120; L. Torres Balbás, Ventanas con vidrios de colores en los edificios hispanomusulmánas, *Al-Andalus* (XIV, 1949), p. 199.

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

³³ Dozy et al, *Analectes* I, p. 347; P. De Gayangos, *The History of the Mohammedan Dynasties in Spain*, Volume I (Paris, 1840), pp. 239-40.; Bargebuhr, *The Alhambra Palace of the eleventh century*, *JWCI* (XIX, 1956), p. 248; *Alhambra*, p. 144.

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.

³⁸ Sauvaget, *Mosquée*, p. 145.

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.⁴⁰ If this is so, then the evidence for the use of metal tracery in western Islamic window-grilles before the Marīnid 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.⁴¹ 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 *shamsiyyat* 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 court⁴² 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 *shamsiyyat* and *qamariyyat* 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 Dhū'l-Nūnid court. Unfortunately neither the archaeological nor the textual evidence proves illuminating on this point. It is however worthy of note that *shamsiyyat* 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 Maria La Blanca.⁴³ The grilles appear to date from the seventh/thirteenth century.

4.6 Almoravids and Almohads.

Stucco *claustra* in which both geometric and vegetal tracery^{appeared} were widely used in the Maghrib during the fifth/eleventh and sixth/twelfth centuries.⁴⁴ 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

⁴⁰ Zujājūr *ʿiraqiyyun badiʿu al-naqshi*; Wright, *Travels*, pp. 264-5.

⁴¹ See below, pp. 161-2.

⁴² Romberg, *Fatimid Treasury*, p. 66.

⁴³ Torres Balbás, Ventanas, p. 199.

⁴⁴ H. Terrasse, *Islam d'Espagne* (Paris, 1958), p. 127, fig. 34; H. Terrasse, *La Mosquée al-Qaraouiyyin a Fès* (Paris, 1968), pls. 55-6, 59; L. Golvin, *Essai sur l'Architecture Religieuse Musulmane IV* (Paris, 1979), pp. 222-4, figs. 75-6.

coloured glass.⁴⁵ Although the outer dome is provided with windows to allow the light to filter through the tracery,⁴⁶ 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 Barudīyin 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.⁴⁷ The interior of the window-openings was framed in each case by Kufic inscriptions, some of them set against a red background.⁴⁸ The use of such inscriptions around windows is common in Fatimid architecture (pls. 76-7).⁴⁹

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.⁵⁰

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 Qaṣr 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 Hammād.

Although any Almoravid *shamsiyyat* in the Qarawīyin 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

⁴⁵ J.D. Hoag, *Islamic Architecture* (Milan, 1975), p. 47.

⁴⁶ L. Torres Balbás, *Bóvedas caladas hispanomusulmánas*, *Al-Andalus* (XVII, 1952), p. 190.

⁴⁷ Meunié & 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 Meunié & Terrasse, *Nouvelles Recherches*, p. 39.

⁵¹ Terrasse, *Mosquée al-Qaraouiyyin*, p. 46.

Shamsiyyat were also employed in late Almohad mosques, for al-Maqqarī mentions *shamsiyyati al-zujaji* in the Qutūbiyya of Marrakesh (553/1158).⁵²

4.7 Marīnids.

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

The earliest surviving evidence for the use of *shamsiyyat* in Maghribi architecture of the post-Almoravid period is found in 'Attārīn Madrasa in the Marīnid 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 Bassām's ambiguous description of the long-vanished Dhū'l-Nūnid 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 Marīnid *madrasa*.⁵⁸ It is possible that, like similar stucco and glass *shamsiyya* in the Bu 'Ināniya Madrasa, these are later replacements for original windows of lead and glass. Although I have seen a photograph of only one of the stucco *shamsiyyat* from the mosque (fig. 34), the form of this betrays nothing which could preclude a Marīnid 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 The

⁵² Dozy et al, *Analectes* I, p. 405. See also, Ahmad Ibn al-Nasiri al-Slawi, *Kitab al-Istiqsa* (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.

⁵⁴ Lambert, *Vitraux*, p. 107; Marçais, *L'Architecture Musulmane*, p. 338.

⁵⁵ See above, pp. 99-100.

⁵⁶ Lambert, *Vitraux*, p. 107.

⁵⁷ As suggested by the remarks of P. Ricard, *Pour comprendre l'art Musulman dans l'Afrique du Nord et en Espagne* (Paris, 1924), p. 153. The occurrence of floral forms in the lead windows of the *madrasa* is noted in passing by Cambazard-Amahan, *Décor*, p. 170.

⁵⁸ M.M. Dannerbeck, *Representations of stained glass windows in Iranian miniatures*, unpublished MA thesis (Arizona State University, 1982), pp. 20, 42-3, pl. 11.

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 692-3/1292-3.⁶⁰ 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 *madrassa*. Both forms of tracery were found together in the windows of Nasrid buildings and will be discussed shortly. The windows of the Ḥattārīn Madrasa are separated by miniature columns, from which shallow scalloped arches spring. The latter motif is frequently used in Nasrid architectural decoration.⁶¹ 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 Ḥ Ināniya Madrasa in Fez.

The technique used in the manufacture of the *shamsiyyat* in the Ḥattārīn 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.⁶² 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 comes. At a slightly later date this method was used for some of the window-grilles in the Alhambra (ill. 42, fig. 37).⁶³

4.7.2 Bu Ḥ 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 *madrassa*. *Qamariyyat* of coloured glass set in lead comes appear to have been concentrated in the windows in the *qibla* of the prayer-hall.⁶⁴ 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-Ikhlās (CXII). The letters of the inscription were executed in relief, formed by the structural tracery of the *shamsiyya*.⁶⁵

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; Marçais, *L'Architecture Musulmane*, p. 338.

⁶⁵ A. Bel, *Inscriptions Arabes de Fes*, *Journal Asiatique* (XI, Series 12, 1918), p. 354.

Inscriptions appeared earlier on the stucco *claustra* in the Great Mosque of Tinmal (c. 427/1035).⁶⁶ *Qamariyyat* bearing short religious inscriptions appear above *mihrahs* 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 *shamsiyya* 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 *shamsiyyat* 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 *shamsiyya* (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 *shamsiyyat* composed of lead and coloured glass in the windows of the *qibla*.⁷⁰

It is not immediately clear whether some of the stucco *shamsiyyat* currently filling the windows of the *qibla* could be creations of the Marīnid 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 *shamsiyyat* were used in Nasrid architecture, and apparently also in the Ḥattārīn 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 *shamsiyyat* provided the prototype for the stucco grilles now in place. While many of the stucco *shamsiyyat* feature sunburst rosettes similar to those which appear in Nasrid *shamsiyyat*,⁷¹ they also include geometric motifs without parallel among other surviving medieval Islamic window-fillings.⁷² The colours of the *shamsiyyat* now *in situ* are similar to those described in the lead *shamsiyyat* 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 Meunié & Terrasse, *Nouvelles Recherches*, p. 40.

⁶⁹ Visible in the photograph of Terrasse published by A. Fernandez-Puertas, *La 'Fachada' del Palacio de Comares* (Granada, 1980), pl. LXXIIb.

⁷⁰ *Wa biqiblatihā shamsiyyātun min al-zujāji al-mulawwani bisinā atin shattā ma' qūdatin bi'l-rasāsi*; E. Lévi-Provençal, *Une Description de Ceuta Musulmane au XV^e 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.⁷³ 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 Marīnid *claustra* (pl. 91), or in the tiled dadoes of the palace (ill. 43).⁷⁴ 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).⁷⁵

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-translucent.

⁷³ Torres Balbás, *Ventanas*, p. 201; D. Manuel Gómez Moreno, *Guía de Granada* (Granada 1892, reprint, Granada, 1982), pp. 176-7.

⁷⁴ B. Pavón Maldonado, *El Arte Hispanomusulmána en su decoracion geométrica* (Madrid, 1975), pls. LXXXIX, CLXIII, CLXVII-CLXIX; R. Nacenta, *Deux Mille Ans d'Art au Maroc* (exhibition catalogue, Paris, 1963), Nos. 45-6.

⁷⁵ L. Torres Balbás, *Arte Almohade, Arte Nazari, Arte Mudéjar, 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 Dhū'l-Nūnid 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 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,⁷⁶ and taken up by later scholars,⁷⁷ 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,⁷⁸ and this etymology is found as early as the tenth/sixteenth century.⁷⁹ 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.⁸⁰ 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.⁸¹ A more convincing etymology has been proposed recently which links the name of the room

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

⁸⁰ D. Stewart, *The Alhambra* (New York, 1979), p. 25.

⁸¹ See above, pp. 4-5.

to the Arabic *qīm `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 comes 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 Cabanelas Rodriguez, *Techo*, pp. 91-8.

⁸³ Museo Nacional de Arte Hispanomusulmán, Granada, Inventory Number 946.

⁸⁴ Torres Balbás, *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 *shamsiyya* bearing an inscription (fig. 44) has been identified as coming from the Alhambra.⁸⁸ 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).⁸⁹ 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, *hūwa al-khalaq fī...* (He is the creator in...). The tendency for inscriptions to run from window to window is also a characteristic of Mamluk *qamariyyat*,⁹⁰ which further indicates that this grille has been misidentified.

Finally, mention must be made of the possibility that *shamsiyyat* 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 glass⁹¹ although no evidence has been given to support the suggestion. Wooden window-grilles similar to *mashrabiyyat* were used in Nasrid architecture,⁹² and some examples are preserved in the Alhambra Museum.⁹³ The wooden ceiling in the Mirador de la Daraxa is filled with coloured glass (ills. 130-1),⁹⁴ 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 *shamsiyyat* of this date can be identified. The earliest *shamsiyyat* 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

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.

⁸⁸ F.L. Day, *Windows: a book about stained and painted glass* (London, 1909), p. 19, fig. 3.

⁸⁹ See below, p. 147-8.

⁹⁰ In numerous Mamluk buildings. See, for example, the mausoleum adjoining the mosque of Aṣḥām al-Silāḥdār (746/1345) and the *madrassa-khanqah* of Barqūq (786-8/1384-6); see below, pp. 128, 133.

⁹¹ A. Cid Aceido, *The Alhambra in Detail* (Granada, 1981), p. 81.

⁹² L. Torres Balbás, Ajmeceas, *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 *qamariyyat* 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-Nūnid palace at Toledo.

The provision of glass windows in baths and palaces continues an earlier tradition. Similarly the appearance of *shamsiyyat* in mosques and *madrāsas* 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 *qamariyyat* 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 *qamariyyat*.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 *qamariyyat*.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 Tayroūzi Mosque, Damascus; below, pp. 137-8.

⁹⁷ In the Jāmi' al-Hanābilā, 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 *majlīs* of the Dhū'l-Nūnid 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 Dhū'l-Nūnid 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^{and} 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 than 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

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 Abū Bakr ibn Muzhir and those in the mosque of Qajmās al-Ishāqī 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.³ 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.⁴ 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*.⁵ 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.⁶ 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.⁷ 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 Qalā`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

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-Ghaḍanfar bears the date 869/1464-5; Wiet, *MCA: L'Égypte II* (Cairo, 1929-30), p. 221.

⁵ Fragments of the *qamariyyat* from the *madrasa* of ʿĪnāl al-Yūsufī and the mosque of Qajmās al-Ishāqī 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 Qāyṭbāy 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.⁸ 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.⁹

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 *khanqah* al-Bunduqdārīya.¹⁰ 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.¹¹

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.¹² 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 1326/1908.¹³ 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 century¹⁴ 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

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 des 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 Khalīl, 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 Qalā'ūn 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/fourteenth-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 Qalā'ūn, 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 axiality (ills. 47-8). Like the *qamariyyat* in the complex of Qala`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,²⁰ 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 Qalā`ūn. 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).²¹ 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 for 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 Bāb al-Akhḍar (548/1153).²² 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.²³ Two features in particular recall the design of the later *qamariyya*; the hexagon at

²⁰ *Exercice* (XXXII, 1915-9), p. 62.

²¹ *MAE* II, pl. 77c.

²² *MAE* I pl. 96 c-d; H.G. Franz, *Les fenêtres circulaires de la cathédrale de Cefalu et le problème de l'origine de la «rose» du Moyen Age*, *Cahiers Archéologiques* (IX, 1958), p. 260, fig. 12. At a slightly later date a six-pointed star appears at the centre of a tracery medallion filling a stone *claustrum* over the entrance to the Mosque of Sunghur Bey in Niğde in Anatolia; A. Gabriel, *Monuments Turcs d'Anatolie*, I (Paris, 1931), pls. XL-XLI; S.P. and H.C. Seherr-Thoss, *Design and Colour in Islamic Architecture* (Washington, 1968), pl. 116.

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)²⁴ and it seems likely that the motif is derived from Fatimid sources,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 Burjī 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).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,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.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.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.

²⁴ Below, pp. 273-4.

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

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.

²⁷ For example in the mausoleum of the `Abbasid Caliphs (640/1242), the mausoleum of Ṣāliḥ 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.

²⁸ MAE II, P. 231; *Exercices* (XXXII, 1915-19), pp. 72-3.

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 Khalīl, 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,³⁰ *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-Nāṣir 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 Qalā'ūn 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.³¹ The lower panel originally contained a second inscription.³² 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,³³ 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

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

³¹ In later *qamariyyat* it was usually abbreviated.

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

³³ A.C. Prisse d'Avennes, *Arab Art* (tr. J.I. Erythropis, London, 1983), pl. XIII.

roundels finds a parallel on other *qamariyyat* in buildings erected in the first half of the eighth/fourteenth century.³⁴

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 Yalbūgha Mosque in Damascus (747-8/1347) [pl. 102, fig. 53b],³⁵ the other a *claustrum* above the *mihrab* in the mosque of al-Şāliḥ Ṭalā'i in Cairo (pl. 98, fig. 39b).³⁶ 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 703/1303.³⁷ 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 *claustra* on the exterior of the mausoleum of Qalā'ūn, and in some of the windows depicted in later Iranian miniatures (fig. 63).³⁸

The iconography of the *claustrum* in the mosque of al-Şāliḥ Ṭalā'i also bears comparison with the *qamariyya* in the *madrasa* of al-Nāşir 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 *qamariyyat* now in the Museum for Islamic Art, Cairo (pl. 51, fig. 39c).³⁹ 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 Burjī Mamluk period. Cypresses become common only in late ninth/fifteenth-century Cairene windows.⁴⁰ Since evidence exists to suggest that the *qamariyya* in the *madrasa* of al-Nāşir 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.

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 *qamariyyat* of the Qaşr Bashtāk (740/1339); below, pp. 122-4.

³⁵ See below, p. 127.

³⁶ MAE I, pl. 100a.

³⁷ L. 'Alī Ibrahim, Four Cairene *mihrahs* and their dating, *Kunst des Orients* (VII, 1970/1), pp. 33-4, figs. 4-5.

³⁸ On the lower grilles visible in MAE II, pl. 64 ^{and in the corners} of a rectangular window-grille from the Mosque of Saida Zaynab, said to date from the eighth/fourteenth 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-Şāliḥ Ṭalā'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 Abū Bakr ibn Muzhir and mosque of Qajmās al-Işḥāqī; below, pp. 142-3.

5.2.5 Mausoleum of Sanjar al-Jāwli, Cairo (704/1304).

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

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.⁴¹ 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 Qalā' ūn; 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),⁴² a motif with a symbolic significance,⁴³ 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-Jāwli were repaired, and some were replaced.⁴⁴ 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-Jāshankīr [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 Comité.⁴⁵

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 Comité, 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 Ablaḡ, Citadel of Cairo (713/1313).

Al-'Umari, 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 *qamariyyat* in a secular building of the Mamluk period.

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

The clerestory 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 *qamariyyat* 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-'Umarī, writing before 755/1354, mentions the presence of glass windows in both the Dome of the Rock and the Qubbat al-Mir'āj. 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 *qamariyyat* seen by al-'Umari, for Richmond indicated that six of the sixteen *qamariyyat* in the drum of the dome of this

⁴⁶ *Yakhrīqu al-daw'u fi judaraniḥā bitāqātīn min al-zujāji al-qubrusi al-mulawwani kaqita'ī al-jawhari al-mulafati fi al-'uqūdi*; P. Casanova, *Histoire de la Citadelle du Caire, Mémoires de la Mission Archéologique Française du Caire* (VI, 1897), p. 670.

⁴⁷ Major C.M. Watson, *The Mosque of Sultan Nasir Muhammad ebn Kalaoun in the Citadel of Cairo*, *JRAS* (NS XVIII, 1886), p. 479.

⁴⁸ *Ibid.*, p. 482.

⁴⁹ L.A. Mayer, *A medieval Arabic description of the Haram of Jerusalem*, *QDAP* (I, 1931-2), pp. 44-5.

⁵⁰ *Ibid.*, p. 74.

monument "appear to date from at least as early as the fifteenth century, possibly the fourteenth".⁵¹ These were attributed by Creswell to the restorations of al-Nāṣir Muḥammad.⁵² 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.⁵³ 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.⁵⁴ 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 Aṣlam al-Silāḥdār (746/1345).⁵⁵ 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.⁵⁶ 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,⁵⁷ 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],⁵⁸ 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:

⁵¹ E. T. Richmond, *The Dome of the Rock in Jerusalem* (Oxford, 1924), p. 78.

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 Barqūq (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 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 **قلم** 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 Bashtāk, 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 *qaṣr* 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.

⁶¹ A. Lézine, *Les salles nobles des palais mamelouks*, *Annales Islamologiques* (X, 1972), pl. XII; J.C. Garcin, B. Maury, J. Revault and M. Zakariya, *Palais et Maisons du Caire d'Epoque Mamelouke*, (CNRS Paris, 1982), fig. 38.

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 *Kulliyat* of 'Imād al-Faḳīh (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 *qamariyya* 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 *qamariyya* in the *Madrasa* of al-Nāṣir Muḥammad, the bodies of the larger grilles in the Qaṣr Bashtāk are divided into a series of independent decorative zones (ill. 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 ^{later} 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 Jāmi' al-Hanābilā in Damascus (ill. 32) and the mausoleum of Ṣāliḥ 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* (ill. 60). Each pair is surmounted by a single oculus (ill. 61). Like their immediate predecessors the arched grilles are all divided into a lower rectangular panel with an

⁶⁴ M Meinecke, Zur Mamlukischenheraldik, *Mitteilungen des Deutschen Archäologische Instituts*, Abteilung Kairo (XXVIII, 2, 1972), p. 247.

⁶⁵ Below, pp. 150.

⁶⁶ One of the earliest occurrences is on a Qur'an container of Sultan Muḥammad ibn Qalā'ūn 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),⁶⁷ 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 Baṣṭāk, 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'ūn. 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.⁶⁸ 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 *mihrab* 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.⁶⁹

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

⁶⁷ Inventory Number 244, 2.55 x 0.59m.

⁶⁸ M. Meinecke, Die Mamlukischen Fayencemosaikdekorationen: eine Werkstatt aus Tabriz in Kairo (1330-1350), *Kunst des Orients* (XI, 1976/7), pp. 107-12, figs. 19-20.

⁶⁹ *Ibid.*, fig. 23.

appear in Iranian miniature painting only at the beginning of the ninth/fifteenth century.⁷⁰ 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 Aṣlam al-Silāhdār, 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 Yūsuf 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.⁷¹ 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 'l-ʿAẓīm* (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.

⁷¹ For further similarities in the stucco decoration of both mosques see C. Karim, The Mosque of Aslam al-Baha'i al-Silahdar (746/1345), *Annales Islamologiques* (XXIV, 1988), pp. 233-52, pp. 247-9.

buildings, the axial arabesque rarely appears in Mamluk *qamariyyat* of this form, supports such a hypothesis. We know, in addition that the team of IKhhanid 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 Aṣṣalām al-Silāhdār.⁷² 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 *mihirabs* of mosques from at least the end of the sixth/twelfth century,⁷³ 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*: *kullamā dakhala `alayhā Zakarīyyā al-mihrab waja `indahā rizqa* (every time that Zakariyya entered the *mihrab* to see her ...) ⁷⁴ Inscriptions of similar radial form are found on contemporary metalwork, from whence the design of this grille may derive.⁷⁵ 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.⁷⁶ Two blind grilles occur opposite the windows in the *qibla* of the mausoleum.

5.2.12 Yalbūgha 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*.⁷⁷ 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 *mihirabs* 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-Shamīyya 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-Ḥaqq, Contribution, p. 86; A photograph of one of the *qamariyyat* was published by A. Rihāwī, *Jāmi` Yalbūgha fī 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 Khalīl 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 Baṣṭāk Palace in Cairo. Smaller roundels were frequently used in Burjī Mamluk *qamariyyat*, those in the *madrassa-khanqah* of Barqūq (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 *Madrassa* of Amir Mithqāl, Cairo (before 765/1363).

The south *iwān* of this *madrassa* contains three arched window-openings filled with wooden grilles. Two oculi appear above the two windows flanking the main arch of the *iwān*. 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 Khalīl. 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 Khalīl.

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-Dīn Mitqāl al-Anūki und die Sanierung des Darb Qirmiz 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)⁸⁰ The same date appears in the circular grille above the *mihrab*. 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 *qamariyyat* in the *madrassa* of Amir Jamal al-Dīn Yūsuf al-Ustādār (806/1408), one of which bears the same date,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 *qamariyyat* of the Baḥrī Mamluk period, the tympana of the grilles are occupied by circular medallions. Like the window-grilles in the Qaṣr Bashtāk (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 *qamariyyat*, for example the grille in the *madrassa* of al-Nāṣir 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 *qamariyyat* is blue, green, red, yellow, and colourless. The predominant colour is red.

5.2.14 *Madrassa* of Ilgay al-Yūsufī, Cairo (775/1373).

The mausoleum adjoining the *madrassa* 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,⁸² similar to those in the complex of Qalā'ūn. 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 *qamariyyat*. 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.

⁸⁰ Meinecke, *Restaurierung*, pp. 55-6, pl. 10b.

⁸¹ See below, p. 135..

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 *iwān* (pl. 105, fig. 43a). This is similar to many of the Baḥrī 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 *sāqī*, 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 of the Qasr Bashtak. The blazon of the *sāqī* 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 *iwān* 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-Madrassa* of Barqūq, Cairo (786-8/1384-6).

In one of the first surviving monuments of the Burjī Mamluks *qamariyyat* appear in the windows of the *qibla iwān*, and in the *qibla* and dome of the adjacent mausoleum. In the *iwān* 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.

⁸⁴ *Exercice* (I, 1882-3), p. 106; (VI, 1890), p. 53.

mausoleum were also replaced.⁸⁵ 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 Khaḥīl, 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 Khāṭṭūnīyya in Jerusalem [fig. 45] (755-82/1354-80),⁸⁶ which might suggest that the motif might have had a particular connection with windows or light.⁸⁷

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-Yūsufī (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.

⁸⁵ *Exercice* (X, 1893), p. 38.

⁸⁶ M. Burgoyne, *Mamluk Jerusalem, an Architectural Study* (London, 1987), p. 348, fig. 31.12.

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 forming 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 Aṣlam al-Silāḥdār legible.

The name and titles of Barqūq run from *qamariyya* to *qamariyya* in the windows of the *qibla iwan*.⁸⁸ Starting from the window furthest from the *mihrab* the inscriptions read: (1) *azz li mawlāna* (2) *al-Sultān al-mālik* (3) *al-ẓāhir Barqūq* (4) *ʿazza nasruhu*. Continuous inscriptions appear in earlier Mamluk *qamariyyat*, those in the Mausoleum of Aṣlam 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 ʿInāl al-Yūsufī, 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.⁸⁹ 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 Mithqāl. 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).⁹⁰ This is the third extant example of a Mamluk *qamariyya* on which a heraldic blazon appears, the earliest being those of the Qaṣr Baštāk (740/1339) and the *madrasa* of Ilgay al-Yūsufī (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.⁹¹ 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-Yūsufī. 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 Barqūq, 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 roundel 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-Yūsufī (fig. 43a) and the *Khanqah* of Barqūq (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 Barqūq. 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

⁹⁰ L.A. Mayer, *Saracenic Heraldry. A Survey* (Oxford, 1932), p. 90, pl. XXXVi.

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 *madrassa* 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),⁹² 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 shākilatihi*, XVII:84). In view of the similarities between this grille and the radial *qamariyya* above the *mihrab* in the mausoleum adjoining the mosque of Aṣḥām al-Silāḥdār (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.⁹³ 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

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 Barqūq (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 Mamluk period. The border is typical of that found on Damascene *qamariyyat* from the Ayyubid 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-Ustādār/ Jāmi` 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 Barqūq, 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 *qamariyya* 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 Mamluk *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 tracery in the form of floral motifs. A small medallion appears at each of the four corners, a detail which recalls some of the *qamariyyat* in the *Khanqah* of Barqūq.

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 Jamāl al-Dīn Yūsuf al-Ustādār, 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, *Muhammedan 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.⁹⁷ 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 Mithqāl 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-Yūsufi (fig. 43a) and Īnāl al-Yūsufi (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 Qaṣr Bashtāk (ill. 57) and the *khanqah* of Barqūq (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,⁹⁸ 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 doors⁹⁹ on Mamluk domes¹⁰⁰ and relief carvings,¹⁰¹ and, later, on Ottoman window-grilles.¹⁰² 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 Bāb Zuwāyla. 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

⁹⁷ *Exercice* (XXX, 1913), p. 31.

⁹⁸ S.L. Mostafa, *Moschee des Faraj Ibn Barquq in Kairo* (Glückstadt, 1972), p. 18, figs. 14, 26.

⁹⁹ J. Bourgoïn, *Les Arts Arabes: Architecture* (Paris, 1871), pl. 71.

¹⁰⁰ Prisse d'Avannes, *Decoration Arabe*, pls. 96-7.

¹⁰¹ Meinecke, *Mamlukischenheraldik*, pl. LXa.

¹⁰² E. Egli, *Sinan, der Baumeister Osmanische Glanzzeit* (Stuttgart, 1976), pl. 87.

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 Baṣṭāk, it rarely appears in Burjī 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. The substitution of yellow glass for white in this context may therefore indicate a vogue common to both urban centres at this date. Alternatively this use of colour may have been influenced by Damascene tastes. The lack of parallels for a similar use of yellow glass in the later *qamariyyat* of Cairo might support the latter view.

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

Three different types of *qamariyyat* were used in this mosque.¹⁰³ 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.¹⁰⁴

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

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

¹⁰⁴ For example in the mausoleum of Ṣāliḥ Najm al-Dīn al-Ayyūb (648/1250) and the tomb of Aḥmad ibn Sulāyman al-Rifā'ī (706-9/1306-10); MAE II, pls. 40a, 78a..

is composed of narrow fillets of stucco. The inscription which appears in a rectangular panel at the top of the grille reads: *ma shā' Allāh walā qūwwata 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-Hanābīlā (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 Barqūq (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 *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/fourteenth century,¹⁰⁵ 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-Hanābīlā suggest that some of the latter may have been installed in the late eighth/fourteenth or early ninth/fifteenth century. Rectangular grilles filled with roundels of colourless

¹⁰⁵ See above, pp. 115-9.

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 *Jāmi` al-Jarrāh* (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 *Jāmi` al-Tayrouzī*. Further resemblances between the window above the *mihrab* in the *Jāmi` al-Hanābīlā* and the *qamariyyat* in the *Jāmi` 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 *Jāmi` 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 *Tayrouzi* Mosque. For example, the eight-pointed stars which appear in the four corners of the window in the *Jāmi` 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 *Jāmi` 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 *Jāmi` al-Hanābīlā* should be attributed to the same date, if not the same group of craftsmen, as those in the *Jāmi` 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/fourteenth or early ninth/fifteenth 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 an 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

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 *iwān* opposite the *qibla* in the *madrasa* of *Īnāl al-Yūsufī* (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 Burjī 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* (III:19). In the adjoining cartouche to the right the words *La ilahu ila hūwa al `azīz* (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 Barqūq (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 the those in the grille above the *mihrab*. The cartouches are filled with religious formulae; the lowest on the right-hand side contains the *bismillāh*, while the inscription in the central cartouche on the same side reads *Allāh, la illāh ila alāhu*.

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 *bismillāh* appears in the windows of the *qibla* in the *madrasa* of Īnāl 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 Aṣlām al-Silāḥdār 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 north-eastern wall of the mosque (pl. 118).

5.2.22 *Madrasa* of Qādī Abū 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 Abū Bakr Muzhir al-Ansārī.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 Aṣlam 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 *khanqah* of Barqūq; *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 Burji 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 Qāyṭbāy (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.¹¹² A similar technique is used in some of the *qamariyyat* in the mausoleum attached to 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 Barqūq (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*,¹¹³ and appeared in the windows of the Tayrōūzī Mosque in the early ninth/fifteenth century (ills. 85-6), the motif enjoyed a particular popularity during the reign of Qāyṭbāy, appearing on carpets, tiles and metalwork.¹¹⁴

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

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; *Exercice* (IV, 1886), p. xxii.

¹¹³ See above, p. 118.

¹¹⁴ A.W. Newhall, *The Patronage of the Mamluk Sultan Qa'it Bay (872-901/1468-96)*, unpublished Ph.D. thesis (Harvard, 1987), p. 195. Cypresses also appear in the windows of the Maq'ad al-Ghūrī in Cairo (early tenth/sixteenth century); Garcin et al, *Palais et Maisons*, p. 247, fig. 93.

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-Ishāqī, Cairo (886/1481).

One circular *qamariyya* and five different types of rectangular *qamariyyat* which terminate in a pointed arch are used in this mosque. Groups of three *qamariyyat* are used on all the walls, except the *qibla* where two pairs of large *qamariyyat* appear on either side of the *mihrab*, above which is a circular grille (ills. 95-6, fig. 44e). This grille is very similar, but not identical to, the *qamariyya* above the *mihrab* in the *madrasa* of Abū Bakr ibn Muzhir. A single *qamariyya* appears in the window at the back of the north-western *iwān*. All the *qamariyyat* 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 *khanqah* of Barqūq.

Qamariyyat 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 *allāh la ilāhu ila hūwa*. The panel below contains a cypress (fig. 51b) of similar form to those of the *qamariyyat* in the mosque of al-Mu'ayyad (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 *qamariyyat* 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).¹¹⁵ Since there appears to have been little tradition of coloured glass windows in the Iranian world, this may reflect the influence of Mamluk *qamariyyat*. If so, then it seems likely that the grille in the mosque of al-Mu'ayyad should be dated to the completion of the mosque in 826/1422, that is, to a period before the miniature. If this is accepted then the strong similarities between this window and the remade *qamariyyat* in the *madrasa* of Abū Bakr Muzhir and the mosque of Qajmās al-Ishāqī suggest that at least some of the latter were modelled on the windows in the mosque of al-Mu'ayyad and may bear little relation to the *qamariyyat* of the late ninth/fifteenth century. This is, however, unlikely since it will be shown shortly that the remains of one of the original *qamariyyat* from the mosque of Qajmās al-Ishāqī 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 *qamariyyat* in the mosque of al-Mu'ayyad 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, Topkapi 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 Burjī Mamluk period.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 *madrassa* 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 Gānī 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 *madrassas* of Ilgay al-Yūsufī and Īnāl al-Yūsufī. 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 Barqūq (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 *madrassa* 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

¹¹⁶ For a discussion of the relationship between Egyptian and Iranian windows see below, pp 178-80.

buildings.¹¹⁷ 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 Qajmās al-Ishāqī is on display in the Museum of Islamic Art in Cairo (ill. 105).¹¹⁸ 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 Qāyṭbāy (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 Qajmās al-Ishāqī 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 Qajmās al-Ishāqī.¹¹⁹ 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*.¹²⁰ 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 Qajmās al-Ishāqī, it may be that a greater range of designs was also used in the original *qamariyyat* in the *madrasa* of Abū Bakr ibn Muzhir.

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* (XXXI, 1914), p. 12.

¹¹⁸ Inventory Number 2308, 1.90 x 1.36m.

¹¹⁹ M. Meinecke, *Die Mamlukische Architektur in Ägypten und Syria (648/1250 bis 923/1517)* [Glückstadt, 1992], Volume II, No. 116, p. 418.

¹²⁰ *Ibid.*, No. 112, p. 417.

5.2.24 *Madrasa al-Ashrāfiyyā*, Jerusalem (after 887/1482).

An anonymous text mentions the existence of *qamariyyat* 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 *qamariyyat* of the Qaşr 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 *qamariyyat* 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 *qamariyyat*.¹²⁸

¹²¹ *Wa 'ulwuhā qamariyyātun min al-zujāji al-'afranjiyyi fī ghāyati al-bahjati w'al-itqāni*; van Berchem, *MCA: Deuxième Partie, Syrie du Sud I* (Cairo, 1922), p. 369.

¹²² See above, p. 120.

¹²³ See below, pp. 177-8.

¹²⁴ Bourgoyne, *Mamluk Jerusalem*, p. 95.

¹²⁵ See below, p. 173.

¹²⁶ Quoted in Newhall, *Patronage*, p. 241.

¹²⁷ *Ibid.*, p. 69.

¹²⁸ See below, pp. 164-5.

5.2.26 Miscellaneous.

(i). Two octagonal *qamariyyat* of the Mamluk period from a dome near the Mausoleum of Imām al-Shāfi'ī, now destroyed, are preserved in the MIA (ill. 59).¹²⁹ They are filled with red and colourless glass held in simple geometric tracery.

(ii). Mausoleum of Shāykh Ḥamad al-Zarkāshī, Aleppo: Sauvaget reported that this small Mamluk mausoleum contained traces of coloured glass windows in its cupola.¹³⁰

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.¹³¹ The tracery is usually slanted to channel the light downwards and to render the details of the design more legible from ground level.¹³² 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.¹³³

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 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.

¹³⁰ J. Sauvaget, Inventaire des monuments Musulmans de la ville d'Alep, *Revue des Études Islamiques* (V, 1, 1931), p. 100.

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,¹³⁴ and similar methods appear to have been used in the manufacture of Marīnid *shamsiyyat* by the middle of the same century.¹³⁵ The *qamariyyat* in the *khanqah* of Barqūq (786-8/1384-6) were produced using the new method, which had also been used slightly earlier in the *madrasa* of Ilgay al-Yūsufī (775/1373).

This technique may have developed quite naturally from the methods used in the production of earlier *qamariyyat*. During the manufacture of *qamariyyat* 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 *qamariyyat* 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".¹³⁶ 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).¹³⁷ 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 Chiaramonti, Palermo, (eighth/fourteenth century) [pl. 66] was held in place by a thin layer of stucco applied to the reverse of the grille.¹³⁸ The "sandwich" technique was also used in the manufacture of medieval Sicilian *qamariyyat*, 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 *qamariyyat* came from the need to provide *qamariyyat* 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 *qamariyyat* 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.

¹³⁸ Salinas, *Trafore*, pp. 502-4.

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 Abū Bakr ibn Muzhir (fig. 49a) and Type IV in the mosque of Qajmās al-Iṣḥāqī (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 Māridānī Mosque and the *khanqah* of Barqūq.

¹⁴¹ In the mausoleum of Aṣlām al-Silāḥdār.

¹⁴² K. Erdmann, *Kairener Teppiche. Teil II: Mamluken- und Osmanenteppiche*, *Ars Islamica* (VII, 1940), figs. 3, 5, 7, 10-12; E. Atil, *Renaissance of Islam: Art of the Mamluks* (Washington, 1981), Nos. 125-7. The cypresses which occur on No. 125 are paralleled in kind, if not precise form, in some of the *qamariyyat* in the *madrasa* of Abū Bakr ibn Muzhir and the mosque of Qajmās al-Iṣḥāqī. See also D. Jones & G. Michell (eds.), *The Arts of Islam: Hayward Gallery 8 April-4 July 1976* (London, 1976), No. 35; M.S. Dimand, *Oriental Rugs* (New York, 1973), No. 97, p. 229, fig. 181.

¹⁴³ Above the *mihrab* 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 ʿIyas informs us that, when the Provost of the Markets, Zayn al-Dīn Barakat ibn Mūsa, 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.

¹⁴⁶ G. Wiet (tr.), *Chronique d'Ibn ʿIyas* (Paris, 1956), p. 257.

¹⁴⁷ W. Denny, *Saff and Sejjaddeh*, p. 98.

¹⁴⁸ S.V.R. Camann, Cosmic Symbolism on Carpets from the Sanguszko Group, *Studies in the Art and Literature of the Near East in Honor of Richard Ettinghausen* (New York, 1974), pp. 197-8; idem., Religious Symbolism in Persian Art, *History of Religions* (XV, 1975-6), p. 197; idem., The Interplay of Art, Literature and Religion in Safavid Symbolism, *JRAS* (1978), p. 126.

¹⁴⁹ Bouras, *Portes et Fenêtres*, pp. 171-2, 236. See also U. Monneret de Villard, *Le transenne di S. Aspreno e le stoffe alessandrine, Aegyptus* (II, 1923), pp. 64-71.

¹⁵⁰ K. Erdmann, Arabische Schriftzeichen als ornamente in der abendländischen Kunst des Mittelalters, *Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse* (IX, 1953), figs. 9, 39-42, 100-2, 110-3, 119.

¹⁵¹ L. Golombek, The Draped Universe of Islam, *Content and Context of Visual Art in the Islamic World* [ed. P.P. Soucek] (London/Pennsylvania, 1988), pp. 25-49.

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 the *madrasa* of Jamāl al-Dīn Yūsuf al-Ustādār (811/1408) [fig. 47c] also occur on the metal revetements of Mamluk doors¹⁵² and on metal lanterns.¹⁵³ The other form of *shamsa*, the twelve-pointed star, appears in the *qamariyyat* in the *madrasa* of Inal al-Yūsufi (795/1392) [fig. 47a], in the *madrasa* of Jamāl al-Dīn al-Ustādār (fig. 47c) and in the mosque of Qajmās al-Ishāqī (886/1481) [fig. 51a]. A similar *shamsa* appears on a wooden window shutter of the early ninth/fifteenth century from Konya (pl. 122).¹⁵⁴

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 *mihrahs* in the *Khanqah* of Barqūq appeared in the margins of some earlier Qur'ans (ill. 108).¹⁵⁵ Similarly the use of polylobed cartouches to frame inscriptions on some of the grilles in the Mosque of Qajmās al-Ishāqī may derive from book illumination, for similar devices are used to frame *sura* headings on eighth/fourteenth-century Qur'ans from Cairo.¹⁵⁶ 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 Bashtāk (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.¹⁵⁷ 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 nor 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.

¹⁵³ Jones & Michell, *Arts of Islam*, No. 227.

¹⁵⁴ Atil, *Anatolian Civilisations III*, p. 92, D.174.

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-, 285-6/2, 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.¹⁵⁸ Similar pierced backgrounds are found on Mamluk metal lanterns from the eighth/fourteenth century onwards (pls. 124-5).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 Aṣṣalām al-Silāḥdār (ill. 64, fig. 40e) and the tomb adjacent to the *madrasa* of Īnāl al-Yūsufī (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].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.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),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-Ishāqī (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-Ustādār (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.¹⁶³ It may be this association which led to such blazons appearing in "sun-like" or "moon-like" conduits for light. On the Topkapı mirror the blazon functions as a symbol of the sun around which

¹⁵⁸ See above, pp. 147-8.

¹⁵⁹ G. Wiet, *Catalogue Générale du Musée Arabe du Caire. Objets en Cuivre* (Cairo 1932, reprint 1984), Nos. 239-40, 242, 383, 638, 1482, 4082-4.

¹⁶⁰ J.W. Allan, *Islamic Metalwork, the Nuhad as-Said Collection* (London, 1982), No. 15, p. 86.

¹⁶¹ Sotheby's, *Islamic Works of Art*, p. 147.

¹⁶² M. Aga-Oglu, *Ein Prachtspiegel im Topkapu Sarayi Museum*, *Pantheon* (VI, 1930), pp. 454-7.

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 *mihhrabs* 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 *mihirabs* 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 ^ʿAbbasid *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 Burjī 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 decorative 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 led 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* (XXV, 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 Aṣḥām al-Silāḥdār in Cairo; those in the *madrasa* of Abū Bakr ibn Muzhir and Qajmās al-Ishāqī, also in Cairo; and those in the Jami' al-Tayrōuzi and certain of the windows in the Jāmi' al-Hanābilā 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.¹⁶⁵ Occasionally one finds the interior of window-openings filled with *claustra*.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.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.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.

¹⁶⁵ For example in the complex of Qalā'ūn; *MAE* II, pls. 64-5, 68.

¹⁶⁶ In the Mosque of Qusūn for example (720-31/1320-30); Briggs, *Muhammedan Architecture*, fig. 136.

¹⁶⁷ Amin & Ibrahim, *Architectural Terms*, pp. 90-1.

¹⁶⁸ In the mausoleum adjoining the mosque of Aṣḥām al-Silḥādār 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 Nishapūr (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/fourteenth 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.² 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.³ 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:⁴ The most common type of window-grille consists of glass roundels arranged in vertical or, more rarely, horizontal rows (ills. 109-12, fig. 55).⁵ The type is similar to the bull's-eye *transenna* used in Byzantine architecture.⁶ 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

¹ R. Hillenbrand, *Imperial Images in Persian Painting* (Edinburgh, 1977), p. 50; Dannerbeck, *Representations*, pp. 11-40; B. O'Kane, *Timurid stucco decoration*, *Annales Islamologiques* (XX, 1984), pp. 82-3; L. Golombek & D. Wilber, *The Timurid Architecture of Iran and Turfan* (Princeton, 1988), p. 135.

² A. Serajuddin, *Architectural Representations in Persian Miniature Painting During the Timurid and Safavid Periods*, unpublished Ph.D. thesis (University College London, 1968), pp. 133-4.

³ Dannerbeck, *Representations*, pp. 74-8.

⁴ Humay at the Court of Humayūn, *Diwān* of Khwājū Kirmānī, Baghdad (799/1396), B. Gray, *Persian Painting from Miniatures of the XII-XVI Centuries* (London, 1948); Tahmīna comes to Rustam's chamber, unknown *Shāhnāma* manuscript (early ninth/fifteenth century), M.S. Simpson, *Arab and Persian Painting in the Fogg Art Museum* (Cambridge Mass., 1980), No. 8; Naurus and Gul in their chamber, Shiraz (823/1420), V. Enderlein, *Die Miniaturen der Berliner Baisongur-Handschrift* (Berlin, 1991), No. 32; *Gūlistān* of Sa'ādi, scribe Ja'fur Baysunghur (830/1426), fols. 16v, 36, Chester Beatty Library; The King of the East before two ladies, *Khavar Nāma*, probably Shiraz (881/1477), Hillenbrand, *Imperial Images*, No. 101; Giv brings Gurgan before Kay Khusrau, *Shāhnāma* made for Sultan 'Alī Mirza, Gilan (899/1493-4), G.D. Lowry & S. Nemazee, *A Jeweler's Eye: Islamic Arts of the Book from the Vever Collection* (Washington, 1988), No. 17; Iskander in a magic garden, *Khamsa* of Nizāmī, Tabriz (945-9/1539-43), B.W. Robinson, *Persian Miniature Painting from Collections in the British Isles* (London, 1967), No. 39.

⁵ Windows of this type with horizontal rows of roundels appear in a *Shāhnāma* manuscript of the late eighth/fourteenth century; N. Atasoy, *Four Istanbul albums and some fragments from fourteenth-century Shah-Namehs*, *Ars Orientalis* (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 *Diwān* 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-Tāynabīyā 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 *Diwān* 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.

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 wa Dimna*, Tabriz (1360-74/762-776), Gray, *Persian Painting*, p. 38; *Kalīla wa Dimna*, Herat (833/1430), Serajuddin, *Architectural Representations*, pl. 92; Tahmīna's visit to Rustam's chamber, *Shāhnāma*, 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. Yohannan (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:¹¹ 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:¹² 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:¹³ 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),¹⁴ 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 asymmetrical floral ornament and flowering trees.

Type VII:¹⁵ 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

¹¹ Tahmīna's visit to Rustam's chamber, *Shāhnāma*, Herat School (c. 844/1440), *SPA*, pl. 875; two early ninth/fifteenth-century *Kalīla wa Dimna* manuscripts of the Herat School, one in Teheran (Gulistan Museum), one in Topkapi Palace Museum; Serajuddin, *Architectural Representations*, pls. 91-2.

¹² Bahram Gur in the Hall of Seven Images, Anthology of Iskandar Sultan, Shiraz (813/1410), Gray, *Persian Painting*, p. 75; Humay before the picture of Humayūn, Berlin Baysunghur Manuscript, Enderlein, *Miniaturen*, pl. 23; 'Ali saves a Christian monk, Anthology of Iskandar Sultan, Shiraz 813-4/1410-1, Jones & Michell, Arts Council, *Arts of Islam*, No. 550.

¹³ The Celebration of 'Id, Collected Works of Hafiz, Tabriz, c. 933-4/1526-7, Welch, *Wonders of the Age*, No. 39; The assassination of Khusrau Parviz, Shah Tahmasp's *Shāhnāma*, Tabriz, c. 942/1535, Welch, *Wonders of the Age*, No. 43; Scandal in a mosque, *Diwan* of Hafiz, Shiraz (c. 942/1535), S. Cary Welch, *Royal Persian Manuscripts* (London, 1976), No. 65; The court of Sultan Mahmūd, *Shāhnāma*, Shiraz (949/1542), B.W. Robinson, *Persian Paintings in the John Rylands Library* (London, 1980), No. 553; Bahram Gur in the black pavilion, *Haft Paikar*, Shiraz (early tenth/sixteenth century), G. Dunham Guest, *Shiraz Painting in the Sixteenth Century* (Washington, 1949), pl. 13. See also Dannerbeck, *Representations*, pp. 55-8.

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:¹⁶ 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:¹⁷ 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.¹⁸ 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

¹⁵ Shirīn giving an audience to Khusrau, *Khamsa* of Nizāmī, Shiraz (955/1548), Dunham Guest, *Shiraz Painting*, pl. 7; Why is that *sufi* in the *hammam*?, *Haft Awrang*, Mashhad (964-73/1556-65), Welch, *Persian Manuscripts*, pl. 38. See also Dannerbeck, *Representations*, pp. 59-61.

¹⁶ The wedding feast of Khusrau and Shirīn, *Khusrau-u Shirīn*, Tabriz (c. 937/1530), Robinson, *Rylands*, No. 553.

¹⁷ The suicide of Shirīn, *Khusrau-u Shirīn*, Tabriz (c. 937/1530), Robinson, *Rylands*, No. 554; Zulāyka and her companions, *Yusuf ve Zulāyka*, Shiraz (954/1547), Dunham Guest, *Shiraz Painting*, pls. 35a-b; Bahram Gur in the blue pavilion, *Khamsa* of Nizami, 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.¹⁹ What seems to be a fox or some other quadruped appears in one of the windows depicted in the Baghdad *Diwān* of Khwājū Kirmānī (ill. 109). It crouches on four legs against a background in which an asymmetrical flowering tree appears, set beneath a polylobed arch. Other than a passing reference to window-tracery featuring animals in fifth/eleventh-century Spain,²⁰ the paintings provide the earliest evidence for the appearance of figurative motifs in Islamic window-tracery. A peacock (pl. 133)²¹ and a winged figure (pl. 134)²² 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 Baghdad 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 Rajasthan, 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).²³ Although they are later in date²⁴ 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,

¹⁹ Ibid., p. 54.

²⁰ See p. 100 above.

²¹ Faridun and his family, *Shāhnāma*, Tabriz (c. 999-1009/1590-1600); Robinson, *Persian Miniature Paintings*, pl. 29.

²² Iskandar is recognised by Queen Nushaba, *Khamsa*, 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 Shirīn 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 Ghīyathīyā *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, Chīhīl 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.

²⁶ L. Golombek & D. Wilber, *The Timurid Architecture of Iran and Turan* (Princeton, 1988), pp. 135, 242; G. Michell (ed.), *Architecture of the Islamic World* (London, 1978), p. 262.

²⁷ Golombek & Wilber, *Timurid Architecture*, pp. 135, 323.

²⁸ *Ibid.*, pp., 135, 293.

²⁹ *Ibid.*, pp. 135, 269; G.A. Pugachenkova, Two Timurid Mausoleums in Samarkand, *Ars Orientalis* (V, 1963), p. 186.

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 Imām 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 Imām.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 Imām. 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

³² R. Orazi, *Wooden Gratings in Safavid Architecture - Studies and Restorations at Esfahan* (Rome, 1976), figs. 115-7, pl. 3; K. Wurfel, *Isfahan, nisf-i-dschahan das ist die Hälfte der Welte* (Zurich, 1974), p. 108.

³³ The motifs may also have had a paradisaical significance, for the dedicatory inscription of the Darb-i Imām 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.

³⁷ Cammann, *Religious Symbolism*, pp. 199, 201.

recently for re-dating the grille to the tenth/sixteenth or eleventh/seventeenth century.³⁸ 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 *qamariyyat* only in the last quarter of the ninth/fifteenth century,³⁹ and in the windows depicted in Iranian miniatures in the first half of the tenth/sixteenth.⁴⁰

The colours of the glass which fills the the Darb-i Imām grille are red, yellow, turquoise-blue, purple, orange, green, and white. Like the later Mamluk *qamariyyat* 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 'Alī Qāpū in Isfahan "...closed by stucco grilles set partly with coloured glass".⁴¹ Thevenot, who also travelled to Iran in the eleventh/seventeenth century, mentions "painted windows" in the Little Pavilion in Isfahan.⁴² Thomas Herbert, who travelled in Persia between 1037/1627 and 1039/1629, mentions windows of painted glass in the home of a Shirazi nobleman.⁴³ 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."⁴⁴

³⁸ Dannerbeck, *Representations*, pp. 64-9.

³⁹ See above, p. 148.

⁴⁰ For example, behind the arabesque depicted in the Assassination of Khusrau Parviz, Shah Tahmasp's *Shāhnāma*, Tabriz, c. 942/1535: Welch, *Wonders of the Age*, No. 39. The figure (60b) has been drawn from an enlarged detail of this painting as it appears in Dannerbeck, *Representations*, pl. 16.

⁴¹ Hoag, *Islamic Architecture*, p. 350.

⁴² M. de Thevenot, *The Travels of Monsieur de Thevenot into the Levant* (Westmead, 1971), II, p. 81.

⁴³ T. Herbert, *Travels in Persia 1627-9* (London, 1928), p. 70.

⁴⁴ *Ibid.*, p. 55. It is worthy of note that these mentions of coloured glass windows occur amidst descriptions of other forms of decoration such as marble, faience tiles, carpets, and painting.

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.⁴⁵ 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 *qamariyyat* were usually set in a wooden frame. Some of the *qamariyyat* represented in miniatures of the tenth/sixteenth and eleventh/seventeenth centuries may make use of wooden tracery,⁴⁷ 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

⁴⁵ P. Raphael du Mans, *Estat de la Perse en 1660* (Paris, 1890, reprint, Farnborough, 1969), p. 29. Once again these windows are in a palace.

⁴⁶ Sir John Chardin (ed. Sir Percy Sykes), *Travels in Persia* (New York, 1972), p. 13; cited in *SPA*, p. 1363.

⁴⁷ Dannerbeck, *Representations*, pp. 60-1.

⁴⁸ S. Cantacuzino and K. Browne, Isfahan, *Architectural Review* (CLIX, 1976), figs. 14, 16; Orazi, *Wooden Gratings*, figs. 223-4.

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 *claustra* 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. Aslanapa, *Anadoluda Türk Çini Ve Keramik Sanatı* (Istanbul, 1965), fig. 22; E. Arseven, *Türk Sanatı* (Istanbul, 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 *qamariyyat* 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.⁵⁸ A painted border of tassels often appears immediately around the window-openings in which *qamariyyat* 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 tasselled fringe. In view of the relationship between Mamluk carpets and *qamariyyat* it seems likely that Timurid windows were also influenced by the "textile mentality" mentioned above.⁵⁹ The indications from Iran, like those from elsewhere in the Islamic world, are that the colours and forms of the *qamariyyat* 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".⁶⁰

The types of Iranian buildings in which coloured glass windows appeared were similar to those in which *qamariyyat* 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 *Tārīkh-i Yazd* mentions windows of coloured glass in two interconnected painted belvederes erected above a garden kiosk.⁶¹ 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 *qamariyyat* also appeared in Iranian mosques is indicated by a miniature from the *Diwān* 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 "Panels of Glass for more solemn Light, are fetched from Venice, Tinctured with diverse Colours".⁶² 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 *qamariyyat* in mausolea finds support from a depiction of

⁵⁷ See above, pp. 124-5.

⁵⁸ Lentz, *Dynastic Imagery*, p. 257, fig. 6.

⁵⁹ Above, pp. 148-9.

⁶⁰ Pugachenkova, *Samarkand*, p. 186.

⁶¹ O'Kane, *Timurid stucco decoration*, p. 82, n.4. See also Golombek & Wilber, *Timurid Architecture*, p. 180.

⁶² J. Fryer, *A New Account of East India and Persia, Being Nine Years Travel, 1672-1681* (reprint, Lichtenstein, 1967), II, p. 217. For a discussion of the export of Venetian window-glass to Safavid Iran see R. Charleston, *Glass in Persia in the Safavid Period and Later*, *Art and Archaeology Research Papers* (V, 1974), p. 13, and below, pp. 177-8.

Bahmān in the mausoleum of Garhasp, Nariman, Sam, and Rustam, in a copy of the *Bahmān-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 played. 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 Khaḥl (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.

⁶³ I. Stchoukine, *Les Peintures des Manuscrits Timurides* (Paris, 1954), pl. XVI.

⁶⁴ S. Chmelnizkij, *The Mausoleum of Muhammad Bosharo*, *Muqarnas* (VI, 1990), p. 30.

⁶⁵ Several elements from bronze window-grilles of the pre-Safavid period have survived; SPA, p. 1059, pls. 836a-b; G. Fehervari, *Islamic Metalwork of the 8th to the 15th Century in the Keir Collection* (Faber, 1976), No. 132, pp. 110-111; J.W. Allan, *Metalwork of the Islamic World, The Aron Collection* (London, 1986), No. 34. Similar features are mentioned in a contemporary text: D.P. Little, *The Founding of Sultaniyya: a Mamluk Version*, *Iran* (XVI, 1976), p. 174.

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 Chāhīl Sutūn, `Ali Qapū, and Hasht Behesht in Isfahan. For a depiction of such exterior *claustra* see a painting of Zal's ascension, *Shāhnāma*, Shiraz (998/1589); Dunham-Guest, *Shiraz Painting*, pl. 50a.

⁶⁷ See, for example, Nushirvan greeting the Khaqan's daughter, Shah Tahmasp's *Shāhnāma*, Tabriz, c. 937/1530; Welch, *Wonders of the Age*, No. 34.

⁶⁸ The fire ordeal of Siyavush, *Shāhnāma*, 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; Humay 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 Kobadabad and Konya,⁷⁰ 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.⁷¹ 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.⁷² They are known in Turkish as *revzenimenkus* (decorated windows).⁷³ 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.⁷⁴ 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 Süleymaniye Mosque in Istanbul. The window-grilles are thought to have been installed during the last phase of construction of the mosque in 965-6/1557-8.⁷⁵ The windows presently *in situ* are either original, or have been restored according to their original appearance.⁷⁶ The windows are grouped along the *qibla* of the mosque (ill.

⁷⁰ See above, pp. 74-5.

⁷¹ See above pp. 36-41.

⁷² The evidence is summarised in O. Bakirer, *Ottoman Glass Manufacture and Venetian Impacts (sic)*, *Europa und die Kunst des Islam 15. bis. 18. Jahrhundert, Akten des XXV Internationalen Kongresses für Kunst geschichte, Wien 4-10 September 1983* (Vienna/ Cologne/ Graz, 1985), p. 149.

⁷³ C.E. Arseven, *Les Arts Decoratifs Turcs* (Istanbul, 1952), p. 182; Arseven, *Türk Sanatı*, p. 200.

⁷⁴ Arseven, *Arts*, fig. 464. Wood or metal grilles could be used to close either these rectangular openings, or the tympana above; Arseven, *Türk Sanatı*, p. 197. For a discussion of such grilles see S. Eyice, *Grilles and Lattice Work in Turkish Art*, *Sanat Dunyamiz* (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.⁷⁷ 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.⁷⁸ Some of the latter windows feature arabesques similar to those which appear in the windows of the Süleymaniye.⁷⁹ 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 ilāha illa-llāh* (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."⁸⁰

Quotations from the Sura of Light also appear in the Süleymaniye windows.⁸¹

The arrangement of polylobed medallions in the oculi from the Süleymaniye recalls the design of earlier circular *qamariyyat*, for example, those from the Māridānīya 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 Gānī 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 Uskūdar.⁸²

The central panels of many of the Süleymaniye window-grilles also contain floral arabesques (ill. 121). Like the *qamariyya* from the Darb-i Imām, the large window above the *mihrab* in the Süleymaniye is divided into a number of compartments of different forms and sizes (ill. 120).⁸³

⁷⁶ Ibid., p. 151. Arseven publishes a fragment of a *qamariyya* from the Süleymaniye: 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.

⁷⁷ Bakirer, *Ottoman Glass*, p. 150. G. Goodwin, *Islamic Architecture: Ottoman Turkey* (London, 1977), pl. 51.

⁷⁸ M. de Vogué, *Le Temple de Jérusalem* (Paris, 1864), pp. 96-7, pls., XXIV-XXVI.

⁷⁹ See above, pp. 120-2.

⁸⁰ H. St Stephan, Evliya Tshlebi's travels in Palestine VI, *QDAP* (IX, 1939-42), p. 89.

⁸¹ See below, pp. 320-1.

⁸² Eyice, *Verrerie*, p. 180, fig. 6.

⁸³ G. Goodwin, *A History of Ottoman Architecture* (London, 1971), fig. 224.

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 Türbe 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 Süleymaniye 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 Süleymaniye are composed of crown glass panes set in lead tracery.⁸⁴

We are fortunate in knowing the name of the craftsman responsible for the *qamariyyat*. Whatever his vices, Sarhoş İbrahim (Ibrahim the Drunkard)⁸⁵ 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 *okkas* of white and coloured glass.⁸⁶ The colours of the latter glass were yellow, green, blue, and red,⁸⁷ the same colours which appear in the *qamariyyat* of the mosque today. Whether this glass was imported or manufactured locally is unknown,⁸⁸ 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 Süleymaniye are depicted in the *Surnāme-i Humayūn* (ill. 122),⁸⁹ and fill the windows in the *haram* of Topkapı. These are of two types. The first, found in the Şehzadeler 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 Süleymaniye.⁹⁰ The colours of

⁸⁴ Ibid., p. 237.

⁸⁵ L.A. Mayer, *Islamic Glassmakers and their Works*, *Israel Exploration Journal* (IV, 1954), p. 265.

⁸⁶ J.M. Rogers, *The Furniture and Decoration of Süleymaniye*, *International Journal of Middle Eastern Studies* (XIV, 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 Bakırer, *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 Bakırer [Ottoman Glass, p. 151] takes the construction notebooks of the mosque as indicating that crown glass was manufactured 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 Bakırer, *Ottoman Glass*, p. 150, fig. 74. The use of such window-grilles in the Topkapı *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).⁹¹ 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 Kasri) 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).⁹² These have been dated by Bakirer to the completion of the mosque in 1071/1660.⁹³ 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).⁹⁴ 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 Imām. 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.⁹⁵ 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 *qamariyyat* from the Umayyad period onwards.

Similar *qamariyya* appeared simultaneously in the provinces of the Empire. *Qamariyyat* featuring flower vases were used in Cairo in the Ottoman period. Window-grilles of the Ottoman period from Crete feature cypresses and flower vases.⁹⁶ Rectangular *qamariyyat* in the Madrasa al-

⁹¹ Bakirer, *Ottoman glass*, p. 150, fig. 75.

⁹² Arseven, *Arts Decoratifs*, figs. 451, 461, 466.

⁹³ Bakirer, *Ottoman Glass*, p. 150.

⁹⁴ Arseven, *Arts Decoratifs*, fig. 461.

⁹⁵ *Ibid.*, fig. 461.

⁹⁶ 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 *qamariyyat* are a product of Byzantine art cannot, however, be accepted.

Khatīnīyyā 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 *Surnāme-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 (*yuvārlak*), oval (*yumūrta*), 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 *Süleymanname*, *Sehname Selim Han*, *Zübdet-üt-Tevarih*. For drawings of these see O. Bakirer, Anadolu mimarisinde pencere çami kullanimina 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 978/1570.¹⁰⁵ 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 Ashrafiyyā *Madrassa* in Jerusalem.¹⁰⁶ 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.¹⁰⁷ 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) [pl. 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).¹⁰⁸ 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.¹⁰⁹ 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.¹¹⁰ The "Baroque" appearance of these late grilles, and the lack of parallels in the Islamic world indicates that they reflect the influence of

¹⁰⁴ For example in the *Süleymānnāme*; Bakirer, *Anadolu mimarisinde*, figs. 86-7. One of these windows has star-shaped apertures pierced in the spaces between roundels.

¹⁰⁵ A. Welch & S. Cary Welch, *Arts of the Islamic Book: the Collection of Prince Sadruddin Aga Khan* (London, 1982), No. 6; Bakirer, *Anadolu mimarisinde*, fig. 88.

¹⁰⁶ See above, p. 145.

¹⁰⁷ S. Petricioli, *The Gnaliç Wreck*, *Journal of Glass Studies* (XV, 1975), p. 90; Bakirer, *Ottoman Glass*, p. 151.

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*, *Istanbulur 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 Qājār Iran.¹¹¹

A miniature in the *Surnāme-i Humayūn* 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).¹¹² 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].¹¹³ 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.¹¹⁴ The use of large areas of clear glass appears to reflect the influence of the "Baroque" windows, and supports the later date.¹¹⁵

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.

¹¹³ A. Gabriel, *Les Monuments Turcs d'Anatolie*, II (Paris, 1934), p. 28, fig. 13.

¹¹⁴ Goodwin, *Ottoman Architecture*, p. 81.

¹¹⁵ Gabriel [*Monuments*, p. 28] mentions the use of "vitres 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.¹¹⁶ The tracery on the face of the grille took the form of raised moulded fillets, bevelled to produce a three-dimensional effect.¹¹⁷ This is similar to the technique used in the manufacture of Ayyubid *qamariyyat*.¹¹⁸ 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)¹¹⁹ on the windows depicted in Safavid miniatures (fig. 60b),¹²⁰ and on the surviving window from the Darb-i Imām (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".¹²¹

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.¹²² A similar device is used in Cairene *qamariyyat* in the Burjī Mamluk period.¹²³ Occasionally metal rods are used at the back of the grilles to reinforce the tracery.¹²⁴ The glass roundels which fill the exterior of the windows in the Süleymaniye Mosque are set in lead tracery.¹²⁵ 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.¹²⁶

¹¹⁶ P. Lecompte, *Les Arts et Métiers de la Turquie et de l'Orient* (Paris, 1902), pp. 78-9; Arseven, *Arts Decoratifs*, p. 182, fig. 455.

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 B. 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,¹²⁷ and continued during the Ottoman period.¹²⁸

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.¹²⁹ The glass was expensive, and broken glass valuable, the craftsmen were thus obliged "to adopt their technique to the size of the bits available".¹³⁰ 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*.¹³¹ Later however, when window-glass was manufactured in Istanbul,¹³² 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,¹³³ textiles, carpets, and book-covers¹³⁴ 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.¹³⁵

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 Sanatı*, 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 *qamariyyat* 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 *qamariyyat* is the testimony of al-'Umari, who mentions the use of Cypriot glass (*al-zujāji al-qubrusī*) in the windows of the Qasr Ablaq in Cairo (713/1313).¹³⁶ The practice appears to have continued subsequently, for "Frankish" glass (*al-zujāji al-'afrañjiyyi*) was used in the windows of the Ashrafiyya *Madrasa* in Jerusalem (after 887/1482).¹³⁷ In view of the close trade relations between Venice and the Mamluk kingdom,¹³⁸ 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.¹³⁹

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.¹⁴⁰ 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.¹⁴¹ 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 Süleymaniye.¹⁴²

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.¹⁴³ 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.¹⁴⁴ As late as the 1340's/1920's Venetian

¹³⁶ See above, p. 120.

¹³⁷ See above, p. 145.

¹³⁸ J. Wansbrough, Venice and Florence in the Mamluk commercial privileges, *BSOAS* (XXVIII, 1965), pp. 483-523.

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/fourteenth 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

¹⁴⁵ C. Rathjens, Sanaa: eine Südarabische Statlandschaft, *Zeitschrift der Gesellschaft für Erdkunde zu Berlin* (1929), p. 346. The import of Venetian glass to the region may have begun as early as the tenth/sixteenth century; A. Lane & R.B. Serjeant, Pottery and glass from the Aden littoral, *JRAS* (3-4, 1948), pp. 119-20.

¹⁴⁶ S. & M. Hirschi, *L'Architecture*, p. 298.

¹⁴⁷ R. Lewcock & Z. Freeth, *Traditional architecture in Kuwait and the Northern Gulf*, (London, 1978), p. 12.

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 miniature⁵ 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-Ṣalīḥ Ṭalāṭī 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,¹⁵³ 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.¹⁵⁴ 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.¹⁵⁵ 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 Aqsa Mosque in Jerusalem (pl. 64).¹⁵⁶ 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 *Hünernāme* (990/1582).¹⁵⁷ 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 Qajmās al-Ishāqī, 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 *khanqah-madrassa* of Barqūq 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 Qajmās 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 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 Gānī 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 Māridānī Mosque and the mausoleum of Aṣḡām al-Silāḡdār are exceptions; above, pp. 123-7.

¹⁶⁰ The occurrence of windows of this type in Iranian miniatures of this date is noted by Bakirer (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 obsolete in other parts of the Islamic world.

It may be that the dual origins of Turkish *rezveni-menkuş* are acknowledged in the term itself. Arseven proposed an etymology based on the Persian *rezven* (window) and the Arabic *menkuş* (decorated).¹⁶¹ According to popular legend, the two circular window-grilles in the Süleymaniye 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 *shamsiyyat* 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-Basāsiri; 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

FOREWORD TO 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 Ṣalīḥ, 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 (*arsha min zujāj*)."¹

Similarly al-Azraqī mentions a house of crystal (*dār al-quwārīr*) built at Madina by Ḥamad al-Berberī for Harūn al-Rashīd.² 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."³

¹ B.T.A. Evetts, *Churches and Monasteries of Egypt* (Oxford, 1895), p. 155; E. Pococke, *Contextio Gemmarum, sive, Eutychii Patriarchae Alexandrini Annales*, Volume II (Oxford, 1659), pp. 368-9.

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 Mūsa b. Buga, to whom it had been allocated by the Governor of the city.

³ After A.F. Mehren, *Manuel de la Cosmographie du Moyen Age* (Copenhagen, 1874), p. 260.

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 Yaḥyā 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 (*manqūsh 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 Raqqāda and the Ḥammādid palace at the Qala of the Banu Ḥammād.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*

⁴ F. Bargebuhr, *The Alhambra. A Cycle of Studies on the Eleventh Century in Moorish Spain* (Berlin, 1968), p. 144; P. de Gayongos, *The History of the Mohammedan Dynasties in Spain* (London, 1840), p. 237; R. Dozy, G. Dugat, L. Krehl & W. Wright, *Analectes sur l'histoire et le littérature des Arabes d'Espagne*, Volume I (Leiden, 1855-60), p. 347. The same ruler appears to have had a penchant for coloured glass - Ibn Bassam's account of *shamsiyyat* in his palace has been quoted above; pp. 98-100.

⁵ O. Grabar, The Islamic dome, some considerations, *Journal of the Society of Architectural Historians* (XXII, 1963), p. 196.

⁶ D. Ruggles Fairchild, The Mirador in Abbasid and Hispano-Umayyad garden typology, *Muqarnas* (VII, 1990), pp. 75-6.

⁷ Bloom, *Meaning*, p. 41.

⁸ Jairazbhoy, *Outline*, p. 120. A pavilion or palace in the latter city was known as *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.

¹⁰ G. Deverduin, *Marrakech*, Volume I (Rabat, 1959), p. 219; Ibn Fadl Allah al-'Umari, *Masālik al-Absār fī Mamālik al-Amsār*, Volume I, tr. M. Gaudfroy-Démombynes (Paris, 1927), p. 181.

were used to cover a Sasanian baldachin.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 Khaṭīma describes another glass pavilion standing in the centre of a garden pool in Granada.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)¹⁴ and resembles a wooden window-grille from the *hammam* of the palace.¹⁵ A similar pattern appears on a Nasrid stucco *claustrum* (pl. 144)¹⁶ and in the stucco ornament of the *mirador* itself.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,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.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

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.

¹² Below, p. 191.

¹³ M.J. Rubiera, *La arquitectura en la literatura árabe* (Madrid, 1988), p. 90.

¹⁴ M.J. Ghoury & O. Jones, *Plans, Elevations, Sections and Details of the Alhambra*, Volume I (London, 1842), pl. XX.

¹⁵ Now in the Museo de Arte Hispanomusulmán, Inventory Number 4660. The use of such wooden grilles in Hispano-Muslim architecture is discussed by Leopold Torres Balbás; Ajmecs, *Al-Andalus* (XII, 1947), pp. 415-27.

¹⁶ J. Bermúdez Pareja, Los restos de la casa árabe de la Placeta de Villemina en Granada, *Al-Andalus* (XII, 1947), pp. 161-4, pls. 15-6, 18.

¹⁷ Torres Balbás, *Arte Almohade*, fig. 178.

¹⁸ Although red glass was used in earlier Ḥammādid *shamsiyyat*: see above, p. 97.

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 Fernández for bringing this reference to my attention.

earlier in the Great Mosque of Tlemcen.²⁰ 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 (*ʿafaq al-zujāj*) 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-Andalūs 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 Dhū'l-Nūnid 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 Cardénas, *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 Árabes en los muros y fuentes de la Alhambra* (Madrid, 1985), pp. 76-9. This is based on a variant reading of *afa* for *ʿafaq* 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 for Ihsan ʿAbbās* (Beirut, 1981), pp. 133-4.

²⁴ After an early tenth/sixteenth-century description cited, with others, in G. Necipoğlu, *Architecture, Ceremonial and Power. The Topkapi Palace in the Fifteenth and Sixteenth Centuries* (London, 1991), p. 192.

²⁵ *Ibid.*, pp. 193-4.

its walls (ill. 130), which look "like water and dripping foam".²⁶ The practice of channelling 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-Tavārīkh* (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 permit the passage of light through it, one must also consider the possibility that they were related to the *qamariyyat* and *shamsiyyat* 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 comes 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 Dhū'l-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.

²⁷ P. Pal (ed.), *Islamic Art: The Nasli M. Heeramaneck Collection* (Los Angeles, 1973), fig. 190; S.R. Canby, *Depictions of Buddha Sakyamuni in the Jami' al-Tavarikh and the Majma' al-Tavarikh*, *Muqarnas* (X, 1993), pp. 305, 307, fig. 8.

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).³⁵ 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.³⁶ 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.³⁷ In the Ottoman period, one even finds garden pavilions depicted in the coloured glass of *qamariyyat*.³⁸ 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.³⁹ 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,⁴⁰ 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*.⁴¹ The inscriptions in the Mirador de la Daraxa make clear that the room was a royal bower from which Muḥammad V contemplated his kingdom below.⁴² The Mirador is the eye of the palace and the Sultan its pupil, contemplating his capital from its symbolic centre.⁴³ Similar ideas are encountered in the pavilions of Topkapi,⁴⁴ and in the citadel of Cairo.⁴⁵

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 Balbás, *Bóvedas caladas hispanomusulmánas*.

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-Manṣūr 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"⁴⁶ related to the ceremonial gridded window from behind which `Abbasid, Fatimid and Mamluk rulers revealed themselves to their subjects.⁴⁷ 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-Basāsīrī took the metal grille from the *shūbbak* 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.⁴⁸

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.⁴⁹ 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.⁵⁰ 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.⁵¹ The jewelled baldachin is a recurrent theme in descriptions of pre-Islamic courts.⁵² Apart from the well-known Takht-i Taqdīs,⁵³ it is reported that a domed pavilion (*qubba*) stood in the palace at Ctesiphon. The

⁴⁴ Necipoğlu, *Architecture*, pp. 244-5.

⁴⁵ D. Behrens-Abouseif, The citadel of Cairo: stage for Mamluk ceremonial, *Annales Islamologiques* (XXIV, 1988), pp. 71-2.

⁴⁶ For the history of the Window of Appearance in pre-Islamic palaces see E. Baldwin Smith, *Architectural symbolism of Imperial Rome and the Middle Ages* (Princeton, 1956), pp. 112, 182; C. Gottlieb, *The window in Art: from the window of God to the vanity of man* (New York, 1981), pp. 18-30.

⁴⁷ Canard, *Cérémoniale*, pp. 361-2; D. Sourdel, Questions de cérémonial `Abbaside, *Revue des Études Islamiques* (XXVIII, 1960), p. 130; Behrens-Abouseif, *Citadel*, p. 72.

⁴⁸ Hitti, *History*, p. 622. It is said that the grille was of gold; G.H. Qaddūmī, *A Medieval Islamic Book of Gifts and Treasures: Translation, Annotation and Commentary on the Kitāb al-Hadāya wa al-Tuḥaf*, unpublished D.Phil thesis (Harvard, 1990), p. 202.

⁴⁹ See above, p. 92.

⁵⁰ In the royal palace at Casablanca for example; Paccard, *Traditional Islamic craft*, pp. 202-3, figs. 1-6.

⁵¹ On the jewels studded in the walls and vaults of Roman palaces see E. La Rocca, Il lusso come espressione di potere, *Le Tranquille Dimore degli Dei: La Residenza Imperiale degli Horti Lamiani* (Rome, 1986), p. 30; M. Roberts, *The Jeweled Style: Poetry and Poetics in Late Antiquity* (London, 1989), pp. 73-4, n.26; Suetonius, *Nero* XXXI:2.

⁵² L. Hautecoeur, *Mystique et architecture, symbolisme du cercle et de la coupole* (Paris, 1954), pp. 172-3.

qubba was made of radiant crimson and hung with curtains woven with gold thread and set with panes (*jāmāt*) of red, white, and coloured *billāwr*. 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*.⁵⁴ In a practice which recalls the decoration of the Sasanian dome, roundels of this type were attached to the *kiswah* sent to the Ka'ba by Sultan Baybars I (658-76/1260-77).⁵⁵ It seems likely that the use of such crystal roundels gave the *qubba* the appearance of stained glass.⁵⁶ Apparently even the glass pavilion was not immune to the "textile mentality" mentioned above.⁵⁷

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.⁵⁸ At a certain point the line between fact and fiction becomes blurred,⁵⁹ 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.⁶⁰ The belief that certain gems were self-luminous was common enough in the medieval Islamic world,⁶¹ and a later text uses the term *'uqūd* in a description of Mamluk *qamariyyat*.⁶² In the Golden Palace in Fustat Khumārawayh ibn Ṭūlūn had a pavilion covering a pool

⁵³ E. Herzfeld, *Der Thron des Khosro*, *Jahrbuch der Königlichen Preussischen Kunstmuseen* (XLI, 1920), pp. 1-24, 103-47; K. Lehmann, *The Dome of Heaven*, *Art Bulletin* (XXVII, 1945), pp. 24-5.

⁵⁴ R. Dozy, *Suppléments aux Dictionnaires Arabes*, Volume I (Paris, 1927), p. 168; H. Grotzfeld, *Das Bad im Arabisch-Islamischen Mittelalter* (Wiesbaden, 1970), p. 43.

⁵⁵ M. Gaudefroy-Démombynes, *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 *Qaṣr Bashtāk* (ills. 56-7).

⁵⁶ Qaddūmī, *Book of Gifts*, p. 134 and accompanying notes.

⁵⁷ See above, pp. 148-9.

⁵⁸ See below, pp. 197-8.

⁵⁹ For example, we are told that the crenellations (*shurāfat*) of a palace built by the chamberlain of the Ḥamdānīd 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 dixième 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 Qaddūmī, *Book of Gifts*, p. 144.

⁶¹ *Ibid.*, p. 184; Mas'ūdī, *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.⁶³ A similar idea was exploited to great effect in the *majlis* of `Abd al-Raḥmān II (206-38/822-52) at Madīnat 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.⁶⁴ 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.⁶⁵ 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.⁶⁶ The idea of the ruler as a luminary is implicit in much of medieval Islamic royal titlature,⁶⁷ and became something of a cliché of courtly panegyric.⁶⁸ 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.⁶⁹ 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.⁷⁰ The idea that the enthroned ruler sits among the stars is hinted at by the use of names such as *al-Thurayyā* or *al-Kawkab* for royal pavilions.⁷¹

⁶³ Rubiera, *La Arquitectura*, pp. 84-5.

⁶⁴ Bargebuhr, *Alhambra*, 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 (*sirāḥ*); 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. Sauvaire, 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-ḥaqq*); S. Sperl, Islamic kingship and Arabic panegyric poetry in the early ninth century, *Journal of Arabic Literature* (VIII, 1977), p. 23. The Ikshidid 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. Baer, 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 Nimbus*. 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-Muqāddasī, *Aḥsān al-Taḳāsim*, 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 palaces⁷² and in the experiments of earlier rulers.⁷³ 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.⁷⁴ By night the pavilion acted as a jewelled lantern, shining with the light of the tapers lit within it.⁷⁵ In the *Thousand and One Nights* an illuminated garden pavilion is said to "sparkle in a sea of light".⁷⁶ The pavilion constructed from a hollow jewel illuminated by lamps lit within is a recurring motif in eschatological and mythological texts.⁷⁷ 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 paradisaical, 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.⁷⁸ 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.⁷⁹ At

⁷¹ See below, pp. 197-8.

⁷² Ghumḍān, 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-Iklil* (Princeton, 1938), pp. 17-8; Ibn al-Faḳīh, *Abrégé*, p. 26; Mas'ūdi, *Prairies* IV, p. 251..

⁷³ On the domed constructions of water, light, and translucent marble in the palace of the han-Nagīdh viziers of the Zirīd ruler of Granada see Bargebuhr, *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.

⁷⁶ M.I. Gerhardt, *The art of story-telling. A Literary Study of the Thousand and One Nights* (Leiden, 1963), p. 151.

⁷⁷ See below, pp. 228-9.

⁷⁸ Mas'ūdi, *Prairies* I., p. 49; E.W. Lane, *Arabian Society in the Middle Ages* (London, 1883), pp. 97-8; G.F. Kunz, *The Curious Lore of Precious Stones* (Philadelphia, 1913), p. 349; M. Aga-Oglu, The origin of the term *mina* and its meaning, *Journal of Near Eastern Studies* (V, 1946), pp. 244-6; H. Crane, *Risāle-i Mi'marīyya*, an early seventeenth-century Ottoman treatise on architecture (Leiden, 1987), p. 19. A tabulated summary of variations in the order and nature of the constituent materials of the heavens according to medieval Islamic cosmographers is given in T. Fahd, La naissance du monde selon l'Islam, *Sources Orientales I: La Naissance du Monde* (Paris, 1959), p. 251.

the summit of the heavens, above Paradise, is the Throne of God, an ineffable zone of light. The first level of Paradise, the *Dār al-Jalāl*, is constructed of white pearls, the second (*Dār al-Salām*) of ruby, the third (*Jannāt al-Māwa*) of green chrysolite, the fourth (*Jannāt al-Khuld*) of yellow or green coral, the fifth (*Jannāt al-Nā'im*) of white silver, the sixth (*Jannāt al-Firdāus*) of red gold, and the seventh (*Jannāt 'Adn*), of large pearls.⁸⁰ Similar descriptions of a Paradise composed of gold, glass and jewels are found in Jewish eschatological texts⁸¹ 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."⁸²

The Qur'anic view of Paradise is of a verdant garden,⁸³ indeed the term *janna* can signify both an earthly garden and its transcendental equivalent.⁸⁴ In later exegesis the Qur'anic 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,⁸⁵ its gates of jewel-encrusted gold.⁸⁶ The Garden and its inhabitants are characterised by light. They wear bracelets of gold and pearls⁸⁷ and use vessels and

⁷⁹ Ibn al-Shūhna describes a more complex scenario, in which seven seas of light surmount the seven heavens. These are followed in turn by veils of different materials, seven of each; Lane, Arabian Society, p. 99.

⁸⁰ Lane, Arabian Society, p. 99. According to some commentators, the *Jannāt al-Mā'wa* is synonymous with Paradise itself; S. al-Salch, *La vie future selon le Coran*, Études Musulmans (XIII, 1971), p. 29.

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 bdellium. 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 EI, DJanna, p. 1015.

⁸⁵ Al-Tabrizi, Mishkāt al-Masābih, Volume III (Lahore, 1964), pp. 1199-1200.

⁸⁶ Al-Wāsiṭī mentions eight gates of gold and precious stones; M. Rosen-Ayalon, The Early Islamic Monuments of al-Haram al-Sharīf, Qedem (XXVIII, 1989), p. 49. J. Mc Donald, Islamic eschatology VI: Paradise, Islamic Studies (V, 4, 1966), pp. 343, 345, 356. Similar gates are found in Jewish descriptions of Paradise; Gaster, *Visions of Hell*, p. 596; D. Sidersky, Les Origines des Légendes Musulmanes dans le Coran et dans les vies des Prophètes (Paris, 1933), p. 12.

⁸⁷ Qur'an XXII:23.

furniture of precious metals and stones.⁸⁸ The brightness of the men is like the sun,⁸⁹ while their companions are compared to precious stones,⁹⁰ their skin so translucent that it resembles glass.⁹¹

The architecture of paradise is equally fabulous. In the Qur'an three types of dwellings are mentioned: palaces (*qusūr*),⁹² lofty mansions (*ghuraf*) with rivers flowing beneath them,⁹³ and pavilions (*khayām*).⁹⁴ 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.⁹⁵ Some of the dwellings have domes of pearls,⁹⁶ while others are composed of a single hollowed pearl up to sixty miles in diameter.⁹⁷ Alongside these are found pavilions of pearls, chrysoprases, and rubies "as large as the distance between al-Jabīya and Sana`a".⁹⁸ 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."⁹⁹

⁸⁸ Qur'an 76:15-21. The *hadith* add gold and silver combs and jewelled seats; al-Tabrīzī, *Mishkāt* III, pp. 1196, 1203.

⁸⁹ *Ibid.*, p. 1201.

⁹⁰ McDonald, *Paradise*, p.342.

⁹¹ *Idem.*; Muslim (tr. A.H. Siddiqi), *Sahīh*, Volume IV (Lahore, 1976) No. 1176, p. 1429. For fuller descriptions of the inhabitants of the Garden see E. Barthels, *Die paradisiischen Jungfrauen (Huris) im Islam*, *Islamica* (I, 1924/5), pp. 263-87; C. Wendell, *The Denizens of Paradise*, *Humaniora Islamica* (II, 1974), pp. 29-59.

⁹² Qur'an XXV:10.

⁹³ Qur'an XXIX:58, XXXIX:20.

⁹⁴ Qur'an LV:72.

⁹⁵ McDonald, *Paradise*, p. 346; al-Tabrīzī, *Mishkāt* III, p. 1198; Muslim, *Sahīh* 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-Tabrīzī, *Mishkāt* III, p. 1196; *Mishkāt* IV, p. 1269.

⁹⁷ Al-Tabrīzī, *Mishkāt* III, p. 1196; Muslim, *Sahīh* IV, No. 1179, pp. 1480-1; al-Bukhārī (tr. O. Houdas & W. Marçais), *Les Traditions Islamiques*, Volume II (Paris, 1906), p. 440; Al-Ghazālī (tr. T.J. Winter), *The Remembrance of Death and the Afterlife*, *Kitāb dhikr al-māwt wa-ma Ba`dahu* (Cambridge, 1989), p. 241. According to Ibn `Abbas, the sky and earth were themselves created from a single white pearl; Fahd, *Naissance*, p. 245.

⁹⁸ Al-Tabrīzī, *Mishkāt* III, p. 1204; W. Goldsack, *Selections from Muhammedan Traditions* (Madras, 1923), p. 279.

⁹⁹ *Isaiah* LIV:11-2. The reading of agates is doubtful, for elsewhere the Hebrew word used, *kadkodom*, "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 *Talmūd* 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 Narshākī 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-Tawāhhum*:

"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 transporence 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 paradisaal architecture are found in Zoroastrian¹⁰⁴ and Manichean texts.¹⁰⁵

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.

¹⁰² R.N. Frye, *The History of Bukhara*, (Cambridge Mass., 1954), p. 220.

¹⁰³ A. Roman, *Étude stylistique du Kitāb al-Tawāhhum, la Livre de la Vision de Fins Dernières d'al Muhtāsibī* (Damascus, 1980), p. 240.

¹⁰⁴ H.W. Bailey, *Zoroastrian Problems in the Ninth-Century Books* (Oxford, 1943), p. 129.

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.¹⁰⁶ Alternatively, the trees are composed of pearls and rubies.¹⁰⁷ 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.¹⁰⁸ It is also said to be composed of emeralds studded with precious stones and is usually depicted like this (ill. 132).¹⁰⁹ 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.¹¹⁰

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 paradisaic 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.¹¹¹ 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*,¹¹² The Pearl (*al-Lū'lu'a*),¹¹³ The Jewel (*al-Jawhār*),¹¹⁴ The House of Glory or

¹⁰⁵ Tsui Chi, Mo Ni Chiao Hsia Pu Tsu, *BSOAS* (XI, 1943-6), pp. 201, 203.

¹⁰⁶ *EL*, 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

¹⁰⁸ Al-Tabrīzī, *Mishkāt* III, p. 1201; *Mishkāt*, IV, p. 1270; M-R, Séguy, *The Miraculous Journey of Mahomet: Miraj Nameh* (New York, 1977), pl. 31.

¹⁰⁹ McDonald, *Paradise*, p. 380; Rosen-Ayalon, *Early Islamic Monuments*, p. 52, n.15.

¹¹⁰ Al-Tabrīzī, *Mishkāt* III, pp. 1201-2; *EL*, Djanna, p. 449.

¹¹¹ Pavlovskis, *Man in an artificial landscape*; A.U. Pope, A Sasanian Garden Palace, *Art Bulletin* (XV, 1933), pp. 75-85.

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 Ṭūlūnid 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 Choiesies 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 *Zīza*),¹¹⁵ The Palace of the Star (*al-Kawkab*),¹¹⁶ and The Palace of the Pleiades (*Qaṣr al-Thurayyā*).¹¹⁷ We also hear of Silver Chambers¹¹⁸ and Emerald Gates.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.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.¹²¹ These paradisaic pretensions are also apparent in names such as *Qaṣr al-Firdāus*,¹²² and in many cases contemporary descriptions clearly identify the palaces, pavilions, or the gardens in which they stand as images of paradise.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 paradisaic associations.

¹¹³ A pavilion of this name built by al-Mutawakkil in 245/859 apparently inspired a Byzantine imitation; A. Grabar, *L'Iconoclisme Byzantin* (Paris, 1957), p. 171. The name occurs in the Fatimid *Qaṣr al-Dahab*, and Nasir-i Khusrau 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 Ḥammādid Palace at Bijāyya; F. Gabrieli, Il palazzo Hammadit di Biḡaya descritto da Ibn Hamdis, *Festschrift für Ernst Kühnel - aus der Welt der Islamischen Kunst* (Berlin, 1959), p. 58.

¹¹⁴ Outside the walls of Fatimid Cairo, alongside The Pearl; Schefer, *Voyage*, p. 134. Earlier among the Fatimid palaces of Ifriqiyya; Grabar, *L'Iconoclisme*, p. 171, n.4.

¹¹⁵ Sauvaget, *Perles*, p. 43; Grabar, *L'Iconoclisme*, p. 171, n.4.

¹¹⁶ In the Hammadid palaces at Bijāyya and the Qala of the Banu Ḥammād; Gabrieli, *Palazzo*, p.58; Blanchet, *Kalaa*, p. 110. In a contemporary poem cited by Blanchet the *Qaṣr al-Manāra* at the latter site is compared to the stars.

¹¹⁷ G. Le Strange, *Baghdad during the Abbasid Caliphate* (Oxford, 1900), pp. 250-1. For al-Buḥārī'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), p. 69-70.

¹¹⁸ *Hajarat al-Fidda*, among the Fatimid palaces of Ifriqiyya; Bloom, *Meaning*, p. 41.

¹¹⁹ *Bāb al-Zaberjerd*, along with the *Bāb al-Dhahab* in the Fatimid Palace in Cairo; Schefer, *Voyage*, p. 129.

¹²⁰ The symbolic nature of the names was recognised by Canard; *Cérémonial*, p. 359, n.6.

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, 1893), pp. 216-7.

¹²² The palace, erected by al-Mu'taḍid (r. 279-90/892-902), was set amid gardens in which were water channels and a lake; Le Strange, *Baghdad*, p. 250.

¹²³ Frye, *Bukhara*, p. 27; D.N. Wilber, *Persian Gardens and Garden Pavilions* (Vermont, 1962), pp. 76, 97; R.A. Jairazbhoy, *Early Garden-Palaces of the Great Mughals*, *Oriental Art* (IV, 1958), p. 72.

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 paradisaic 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 Shaddad 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.¹²⁴ 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.¹²⁵ The soil of the city was of glass¹²⁶ 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 (LXXXIX:7) and elsewhere¹²⁷ 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.¹²⁸ 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.¹²⁹ 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.¹³⁰ 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.

¹²⁵ Ibn Khaldun (tr. F. Rosenthal), *The Muqaddimah*, Volume I (London, 1986), p. 26.

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.

¹²⁷ *Ibid.*, p. 59; Ibn Khaldun, *Muqaddimah*, p. 26.

¹²⁸ Wilber, *Persian Gardens*, pp. 44-51; W.L. Hanaway, Paradise on earth: the terrestrial garden in Persian literature, *The Islamic Garden* (Washington, 1976), pp. 41-68. See also the description of the Ghaznavid palace quoted below, p. 203.

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 bdellium, lit by luminous gems; Wright, *Early Travels*, p. 265; L. Thorndike, *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 *qusūr* 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 stelai 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 Cathedra (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-Wāsilī'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 Sasra (Los Angeles, 1963), Volume I, p. 161, Volume II, p. 120.

¹³⁶ K. Brisch, Observations on the Iconography of the Mosaics in the Great Mosque of Damascus, Content and Context of Visual Arts in the Islamic World [ed. P.P. Soucek] (London, 1988), pp. 13-23.

¹³⁷ Ibid., p. 15.

¹³⁸ Faris, 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).¹³⁹ These have been interpreted as images of the Biblical heavenly mansions,¹⁴⁰ 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.¹⁴¹

The use of shimmering glass tesserae in the Damacus 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.¹⁴² Given the frequency with which references to pearl pavilions crop up in descriptions of paradisaal 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.¹⁴³ 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).¹⁴⁴ 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 paradisaal connotations of such decoration over and above its iconographic content. One might mention however that in addition to the use of

¹³⁹ Krencker, *Denkmäler Nordabessiniens*, pp. 24-7, figs. 44, 47-50; D. Buxton & D. Matthews, *The Reconstruction of Vanished Axumite Buildings*, *Rassegna di Studi Etiopici* (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.

¹⁴⁰ G. W. van Beek, *Monuments of Axum in the light of South Arabian Archaeology*, *Journal of the American Oriental Society* (LXXXVII, 1967), pp. 118-22.

¹⁴¹ The Ka'ba of Najran was said to be a *ghurfah*; 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.

¹⁴² B. Finster, *Die Mosaiken der Umayyadenmoschee von Damaskus*, *Kunst des Orients* (VII, 1970/1), pp. 83-141, figs. 33-4, 40, 65-6.

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. LXII. 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-Muqqaḍiṣī mentions the use of *mīnā* on its walls.¹⁴⁵ The same term occurs elsewhere in contemporary usage for both emerald, a stone which is frequently mentioned in descriptions of Paradise, and for Paradise itself.¹⁴⁶ 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.¹⁴⁷

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,¹⁴⁸ palaces and the panegyrics written about them.¹⁴⁹ 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 Manūchīhrī Damghānī:

"This auspicious palace which you have built this year
 Resembles with its paradisaal 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 Maḥmūd of Ghaznī, it contains just that evocative blend of metaphorical description, paradigmatic reference, and paradisaal allusion. Such a *melange* is by no means exclusive to Ghaznavid panegyric, for it is equally apparent in what we know of the glass

¹⁴⁵ See above, pp. 62-3.

¹⁴⁶ Aga-Oglu, *Mina*, pp. 241-9.

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. Elisséeff, *Le Description de Damas d'Ibn 'Asakir* (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.

¹⁵⁰ J.W. Clinton, *The Divān of Manuchihrī Damghani* (Minneapolis, 1972), p. 61.

palaces and the descriptions written of them.¹⁵¹ 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,¹⁵² Fatimid,¹⁵³ Ḥammādid,¹⁵⁴ Ghaznavid¹⁵⁵ and Timurid¹⁵⁶ 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 Dhū'l-Nūnid *shamsiyyat*¹⁵⁷ and Timurid *qamariyyat*¹⁵⁸ 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.¹⁵⁹

The jewelled tree has a long history in literature,¹⁶⁰ and similar objects were apparently part of the repertoire of pre-Islamic courtly art.¹⁶¹ It has also been suggested that the golden gardens

¹⁵¹ A Maghribi text which mentions crystal-studded ceilings is particularly reminiscent of the Mirador de la Daraxa; E. Mainz, *Quelques poésies Judéo-Arabes du Manuscrit 411 de la Bibliothèque du Vatican*, *Journal Asiatique* (CCXXXVII, 1949), pp. 65-6. On the significance of jewels in the poetic verses of the Alhambra see J.M. Puerta Vilchez, *Los códigos de Utopía de la Alhambra de Granada* (Granada, 1990), p. 155.

¹⁵² In addition to the gilded trees and automata of Baghdad one might mention that in the gardens of the New Kiosk (*al-Jawsaq al-Muhdith*) there were streams and a pond of gleaming lead, surrounded by trees covered with rings of gilded copper; Lassner, *Topography*, pp. 90, 270; Le Strange, *Baghdad*, p. 257; Qaddūmi, *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; Qaddūmi, *Book of Gifts*, pp. 33, 168, 263.

¹⁵⁴ In the "Paradise Gardens" of the fifth/eleventh-century Hammadid Place at Bijāyā there was a pond surrounded by artificial trees of gold and silver from which water shot forth; Gabrieli, *Palazzo Hammadita*, 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, turquoises, 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; Lassner, *Topography*, p. 269; *SPA*, p. 1444. William of Rubruquis found a similar tree, worked by a Persian goldsmith, in the court of the Mongol Khan; Lethaby, *Architecture*, pp. 101-2. The paradisaical 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 Andalouse en Arabe Classique au XI^e siècle* (Paris, 1953), p. 323; Rubiera, *Arquitectura*, pp. 82-3; Crane, *Risale*, p. 70. For an excellent discussion of the relationship between metaphorical references to precious stuffs and court ritual at the `Abbasid court see Qaddūmi, *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,¹⁶² functioning as iconographic tools in the service of those trying to recreate a Solomonic ambience familiar from texts. Such a suggestion is equally relevant to the present discussion, for the Solomonic aspects of such exotica are frequently inseparable from its paradisaical connotations, and this is also true of the glass pavilion 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 (*ṣarḥ mumarrad min qūwārīr*)'."

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.¹⁶³ Thus while the latter's account contains the `classical' aspect of a glass pavement,¹⁶⁴ Ṭabarī also

Islamic world; S. Dalley, Gilgamesh in the Arabian Nights, *JRAS* (I, i, 1991), p. 10. Similar trees are described in the Alexander legends; Wallis Budge, *Alexander*, p. 338.

¹⁶¹ The notion of a jewelled garden recalls the "Spring of Khusrau", the carpet on which a garden with palaces and rivers was depicted in golden thread and gems; Qaddūmī, *Book of Gifts*, pp. 168-9. From Firdāūsī we learn that the same ruler welcomed Rustam seated in a garden beneath a tree of gold, silver, and jewels; Baldwin Smith, *Architectural Symbolism*, p. 114, n.19; *SPA*, p. 1443. One of the `Abbasid governors of Khorasan obtained a palm encrusted with jewels which was said to have belonged to the Sasanian Shah; N. Jamil, *Selections from Kitāb al-Dhakā'ir wa al-Tuhaf*, unpublished M.A. thesis (Edinburgh, 1986), p. 37.

¹⁶² O. Grabar, *The Alhambra* (Cambridge Mass., 1978), p. 129; G. Brett, The automata in the Byzantine "Throne of Solomon", *Speculum* (XXIX, 1954), pp. 482-4. Among the many fantastical details of Solomon's Temple a golden garden with golden trees is mentioned; G. Vajda, La Description du Temple de Jérusalem après le *Kitāb al-Masālik wal-Mamālik* d'al-Muhālabī, ses éléments bibliques et rabbiniques, *Journal Asiatique* (CCXLVIII, 1959), p. 194.

¹⁶³ On the later elaboration of the story see W. Montgomery Watt, The Queen of Sheba in Islamic Tradition, in *Solomon and Sheba* [ed. J.B. Pritchard] (London, 1974), pp. 85-103.

describes Solomon as the possessor of a thousand houses of crystal.¹⁶⁵ Even the central feature of the palace has been much embellished, for Ṭabarī, 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'ālibī 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-Nuwāyri (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

¹⁶⁴ M.H. Zotenberg, *Chronique de Tabari*, Volume I (Paris, 1867), pp. 441-2.

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 Ṭabarī, 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 mah*; 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.

¹⁷⁰ M. Asin Palacios, *La Escatología Musulmana en la Divina Comedia* (Madrid/Granada, 1949), pp. 321-2; Bargebuhr, *Alhambra*, p. 225.

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 lamps¹⁷⁵ and with shining jewelled windows¹⁷⁶ 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 Carra 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, *Legends* IV, p. 164.

¹⁷⁶ E. Garcia Gómez, *Un Texto Arabe Occidental de la Leyenda de Alejandro* (Madrid, 1929), p. cxxix.

¹⁷⁷ A.G. & E. Warner, *The Shahnama of Firdausi*, Volume VI (London, 1912), p. 166.

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'ūdi 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'ālibī. 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'ūdi, *Prairies* II, pp. 426-7. Pseudo-Callisthenes relates a similar tale which may be the source of al-Mas'ūdi's account. Magical subaqueous 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.

¹⁸¹ Thorndike, *History of Magic* II (London, 1923), p. 263.

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. Lichtenstadter, 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, Kotys L'Odryso e al-Biruni, *Arabic 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 Hishām. 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-dhakhā'ir*, 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 *Holovitream* 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

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 vitreis quadraturis bitumin aliisque 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 ornatu 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.¹⁹¹ 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."¹⁹²

The specific detail of fish appearing beneath the glass floor suggests an Islamic source for this motif.¹⁹³ Among the more intriguing references to the glass palace in later medieval European literature¹⁹⁴ 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.¹⁹⁵ 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 zugāytah*), so that Bilqis mistakenly believes the king to be sitting in water.¹⁹⁶

¹⁹¹ L.-I. Ringbom, Graltempel und Paradies, Beziehungen zwischen Iran und Europa im Mittelalter (Stockholm, 1951), p. 58.

¹⁹² P. Frankl, The Gothic: Literary Sources and Interpretations through eight centuries (Princeton, 1960), p. 182; O van der Berghe, Le Temple du Graal, Annales Archéologiques (1857), p. 294.

¹⁹³ On the Islamic sources of the Grail Legend see J.L. Coyagee, The legend of the Holy Grail: its Iranian and Indian analogues, Journal of the K.R. Cama Institute, Bombay (XXXIII, 1939), pp. 37-126; W. Gother, Parzival und der Graal in der Dichtung des Mittelalters und der Neuzeit (Stuttgart, 1925), p. 206; Frankl, The Gothic, pp. 177-8; H. Corbin, En Islam Iranien, Volume II (Paris, 1971), chapter IV. On the Temple of the Grail as a *Templum Salomonis* see H. Corbin, L'Imago Templi face aux Normes Profanes, Eranos Jahrbuch (XLIII, 1974), pp. 217-8.

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.

¹⁹⁵ W. Bullein, A Dialogue against the Fever Pestilence [1564] (London, 1888), p. 103.

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.¹⁹⁷ 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.¹⁹⁸

There is in any case an inherent ambiguity in the use of the term *ṣarḥ* in the Qur'an and elsewhere to denote a pavement, since in Classical Arabic the term can also refer to a house or chamber.¹⁹⁹ 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.²⁰⁰ 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,²⁰¹ while the Throne of the Lamb is set on a sea of glass.²⁰² 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".²⁰³ The illusionistic effect of this

¹⁹⁶ Ginzberg, *Legends*, Volume IV, p. 145; Lethaby, *Architecture*, p. 207; E. Ullendorff, The Queen of Sheba, *Bulletin of the John Rylands Library, Manchester* (XLV, 1962/3), pp. 486-503, p. 496. On the Solomonian glass pavement in Jewish tradition see D. Sidersky, *Origines des legendes Musulmanes*, pp. 123-4, 126; A. Chastel, La Légende de la Reine de Saba, *Revue de l'Histoire des Religions* (CXX, 1939), pp. 28-9.

¹⁹⁷ *Ibid.*, pp. 28-9. The text is reproduced in Sidersky, *Origines*, pp. 124-5.

¹⁹⁸ D.A. Hubbard, *The Literary Sources of the Kebra Negast*, unpublished Ph.D. thesis (University of St. Andrews, 1956), p. 296.

¹⁹⁹ Lane's *Arabic-English Lexicon*, Volume I iv (London, 1872), p. 1675.

²⁰⁰ Ginzberg, *Legends*, Volume I, p. 21.

²⁰¹ Revelation 21:21.

²⁰² Revelation 4:6. The image recurs in 15:2.

²⁰³ T.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 water²⁰⁴, 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.²⁰⁵ The sea of glass at the summit of the heavens recalls the widespread belief that the nature of the heavens was crystalline.²⁰⁶ Cosmological motifs were often incorporated into the decoration of palace pavements.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."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?"²⁰⁹

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 Masjid-i '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. 188.

²⁰⁵ There is in any case a certain linguistic overlap between sea and glass, for in the Classical and Late Antique world the term *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.

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-Petlagon, Salomon en Basileus, p. 27. For the connection of the glass sea with the water over the firmament see H.L. Struck & P. Billerbeck, Kommentar zum Neuen Testament, Volume III (Munich, 1954), pp. 798-9.

²⁰⁷ K. Lehmann, The Dome of Heaven, Art Bulletin (XXVII, 1, 1945), p. 9.

²⁰⁸ Trowbridge, Ancient Glass, p. 141.

²⁰⁹ G.G. Scholem, Jewish Gnosticism, Merkabah Mysticism, and Talmudic Tradition (New York, 1965), p. 15.

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

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; Lethaby, Architecture, p. 211; below, pp. 219-20.

²¹³ R. Patai, Man and Temple in Ancient Jewish Ritual (London, 1947), pp. 107-8.

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 Bilqīs herself; H. Sauvaire, Description de Damas, Journal Asiatique (NS VII, 1896), p. 198; Elisséeff, Description, pp. 51-2. A similar story is told by Yaqūt; Le Strange, Palestine, p. 264. While the Qur'anic account (XXVII:41-2) tells how Solomon disguises the throne of Bilqīs, 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' (*ghūj al-baḥr*) 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'anic 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 paradisaical connotations of such decoration,²²⁰ it has been suggested that the

²¹⁶ Brinner, *Chronicle of Damascus*, Volume I (Berkeley, 1963), p. 161. Al-Birūnī mentions a white translucent stone called "foam of the moon" (*zabad al-qamar*); Kahle, *Bergkristalle*, p. 327.

²¹⁷ This is related to the idea, cited by Qazwīnī and others, that the heavens were created from the vapours resulting from the dissolution of a jewel; A.J. Wensinck, *The Ocean in the literature of the western Semites*, *Verhandelingen der Koninklijke Akademie van Wetenschappen* (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. Heinen, *Islamic Cosmology* (Beirut, 1982), pp. 140, 203.

²¹⁸ Mehren, *Cosmographic*, p. 81. Mas'ūdi also refers to the aqueous nature of emeralds; Mas'ūdi, *Prairies* III, p. 44. Similarly, a Syriac text of the Mamluk 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 Candélabre des Sanctuaires de Grégoire Abou l'Faradj dit Barhebraeus*, *Patrologia Orientalis* (XXII, 1930), pp. 576-7. 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: Clément-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 Quatremère *Histoire* II i, p. 276; Sauvage, *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 crampions; 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; Goitein, *Jerusalem*, p. 177.

mosaics were intended to echo the glories of the Temple previously on the site of the building.²²¹ 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.²²² As a consequence it shone with a brilliant light. The theme was established as early as the third/ninth century, when Dinawārī 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 *sakhra*.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

²²¹ P. Soucek, The Temple of Solomon in Islamic Legend and Art, in *The Temple of Solomon: archaeological fact and medieval tradition in Christian, Islamic and Jewish art* [ed. J. Gutmann] (Montana, 1976), pp. 95-9. The decoration of this monument was, in turn, copied by a later Solomon; G. Necipoglu-Kafadar, The Süleymaniye complex in Istanbul: an interpretation, *Muqarnas* (III, 1985), pp. 92-117.

²²² The various sources are summarised in Soucek, Temple, pp. 85-6.

²²³ *Ibid.*, p. 85. Several other traditions stress the luminescent 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 Jalāl 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 *sakhra*; Crane, *Risāle*, p. 53.

²²⁶ Ibn al-Faqīh, *Abregé*, pp. 119-20.

²²⁷ L. Hull Stookey, The Gothic Cathedral as the Heavenly Jerusalem: liturgical and theological studies, *Gesta* (VIII, 1969), pp. 35-41; H. Sedlmayer, *Die Entstehung der Kathedrale* (Graz, 1976), pp. 85-90, 95-163; A. Lagner, Wände aus Edelstein und Gefässe aus Kristall, *Die Parler und der Neöbne Stil 1350-1400* (Cologne, 1978), pp. 169-82; A. Mayer, Edelmetalle und Edelstein in der mittelalterlichen Architektur, *Bermerkungen zur Bedeutung des Grenzbereiche den Architektur. Festschrift für Adolf Reinle* (Basel/Stuttgart, 1985), pp. 167-75.

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 *Templum Salomonis*.²²⁸ Coloured glass and semi-precious stones were used as inlay in Byzantine churches, including the Church of Saint Polyeuktos (pl. 149),²²⁹ another imperial foundation in Constantinople which was intended to echo the splendours of Solomon's Temple.²³⁰ Almost nine hundred years later Solomonic tradition was still sufficiently potent for Sulaymān the Magnificent to make reference to the jewelled temple built by his Qur'anic namesake in the decoration of the Süleymaniye.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.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".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

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 Templum Salomonis*, *Istanbuler Mitteilungen* (XII, 1962), pp. 44-58.

²²⁹ Harrison, *Excavations*, pp. 172-4, figs. 138-40; R. Krautheimer, *Early Christian and Byzantine Architecture* (Harmondsworth, 1975), p. 233, fig. 179.

²³⁰ R.M. Harrison, *The Church of Saint Polyeuktos in Istanbul and the Temple of Solomon*, *Harvard Ukrainian Studies* (1983), pp. 276-9.

²³¹ Necipoglu-Kafadar, *Süleymaniye*, pp. 100-3. For a later explicit comparison between the Temple of Solomon and another Ottoman mosque see Crane, *Risāle*, p. 67. The Ottoman rulers, many of whom bore the name of the Qur'anic ruler, were frequently compared to Solomon.

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*, *Journal of Hellenic Studies* (XVIII, 1898), pp. 67-8, fig. 4 and colour plate.

²³³ Rey, *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 penticubacula 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 Constantinople.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 Constantinople 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 Mahāl-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 *shādhurwāns* of the *sabīls* 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, *Ayyubid 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. ???>

²³⁸ J. Beckwith, *The Art of Constantinople* (London, 1961), p. 129.

²³⁹ A.G. Paspates, *The Great Palace of Constantinople* (Paisley, 1893), p. 114.

²⁴⁰ Heavenly Jerusalem is said to be constructed from shimmering gold, "like unto clear glass"; *Revelation* 21:18, 21:21.

²⁴¹ Legner, *Wände aus Edelstein*, p. 174.

²⁴² E.W. Smith, *The Moghul Art of Fatehpur Sikri*, Volume I (Allahabad, 1894), p. 3.

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

²⁴³ Lethaby, *Architecture*, p. 211.

²⁴⁴ C. Mango & J. Parker, A Twelfth-Century Description of Saint Sophia, *Dumbarton Oaks Papers* (XIV, 1960), pp. 233-45, p. 239. A pavement of similar type still exists in the western gallery of the church.

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 bath-house 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.²⁵⁰ 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.²⁵¹

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,²⁵² architecture,²⁵³ and ritual²⁵⁴ 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 paradisaical 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.²⁵⁵

The erection of a glass pavilion by 'Abd al-'Azīz ibn Marwān suggests that the princely architecture of the Umayyads was not lacking in a Solomonic dimension.²⁵⁶ In addition, the well-known image of an enthroned caliph from an apse in the Umayyad bath-house at Quṣayr '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.²⁵⁷ 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.

²⁵² Grabar, *Alhambra*, pp. 127-9.

²⁵³ B. Schutz & J. Strzygowski, Mschatta, *Jahrbuch der Königlichen Preussischen Kunstsammlungen* (XXV, 1904), p. 232; P.P. Soucek, review of O. Grabar, *Iranian Studies* (VIII,4, 1975), pp. 248-63; A.S. Melikian, *Le Royaume de Salomon, Le Monde Iranien et l'Islam* (I, 1971), pp. 1-41.

²⁵⁴ H. Amedroz & D. Margoliouth, *The Eclipse of the 'Abbasid Caliphate*, Volume IV (Oxford, 1921), p. 182.

²⁵⁵ 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.

²⁵⁶ See above, pp. 184.

²⁵⁷ Ringbom, *GralTempel*, pp. 66-7.

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 for 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 paradisaical 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'āmi claimed that Solomon was the first ruler to possess hot baths; Soucek, *Review*, p. 257.

²⁵⁹ See above, pp. 65-6.

²⁶⁰ Bargebuhr, *Alhambra*, p. 225, n.208.

²⁶¹ P.V.D. Meer, *Chronique des Fouilles en Syrie, Les Annales Archéologiques de Syrie* (I, 1951), p. 115, fig. 4.

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-qūwārīr*),²⁶⁴ the exact words chosen in the Qur'an to describe the characteristic feature of Solomon's palace. Similarly, the house of Harūn al-Rashīd was known as the Dār al-Qūwārīr. 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-ṣarḥ al-mumarrad*) in the Umayyad palace at Madīnat 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 Madīnat 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-Khaqani at Samarra; Lamm, *Das Glas*, p. 118, No. 338.

²⁶⁴ M.A.F. Mehren, *Cosmographie de Chems-ed-Din Abou Abdallah Mohammed Ed-Dimichqi* (Leipzig, 1923), p. 192.

²⁶⁵ Pérès, *Poésie*, p. 125, n.1.

²⁶⁶ Ruggles Fairchild, *Mirador*, p 76.

²⁶⁷ This idea was implicit in the name of certain palaces. For example, contrary to its name, the Chihil 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.

²⁶⁸ After Puerta Vilchez, *Códigos*, p. 180.

Ibn Iyādī almost a millenium earlier. Describing a Fatimid garden palace, he compares it to the pre-Islamic palace of Khwārnaq standing in a watery setting "as smooth as glass of azure hue".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 (*qūwārīr*) of the surface, so smooth that you would imagine it to be the court paved with glass (where Solomon received the Queen of Sheba)."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 *shamsiyyat* on the upper walls of the Dhu'l-Nunid palace in Toledo, refers to them as "well-ordered seas (*buhūrun muntaẓimatun*) of glass".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 Ḥammādid palace at Bijāyya 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.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 Hamdis and Ibn Zaidun to be intelligible to their intended audience. Similar ideas could, like the paradisaal allusions discussed above, be suggested by the names of palaces; one thinks for example of the *Dār al-Billāwr* in the Almohad palace at Marrakesh.

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.

²⁷⁰ Bloom, *Origins*, p. 29.

²⁷¹ After Pérès, *Poésie*, p. 131.

²⁷² See above, p. 98.

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 (*ṣarḥ*) of glass which, whoever sees it,
would believe it to be a boundless sea and be frightened."²⁷⁴

The term *ṣarḥ* 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 *ṣarḥ* 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 Khaṭīb, 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

²⁷⁴ After García Gómez, *Poemas*, pp. 122-3.

²⁷⁵ D. E. Lafuente y Alcantara, *Inscripciones Arabes de Granada* (Madrid, 1859), p. 137; Bargebuhr, *Alhambra*, pp. 188-9.

²⁷⁶ G. de Prangey, *Essai sur l'architecture des Arabes et des Mores en Espagne, en Sicile, et en Barbarie* (Paris, 1841), p. xxiv; Lafuente y Alcantara, *Inscripciones*, p. 137; Almagro Cardénas, *Estudio*, p. 107; A.F. Calvert, *The Alhambra* (London, 1904), p. 75.

²⁷⁷ E. García Gómez, *Foco de Luz sobre la Alhambra [desde un texto de Ibn al-Jatib en 1362]* (Madrid, 1988), p. 143. The phrase "for those with eyes to see" is Qur'anic, occurring in Sura XXIV:44.

²⁷⁸ Almagro Cardenas, *Estudio*, pp. 109, 115. However, while this scholar connected the ceiling with the *ṣarḥ* mentioned in the poem, he does not explicitly mention the Solomonic palace.

originally had a ceiling of glass similar to that now *in situ*,²⁷⁹ the poetic allusion and architectural reality neatly coincide. The fact that this was the bower from which Muḥammad V contemplated his capital,²⁸⁰ 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.²⁸¹

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*.²⁸² The palace was built for Baḥram Gūr 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 Baḥram Gūr 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).²⁸³ 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 Qāyṭbāy in Alexandria is said to have rested on a vaulted infrastructure of glass; E. Herzfeld, *MCA, 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 `Adim 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.

²⁸² C.E. Wilson, *The Haft Paikar (The Seven Beauties) Containing the Life and Adventures of King Bahram Gur and the Seven Stories told him by his Seven Queens*, Volume I (London, 1924), p. 110-3.

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 Khwārnaq 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, Khwārnaq, the palace of Bahram Gūr 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 Gūr, the desire to emulate the cosmos

²⁸⁴ Ibn al-Faqīh, *Abregé*, 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.

²⁸⁶ The sources are summarised in R.A. Jairazbhoy, *The Taj Mahal in the context of East and West: a study in the comparative method*, *JWCI* (XXIV, 1961), p.88.

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.

²⁸⁸ A.F. von Schack, *Poesie und Kunst der Araber in Spanien und Sicilien*. Volume II (Berlin, 1865), p. 27; Gabrieli, *Palazzo*, p. 55; Bloom, *Meaning*, n.41; Necipoglu, *Architecture*, 246.

²⁸⁹ Bloom, *Origins*, p. 29.

²⁹⁰ On the palace of Bahram Gūr as an artistic archetype see C. Bürgel, *The Feather of Simurgh: the "Licit Magic" of the Arts in Medieval Islam* (New York/London, 1988), p. 21-2.

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.²⁹³ The Mughal emperor Hūmāyūn (r. 937-943/1530-6) appears to have been particularly susceptible to the ideas contained in the Haft Paikar. Hūmāyūn dressed, like Bahram Gūr, in clothes of a colour chosen to harmonise with the planet ruling that particular day.²⁹⁴ 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.²⁹⁵ 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.²⁹⁶ According to a Jewish legend, Hiram of Tyre built a model heaven constructed from plates of metal, glass, and precious stones.²⁹⁷ The structure was capable of simulating the effect of thunder and lightning, a motif familiar from descriptions of Khusrau's throne and the *majlis* at Madīnat al-Zahrā.

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 Ecbatana, each of a different colour.²⁹⁸ 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:

²⁹³ It is reported that the Umayyad Caliph Marwān ibn Muḥammad had a table of onyx (*jaza'*) made in the form of Jupiter, and that he who ate upon it was never satiated; Qaddūmī, 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.

²⁹⁴ H. Beveridge, The Akbarnāma of Abu'l-Fazl, Volume I (Calcutta, 1897), p. 650.

²⁹⁵ *Ibid.*, p. 651.

²⁹⁶ See, for example, Mehren, Cosmographie, p. 32; Carra de Vaux, L'Abrégé, p. 247; Wallis Budge, Life and Exploits, p. 187; Patai, Man and Temple, p. 111.

²⁹⁷ Ginzberg, Legends V, p. 335. In the Talmūd 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 Simbolici 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 paradisaical visions discussed in the second section of this chapter. Ibn al-Faqīh 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-Wāsiṭī:

"...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-Birūnī or those of the Ikhwān al-Ṣafa'.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 the Great Bear in the sky, with seven pillars in that form, it would not be destroyed."³⁰⁶

²⁹⁹ B.T. Anklesaria, *Zand-Akasiḥ* (Bombay, 1956), p. 271.

³⁰⁰ Ibn al-Faqīh, *Abregé*, pp. 119-20. In later texts the seven jewelled tents of the heavens were each associated with a particular planet; Crane, *Risāle*, p. 19.

³⁰¹ Cited in connection with the decoration of the Dome of the Rock by Rosen-Ayalon, *Early Islamic Monuments*, p. 66. For the original see Abū Bakr Muḥammad b. Aḥmad al-Wāsiṭī, *Fadā'il al-Bāyt al-Muqāddas*, ed. I. Hasson (Jerusalem, 1979), p. 73.

³⁰² L. Massignon, Les infiltrations astrologiques dans la pensée religieuse Islamique, *Eranos Jahrbuch* (X, 1943), pp. 297-303.

³⁰³ Sachau, *Chronology of Nations*, p. 187.

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-Mansur; K. Toueir, Die Stadt Raqqa und ihre historischen Bauten, *Land des Baal - Forum der Völker und Kulturen* [eds. K. Kohlmeyer & 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 Ghazna 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 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 Ghumḏān.³⁰⁸ The seventh temple was built in China, and was seven stories high, each storey being lit by seven large windows or doors (*abāb*). 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 Gūr (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 Judaeo-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

³⁰⁶ Frye, Bukhara, p. 24.

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; EI, 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 Orientalni (XVIII, 3, 1950), pp. 339-50.

³⁰⁸ According to al-Dimashqī, this palace was built as a Temple of Venus; Mehren, Cosmographie, p. 31. A similar story is related by Ibn Khaldūn; H. Howarth & I. Shukrallah, Images from the Arab World (London, 1944), p. 93.

³⁰⁹ The story may derive from Sabaeen 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.

³¹⁰ See above, p. 210.

³¹¹ S. Hossein Nasr, Cosmographie en l'Iran pré-Islamique et Islamique, le problème de la continuité dans la civilisation Iranienne, Arabic and Islamic Studies in Honor of H.A.R. Gibb (Leiden, 1965), p. 512.

³¹² R.A. Nicholson, Studies in Islamic Mysticism (Cambridge, 1921), pp. 121-2; Wensinck, The Ocean, p. 8; Heinen, Islamic Cosmology, pp. 140, 203; above, p. 214.

from the crystal egg or diamond dome of the sky.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.³¹⁴ In Islamic tradition the Throne of God floated upon the waters which, according to Ibn `Abbās, existed before the creation of heaven and earth.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.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*.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..."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.³¹⁹

Mount Alburz, the emerald mountain, is the cosmic mountain *par excellence*, the *axis mundi* of traditional Iranian cosmology,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.³²¹ It is reported that the prototype of the Ka`ba was a pavilion hollowed

³¹³ R. Eisler, Weltenmantel und Himmelszelt, Volume I (Munich, 1910), p. 94, n.4; E.J. West, Datistan-i Dinik, Pahlavi Texts II, Sacred Books of the East, Volume XVIII (Oxford, 1882), p. 259; N.S. Nyberg, Questions de Cosmogonie et de Cosmologie, Journal Asiatique (CCXIV, 1929), pp. 215, 223; J. Duchesne-Guillemin, La Religion de l'Iran Ancien (Paris, 1962), p. 315; Bailey, Zoroastrian Problems, pp. 135-6. The same idea is cited by al-Biruni; Nasr, Cosmographie, p. 512.

³¹⁴ See above, p. 211.

³¹⁵ Wensinck, Navel, p. 39.

³¹⁶ *Idem*.

³¹⁷ See p. 184 above.

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.

³¹⁹ Corbin, En Islam Iranien II, pp. 170-1.

³²⁰ It is from the emerald of Mount Qaf that the sky was believed to derive its colour; Aga-Oglu, Mīnā, pp. 247-9; Wendell, Baghdad, p. 121; Heinen, Islamic Cosmology, p. 171; Crane, Risāle, p. 19. According to the Mas`ūdi the lowest heaven is of emerald; Prairies I, p. 49.

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.³²² Similarly, several sources mention the existence of a Celestial Temple (*bāyt al-ma'mūr*) in or above the seventh heaven, directly above the earthly Ka'ba. 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.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.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, paradisaical 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.

Qamariyyat appear to have been used in *hammam* domes as early as the Umayyad period.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 *hammams*. 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.³²⁶ That such glass-filled openings were

³²¹ J. Scott Meisami, Allegorical gardens in the Persian poetic tradition: Nezami, Rumi, Hafiz, *International Journal of Middle Eastern Studies* (XVII, 1985), p. 231.

³²² Carra de Vaux, *Abrégé*, p. 82; Wensinck, *Navel*, p. 42; Ibn al-Faqih, *Abrégé*, pp. 23-4; G. Le Strange (tr.), *The Geographical Part of the Nuzhat-al-Qulūb composed by Hamd-Allāh Mustawfī* (London, 1919), pp. 3-4; Fahd, *Naissance*, p. 262, 269. According to others Adam and his pavilion descended in Sri Lanka; Clément-Mullet, *Minéralogie*, 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 *sakhra* 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, *Magical Jewels of the Middle Ages and the Renaissance* (Oxford, 1922), p. 64.

³²³ Wensinck, *Navel*, pp. 51-2; Crane, *Risāle*, p. 51. Some authorities place the *bāyt al-ma'mūr* 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.

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, *Architecture*, p. 192. Both forms appear in Islamic cosmographies; Wensinck, *Navel*, pp. 43-4.

³²⁵ See above, p. 19.

³²⁶ Grotzfeld, *Das Bad*, p. 43.

found by the fourth/tenth century is indicated by a description of a *hammam* in a Ḥamdānīd poem which describes a

".. vaulted ceiling with the colour of cornaline (*ʿaqīq*), 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 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.' Qadī `Umar ibn Saḥlan 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 Quṣayr `Amra.³³⁰ Similar openings, often lined with terracotta pipes, were used in Sasanian domes and vaults³³¹ 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

³²⁷ Canard, *Aspects*, p. 175.

³²⁸ See above, p. 96.

³²⁹ After H. Ethé, *Zakariya ben Muhammed ben Mahmud el-Kazwini's Kosmographie* (Leipzig, 1868), pp. 206-7. Slightly later Ibn Suhaid implies that red glass was used in an Andalusian *hammam*; Pérès, *Poésie*, p. 339. In the sixth/twelfth century al-Isfahani describes an Iranian *hammam* with "its ceiling radiant with light"; A. Daneshvari, *Medieval Tomb Towers of Iran: an iconographical study* (Malibu, 1986), p. 41.

³³⁰ EMA Iii, pp. 390-449, 498-502.

³³¹ K.A.C. Creswell, *Persian Domes before AD 1400*, *Burlington Magazine* (XXVI, 1915), p. 150, figs. 9-10.

³³² Although similar openings were occasionally used in Roman baths; Spinazzola, *Pompei*, fig. 82.

decoration of the dome at Quṣayr `Amra, 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 *hammam* at Maḍīnat al-Zahrā (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 Qūṣ (pls. 176-7), or the use of star patterns on lamps and window-grilles.³³⁷ The apertures in *hammam* domes were, like those in Sasanian domes, usually lined with terracotta piping (*qastal*), sealed with concave discs of glass (*`amari* or *jāmāt*) embedded in stucco.³³⁸

Qazwīnī mentions the use of red, green, yellow and white *jāmāt* in a *hammam* at Sinjār at the end of the seventh/thirteenth century.³³⁹ In one of the earliest representations of a *hammam*, in the *Kifābi Samak `Ayyār* (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

³³³ K. Lehmann, *The Dome of Heaven*, *The Art Bulletin*, (XXVII, 1, 1945), p. 23, fig. 63.

³³⁴ This may have been filled with glass; B. Pavon Maldonado, *Tratado de Arquitectura Hispano-Musulmana*, Volume I: Aqua (Madrid, 1990), pp. 347-8. See also M. Gómez-Moreno, *Baño de la Judería en Baza*, *Al-Andalus* (XII, 1947), p. 154; J. Bermudez Pareja, *El Baño del Palacio de Comares en la Alhambra de Granada. Disposición primitiva y alteraciones*, *Cuadernos de la Alhambra* (X-XI, 1974-5), p. 111. In Ottoman *hammams* elaborate floral and geometric openings are found; K. Ahmet Aru, *Türk Hamamları Etüdü* (Istanbul, 1949), p. 63.

³³⁵ M.J. Sauvaget, *Un bain damasquin de XIII^e siècle*, *Syria* (XI, 1930), pp. 370-80; M. Écochard & C. le Coeur, *Les Bains de Damas*, Volume I (Beirut, 1942), pls. XV, XIX, XXV, XXXV, XLIX, CXII; H. Terrasse, *Trois Bains Merinides du Maroc*, *Mélanges offerts à William Marçais* (Paris, 1950), pp. 317-8, pl. 1, fig. 7.

³³⁶ One of the earliest is in the ninth/fifteenth-century Ismail Bey *Hammam* 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 *'armiya* for these glass roundels. In Persian the glass inset in domes is known as *golgum*; H.E. Wulff, *Traditional Crafts of Persia* (Massachusetts, 1966), p. 171. Grotzfeld, *Das Bad*, p. 43. On the use of the term *jamāt* see above, p. 191.

³³⁹ Qazwīnī, *Āthār al-Bilād* II, p. 263.

³⁴⁰ Serajuddin, *Architectural Representations*, pp. 209-10.

³⁴¹ In the Chester Beatty *Gūlistān* of Sa`ādī, copied by Ja`far Baysonghōrī (830/1426); *ibid.*, p. 81, pl. 34.

³⁴² Y. Tabbaa, *The muqarnas dome: its origin and meaning*, *Muqarnas* (III, 1985), p. 66.

occasionally used in place of glass and it may be of further significance that Tifāshī refers 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 *rožanam*;³⁴⁴ The same term is used for the circular windows (*rožaniha*) 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'mur*, the jewelled counterpart of the Ka'ba, had 360 doors, each of which opened one degree of the planetary orbits.³⁴⁷ Al-Maqqarī 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-Suyūṭī 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 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

³⁴³ Clément-Mullet, *Minéralogie*, pp. 238-9, 241, 243.

³⁴⁴ Herzfeld, *Zoroaster II*, pp. 808-9.

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.

³⁴⁶ Gaster, *Visions of Hell*, p. 574; Ginzberg, *Legends II*, p. 306; Wünsche, *Salomos Thron*, p.45; D. Chanan Matt (tr.), *Zohar, the Book of Enlightenment* (London, 1983), pp. 135, 259.

³⁴⁷ B. Carra de Vaux, *L'Abrégé*, p. 11. A semi-legendary account of the construction of Haghia Sophia gives the numbers of its doors as 365; Mango, *Art*, p. 99.

³⁴⁸ De Gayangos, *Muhammedan Dynasties I*, p. 230; A.G. Chejne, *Muslim Spain, its History and Culture* (Minneapolis, 1974), p. 365.

³⁴⁹ Heinen, *Islamic Cosmology*, pp. 149, 216-7.

³⁵⁰ E.A.S. Butterworth, *The Tree at the Navel of the Earth* (Berlin, 1970), p. 65.

cosmic dome of Khusrau,³⁵¹ the earlier sapphire "heavens" of Parthian rulers,³⁵² or the jewelled cosmological ceilings described in Byzantine romance literature.³⁵³ 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-Zahrā is said to have been surrounded by 360 arches.³⁵⁴ 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.³⁵⁵ The palace of the Būyid ruler Adad al-Dāwla at Shiraz had 360 chambers, in each of which the ruler resided for one day.³⁵⁶

The fortress built for Malik `Abbās at Ghur (c. 421-2/1030) by an astrologer had twelve towers, each of which had thirty openings.³⁵⁷ 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.³⁵⁸

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.³⁵⁹ The

³⁵¹ P. Ackerman, The Throne of Khusraw (The Takht-i-Taqdis), 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 I:25.

³⁵³ Schlauch, Palace of Hugon, p. 508.

³⁵⁴ Although it is possible that al-Maqqarī is confusing accounts of the Cordoba mosque with those of the palace; de Gayangos, Mohammedan Dynasties I, p. 501, n.58.

³⁵⁵ Nat. Hist. XXXVI:24.

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.

³⁵⁷ H.G. Rafferty (tr.), Tabakāt-i-Nāsiri, Volume I (London, 1881), p. 331.

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 Lichtenstadter, Origin, pp. 66-7.

symbol of the windows seems to have had a particular significance in Humayun's life, for at his birth it 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 Yūsuf ibn Naghrālla, the Jewish vizier of the Zīrid 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 aljūm 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

³⁵⁹ Beveridge, *Akbarnāma* 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.

³⁶⁰ H. Hasan, *Researches in Persian Literature* (Hyderabad, 1958), p. 141.

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.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.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,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,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-Jazarī's 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."³⁶⁹

³⁶⁴ D. Cabanelas Rodríguez, El Techo del Salon de Comares en la Alhambra: Decoracion, Policromia, Simbolismo y Etimologia (Granada, 1988), pp. 86-90. 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 Vilchez, 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, 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.

³⁶⁵ O. Grabar, From Dome of Heaven to Pleasure Dome, Journal of the Society of Architectural Historians (XLIX, 1990), p. 18.

³⁶⁶ Above, note 70. See also Heinen, Islamic Cosmology, pp. 171, 206; A. Morabia, Recherches sur quelques noms de couleur en Arabe Classique, Studia Islamica (XXI, 1964), p. 79.

³⁶⁷ See above, pp. 199-202.

³⁶⁸ See below, pp. 290-7.

³⁶⁹ Ibn al-Razzāz al-Jazarī (tr. D. Hill), 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, Tanis, pp. 48-9; Harden, Roman glass, p. 303. A sixth/twelfth-century text mentions a glass temple in Rome, the Holovitrium, which was decorated with astrological images; Lethaby, Architecture, p. 223.

The sun is represented by a golden roundel, as it was on the cosmological carpet of Humayūn,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 *jāmāt*. This term is also used for circular goblets or cups of glass and, more germanely, for the glass roundels set in the domes of *hammams*.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 *hammam* domes such cosmological ideas are expressed in a less sophisticated form and a more mundane context than in the clock of al-Jazarī. While the resemblances between the starry sky and the *hammam* 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 (*jāmāt*) of coloured crystal,³⁷³ which must have given it an appearance not far removed from that of medieval *hammam* domes. One might also mention the Sasanian cup in the Bibliothèque Nationale in Paris, the so-called "Cup of Khusrau" (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-Jazarī 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 Taqdīs, 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.

³⁷¹ Al-Jazarī, ed. A.Y. al-Hassan, *Al-Jāmi' Bain al-'Ilm wal-'amal al-Nāfi' fi' Sinā'at al-Hiyal* (Aleppo, 1979); *Book of Knowledge*, p. 19.

³⁷² Grotzfeld, *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.³⁷⁶ The cosmological models on which such jewelled "heavens" are based are directly related to those on which al-Jazarī 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-Jazarī'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 Dhū'l-Nūnid ruler al-Ma'mūn, part of a panegyric written by Abū Muḥammad Ibrahīm 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 Dhū'l-Nūnid 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."³⁷⁹

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'āti.³⁸⁰ It was seen by Ibn Jubayr, and his description of its nocturnal functioning recalls both the clock of al-Jazarī and the crystal wall seen by Benjamin of Tudela:

376 A. Forte, *Ming Tang and Buddhist Utopias in the History of the Astronomical Clock* (Paris, 1988).

377 After Pérès, *Poésie*, p. 151.

378 D.M. Dunlop, Notes on the Dhunnunids of Toledo, *JRAS* (1943), pp. 18-9.

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 circlet. The lamp then changes on to another disc until the hours of the night are ended and all the discs have been reddened."³⁸¹

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 paradisaic allusions of the "Pearl Kiosk" constructed by Murād II at Topkapı 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-Misri'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. "Pearl-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* (LII, 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."³⁸⁶

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.³⁸⁷ 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 Baḥram Gūr, in the Takht-i Taqdīs 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

³⁸⁵ Dickie, *Alhambra*, p. 134. For the inscriptions in which the ruler is compared to a light see García 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.

³⁸⁶ R. Krautheimer, Introduction to an "Iconography of Mediaeval Architecture", *JWCI* (V, 1942), p. 9. See also J. Waardenburg, Islam studied as a symbol and signification system, *Humaniora Islamica* (II, 1974), p. 272.

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.³⁸⁸ At its most extreme this is typified by al-Tha`ālibī's assertion that there is no creature on earth for whom a star does not exist in its image.³⁸⁹ 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."³⁹⁰ 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.³⁹¹ 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.³⁹² 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".³⁹³ 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

388 Bürgel, *Feather*, pp. 40-1. For the same idea in the medieval West see M. Berthelot, *Introduction a L'Étude de la Chimie des Anciens et du Moyen-Age* (Paris, 1938), p. 74.

389 Fahd, *Naissance*, p. 256. In the medieval West one finds images of the planets which "represent the essence of the power embodied in the star"; E.H. Gombrich, *Icones Symbolicae: the Visual Image in Neo-Platonic Thought*, *JWCI* (XI, 1948), p. 177.

390 J.-A. Oeming Badiée, *An Islamic Cosmography: the illustrations of the Sarre Qazwini*, unpublished Ph.D. thesis (University of Michigan, 1978), p. 11.

391 Bürgel, *Feather*, pp. 20-2; Badiée, *Islamic Cosmography*, pp. 11-4.

392 Carrauz de Vaux, *Abrégé*, p. 10; K. Lippincott & D. Pingree, *Ibn al-Haytham on the Talismans of the Lunar Mansions*, *JWCI* (C, 1987), p. 62. References to the ruler as a sun are common in early Islamic panegyrics; above, n. 68.

393 S. Hussein Nasr, *An Introduction to Islamic Cosmological Doctrines* (London, 1978), p. 246.

context was more meaningful than decorative. In the light of the evidence cited above one may detect a further dimension to ^{the} Solomonic and paradisaical 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 Khwarnaq or the Palace of Prester John. Comparisons between built palaces, Paradise, and paradigmatic heavens such as Iram, Ghumdān, Khawārnaq, 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-Zahirīyyā in Cairo (886-8/1481-3) to both Ghumdān and the Iwān 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 Ghumdān: 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 Qaşr 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 *Iklil*, 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-ceilinged 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 continues 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 Alixares in Granada; R. Basset, *Les Alixares de Grenade et le Château de Khaouarnaq*, *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-Naghīd 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 inform the Jewish consciousness"; *Tabernacle and Temple and the Cosmos of the Jews*, *Cosmos* (VIII, 1992), p. 135.

⁴⁰² See Qaddūmī, *Book of Gifts*, pp. 270-1; Dalley, *Gilgamesh*; Gerhardt, *Art of Story-Telling*. A crystal dome filled with jewelled windows appears in the magical palace built for Aladdin; P. Matthews, *The Book of the Thousand Nights and One Night*, Volume III (London, 1964), p. 418.

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,¹ or the reservation of an empty bay directly in front of it.² This directional focus was frequently accompanied by a decorative elaboration. In the words of Papadopoulo;

"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."³

Among the media used in the decoration of Early Islamic *mihrabs* one might mention the use of glass mosaic and precious stones. Both Istakhri⁴ and al-Idrīsi⁵ describe the *mihrab* of the Umayyad Mosque in Damascus and its surrounds as being gilded and set with precious stones (*jawāhir*).⁶ Muqaddasi is more specific, mentioning the use of agates (*ʿaqīqīyyat*) and turquoises (*fayrūzīyyat*) "of the size of the finest stones that are used in rings" within the *mihrab*.⁷ It is conceivable that these

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 Qairawān (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.

³ After A. Papadopoulo, La Grande Mosquée Omeyyade de Médine, *Le Mihrab dans l'architecture et la religion Musulmanes* (Leiden, 1988), p. 89.

⁴ Le Strange, *Palestine*, p. 236.

⁵ *Ibid.*, p. 239; P-A Jaubert, *Le Géographie d'Édrisi* (Paris 1836-40, reprinted Amsterdam, 1975), p. 352.

⁶ Rabbat, *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*.⁸ Al-'Umarī, however, mentions that the inscription surrounding a *mihrab* in the royal mosque of the Alhambra was studded with hyacinths,⁹ which suggests that the practice continued subsequently. The use of jewels in Late Antique architectural decoration¹⁰ 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.¹² 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 Qairawān (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 Qairawān, one can point to descriptions of Umayyad *mihrabs* which mention their association with reflective or light-

⁷ Muqaddasī, *Aḥsān al-Taqāsīm*, p. 158; Le Strange, *Palestine*, pp. 227-8. It has even been suggested that the entire *mihrab* was carved "from a monolithic block of rock crystal"; D. Kuban, *Muslim Religious Architecture I* (Leiden, 1974), p. 15. No evidence is cited for this, and it is to be assumed that the author is thinking of the *qulayla* which hung in the *mihrab*; below, p. 249.

⁸ Brinner, *Chronicle I*, p. 161; above, p. 200.

⁹ Al-'Umarī, *Masālik al-Absār*, p. 228; Jairazbhoy, *Outline*, p. 100; . The coloured marble used in *mihrabs* is often compared to precious stones by medieval authors; Schefer, *Voyage*, pp. 80-1; De Gayangos, *Muhammedan Dynasties*, p. 505.

¹⁰ See above, p. 190, note 51.

¹¹ One finds frequent reference to the idea that jewels shone with a light of their own in the medieval sources; below, p. 295, note 74. At a later date the jewels in the Peacock Throne of the Mughal ruler Shah Jahan were said to shine like lanterns, or like the Light of God; Hasan, *Researches*, p. 193.

¹² Below, p. 298.

¹³ G. Marçais, *Les faiences reflets métalliques de la Grande Mosquée de Kairouan* (Paris, 1928).

¹⁴ Ettinghausen and Grabar, *Art and Architecture*, p. 116.

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 revetement 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-Qalīs 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, *Shrines*, p. 31, fig. XIII.

¹⁶ Sauvaget, *La Mosquée*, p. 84. The same story is repeated later by Qazwīnī, *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 Ghumdān; 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 Shabwa in southern Yemen; J-F Breton, R. Audouin & J. Seigne, *Rapport préliminaire sur la fouille du de Šabwa (1980-81)*, *Raydan* (IV, 1981), p. 170. Al-'Umarī reported that the Ka`ba was decorated by Ibn al-Zubayr in the manner of Ghumdān, and the translucent ceiling of the palace has been connected with the alabaster skylights of the Ka`ba; B. Finster, *Zur der Neuauflage von K.A.C. Creswell's "Early Muslim Architecture"*, *Kunst des Orients* (IX, 1973/4), pp. 96-7.

¹⁹ Serjeant & Lewcock, *Sana`a'*, p. 45. The term used by al-Azraqī to denote the panel is *balāq*, 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 Azraqī, *Muqarnas* (III, 1985), p. 3.

²⁰ *EMA* II, p. 63

²¹ Above, p. 229.

²² Le Strange, *Nuzhat*, p. 24.

²³ Ibn Rustah, *Atours*, pp. 30-1; according to Ṭabarī 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-Qalīs, "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-Qalīs 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 Khusrau" 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'ūdi, *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.

²⁸ See below, pp. 266. Panels of translucent alabaster continued to be used in the ceilings of later medieval Yemeni mosques; B. Finster, *Die Moschee von Sarḥa*, *Baghdader Mitteilungen* (X, 1979), p. 281, pls. 97-9, 101.

²⁹ E. Baer, *The Mihrab in the Cave of the Dome of the Rock*, *Muqarnas* (III, 1985), pp. 8-19. Similar sun motifs, executed in mosaic and mother of pearl, appear in the hoods of Palestinian *mihrabs* of the Mamluk period, one in the nearby Aqsa Mosque: M. Rosen-Ayalon, *A neglected group of mihrabs in Palestine*, *Studies in Islamic History and Civilization in Honour of Professor David Ayalon* [ed. M. Sharon] (Leiden/Jerusalem, 1986), pp. 553-63, figs. 1 & 3.

³⁰ *EMA* II, p. 100, fig. 374.

³¹ Baer, *Mihrab*, pp. 14-8.

³² Melikian-Chirvani, *Light of Heaven and Earth*, p. 118.

³³ A.S. Melikian-Chirvani, *The Light of Heaven and Earth: From the Chahar-taq to the Mihrab*, *Bulletin of the Asia Institute* (IV, 1990), p. 117.

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.³⁴ 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.³⁵ 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 (pl. 157).³⁶ Within the niche itself is set a rosette, a square or circular piece of reflective glass or, occasionally, a mirror.³⁷ 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."³⁸

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.³⁹ 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 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*.⁴⁰ 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.⁴¹

³⁴ Ibn Rustah, *Atours*, p. 32.

³⁵ See below, pp. 266, 280.

³⁶ L.A. Mayer & A. Reifenberg, Three Ancient Jewish Reliefs, *PEQ* (1937), pp. 138-9, pl. VII, 1-3.

³⁷ Anon., *Exposition des verres Syriens a travers l'histoire organisée a l'occasion du 3ème congrès des journées internationales du verre au Musée National de Damas* (Damascus, n.d.), No. 114.

³⁸ E.R. Goodenough, *Jewish Symbols in the Greco-Roman Period*, Volume I (New York, 1953), p. 176; Volume III (New York, 1953), pls. 440-2, 445-6.

³⁹ Baltrusaitis, *Der Spiegel* (Berlin, 1986), p. 81.

⁴⁰ E. Lambert, Les Origins de la Mosquée et l'Architecture Religieuse des Omeyyades, *Studia Islamica* (III, 1956), pp. 5-18.

In view of the suggested link between the concave *mihrab* and the throne apse of pre-Islamic palaces,⁴² 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.⁴³ The suggestion of the ruler as a source of light may be detected in Umayyad palace decoration,⁴⁴ and the description of the ruler in terms of a light or a sun became common in subsequent periods.⁴⁵ The construction of gubernatorial palaces which abut the *qibla* wall, and which often have entrances adjacent to the *mihrab*,⁴⁶ 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*.⁴⁷ 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.⁴⁸ 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*.⁴⁹ 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

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* I, p. 26; *EMA* II, p. 33.

⁴⁷ Hillenbrand, *Rayed nimbus*, 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 *Haft Paikar*, 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,⁵⁰ one may suggest that the decoration of the Early Islamic *mihrahs* 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 Qairawān *mihrab* suggests that it contains the germ of an idea "which would reach full fruition in a sacred setting only much later."⁵¹ 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.⁵²

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 *mihrahs*. In his description of the Great Mosque of Damascus Ibn `Asākir relates the following story:

"Abd al-Raḥīm al-Anṣārī 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' (*durr*)?'". I asked them: "have you seen the *qulayla*?'". They responded: "Yes, it shines like a lamp (*sirāj*).""⁵³

The *qulayla* was stolen during the reign of al-Amīn (194-8/809-13), but was subsequently returned to the *Mihrab* of the Companions by al-Mam'ūn. It later disappeared and a glass vase (*burnīyya*), seen by Ibn `Asākir, 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.⁵⁴ 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.⁵⁵ 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

⁵⁰ See below, p. 266.

⁵¹ Ettinghausen & Grabar, *Art and Architecture*, p. 116.

⁵² See below, p. 271-6.

⁵³ Elisséeff, *Description*, p. 67; S. Munajjid, *Tarīkh Madīnat Dimashq*, Volume II (Damascus, 1954), p. 45. The story is repeated by Abī'l-Baqa; Quatremère, *Histoire* III, pp. 272-3.

⁵⁴ It is said that another famous pearl, the Yatima, was suspended above the Dome of the Rock; Le Strange, *Palestine*, p. 147; Rabbat, *Dome of the Rock*, p. 71.

⁵⁵ *EMA* II, p. 330. Whatever the significance, in an Islamic context, of the chain with pearls hanging in a doorway, the immediate source of the motif is to be found in depictions of Heavenly Jerusalem in Byzantine mosaics at Ravenna and elsewhere; above, p. 201.

times. The Qur'an itself is said to be a light,⁵⁶ and the heavenly luminaries are compared to lamps.⁵⁷ 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.⁵⁸ 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 (*mishkāt*) and within it a lamp (*miṣbāḥ*): 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)⁵⁹

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.⁶⁰ The Assyro-Babylonian deity Ninurta is described as "the light of the heavens and the earth",⁶¹ 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.⁶² 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).⁶³ Similarly lamps were suspended above the altar in the apse of churches.⁶⁴ Early

⁵⁶ Qur'an IV:174, XLII:52.

⁵⁷ Qur'an XXV:61, XLI:12, LXVII:5, LXXI:15-6.

⁵⁸ Sura VII:54, which mentions the sun, moon and stars appears on a *mihrab* in the Mausoleum of Sayyida Ruqayya in Cairo (c. 550/1155) and on another in the Masjid-i Jāmi' 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 & Scerrato, *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.

⁶⁰ R. Bultmann, *Zur Geschichte der Lichtsymbolik im Altertum*, *Philologus* (XVII, 1948), pp. 1-36; C. Colpe, *Lichtsymbolik im alten Iran und antiken Judentum*, *Studium Generale* (XVIII, 2, 1965), pp. 116-33; G. Gnoli, *Lichtsymbolik in Alt-Iran*, *Antaios* (VIII, 1967), pp. 528-49.

⁶¹ K. Tallqvist, *Akkadische Götterepitheta*, *Studia Orientalia* (VII, 1938), p. 134.

⁶² M.L. Farbridge, *Studies in Biblical and Semitic Symbolism* (New York, 1970), p. 187; M. Clermont-Ganneau, *La Lampe et l'Olivier dans le Coran*, *Revue de l'Histoire des Religions* (LXXXI, 1, 1920), p. 220.

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".⁶⁵ The latter may be compared to the use of the Light Verse later on Islamic lamps.⁶⁶

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.⁶⁷ 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.⁶⁸ 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.⁶⁹

"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."⁷⁰

"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]."⁷¹

⁶⁴ C. Rehaalt de Fleury, *La Messe*, Volume VI (Paris, 1888), pp. 22-3.

⁶⁵ Clermont-Ganneau, *La Lampe*, p. 224.

⁶⁶ *EI*, Allah, p. 303; see below, pp. 277-8.

⁶⁷ C.J. Lyall, *Translations of Ancient Arabian Poetry* (London, 1885), pp. 91, 95.

⁶⁸ XXV:61, XLI:12, LXVII:5, LXXI:15-6. In Sura LXVII:5 the term used, *masābīh*, 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-Baghawi, 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 Hārīth b. Asad al-Muhāsibī [AD 781-857]* (London, 1933), pp. 31-2.

⁷⁰ From the translation of Sir William Jones quoted in A.J. Arberry, *The Seven Odes: the first chapter in Arabic Literature* (London/New York, 1957), p. 52. For a slightly different translation see A.J. Arberry, *Aspects of Islamic civilization as depicted in the original texts* (London, 1964), p. 21.

⁷¹ C.J. Lyall, *The Mufaddaliyat. 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 Manūchihri Damghani in the fifth/eleventh century; Kazimirski, *Manoutchehri*, p. 164.

The suggestion of a Christian connection also finds support in the tradition that it was Tanfīm al-Dāri (d. 40/661), an importer of oil and lamps from Syria, who was the first to suspend oil lamps (*qanādīl*) in the Mosque of Madina;

"The Prophet, entering the mosque and finding the lamps shining brightly, asked: 'Who did this?'. To the response that it was Tamīm, the Prophet, turning towards him, said to him: 'You have illuminated Islam, may God light your way'."⁷²

According to Baladhūrī, however, lamps (*maṣābīḥ*) 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 Aqsa mosque.⁷⁵ In addition to these, the latter mosque contained seven stands (*sanaubarat*) 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-Faqīh mentions 1600 lamps in the *haram*,⁷⁶ while by the time of Nasir-i Khusrau hanging lamps of silver and gold were used in conjunction with standing tapers 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`qūbī 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*, *EL*, p. 343.

⁷⁵ Le Strange, *Palestine*, pp. 162-3. Curiously, both Christians and Jews appear to have donated oil for the lights of the *haram*; Goitein, *Jerusalem*, p. 178. A later account, cited by both al-Suyuti and Mujir al-Din, 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 Ibérique au Moyen Age d'après le Kitāb ar-Rawd al-Mi`ār fī Ḥabar al-*

chandeliers from the following century.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. Muqaddasī mentions that in Syrian mosques hanging lamps were kept perpetually alight, "even as at Mecca".⁸² The illumination of the mosques acted as a deterrent to crime.⁸³ The nocturnal illumination of Islamic cities only became widespread from the fourth/tenth century,⁸⁴ and the use of lighting also facilitated the numerous other social and commercial activities which took place within the mosque.⁸⁵ Extra brilliance could be introduced by the use of additional sources of illumination on festive occasions.⁸⁶ It is possible that illumination could also have an honorific significance.⁸⁷

The *mihrab*, or *mihrabs*, as the focus of the mosque seem to have been singled out for particularly brilliant illumination. Yaqut mentions that, having decorated the *mihrab* in the Damascus mosque with jewels, `Umar hung lamps of gold and silver about it.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*.⁸⁹ This practice finds a parallel at a slightly later date in the suspension of enormous metal

Aktār d'Ibn `Abd al-Munī`im al-Himvārī (Leiden, 1938), p. 185. For early Islamic candlesticks from Spain see Leon Torres Balbás, *Candiles con soporte, Al-Andalus* (XL, 1957), pp. 198-202. Nasir-i Khusrau mentions the use of standing candles, including a giant wax taper bearing the name of the Fatimid caliph in the Dome of the Rock: Schefer, *Voyage*, pp. 128-9. Similar tapers were used slightly earlier in palaces, a particularly splendid example being kept perpetually alight in the presence of the Buyid prince `Izz al-Dawla; Baron M.G. de Slane, *Ibn Khallikan's Biographical Dictionary* (Paris, 1842), p. 250.

⁸¹ Ibn Rustah mentions a chandelier (*thurayyā*) 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-Ḥākim in 403/1012; Schefer, *Voyage*, pp. 148-9.

⁸² Le Strange, *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, *Travels*, p. 149.

⁸³ *EI*, Masdjid, p. 343.

⁸⁴ A. Mazahéri, *La vie quotidienne des musulmans au Moyen Age, X^e au XIII^e siècle* (Paris, 1951), p. 173.

⁸⁵ *EI*, Masdjid, p. 343-4.

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 *ʿids*; Le Strange, *Palestine*, p. 148.

⁸⁷ Nasir-i Khusrau mentions a silver lamp suspended on a chain above the *sakhra* in the Dome of the Rock; Schefer, *Travels*, pp. 91-2. This was apparently replaced in 452/1040 with a lantern (*tannur*) containing 500 lights; Le Strange, *Palestine*, p. 130.

⁸⁸ *Ibid.*, p. 264; F. Wüstenfeld, *Jacut's Geographisches Wörterbuch* (Leipzig, 1867), p. 595.

⁸⁹ Ibn Rustah, *Kitāb al-Buldān*, 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, *Essai* I, p. 246.

chandeliers (*thurayyās*) from the dome directly in front of the *mihrab* in Maghribi mosques.⁹⁰ We are told that in the Great Mosque of Cordoba the largest chandelier hung from the dome directly in front of the *mihrab*.⁹¹ Such chandeliers, which contained as many as 1000 lights or more,⁹² 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 minaret,⁹³ 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 *imām*,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 Bāb 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

⁹⁰ L. Golvin, *L'Éclairage des mosquées en Occident Musulman*, *Quaderni di Studi Arabi* (V-VI, 1987-8), pp. 309-10.

⁹¹ Golvin, *Éclairage*, p. 309; Ibn Idhārī (tr. E. Fagnan), *Histoire de l'Afrique et de l'Espagne*, Volume II (Algiers, 1904), p. 479.

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 (*maṣābīḥ*), and the smallest just 12; Golvin, *Essai* I, p. 246; *Éclairage*, p. 305.

⁹³ See below, pp. 260-1.

⁹⁴ Ibn Idhārī, *Histoire*, p. 479; Golvin, *Essai* I, 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; Juabert, *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.

⁹⁶ A. Schmoranz, *Old Oriental Gilt and Enamelled Vessels* (London, 1899), p. 19; H. Salam-Liebich, *The Architecture of the Mamluk City of Tripoli* (Cambridge Mass., 1983), p. 87, fig. 12.

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 spriritual 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. Papadopoulo, *La Grande Mosquée de Médine et l'invention du mihrab en forme de niche*, *Le Mihrab*, p. 89.

⁹⁹ V. Strika, *Interpretazione del mihrab*, *Annali di Ca' Foscari* (X, 3, 1971), pp. 27-37.

¹⁰⁰ G.C. Miles, *Mihrab and 'Anazah, a study in early Islamic iconography*, *Archaeologia Orientalia 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-munīr*); R. Serjeant, *Hud and other pre-Islamic Prophets of Hadramawt*, *Le Museon* (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 Tabarī, *Jamī' al-Bayān Ta'wīl ay al-Quran*, Volume XVIII (Cairo, 1968), p. 134

¹⁰³ *Ibid.*, p. 137.

¹⁰⁴ Ibn Kathir, *Tafsīr al-Qur'ān al-'Azīm*, Volume III (Beirut, 1969), p. 290; R. Blachère, *Le Coran*, Volume III (Paris, 1951), p. 192. Such interpretations are also found in the Iranian world. Al-Isfahani makes the comparison between a lamp in a *mihrab* and the fiery heart in his breast; I. Afshar, *Architectural informations (sic) through the Persian Classical Texts*, *Akten des VII. Int. Kongresses für Iranische Kunst und Archäologie. München 7.-10. September 1976* (Berlin, 1979), p. 615.

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",¹⁰⁶ 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 Narshākī. 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 his face to them, and look ! They looked and saw all of the world full of light."¹⁰⁷

Among the more extreme Shi'a sects God was frequently identified with light.¹⁰⁸ This notion began to be explored as early as the second century *hijra*, influenced by the ancient Iranian dualism between light and dark.¹⁰⁹ 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.¹¹⁰ Among those early commentators in which the motif of light recurs are Saḥl al-Tustārī (d. 273/886) and Al-Hakim al-Tirmīdhī (320/932).¹¹¹ At the opposite end of the Islamic world an Illuministic (*Ishrāqī*) school was founded at Cordoba by Ibn Masarra (d. 319/931),¹¹² foreshadowing the better-known Illuministic School of al-Suhrawardī (d. 587/1191) which drew its influence from both Zoroastrian and Neoplatonic doctrines.¹¹³ Among the early commentators on Sura XXIV:35 are al-Makkī (d. 386/996)¹¹⁴ and Ṭabarī.¹¹⁵ The esoteric interpretations of these scholars find a more pragmatic and

¹⁰⁶ O. Grabar, Notes sur le *mihrab* de la Grande Mosquée de Cordoue, *Le Mihrab*, p. 115. The golden mosaics and striated voussoir 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.

¹⁰⁸ F. Rosenthal, *Knowledge Triumphant. The Concept of Knowledge in Medieval Islam* (Leiden, 1970), pp. 157-60.

¹⁰⁹ A. Schimmel, *As Through a Veil, Mystical Poetry in Islam* (New York, 1982), pp. 177-80.

¹¹⁰ T. de Boer, *Nur*, *Et*³, p. 955.

¹¹¹ H. Lazarus-Yafeh, *Studies in al-Ghazālī* (Jerusalem, 1975), pp. 268-9; R.A. Nicholson, *The Mystics of Islam* (London, 1963), pp. 50-9; Smith, *An Early Mystic*, p. 179.

¹¹² E.J. Jurgi *Illumination in Islamic Mysticism* (Princeton, 1938), pp. 5-7.

¹¹³ *Ibid.*, pp. 10-15; H. Corbin, *En Islam Iranien*, Volume II: *Sohrawardi et les platoniciens de Perse* (Paris, 1972); Eliade, *History of Religious Ideas III*, pp. 141-4. It has been suggested that Suhrawardi had access to Pahlavi sources; J. Duchesne-Guillemin, *Symbols and Values in Zoroastrianism* (New York, 1966), p. 159.

encyclopaedic counterpart in the work of al-Birūnī who mentions the same verse in his works on pearls¹¹⁶ and glass.¹¹⁷

It has frequently been asserted that the depiction of the lamp in the *mihrab* was inspired by al-Ghazālī'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,¹²⁰ 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 Ghazālī connection on three grounds. Firstly, the association between the *mihrab* and lamps predates al-Ghazālī. Secondly, the association between the *mihrab* and Sura:XXIV is established as early as the fourth/tenth century by the use of quotations from the same *sura* on *mihrabs*. Around the same time the *miṣbāh* in the *mishkāt* came to be associated with the hanging lamp (*qandīl*) in the *mihrab*. Thirdly, even the practice of depicting the lamp within *mihrabs* seems to predate the *Mishkāt 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. Manuchihrī Damghānī who, writing in the fifth/eleventh century, or

¹¹⁴ Lazarus-Yafeh, *Studies*, p. 231.

¹¹⁵ Tabarī, *Jāmi' al-Bayān* XVIII, pp. 135-40.

¹¹⁶ K. Krenkow, The chapter on pearls in the Book of Precious Stones by al-Beruni, *Islamic Culture* (XVII, 1942), pp. 23-4.

¹¹⁷ Kahle, *Bergkristall*, p. 343.

¹¹⁸ Frequently by Ettinghausen; The early history, use, and iconography of the Prayer Rug, *Collected Papers* (Berlin, 1984), p. 291; *The Legacy of Islam* [ed. J. Schacht & C.E. Bosworth] (Oxford, 1974), p. 281; *Art and Architecture*, pp. 229-30. The suggestion that the lamp never appears in *mihrabs* east of Iran is mistaken; see note p. 214. Ettinghausen's estimation of the role of the *Mishkat* finds a ready voice in the writings of other scholars; Jairazbhoy, *Outline*, p. 40, n. 145; J. Dickie, The Iconography of the Prayer Rug, *Oriental Art* (XVIII, 1, 1972), p. 43.

¹¹⁹ W.H.T. Gairdner (tr.), *Al-Ghazali's Mishkāt al-Anwār* (London, 1924); A.J. Wensinck, Ghazali's *Mishkat al-Anwar* (Niche of Lights), *Semietische Studiën uit de Nalatenschap* (Leiden, 1941), pp. 192-212. Although al-Ghazālī'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.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.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).¹²⁴ It thus appears that al-Ghazālī was drawing on a familiar image, and if the *Mishkāṭ 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)."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.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 Ḥammād.¹²⁷ In the Great Mosque of Tlemcen verses 36-7 appear to the left of the *mihrab*.¹²⁸ The same verses appear around the *mihrabs* in two later mosques at Tlemcen.¹²⁹ One wonders to what extent the early use of these verses determined the choice of Qur'anic quotations in the *mihrabs* of Fatimid Cairo.¹³⁰ Verse

¹²² Afshar, *Persian Classical Texts*, p. 615. I have not however found this verse in Kazimirsky de Biberstein's translation of Manuchihi Damghani's *Diwān*.

¹²³ H.C. Graf von Bothmer, *Architekturbilder im Koran, eine Prachthandschrift der Umayyadenzeit aus dem Yemen*, *Pantheon* (XLV, 1987), pp. 4-20, figs. 1-2.

¹²⁴ Grube, *Islamic Paintings*, No. 4, pp. 33-5, pl. IV.

¹²⁵ After the translation of Yusuf 'Ali.

¹²⁶ G. Marçais & L. Golvin, *La Grande Mosquée de Sfax* (Tunis, 1960), p. 29.

¹²⁷ R. Bourouiba, *Apports de l'Algérie à l'architecture religieuse arabo-Islamique* (Algiers, 1986), pp. 216-9.

¹²⁸ *Ibid.*, p. 213.

¹²⁹ In the mosque of Sayyīdī Abū al-Hasān (696/1296) and the mosque of Sayyīdī Abī Maydān (789/1338); Bourouiba, *Apports*, p. 199; *L'Art Religieuse*, pp. 118, 146, 199.

¹³⁰ Attention has also been drawn to parallels between the decoration of Fatimid *mihrabs* and their earlier counterparts in the

36 of the Sura of Light is used around the *mihrab* in the Mosque of al-Juyūshī (478/1085)¹³¹ and on a *mihrab* from the Mausoleum of Sayyida Ruqayya (c. 550/1155).¹³² Verses 36-7 appeared on a slab in the Jāmi‘ al-‘Amrī at Qūṣ, possibly taken from a *mihrab* of the Fatimid period.¹³³ In the Ayyubid period verses 36-8 were inscribed around a *mihrab* in the Madrasa al-Halawīyyā in Aleppo (642/1244).¹³⁴ Slightly earlier the Light Verse itself, and the verses following it, had appeared on a *mihrab* in the Citadel of Aleppo commissioned by Nūr al-Dīn Maḥmūd (pl. 179).¹³⁵

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" (*buyūt*) to denote mosques, in the *mihrabs* of which hang lamps.¹³⁶ 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*).¹³⁷ It seems equally probable that the latter verse was "held to be implicit in the reader's mind".¹³⁸

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".¹³⁹ 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).¹⁴⁰ The piece is undated, but comparison with Mausili *mihrabs* on which the lamp appears

Maghrib; Y. Ragib, *Les Sanctuaires des Gens de la Famille dans la Cité des Morts en Caire*, *Rivista degli Studi Orientali* (LI, 1977), pp. 57-8.

¹³¹ M. van Berchem, *MCAI, Première Partie, L'Égypte I* (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 *MCAI, L'Égypte II*, No. 457.

¹³³ *Ibid.*, p. 726, No. 527.

¹³⁴ E. Herzfeld, *MCAI, Deuxième Partie, Syrie du Nord: Inscriptions et Monuments d'Alep II* (Cairo, 1954), No. 102, p. 218.

¹³⁵ See below, pp. 273-4.

¹³⁶ Al-Rāzī, *Mafāṭīḥ al-Ghaib*, Volume VI (Cairo, 1909), p. 286; Tabari, *Jami' al-Bayan* XVIII, p. 134.

¹³⁷ Melikian-Chirvani, *Light of Heaven*, p. 120.

¹³⁸ *Idem.*

¹³⁹ R. Hillenbrand, *Qur'anic epigraphy in Medieval Islamic Architecture*, *Revue des Études Islamiques* (LIV, 1986), p. 181.

¹⁴⁰ N.M. al-Tūtūnchī, *al-Maḥārīb al-'Iraqīyya* (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 *mihrab* 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 Ḥākīm 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 Khorasān 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 Jāmi' in Dāmghān, 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-Ḥākīm (386-412/996-1021); Bloom, *al-Hakim*, p. 20, inscriptions 5-8.

¹⁴³ Melikian-Chirvani, *Light of Heaven*, pp. 109-110. According to Yaḳūt, 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* (CXVIII, 1909), pp. 401-5.

¹⁴⁵ R. Hillenbrand, *Manara, manar*, *EI* (new edition), p. 365.

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-Muhammadi (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.¹⁵¹ Certain early Islamic minarets were decorated with glazed faience tile which caught the light of the sun.¹⁵² 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.¹⁵³ 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.¹⁵⁴ 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.¹⁵⁵ 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 *mihrahs* and minarets is almost simultaneous.¹⁵⁶

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.¹⁵⁷ 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.¹⁵⁸ 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 *ratt* of oil and act as a lamp; Levi-Provençal, *La Peninsule Ibérique*, p. 187; Jaubert, *Géographie*, p. 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"; Bisheh, *Mosque of the Prophet*, pp. 326-7, n.164.

¹⁵² The minaret at the Qala' of the Banu Ḥammād; above, p. 98.

¹⁵³ On the minaret in the Complex of Qalā'ūn (late seventh/thirteenth century), the minaret in the Mausoleum of Sanjar al-Gawfī (704/1304), the minaret of Qusūn (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.

¹⁵⁵ Flood, *Iconography*, pp. 181-2.

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 Maktum Mosque in Homs; *RCEA* No. 1899.

¹⁵⁷ J.M. Bloom, *Minaret, Symbol of Islam*, *Oxford Studies in Islamic Art* VII, pp. 111-2; J.D. Dodds (ed.), *The Art of Muslim Spain* (New York, 1992), No. 41, p. 249-51.

be set in place after the liberation of Jerusalem. Nūr al-Dīn 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 Nūr al-Dīn 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

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

¹⁶² M. Bement Smith, *The wood mimbar in the Masjid-i Djāmi'*, Nain, *Ars Islamica* (V, 1938), p. 21.

¹⁶³ W.B. Denny, *Saff and Sejfadeh: Origins and Meaning of the Prayer Rug*, *Oriental and Carpet Textile Studies* (III, 2, 1990), pp. 95-6.

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.¹⁶⁵ In other *mihrabs* the connection with the arcade is emphasised by the appearance of a blind arcade within the *mihrab* itself.¹⁶⁶ 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."¹⁶⁷ 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.¹⁶⁸

The motif of the continuous arcade was widely disseminated in Sasanian, Late Antique, and Early Christian Art and is likely to have paradisaical connotations.¹⁶⁹ 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.¹⁷⁰ The motif of the arcade with hanging lamps also appears in pre-Islamic Jewish art.¹⁷¹ 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).¹⁷² 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).¹⁷³ The association between the illuminated arcade and the *mihrab* with its light continued in subsequent periods.¹⁷⁴

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 Saff and Sejjadeh, p. 96, figs. 9-10.

¹⁶⁷ N. Khoury, *The Mihrab Image: Commemorative Themes in Medieval Islamic Architecture*, *Muqarnas* (IX, 1992), p. 13.

¹⁶⁸ See below, pp. 324-9.

¹⁶⁹ L-I Ringbom, *Three Sasanian Bronze Salvers with Paradaeza Motifs*, *SPA*, Volume XIV, pp. 3029-41.

¹⁷⁰ On the Sarcophagus of Junius Bassus (c. 359) for example; de Fleury, *La Messe* 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).¹⁷⁵ 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,¹⁷⁶ 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.¹⁷⁷ 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 ^{illuminated arcade} have a basis in actual practice. As the two early depictions of the mosque 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 *muṣallā*.¹⁷⁸ Nasir-i Khusrau describes both hanging lamps (*qanādīl*) and standing oil lamps (*masrūjaha*) in the arcades of the Dome of the Rock.¹⁷⁹ 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).¹⁸⁰

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,

¹⁷⁵ Various, *La Voie Royale - 9000 Ans d'Art au Royaume de Jordanie*. Musée du Luxembourg 26 Nov. 1986- 25 Jan. 1987 (Paris, 1986), p. 270, No. 357; P. Bienkowski (ed.), *The Art of Jordan* (London, 1991), fig. 109.

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.

¹⁷⁹ A.S. Melikian-Chirvani, *The Lights of Sufi Shrines*, *Islamic Art* (II, 1987), p. 119.

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 *miṣbāḥ* mentioned in the Light Verse is often used in the generic sense of flame or light,¹⁸¹ and came to be associated with the hanging lamp (*qandīl*) in particular.¹⁸² This came about perhaps by the connection of the *miṣbāḥ* with the *mishkat*, which many commentators interpret as a piece of iron (*al-hudā'īd*), presumably a chain, used to suspend the *miṣbāḥ*.¹⁸³ We know that the lamps used in Early Islamic mosques were usually suspended by metal chains,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),¹⁸⁵ or the perpetual flame of the *chahar-taq*.¹⁸⁶ In certain Timurid *mihrabs*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.¹⁸⁸ Although no lamp is mentioned, these appear to be prototypes of the *saff* carpets on which, at a later date, lamps were frequently depicted.¹⁸⁹

¹⁸¹ See note 92 above.

¹⁸² By the fourth/tenth century or earlier; Tabarī, *Jamī' al-Bayān* XVIII, p. 139.

¹⁸³ *Ibid.*, p. 140; Ibn Kathir, *Tafsīr* III, p. 290.

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 Judaeo-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 Reuther, cited by Pope; *Garden Palace*, p. 82.

¹⁸⁷ In a shrine and mosque at Bīdhakhāvid and a shrine at Tulan Push. To the best of my knowledge only the *mihrab* in the mosque at Bīdhakhāvid has been published; Hillenbrand, *Epigraphy*, p. 182, fig. 5; I. Afshar, *Yādgarhā-yi Yazd* (Tehran, 1970), p. 560.

¹⁸⁸ Ibn Hauqal, *Configuration de la Terre (Kitāb Sūrat al-Ard)*, [tr. J.H. Kramers & G. Wiet], Volume II (Paris, 1964), p. 470.

The earliest surviving *mihrab* on which a hanging lamp is depicted is in the mosque of Aḥmad ibn Ṭūlūn in Cairo (pl. 168).¹⁹⁰ The carving on the surface of the *mihrab* is badly damaged, but shows an object suspended from the arch of the *mihrab* by a twisted chain. The object has been interpreted variously as a lamp¹⁹¹ and a star.¹⁹² Both have been used as symbols of divine light within the *mihrab*, and one may be seen almost as an avatar of the other.¹⁹³ 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 *mihrab* was a lamp. The *mihrab* 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 *mihrab* had assumed a symbolic dimension by this date.¹⁹⁴ The depiction of the lamp on this *mihrab* 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 Kharrāqān tomb towers (460/1067-8) [fig. 69].¹⁹⁵ 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 *mihrab*.¹⁹⁶ The theme of divine light and, more specifically the lamp, have a particular funerary significance.¹⁹⁷ It is worthy of note that the earliest surviving mosque lamp on which the Light Verse appears is a Rum Seljuq lamp.¹⁹⁸

¹⁸⁹ Denny, *Saff and Sejjadeh*; Ettinghausen, *Prayer Rug*; Dickie, *Prayer Rug*.

¹⁹⁰ *EMA* II, pl. 123b.

¹⁹¹ C. Williams, *The cult of 'Alid saints in the Fatimid monuments of Cairo part I: the Mosque of al-Aqmar*, *Muqarnas* (I, 1983), p. 45.

¹⁹² D. Behrens-Abouseif, *The Facade of the Aqmar Mosque in the Context of Fatimid Ceremonial*, *Muqarnas* (IX, 1992), p. 33.

¹⁹³ See below, pp. 271-6.

¹⁹⁴ It is reported that an unpublished *mihrab* from Nishapūr 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 für Turkisches Kunst* (Munich, 1987), p. 506.

¹⁹⁵ G. Öney, *The interpretation of the frescoes in the I Kharrāqān Mausoleum near Qazwin*, *Akten des VII. Internationalen Kongresses für Iranische Kunst und Archäologie München 7.-10. September 1976* (Berlin, 1979), pp. 480-7; A. Daneshvari, *A Stylistic and Iconographic Study of the Persian Tomb Towers of the Seljuk Period*, unpublished Ph.D. thesis (University of California, 1977), pp. 70-5; *Medieval Tomb Towers of Iran: an Iconographical Study* (Malibu, 1986), pp. 42-4, fig. 28, pl. 21.

¹⁹⁶ Daneshvari, *Stylistic and iconographic study*, p. 74.

¹⁹⁷ See below, pp. 268-9.

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.¹⁹⁹ Even if one disputes the dating of the Ṭulūnid *mihrab*, the evidence from Kharraqān 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.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.²⁰¹ Among the earliest *mihrab*-plaque to use the motif is a marble slab from Ghaznī (pl. 171), dated to around 494/1100, but which might conceivably be later.²⁰² In Anatolia the lamp appears above the *mihrab* in the Kale Çami at Divriği in 567/1180-1 (pl. 170),²⁰³ and within a *mihrab* in the Ulu Çami of Dunaysir (601/1204).²⁰⁴ After its initial appearance the lamp image recurs in the *mihrabs* of other Anatolian mosques during the seventh/thirteenth and eighth/fourteenth century (pl. 172).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 Sinjār (pl. 173).²⁰⁶

¹⁹⁹ Williams, *Cult I*, 45-7.

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 Cami of Eski Malatya*, *Ars Turcica: Akten des VI. Internationalen Kongresses für Türkische Kunst* (München, 1987), p. 137, figs. 2a-b.

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/twelfth century onwards. On the question of whether some of the earliest *mihrabs* assumed the form of flat plaques see A. Dauolatli, *Le mihrab: signe ou symbole ?*, *Le mihrab*, pp. 76-82.

²⁰² David James in *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-Tutunchī, *al-Mahārib*, fig. 59, pl. 34.

²⁰³ Omür Bakirer, *Onüç ve ondördüncü Yüzyillarda 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-Tutunchī, *al-Mahārib*, fig. 64, pls. 36-7.

²⁰⁴ Visible in D. Hill and O. Grabar, *Islamic Architecture and its Decoration* (London, 1964), figs. 510-11.

²⁰⁵ Ulu Çami, Akşehir (616-34/1220-36); Konya, Alevi Sultan Mesçidi (eighth/fourteenth century); Bakirer, *Anadolu Mihrablari*, Nos. 65-6.

²⁰⁶ Mausoleum of Sitt Zaynab, Sinjar (1239-46/637-644), Mausoleum of Imām Yahya ibn al-Qāsim, Mosul (637/1240), Mausoleum of Imām 'Awn al-Dīn, Mosul (646/1248), Mosque of Panja 'Ali, Mosul (686-7/1287-8), Mausoleum of Imām al-Baḥr, Mosul (647-57/1249-58); Sarre & Herzfeld, *Archäologische Reise*, Vol. II, pp. 275-6, fig. 268, Vol. III, pl. 4; al-Tuntunchi, *al-Mahārib*, figs. 28, 59, 64, pls. 33-4, 36-7. A later example appears in the Mosque of Nabi Yūnis, Mosul (727/1326); J. al-Dawāchī, *Mosul. Umm er Rabi'ain* (Baghdad, 1965), pl. 39.

Similarly, around 612/1215 a hanging lamp bearing the name "Allah" appears in a *mihrab* carved in the Tomb of Cyrus at Pasargadae.²⁰⁷ Simultaneously the motif features on a lustre *mihrab* in the shrine at Mashhad.²⁰⁸ This is one of the first in a long series of lustre *mihrabs* and funerary plaques on which the lamp appears.²⁰⁹ 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).²¹⁰ 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),²¹¹ it is found on *mihrabs* only from the eighth/fourteenth century (fig. 73).²¹² In the same century the image of the lamp appeared on *mihrabs* in Yemen²¹³ and Western India, especially Gujarat.²¹⁴

The image of the *mihrab* with its hanging lamp appears simultaneously on Egyptian,²¹⁵ Northern Mesopotamian,²¹⁶ and Iranian (pl. 174)²¹⁷ funerary stelai from the second half of the sixth/twelfth

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. Baer, *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.

²⁰⁹ Ibid., pp. 122, 142, pls. 109, 125, N, fig. 126; M. Aga-Oglu, Fragments of a thirteenth-century *mihrab* at Nedjef, *Ars Islamica* (II, 1935), pp. 130-1; G.C. Miles, Epitaphs from an Isfahan Graveyard, *Ars Islamica* (VI, 1939), p. 156, fig. 11; M. Bernus-Taylor & J. Moulhierac, Plaques Il-Xânides au Musée du Louvre, *Art et Société dans le Monde Iranien* [ed. C. Adle] (Paris, 1982), pp. 219-33.

²¹⁰ See note 187 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 Ashrafiyya in Tā'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 I, North-West Provinces and Oudh* (Calcutta, 1889), pp. 53, 55, 111 pl. LIX; 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-Tütünchī, *al-Mahārīb*, 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. Fehervari, 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 Afghanistan²¹⁸ and Anatolia²¹⁹ from the seventh/thirteenth century, and on Yemeni²²⁰ and Gujarati²²¹ 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 tomb²²² and the actual lamps dedicated at mausolea by pious visitors.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,²²⁴ and the same word could signify both a prayer-niche and a burial place.²²⁵ It seems likely that the funerary plaques could even, on occasion, serve as *mihrabs*.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.²²⁷ One might add that the symbolism of light and dark permeates Qur'anic descriptions of Paradise²²⁸ and the Day of Judgement, when the brilliant faces of the elect will be contrasted with the blackened faces of the damned.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,²³⁰ and in many parts of the Islamic world

218 J. Sourdel-Thomine, Stèles Arabes de Bust (Afghanistan), *Arabica* (III, 1956), pp. 299-300, No. 4, pl. IIIb.

219 J.M. Rogers, Calligraphy and Common Script: Epitaphs from Aswan and Akhlat, *Content and Context of Visual Arts in the Islamic World* (London, 1988), pp. 105-37, pp. 114-6, figs. 8, 13-5, 20.

220 G. Rex Smith & V. Porter, The Rasulids in Dhofar in the VIIth-VIIIth/XIIIth-XIVth centuries, *JRAS* (1988), pp. 26-44, fig. 5.

221 J. Burgess, *Archaeology of Western India VI: on the Muhammedan Architecture of Gujarat* (London, 1896), p. 25, pl. XIX.

222 According to a *hadith* the souls of the blessed take refuge in lamps (*qanādīl*) which hang around the Throne of God; Khoury, *Mihrab* image, pp. 18-9.

223 J. Sauvaget, Deux Sanctuaires Chiïtes d'Alep, *Syria* (IX, 1928), p. 229, Melikian-Chirvani, *The Lights of Sufi Shrines*, pp. 118-9.

224 See p. 255 above.

225 Fehervari, *Tombstone*, pp. 249-52; for a critique of this view see Bisheh, *Mosque of the Prophet*, pp. 257-9.

226 Although graves were usually set parallel to the *qibla*, with the stela thus perpendicular to it, funerary plaques were sometimes included in the *qibla* wall of mosques; *Archäologische Reise II*, pp. 286-7, fig. 276.

227 Melikian-Chirvani, *Lights of Sufi Shrines*, p. 118; W. Wirgin, *The menorah* as symbol of after-life, *Israel Exploration Society* (XIV, 1964), pp. 102-4.

228 See above, pp. 195-6.

229 Qur'an LXXV:22-4. According to al-Ghazālī, 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.

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 *mihhrabs*. In Syria the lamp is conspicuous by its absence on *mihhrabs*, 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 *mihhrabs*, 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 Ifrīqīyā. Instead *polycandela* and large chandeliers (*thurayyās*) were the preferred methods of mosque illumination.²³⁴ However, the *miṣbāḥ* is not a *qandīl*, 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 *mihhrab* and its lamp occurs on a series of Egyptian tombstones between 576/1181 and 684/1283,²³⁶ the *mihhrab* in the mosque of Ibn Ṭūlūn (pl. 168) is the sole surviving example of an Egyptian *mihhrab* on which the lamp is depicted before the eighth/fourteenth century. Given that the image of the *mihhrab* and its lamp appears on the facade of the Aqmar Mosque (pl. 169), one wonders why the lamp was not used in Fatimid *mihhrabs*, 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 *mihhrab*. The use of star medallions to serve the same end in Fatimid *mihhrabs* 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 *mihhrab* was an accurate representation of contemporary practice.²³⁹ It may be

²³¹ C. Williams, The cult of 'Alid saints in the Fatimid monuments of Cairo part II: the mausolea, *Muqarnas* (III, 1985), p. 44; R. Milstein, Light, fire and the sun in Islamic painting, *Studies in Islamic History and Civilization in Honour of Professor D. Ayalon* (Jerusalem, 1986), p. 540; Rajib, Sanctuaires, p. 70; Y. A. al-Tabaa, *The Architectural Patronage of Nur al-Din (1146-74)*, unpublished thesis (New York, 1982), p. 239; Khoury, *Mihrrab Image*, n. 86.

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 *mihrrab*-lamp image also appears on a ceramic plaque of the sixth-seventh/twelfth-thirteenth century said to be from northern Syria; M. Bernus, Céramiques du Proche-Orient Arabe, *Revue du Louvre* (I, 1973), pp. 42-3, fig. 3.

²³³ See below, p. 303.

²³⁴ Golvin, *Éclairage*; Baer, *Metalwork*, p. 39.

²³⁵ Verses 35 to 38 appear on the main chandelier in the Great Mosque of Taza (530/1135); H. Terrasse, *La Grande Mosquée de Taza* (Paris, 1943), p. 12.

²³⁶ See above, 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 *mihrrab* (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-Ghazali, 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

that there may already have been an actual lamp hanging in the niche.

²⁴⁰ Even if one does not accept a Ṭūlūnid 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.

²⁴³ A. Lézine, *Architecture de l'Ifriqiyya - Recherches sur les Monuments aghlabides* (Paris, 1966), pp. 91-2, fig. 38; Daoulatli, *Mihrab*, pp. 76-8; L. Golvin & D. Hill, *Islamic Architecture in North Africa* (London, 1976), pl. 116.

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 *mihrahs* of Fatimid Cairo has been well documented.²⁴⁴ These star medallions are usually set at the centre of a series of radial ribs which create a similar impression of effulgence (pl. 175).²⁴⁵ In the Fatimid mausoleum at Qūṣ (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.²⁴⁶ The hexagonal star may in fact be considered something of a hallmark of Fatimid religious art.²⁴⁷ 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*.²⁴⁸ 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,²⁴⁹ and the appearance of the star in connection with the lamp is surely not coincidental.²⁵⁰ In view of the association between the star and the lamp on the Aqmar facade,

²⁴⁴ Star medallions appear in the *mihrahs* 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 *mihrahs* in the al-Ḥaṣawātī Tomb (c. 545/1150) and the mausoleum of Yahya al-Shaḥīn 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. Monneret de Villard, *La Necropoli Musulmana di Aswan* (Cairo, 1930), p. 22, fig. 33.

²⁴⁷ In addition to the *mihrahs* 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 Mashhad al-Juyūshī (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, *MCAI*, L'Égypte I, No. 638.

and the absence of the lamp in surviving Fatimid *mihirabs*, 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 Islam²⁵¹ and it is conceivable that the Fatimids were using a visual language developed earlier in non-Shi'a,²⁵² or even non-Islamic,²⁵³ contexts. After the Sunnī revival the radiant decoration of these Fatimid *mihirabs* appears to have influenced the design of *mihirabs* in which similar references to divine effulgence are made using a different, if related, visual language.²⁵⁴

Slightly later than the Aqmar Mosque, in the Friday Mosque at Eski Malatya (645/1247), the hanging lamp appears within a stylised niche against a background filled with five- and six-pointed stars (fig. 72).²⁵⁵ 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.²⁵⁶ Approximately contemporary are two tombstones from the funerary complex of Shaikh Fathī in Mosul on each of which is depicted a niche decorated with six-pointed stars containing the name of the Prophet.²⁵⁷ The star motif recurs in the wooden *mihrab* formerly in the citadel of Aleppo (563/1168) [pl. 179].²⁵⁸ 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,²⁵⁹ a theme stressed in the Qur'anic quotations found on the *mihrab*.²⁶⁰ The presence of the Light Verse among

²⁵¹ Although one might point to the frequency with which Qur'anic verses making reference to the cosmic luminaries appear on *mihirabs* 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 Qairawān, which are visually similar to the Fatimid *mihirabs*, have been described as scalloped shells "simulating sunrays flaming out from a central navel"; Jairazbhoy, *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. Drioton, *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-Nūriyya in Damascus and the Salihīn 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 *mihirabs* 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, *MCI.A. 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-Suyūṭī 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 Qairawān (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 of 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

²⁶¹ G. Marçais, *Manuel d'Art Musulman*, Volume II (Paris, 1927), p. 386, fig. 216.

²⁶² Strika, *La «cattedra»*, p. 44.

²⁶³ See above, p. 251.

²⁶⁴ G. Marçais & L. Poinssot, *Objets Kairouanais IX^e au XIII^e 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 Sanatının 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. Fehérvári, *Islamic Metalwork*, No. 98.

mind when he described two pierced brass lamps in the court of the mosque as shining like the Pleiades.²⁶⁹ 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.²⁷⁰ 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).²⁷¹ 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 Tūlūnid *mihrab* discussed above is a star and not, as generally believed, a lamp.²⁷² 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.²⁷³ 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."²⁷⁴

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 Allan, *Islamic Metalwork*, Nos. 7-9. See below, pp. 311-2.

²⁷² Behrens-Abouseif, *Fatimid Ceremonial*, p. 33. On balance, though, I believe that the lamp is a more likely explanation of the design.

²⁷³ E.R. Goodenough, *By Light, Light* (Amsterdam, 1969), p. 113.

²⁷⁴ W. Oakeshott, *The Mosaics of Rome from the Third to the Fourteenth Centuries* (London, 1967), p. 153. A similar idea is given a more literal expression in a fifth-century North African *polycandelon* in the shape of a basilica which has a six-pointed star pierced in the semi-dome of its apse; de Fleury, *La Messe* VI, p. 13, pl. CDXXVIII; R. de Lasteyrie, *L'Architecture Religieuse en France a l'Époque Romane* (Paris, 1929), fig. 73.

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 *Lousiana 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 [969-1517]* (Cairo, 1969), No. 179, pl. 31; Atil, *Renaissance*, No. 139, p. 139. Herz-Bey (*Catalogue*, p. 31) pointed out that lamps of this type were known as *qanadīl Qalā' ūny*. In the Ottoman period, if not earlier, the coloured glass used in the *qamariyyat* of Cairo was known as *zujāj qalā' ūn*; N. Hanna, *Construction work in Ottoman Cairo [1517-1798]* (Cairo, 1984), p. 41.

Qur'anic inscription on these lamps (pl. 123).²⁸² 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.²⁸³ In other parts of the Islamic world more subtle means were found to associate lamps with the Light Verse.²⁸⁴

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 -²⁸⁵ 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)²⁸⁶ and, later, ceramic²⁸⁷ 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).²⁸⁸ On the lamp which hangs from the summit of the niche the words "God is the Light of the heavens and the earth" appear.²⁸⁹ The multi-layered reference to divine illumination is compounded by a second feature, the appearance of a single

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, *Lampes en verre émaillé*, *Bulletin de l'Institut d'Égypte* (XIV, 1932), pp. 117-26, No. 4, pls. IV-VI; G. Wiet, *Catalogue Générale du Musée Arabe: Lampes et bouteilles en verre émaillées* (Cairo, 1929), No. 332.

²⁸² Wiet, *Lampes*, 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. Heim, *Eine datierbare Moscheelampe aus der Mamlukenzeit*, *Wiener Zeitschrift für die Kunde des Morgenlandes* (LIII, 1957), p. 89; Atil, *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 Gilt*, p. 20.

²⁸³ Atil, *Anatolian Civilisations III*, p. 75, D.138.

²⁸⁴ An oil lamp on a stand (*chiraghḍān*), possibly commissioned by Uzun Ḥassan (856-82/1452-78) for a *sūfī* tomb, bears an inscription in which God is described as both a radiant lamp (*misbāh*) and a luminary (*sirāj*). 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 Barqūq is particularly striking.

²⁸⁶ Wiet, *Objets en Cuivre*, No. 130.

²⁸⁷ S.S. Blair & J.M. Bloom (eds.), *Images of Paradise in Islamic Art* (Austin, 1991), p. 95, No. 30a.

²⁸⁸ Herz-Bey, *Catalogue*, No. 19, pp. 10-1; Atil, *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),²⁹⁰ and as many as five lamps may be depicted on the sides of certain concave *mihirabs*.²⁹¹ 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 Yaḥya ibn al-Qāsim in Mosul (637/1240) [pl. 173].²⁹² A similar image is found on a carved wooden panel of Ayyubid date from Cairo (pl. 184).²⁹³ Slightly later the candles appear in a *mihrab* image in the Ulu Çamii of Eski Malatya (645/1247) [fig. 72],²⁹⁴ and in other Anatolian *mihirabs* (pl. 172). In Egypt the flanking candles are found on tombstones in the second half of the seventh/thirteenth century [fig. 71 a-b].²⁹⁵ Their use continued in the Mamluk period, most notably on the wooden cenotaph of Khalid ibn Walid from Homs (pl. 185).²⁹⁶ 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).²⁹⁷ 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).²⁹⁸ 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-Tūtūnchī, *al-Māhārīb*, 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 Mashhad al-Diqqa in Aleppo; Sauvaget, *Deux Sanctuaires*, pl. LXXIII.

²⁹⁷ Goodenough, *Jewish Symbols III*, figs. 639, 646, 631-2.

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.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.³⁰⁰ In the Turkic domains a perpetually lit candle was placed to the right of the *mihrab* which was designated by the term *ocağ* (fire place),³⁰¹ and the theme of the candle as a *qibla* is one which occurs frequently in the work of *sufi* writers such as Rūmī.³⁰² Equally, it has been argued that the origins of the *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.³⁰³ The enormous candles which flanked the *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 *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."³⁰⁴

The depiction of such additional light sources can, however, detract from the power and simplicity of the *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,³⁰⁵ and even the flame emerging from the lamp can sprout leaves or assume the form of budding vegetation (pl. 187).³⁰⁶ On contemporary tombstones from the eastern Iranian world it appears that the lamp could even be replaced by hanging vegetal motifs.³⁰⁷

²⁹⁹ See p. 254 above.

³⁰⁰ As suggested by James Dickie, *Prayer Rug*, n. 17.

³⁰¹ E. Esin, *Oldruğ-Turuğ*. The Hierarchy of Sedent Postures in Turkish Iconography, *Kunst des Orients* (VII, 1970/1), pp. 1-29, p. 10.

³⁰² Arberry, *Mystical Poems*, No. 170, p. 142.

³⁰³ L.I Rempel, La maquette architectural dans le culte et la construction de l'Asie Centrale préislamique, *Cultes et Monuments Religieux dans l'Asie Centrale Préislamique* [ed. F. Grenet] (Paris, 1987), pp. 85-6; Melikian-Chirvani, *Light of Heaven and Earth*, pp. 112-6.

³⁰⁴ Crane, *Risāle*, p. 65.

³⁰⁵ In the Mausoleum of Imām al-Bahir in Mosul (647-57/1249-58); al-Tutunchi, *al-Mahārīb*, fig. 64, pls. 36-7.

³⁰⁶ *Ibid.*, fig. 42, pl. 23.

³⁰⁷ On a stele from Bust dated 650/1252 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).³⁰⁸ 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 *mihrabs*, but on prayer rugs of the ninth/fifteenth and tenth/sixteenth centuries.³⁰⁹ The depiction of *mihrabs* had been common on such rugs from the fourth/tenth century,³¹⁰ and those that survive often faithfully depict the *mihrab* with its hanging lamp long after the image had ceased to appear in actual *mihrabs*.³¹¹ 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).³¹² The number of lamps hanging in the *mihrabs* on carpets could also be increased.³¹³ 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.³¹⁴ That the scenes depicted on such carpets are often accurate reflections of *mihrab* decoration is indicated by the occurrence of similar images on surviving *mihrabs*. On a ceramic panel in the *mihrab* of the Yesil Türbe in Bursa (828/1424) a lamp flanked by candles hangs from an arch.³¹⁵ 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 Aqsunqūr in Cairo (pl. 201). This panel is unusually late, for although lamps continue to appear in the *mihrabs* depicted on prayer rugs, they are rarely shown in actual *mihrabs* after the ninth/fifteenth century.³¹⁶

It may be that visual resemblances and functional similarities between the lamp and the vase

"un maigre fleuron trilobée"; Sourdell-Thomine, *Stèles Arabes*, No. 5, pp. 300-1, pl. VIa.

³⁰⁸ Ettinghausen, *Legacy of Islam* (ed. Schacht & Bosworth), pp. 281-2, figs. 29-30; Jones & Michell, *The Arts of Islam*, No. 55, p. 96; M. S. Dimand, *Oriental Rugs in the Metropolitan Museum of Art* (New York, 1973), p. 88, fig. 122.

³⁰⁹ Ettinghausen, *Prayer Rug*; Dickie, *Prayer Rug*.

³¹⁰ Ibn Hauqal, *Configuration II*, p. 470.

³¹¹ Depictions of lamps in actual *mihrabs* are rare after the ninth/fifteenth century. One of the latest is in Mosque of Aqsunqūr 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 Ardabīl 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 *mihrabs* 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/twelfth-century Khurasān.³¹⁷ The Geniza documents mention both 'jug lamps' (*manāra sharabīyya*)³¹⁸ and vessels which could function as either a lamp-stand or a vase.³¹⁹ According to Ibn Asakir the mysterious *qulayla* hanging in the *mihrab* of the Damascus Mosque was replaced by a glass vase (*burnīyya*).³²⁰ The lamps which were used in medieval Islamic mosques sometimes contained perfumed oil,³²¹ 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).³²² The two vessels on the clock of al-Jazarī (ill. 137), clearly shown to be vases, are referred to in the text as *qanādīl*,³²³ 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),³²⁴ which suggests that they did not have an exactly equivalent meaning.³²⁵ It seems likely that one should^{SEE} in the gradual floralisation or vegetalisation of the *mihrab*-lamp image an equivalent change in meaning, or at least a change of emphasis.³²⁶ This is perhaps related to the ability of the niche to act as both an actual *mihrab* and a symbolic gateway opening on paradise.³²⁷ The Islamic notion of paradise is intimately connected with

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 Türbe 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/fifteenth-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 (*firdāus* or *jannā*),³²⁸ and paradisaical themes are often stressed in the decoration of earlier mosques.³²⁹ 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*.³³⁰ Descriptions of paradise characterise it as a place of light,³³¹ 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.³³² 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.³³³ 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."³³⁴ 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 *mihrab*-lamp image dissipated or altered its original meaning, transforming its specificity into a generic paradisaal reference. After the ninth/fifteenth century the image of the lamp is rarely found on *mihrabs*, although it continues to appear in the *mihrabs* and arcades depicted on prayer rugs until the present day. Equally, electric bulbs and neon strips in *mihrabs* and minarets continue to evoke the brilliance of the *miṣbāḥ* just as the *qandīl* 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 *shamsiyyat* and *qamariyyat* in the decoration of medieval palaces, *hammams*, 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 *shamsiyyat/qamariyyat* and other forms of architectural decoration^{shows} that they were often designed as part of an integrated decorative scheme.

Functionally the development of *qamariyyat* and *shamsiyyat* 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

⁴ Leon, *Window glass*, p. 456.

⁵ See above, p. 96.

⁶ Altmann & Stern, *Isaac Israeli*, pp. 119, 127.

⁷ After J. Schangler, *La Philosophie de Salomon ibn Gabirol - Étude d'un Néoplatoniste* (Leiden, 1966), p. 50.

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 *hadith*¹¹ 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 Qalāwūn (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 *shamsiyyat and qamariyyat* 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

⁹ A.J. Arberry, *Mystical Poems of Rūmī* (Chicago, 1968), Nos. 82, 139.

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 Bukhārī; Goldsack, *Muhammadan Traditions*, p. 305.

¹² Wilber, *Islamic Architecture*, p. 125.

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.¹⁴ 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".¹⁵

In the Late Antique period the Imperial cult assumed an increasing solar aspect,¹⁶ 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).¹⁷ 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.¹⁸ 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.¹⁹

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.

²¹ R.W. Thomson, *Architectural Symbolism in Classical Armenian Literature*, *Journal of Theological Studies* (XXX, 1979), pp. 102-14, p. 110; see below, p. 306.

²² Meyer, *Crown Glass*, p. 29.

²³ Trowbridge, *Window*, p. 107

²⁴ A. Dupont-Summer, *Une Hymne Syriacque sur la Cathédrale d'Édesse*, *Cahiers Archéologiques* (II, 1947), p. 31; A. Grabar, *Le Témoignage d'une Hymne Syriacque sur l'architecture de la Cathédrale d'Édesse au Vie 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.

²⁵ Mango, *Art*, pp. 97-8.

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. Westgaard, *The first dome of the Haghia 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

²⁸ O. Bolak, *A Research on Mosque Lighting* (Istanbul, n.d.), pp. 24-5.

²⁹ On the symbolic oculus as a window see Trowbridge, *Window*, pp. 105-13.

³⁰ *Ibid.*, p. 105.

³¹ See above, p. 32.

³² J. Harvey, *The Medieval Architect* (London, 1972), p. 226.

³³ Dow, *Rose-window*, p. 280.

³⁴ J. Mason Neale & B. Webb, *The Symbolism of Churches and Church Ornaments by William Durandus* (Leeds, 1843), pp., 28-9.

³⁵ Gage, *Gothic Glass*, pp. 44-6; Stookey, *Gothic Cathedral*.

windows, *qamariyyat* and *shamsiyyat* 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 *mihrab* and light from an early date. This is often expressed through the rich decoration of the *qibla*, and the *mihrab* in particular. Numerous sources describe the splendid decoration of *qibla* walls and *mihrabs*, especially in the cathedral mosques.³⁶ The use of rich polychrome decoration and gilding transformed the mosque, *madrassa* 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 *mihrab* in the Great Mosque of Qairawān (ill. 39). Ibn Jubayr describes the wall surrounding the Ka'ba as being decorated with the forms of *mihrabs*, 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

³⁶ See above, pp. 244-5.

³⁷ After Defrémery & Sanguinetti, *Voyages I*, p. 122.

³⁸ Oakeshott, *Mosaics*, p. 94.

³⁹ E.H. Gombrich, *Meditations of a Hobby-Horse* (London, 1963), pp. 15-6.

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 *qamariyyat* 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 - Simbolo 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 XIIIe siècle (Brugge, 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.

⁴⁷ After Van der Berghe, Temple, p. 223; Frankl, Gothic, p. 182. A contemporary writer describes the stained glass windows of Strasbourg Cathedral in identical terms; Alcaide, La Luz, p. 51. On the relationship between the Temple of the Grail and the Gothic cathedral see Sedlmayer, Entstehung, pp. 85-91.

The notion that jewels were luminous was widespread in the medieval world;⁴⁸ 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 translucent: 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 has 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 *shamsiyyat* 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.

⁵⁰ Pliny, *Nat. Hist.* XXXVI: 46.

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,⁵⁶ were intended to evoke the brittle splendours of Paradise.⁵⁷ 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.⁵⁸ 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 pieces of coloured glass are used in much smaller units, in line with a more controlled attitude to lighting.⁵⁹ 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.⁶⁰

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.⁶¹ In the *Maqāmat* of al-Harīri 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."⁶²

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.⁶³ 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-

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 *qamariyyat* and *shamsiyyat*.

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"; *Mishkāt*, p. 151. The same fact is used by St. Bonaventure to show that all things, even opaque substances, possess luminosity; de Bruyne, *Études* III, p. 22.

⁶² T. Chenery, *The Assemblies of al-Harīri*, Volume I (London, 1867), pp. 207-8.

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, Muqarnas* (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-Rāzī (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 *ʿaqīq* (cornaline) for certain a certain type of 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-ʿUmari compares the effect of light shining from the *qamariyyat* of the Qaṣr al-Ablaq 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

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.

⁶⁷ Y. al-Hassan and D. Hill, *Islamic Technology, an Illustrated History* (Cambridge, 1986), pp. 154-5; Kahle, *Bergkristalle*, pp. 352-6; Aitchison, *Coloured glass*, p. 56; M. Berthelot, *Les Origines d'Alchimie* (Paris, 1938), p. 249. In the Late Antique world the term *vitreus* could denote either a glass gem or a window; Trowbridge, *Philological Studies*, p. 78.

⁶⁸ Gage, *Gothic glass*, n.44.

⁶⁹ Bonenfant, *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-Haitham⁷³ 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,⁷⁴ one wonders whether Ibn al-Haitham's distinctions were equally apparent to all those observing the light emanating from *qamariyyat* and *shamsiyyat*. Indeed the idea of radiance, if not self-radiance, seems implicit in the names of such grilles which embody the sun and the moon.⁷⁵

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.⁷⁶ 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.⁷⁷ 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."⁷⁸

⁷³ T de Boer, *Nur*, EI, p. 954.

⁷⁴ According to Nizāmī even a precious stone such as spinel (*La'l*) shines in the night like a light; Z. Vesel, *Sur la Terminologie des Gemmes: Yaqut et La'l chez les Auteurs Persans*, *Studia Iranica* (XIV, 1985), p. 151. The motif of self-luminous windows and doors is found in Zoroastrian accounts of paradisaal architecture; H. Corbin, *L'Homme de Lumière dans le Soufisme Iranien* (Paris/Brussels, 1971), p. 64. These and other accounts may have provided the sources for later *ṣūfī* descriptions of radiant jewelled mosques which function as mystical archetypes; H. Corbin, *L'Alchimie comme Art Hiératique* (Paris, 1986), pp. 96-8. The jewels in the Peacock Throne of the Mughal ruler Shah Jahan are said to have shone with the light of lanterns; Hasan, *Researches*, p. 193.

⁷⁵ See above, p. 16.

⁷⁶ Titus Burckhardt attributes a mystical significance to this effect, seeing in it a metaphor for spiritual metamorphosis; *Sacred Art in East and West, its Principles and Methods* (Bedfont, 1976), pp. 62-3.

⁷⁷ In the tenth/sixteenth-century *Majma' al-Bahrāin*, for example, three kinds of light are described. These are ruby-coloured, moon- or pearl-coloured, and the light of essence, which is colourless; M. Mahfūz al-Ḥaqq (tr.), *Majma' ul-Bahrāin*, Prince Muhammad Dara Shikuh (Calcutta, 1929), p. 48.

⁷⁸ N. & L. Bakhtiar, *The Sense of Unity; the Sufi Tradition in Persian Architecture* (Chicago, 1973), p. 47.

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 transcendental 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.

⁷⁹ See pp. 193-4 above.

⁸⁰ See above, pp. 234-5.

⁸¹ Al-Ghazālī, *Mishkāt*, pp. 157-75. In later miniatures the *hijāb* is depicted as a series of curtains of different colours; Séguy, *Miraculous Journey*, pl. 36.

⁸² Burckhardt, *Sacred Art in East and West*, p. 111.

⁸³ Y. Tabbaa, *The Muqarnas Dome: its Origin and Meaning*, *Muqarnas* (III, 1985), pp. 61-74.

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.

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 ⁹one would not necessarily expect self-conscious discussions of such ideas. Like the Solomonic, paradisaical, 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.⁸⁵ 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.⁸⁶ 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*.⁸⁷ 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.⁸⁸

The use of a single window-opening above the *mihrab* survived in subsequent periods,⁸⁹ 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

⁸⁵ For a discussion of similar ideas in the context of palatine iconography see above, pp. 238-9.

⁸⁶ See above, pp. 61-2.

⁸⁷ See pp. 94-5 above.

⁸⁸ W. Boeckelmann, Zur konstruktion der Fensterbank-und-Leibungsschrägen in der Einheitsbasiliken zu Steinbach im Odenwald, *Karolingische und Ottonische Kunst. Werden. Wesen. Wirken* (Wiesbaden, 1957), pp. 141-9. Alcaide, *La Luz*; p. 20.

⁸⁹ For example, in the Great Mosque of Tlemcen (531/1136) [pl. 192] and the *maqam* in the citadel of Aleppo; below, pp. 303-4.

exclusively for the window above the *mihrab*.⁹⁰ One finds the same selective use of epigraphy in Marinid mosques,⁹¹ where *shamsiyyat* 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 *shamsiyyat* 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 (*shamsiyyat*) 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/fifteenth-century windows of the Tayroūzī Mosque and the Jāmi' al-Hanābīlā in Damascus; see above pp. 137-9.

⁹¹ In the Bu 'Ināniya Madrasa in Fez (746/1345); above, pp. 103-4.

⁹² In the Great Mosque of Ceuta; above p. 104.

⁹³ In the Süleymaniye 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-Baqa, a later writer who draws heavily on the account of Ibn Jubayr, see Quatremère, *Histoire*, III, pp. 280-1.

common in the *mihrahs* of the eastern Islamic world at this time,⁹⁷ 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."⁹⁸

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 *mihrahs* 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 Maḥmūd, the theme of light was stressed in the star and sun patterns with which the geometric ornament abounds (pl. 179).⁹⁹ 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*.¹⁰⁰ A single rectangular window opened directly above the *mihrab*.¹⁰¹ 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 *mihrahs*. 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

⁹⁷ See above, pp. 267-8..

⁹⁸ After A. Rhaddioui, *Le mihrab au Maroc*, *Le Mihrab*, ed. Papadopoulo, p. 145.

⁹⁹ Auld, *Minbar*.

¹⁰⁰ Herzfeld, *MCI*A, Alep I (Cairo, 1955), p. 120..

¹⁰¹ Herzfeld, *MCI*A, Deuxième partie, Syrie du Nord, *Inscriptions et Monuments d'Alep II* (Paris, 1954), pl. XLI d. The wooden frame around the window was set in place during the restorations of 610/1213; Herzfeld, *Damascus: Studies II*, p. 48.

be no more than coincidence that in some of the earliest *mihhrabs* on which the lamp appears it is depicted not within the *mihhrab*, but directly above it in a position corresponding to that of the window (pl. 170).¹⁰²

In the Iranian world one finds earlier uses of the window in contexts which are both meaningful and eloquent. In the Masjid-i Jāmi' at Fahrāj, built perhaps before the third/ninth century, a small rectangular window is pierced in the back wall of the *mihhrab*, 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 *mihhrab* should be attributed to the survival of Zoroastrian traditions.¹⁰⁴ Similar traditions may be detected in the Gunbad-i Qabūs, where a small window in the inner dome faced east, permitting the rays of the rising sun to fall on the body of Qabūs, 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 Bilqīs, she was worshipping the rising sun through a window in her palace.¹⁰⁸ A very curious form of Himyaritic window-embasement consists of a rectangular opening set within an arch carried on two columns (pl. 191).¹⁰⁹ Although there is no obvious connection with later *mihhrabs*, the appearance of these features is very similar to that of a two-dimensional *mihhrab* 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 Divriği, and the mausoleum of Sihīn Khatūn at Akhlat (680/1281); Öney, Interpretation, p. 404.

¹⁰³ Melikian-Chirvani, *Light of the Heavens*, p. 117. The appearance of the window in the *mihhrab* recalls later Timurid *mihhrabs* 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.

¹⁰⁶ R. Hillenbrand, *The Tomb Towers of Iran to 1550*, unpublished D.Phil. thesis (Oxford, 1974), Volume II, p. 277.

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 embasement of similar form was re-used in the Great Mosque of Sana'a'; R. Lewcock, *La Cathédrale de Sana'a', Foyer du Christianisme en Arabie au VIe siècle*, *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."¹¹⁰

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;¹¹¹ 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.¹¹² 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 *mihrahs* of the fifth/eleventh and sixth/twelfth centuries.¹¹³ One finds similar rosettes occurring earlier, most notably in the *mihrab* below the rock in the Qubbat al-Sakhra (pl. 156).¹¹⁴ The *mihrab* appears to continue an earlier tradition of placing radiant or reflective objects in prayer niches.¹¹⁵ Such rosettes are known in both Arabic and Persian as *shamsas* or "suns".¹¹⁶ 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.¹¹⁷ The metaphor of the sun recurs frequently in the Qur'an¹¹⁸ 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).¹¹⁹ 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.

¹¹⁰ Goodenough, *Jewish Symbols* I, pp. 185-6; III figs. 452, 462-3.

¹¹¹ Melikian-Chirvani, *Light of Heaven*, p. 117.

¹¹² B.M. Alfieri, *La moschea Jami' di Fahraj*, *Studi Iranici* (XVII, 1977), pp. 72-3, pl. XIa; Melikian-Chirvani, *Light of Heaven*, p. 117.

¹¹³ *Light of Heaven*, pp. 117-9.

¹¹⁴ *Idem*.

¹¹⁵ One thinks, for example, of the "Mirror of Khusrau" 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.

¹¹⁶ Melikian-Chirvani, *Light of Heaven*, pp. 117-8.

¹¹⁷ Qur'an IV:174, XLII:52.

¹¹⁸ Qur'an XXV:61, XLI:12, LXVII:5, LXXI:15-6.

¹¹⁹ Lings, *Quranic Art*, pp. 74, 204.

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].¹²⁰ 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-Ṣāliḥ Talāṭ in Cairo (555/1160) [pl. 77].¹²¹ The elaborate foliage of the *claustra* recalls the stucco latticework of the dome directly in front of the *mihrab*, through which light pours.¹²² 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.¹²³ 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].¹²⁴ 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).¹²⁵ The tradition continued in some of those Mozárabe churches which adopted the *mihrab form* for use as an altar apse (pl. 195).¹²⁶

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).¹²⁷ 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).¹²⁸ Panels analogous to that

¹²⁰ P. Ricard, *Pour comprendre l'Art Musulman dans l'Afrique du Nord et en Espagne* (Paris, 1924), fig. 91; G. Marçais, *L'Architecture Musulmane d'Occident* (Paris, 1954), fig. 157; H. Terrasse, *Islam d'Espagne* (Paris, 1958), fig. 34. Another *claustrum* from the same *mihrab* is published by Marçais, *Tlemcen* (Paris, 1950), p. 25.

¹²¹ G. Marçais, *Les Échanges artistiques entre l'Égypte et les pays musulmans occidentaux*, *Hesperis* (XIX, 1934), p. 101, fig. 4.

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'il (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 *qamariyyat* 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 *qamariyyat* of identical form.

¹²⁴ H. Terrasse, *La Mosquée al-Qaraouiyin à Fès* (Paris, 1968), p. 45, pl. 88.

¹²⁵ Papadopoulo, *Le mihrab*, pl. 51.

¹²⁶ Gómez-Moreno, *Iglesias Mozárabes*, pl. XCIV.

¹²⁷ H. Terrasse, *La Grande Mosquée de Taza*, (Paris, 1943), pp. 43-4, pls. LV, LVII; Golvin & Hill, *Islamic Architecture*, pl. 376..

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 Haridjavarik in Armenia.¹³⁶

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 Qarawīyīn Mosque at Fez, where the interior of the great chandelier replicates the ribbed form of the dome from which it hangs; Terrasse, *Fès*, pl. 88, p. 45.

¹³¹ Terrasse, *Taza*, p. 12.

¹³² See above, pp. 13-5.

¹³³ Goodenough, *Jewish Symbols III*, fig. 46; M. Avi-Yonah, *Oriental Elements in the Art of Palestine, Selected Studies* (Jerusalem, 1981), pp. 100-4; R. Rosenthal-Heginbottom, *Die Kirchen von Sobota und die Dreiapsidenkirchen des Nahen Ostens* (Wiesbaden, 1982), p. 130, pl. 59.

¹³⁴ B. Goldman, *The Sacred Portal, a Primary Symbol in Ancient Jewish Art* (Michigan, 1986), pp. 106-7; A. Grabar, *Christian Iconography: a Study of its Origins* (London, 1969), p. 24, fig. 46. The curtain of the vestibule in the Temple at Jerusalem was decorated with sun and moon motifs; A. Pelletier, *Le Grand Rideau du Vestibule du Temple de Jerusalem, Syria* (XXXV, 1958), pp. 218-26, p. 225, fig. 1.

¹³⁵ Dow, *Rose Window*, p. 250; Avi-Yonah, *Oriental Elements*, p. 105.

¹³⁶ E. Utudjian, *Armenian Architecture* (Paris, 1968), fig. 188. A radiating rosette appears above a third opening on the facade.

The motif appears at a similar date above the windows in the Turbat al-Takrīfīya in Damascus (before 674/1275) (fig. 76),¹³⁷ and over some of the openings in the Mausoleum of Zayn al-Dīn Yūsuf in Cairo (697/1298).¹³⁸ Slightly later, one finds whirling rosettes appearing above the window-openings in the Turbe of Khudavend at Niğde (712/1312) [pl. 196].¹³⁹ 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.¹⁴⁰ 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;¹⁴¹ the use of symbols such as the cross or zodiac around the doors and windows of Byzantine churches serves a similar function.¹⁴² 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.¹⁴³ 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.¹⁴⁴ The apotropaic function of such threshold motifs is, like those used on window-openings, often related to their cosmological associations.¹⁴⁵

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.

¹³⁹ K. Otto-Dorn, *Figural Stone Reliefs in Seljuq Sacred Architecture in Anatolia*, *Kunst des Orients* (XII, 1978/9), p. 115, fig. 14.

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.

¹⁴² Bouras, *Portes et Fenêtres*, pp. 219-21, 240-1; A. Grabar, *La Sculpture Byzantine [IV^e - X^e siècle]* (Paris, 1963), p. 124.

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 *MCA, 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 *ivan*- 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 revetement 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-Husāyn 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

¹⁴⁶ Van Berchem, *MCI*A, deuxième partie, Syrie du Sud, Volume II (Paris, 1927), No. 216, p. 249.

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 *khanqah* of Baybars (709/1309); James, *Qur'ans*, p. 29, fig. 10. Subsequently the verse was used above the entrances to the *khanqah* of Shaikh Nizam al-Dīn al-Ishaq (757/1356) and the mausoleum of Princess Tulbīyya (765/1363); van Berchem, *MCI*A, *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 *mihrahs* and of the votive lamps brought to the shrine.

¹⁴⁹ Qur'an XXXVII:7, XLI:13. It has been suggested that the lamp images in the Kharrāqan tomb towers served such a function; Daneshvari, *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. Cammann, *Symbolic meanings in oriental rug patterns* I, *Textile Museum Journal* (III, iii, 1972), pp. 17-8; V. Strika, *Intorno a un di Mosul*, *AIQUN* (XXV, 1975), pp. 201-14. Mas'ūdi 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 *mihrab* or in an entrance arch (pl. 188).¹⁵³ In the eastern Iranian world one even finds doorways opening in the *mihrab* 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 *mihrab* 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 *ṣaḥn* 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 Maghribi mosques the connection between the *mihrab* and the main entrance is established by the repetition of triads or pentads of windows above both the *mihrab* 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 Ages,¹⁵⁷ 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 *mihrab* in Central Asia see S.G. Chmel'nizkij, *Peshtak und Mihrab*, *AIOUN* (XLVII, 1987), pp. 39-56. It has been argued, however, that such symbolism is exclusive to Shi'ism; see A. Daoulati responding to Grabar's paper on the Great Mosque of Cordoba, *Le Mihrab* (ed. Papadopoulo), 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.

¹⁵⁴ Melikian-Chirvani, *Light of Heaven and Earth*, pp. 116-7.

¹⁵⁵ Le Strange, *Palestine*, p. 107.

¹⁵⁶ For units of three windows above the *mihrab* see Marçais, *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 Fez three windows open above the *mihrab*, 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 Maghribi 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 Ukha'idir has been connected with the appearance of the same feature at Cordoba; K. Brisch, *Zum Bab al-Wuzara (Puerta de San Esteban) der Hauptmoschee von Córdoba*, *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 *mihrab* and the entrance is also found in medieval Maghribi mosques. In the mosque at 'Ubbad near Tlemcen (739-40/1338/9) the same Qur'anic verse (L.I:13) is repeated by the main portal and above the *mihrab*: S.S. Blair, *Sufi saints and shrine architecture in the early fourteenth century*, *Muqarnas* (VII, 1990), p. 42.

¹⁵⁷ V.F. Hopper, *Medieval Number Symbolism* (New York, 1938), p. 128; Farbridge, *Biblical and Semitic Symbolism*, pp. 99-114; F.C. Endres & A. Schimmel, *Das Mysterium der Zahl, Zahlensymbolik im Kulturvergleich* (Köln, 1984), pp. 72-100.

¹⁵⁸ Hopper, *Number Symbolism*, p. 7; *SPA II*, pp. 876, 889.

which is itself characterised by light.¹⁶⁰ Three lamps are depicted in the niches on the cenotaph of Khalid ibn al-Walid from Homs (late seventh/thirteenth century) [pl. 185].¹⁶¹ The influence of numerology on the religious architecture of Islam remains unexplored,¹⁶² but it is not inconceivable that the preference for such triads in Maghribi architecture has some particular significance.¹⁶³ The same preference for triads of windows was pervasive enough to ^{have} exerted an influence on Andalusian synagogue architecture.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 content and the context 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 XXXVI around the windows of several Ayyubid and Mamluk *madrasas* and mausolea.¹⁶⁵ Despite the fact that quotations from this *sura* in architecture are rare, the verses themselves offer little explanation for the choice. In the same group of buildings one often finds verses in which the themes of death and Paradise are stressed.¹⁶⁶ It is true

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.

¹⁶⁰ M. Schapiro, *Late Antique, Early Christian, and Mediaeval Art* (New York, 1979), p. 117; Eutychius of Alexandria, *Demonstrations I*, p. 27.

¹⁶¹ See above, p. 278.

¹⁶² For an unconvincing elucidation of numerical symbolism in the mosque of Cordoba see N. Britz Leplaideur, *Analyse Esthétique et Symbolique du mihrab de Cordoue*, in Papadopoulo (ed.), *Le Mihrab*, pp. 129-35, pp. 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 paradisaical significance; Rosen-Ayalon, *Early Islamic Monuments*, pp. 66-7.

¹⁶³ It may be worth mentioning that the entrance to Paradise is often depicted as a triple gateway; Denny, *Saff and Sejjedeh*, p. 102; Séguy, *Miraculous Journey*, pl. 39.

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.

¹⁶⁵ Hillenbrand, *Qur'anic Epigraphy*, p. 177.

¹⁶⁶ A perusal 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 paradisaical 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,¹⁶⁷ 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.¹⁶⁸ Instead one sometimes finds benedictory formulae which may,¹⁶⁹ 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.¹⁷⁰

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.¹⁷¹ Exceptions to this are those *qamariyyat* on which religious epigraphy appears¹⁷² or, and the single example of this appears to be anomalous, those on which religious symbols such as the lamp appear (ill. 53).¹⁷³ Both of these categories are examined below. Conversely, figurative window-grilles are hardly ever used in religious

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 Khas at Fatehpur Sikhari (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, *Mughal 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 & Meunié, *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,¹⁷⁴ although they do appear in palace architecture.¹⁷⁵ 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).¹⁷⁶ 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.¹⁷⁷ Analogies between the design of lamps and *qamariyyat*, including the repetition of star motifs, are discussed below.¹⁷⁸ 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".¹⁷⁹ 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.¹⁸⁰

¹⁷⁴ Exceptions are, however, found in the Iranian world; see above, pp. 161-2.

¹⁷⁵ See, for example, the description of the Dhū'l-Nūnīd palace in Toledo; above, pp. 98-100.

¹⁷⁶ A.J. Lee, Islamic star patterns, *Muqarnas* (IV, 1987), pp. 185-6.

¹⁷⁷ See pp. 11-5 above.

¹⁷⁸ See below, pp. 319-23.

¹⁷⁹ The suggestion may seem paradoxical given the use of the term *qamariyyat* to denote these grilles, but see above, p. 15.

¹⁸⁰ D. James, *Qur'ans of the Mamlūks* (London, 1988), fig. 38.

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 Uljġyūtu at Sultānīyya (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*.¹⁸² 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 *mīhrabs* (pl. 175) and domes (pl. 62) in which the same types of star medallions are put to similar use.¹⁸³ 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 *mīhrab* from the *mashhad* of Sayyida Ruqayya (549-56/1154-60).¹⁸⁴

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 *qamariyyat* these roundels are usually twelve in number (fig. 47a).¹⁸⁵ In others, or in the smaller *shamsas* which fill the arched tympana of such windows, there are usually seven roundels (fig. 41a).¹⁸⁶ 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.¹⁸⁷ 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 suggests that they function as symbols of light.¹⁸⁸ The aniconic medallions filled with seven and twelve glass roundels which appear on Mamluk *qamariyyat* may therefore have had a similar significance. One thinks also of the twelve glass roundels on the clock of al-Jazarī (ill. 137), an object which measures time by reproducing the structure of the cosmos in miniature.¹⁸⁹ 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 *qā'a* of Muḥibb 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 Uljġyūtu at Sultānīyya: meaning in Mongol architecture, *Islamic Art* (II, 1987), pp. 43-96, fig. 16.

¹⁸³ See above, pp. 274.

¹⁸⁴ C.J. Lamm, Fatimid woodwork, its style and chronology, *Bulletin de l'Institut d'Égypte* (XVIII, 1930), pp. 85-6, pl. XII.

¹⁸⁵ In the *qamariyyat* in the *madrasa* of Jamāl al-Dīn Yūsuf al-Ustādār, for example.

¹⁸⁶ In the Qasr Bashīk, for example.

¹⁸⁷ Baer, *Ruler in Cosmic Setting*, pp. 13-4, pls. 1-2.

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.¹⁹⁰

In certain Mamluk mosques one finds radial inscriptions¹⁹¹ epigraphic rosettes appearing in the tracery of a circular *qamariyya* above the *mihrab* (fig. 40e, 44c).¹⁹¹ 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.¹⁹² It may be that the very form of the opening above the *mihrab* was intended to recall a sun¹⁹³ 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.¹⁹⁴ I have suggested elsewhere¹⁹⁵ that the six-pointed stars which appear in the circular *qamariyyat* above the *mihrabs* of some Burjī Mamluk *madrasas*¹⁹⁶ 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.¹⁹⁷ Hexagonal stars with central rosettes, similar to those in the Mamluk *qamariyyat*, appeared on the lintels of pre-Islamic buildings in Syria.¹⁹⁸ Similar stars were used in the illumination of fifth/eleventh and sixth/twelfth-century Qur'ans (ill. 108).¹⁹⁹ 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

¹⁹⁰ See above, pp. 275-6.

¹⁹¹ In the mausoleum of Aslām al-Silāḥdār (746/1345) and the *madrasa* of Ināl al-Yūsufi (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-Ḥallābāt; *EMA* 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/twelfth century; a circular window opens above the *mihrab* in the *Madrasa al-Shamiyya*. See also the *Takriṭiyya*; 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-Ashraf Khalil (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 Ināl al-Yūsufi. 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-Yonah, *Oriental Elements*, p. 102, fig. 17.

¹⁹⁹ Ling, *Qur'anic Calligraphy*, Pls. 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).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.²⁰¹

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;²⁰² 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 *bismillāh*, 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.²⁰³ 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 Mūsa ibn Hammad al-Berberī.²⁰⁴ 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,²⁰⁵ there

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 Aslām al-Silāhdār (746/1345) and the *madrasa* of Jamāl al-Dīn Yūsuf al-Ustadar (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-maqābir* 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 than any specific associations with light.

One can also point to the use of a Qur'anic 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 'Ināniya Madrasa in Fez (746/1345) originally bore Sura CXII (*al-Ikhlās*).²⁰⁶ 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.²⁰⁷ 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 Tirmīdhī, love of this *sura* will admit one to heaven;²⁰⁸ it is reported by both Bukhārī and Muslim that to recite this *sura* is the equivalent of reciting one third of the entire Qur'an.²⁰⁹ 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'anic 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-Silāhdār in Cairo (ill. 64) contains a quotation from Sura III:37 in which the *mihrab* is mentioned.²¹⁰ 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-Imrān*) 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-Hanābilā, Damascus. The circular grilles above the *mihrab* in Cairene mosques often bore Qur'anic quotations (for example, in the mausoleum of Aslām al-Silāhdār and the mausoleum adjoining the *madrasa* of Ināl al-Yūsufi). Unlike the windows in Damascene and Maghribi 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).

²⁰⁸ M.Z. Khan, *Riyadh al-Salihīn*, p. 187, No. 1017.

²⁰⁹ *Ibid.*, p. 187, Nos. 1014-6.

²¹⁰ See above, p. 126.

commonly used in or around the *mihrab*,²¹¹ and was used earlier in Cairo to frame the window above the *mihrab* in the Mosque of al-Ṣāliḥ Ṭalā'ī (pl. 98).²¹² In the circular grille above the *mihrab* in the mausoleum of ʿĪnāl al-Yūsufī (795/1392) a quotation from Sura XVII is used. Although no mention is made of light, the letters of the inscription radiate outwards from a central rosette in a manner comparable to the solar blazons found on contemporary metalwork.

If the Qur'anic inscriptions used on the window-grilles themselves seldom make explicit reference to light, one is left to consider more general connections between Qur'anic text and luminosity. One finds the use of precious materials such as gold and precious stones to form the letters of Qur'anic inscriptions in the Early Islamic period, for example in the *shamsa* sent to the Ka'ba by al-Mu'izz in 362/972.²¹³ 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'an as jewels or pearls.²¹⁴ This idea is connected with the notion of the Qur'an as light or a source of light, an idea expressed in the Qur'an itself²¹⁵ and often repeated by later commentators. The use of gilding, *shamsas*, and arcades with hanging lamps in early Qur'an 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'an as a light or as a container for light.²¹⁶

The earliest surviving *qamariyya* on which a portion of the *shahāda* appears is in the *madrasa* of Ilgay al-Yūsufī (775/1373) in Cairo. After this date portions of the *shahāda* 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'anic 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*.²¹⁷ 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 *mihrabs*; Dodd & Khairallah, *Image of the Word II*, pp. 22-35.

²¹² Ibrahim, *Four Cairene mihrabs*, p. 34.

²¹³ Bloom, *Meaning*, pp. 194-5; Al-Hakim, p. 27.

²¹⁴ Al-Ghazali, *Jewels of the Qur'an*.

²¹⁵ Qur'an, IV:174, XLII:52.

²¹⁶ Milstein, *Light, fire and the sun*, p. 542.

²¹⁷ In the *khanqah-madrasa* of Barqūq (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.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'.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 Vegetal 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.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-Hanābīlā (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.²²¹ Based on their occurrence in pre-Islamic Iranian art Ettinghausen suggested that these should be interpreted as royal symbols of light.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 time-scale 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 Süleymaniye mosque in Istanbul (ill. 121).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'anic inscriptions used in their tracery. The floral theme repeated in the ceramic tiles of the Süleymaniye mosque has been taken as a representation of the Garden of Paradise;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,²²⁵ typified

²¹⁸ Allan, *Islamic Metalwork*, pp. 86-9.

²¹⁹ Flood, *Iconography of Light*, pp. 185-6.

²²⁰ See above, pp. 98-100.

²²¹ See p. 29 above.

²²² Ettinghausen, *From Byzantium*, pp. 36-9.

²²³ Necipoğlu-Kafadar, *Süleymaniye*, p. 100.

²²⁴ *Idem*.

in later depictions by the gem-encrusted *tuba* tree (ill. 132). To what extent the same is true of the similar *qamariyyat* used in earlier mosques remains an open question. One might however point to early depictions of jewelled vegetation with paradisaal 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 Süleymaniye the same verse features in the *qamariyyat* of the *qibla*.²²⁸ On the northern minaret of the mosque of al-Ḥākim in Cairo (394/1003) the Light Verse and the three following it frame four stucco *claustra* on which an axial arabesque occurs (pl. 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 *qamariyyat*²³² may relate to its paradisaal connotations²³³ and its associations with light. The flames of the candles flanking the *mihrab*, 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).

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, *Risāle*, p. 74.

²²⁶ See above, pp. 200-1.

²²⁷ A parallel exists in the paradisaal gardens depicted in the apse mosaics of Early Christian and Byzantine churches; Grabar, *Qartamin*, 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 Süleymaniye Mosque, discussed in the text above. The vegetation sprouting from the *qibla* in the illuminated Qur'an recalls the gardens which sprout from the rooves of the paradisaal *tholoi* 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, *Süleymaniye*, p. 100.

²²⁹ See below, pp. 320.

²³⁰ M. Lings, *Qur'anic 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.²³⁴ 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 *qamariyya* used above the *mihrab*.²³⁵ Although it is true that the use of the cypress was widespread in Burjī 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*)".²³⁶ The *waqfiyya* of Süleymaniye compares the mosque to Iram,²³⁷ 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.²³⁸ 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.²³⁹ 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.²⁴⁰ The relationship between the star and the lamp has been discussed above in the

²³⁴ Broadhurst, *Travels*, p. 183.

²³⁵ In the *madrassa* of al-Nāṣir Muḥammad in Cairo; above, p. 118.

²³⁶ St. H. Stephan, Evliya Tshelebi'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.

²³⁷ Necipoğlu-Kafadar, Süleymaniye, p. 101. The natural garden could also be compared to a mosque, and its plants to mosque furnishings; Clinton, *Diwan*, p. 77; S.G. Fenech, *El Diwān de Ibn Jatima de Almeria [Poésia arabigoandaluza del siglo XIV]* (Barcelona, 1975), p. 86.

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.

²⁴⁰ Qur'an XXV:61, XXI:12, LXXI:15-6.

context of symbolic references to light in medieval *mihrahs*.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 (pls. 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.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;²⁴³ a similar pun is inherent in the name of the "Pleiades" (*Thurayyā*), the great chandeliers hung in Maghribi and Andalusian mosques and palaces.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.²⁴⁵

Not surprisingly perhaps, one may often discern similarities between the design of *qamariyyat* 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 *lampades claustrae* mentioned by Bede,²⁴⁶ or in the use of circular tracery closely related to the design of metal *polycandela* in the windows of medieval churches.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

²⁴¹ See pp. 273-7 above.

²⁴² Above, p. 251.

²⁴³ See below, p. 322.

²⁴⁴ One of the earliest uses of the term is in Ibn Rustah's description of the Great Mosque of Madina; *Kitab al-Buldān*, p. 76. For an extensive discussion of the medieval usage of the term *thurayyā* see Lamare's translation of Idrīsī; *Description*, pp. 20-1. The idea was by no means confined to the medieval Islamic world - Paul Silentiarius compares the *polycandela* in Hagia Sophia to the heavenly stars; Mango, *Art of the Byzantine Empire*, p. 90.

²⁴⁵ Atil, *Anatolian Civilisations III*, D.138; Allan, *Islamic Metalwork*, Nos. 7-8.

²⁴⁶ Forbes, *Studies V*, p. 191.

²⁴⁷ Dow, *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).²⁴⁸ 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 Qairawān (pl. 181, 7),²⁴⁹ 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);²⁵⁰ the monumental stone grille from Khirbat al-Mafjar (pl. 51) has even been described as a stylised star.²⁵¹ More germanely, the new evidence from the Abbasid palaces at Raqqa 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".²⁵² 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 (*qanādīt*) 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*.²⁵³ 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.²⁵⁴

²⁴⁸ Rice, *Studies V*, pp. 221-3, pl. XII, 1-4.

²⁴⁹ Marçais & Poinssot, *Objets Kairouanais*, 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 *qamariyyat qanadlatiūn*; 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.²⁵⁵ 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 (*thurayyā*) 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 (*suruj*) 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,²⁵⁸ as it had earlier on the Seljuq lamp from Konya (pl. 183). Given the stylistic affinities between the window-grilles and the lamps,²⁵⁹ 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 Aqṣā mosque as filling "the whole congregation with light and meditation, inspiring them to reverent submissive prayers".²⁶⁰ 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 Pérès, *Poésie*, 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 *qandīl qalā'īny*, while the window-glass was referred to as *zujāj qalā'īny*; 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 Bahrī Mamluks is mistaken. Such windows do, however, appear to have become more common from 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 Istanbul²⁶¹ which contain multiple references to the Light Verse.²⁶² Within the dome in front of the Aqṣā *mihrab* this very verse was inscribed, transforming the cupola into "a rotunda of light".²⁶³ 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 *lailatu-l-qadr* 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." ²⁶⁴

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.²⁶⁵ 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.²⁶⁶ 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)²⁶⁷ and beyond (pl. 204).²⁶⁸ Such lanterns are often designed to hold a flame at the centre of the 'building'

²⁶¹ See above, p. 182.

²⁶² See below, pp. 322-3.

²⁶³ Stephan, *Travels*, p. 82.

²⁶⁴ *Ibid.*, p. 83.

²⁶⁵ See above, pp. 192-3.

²⁶⁶ Wright, *Early Travels*, p. 5. In Christian eschatology the number eight had strong associations with resurrection and Paradise; Underwood, *Fount of Life*, pp. 80-9. The mention of eight windows and lamps may therefore be significant, since the church marked the site of Christ's resurrection.

²⁶⁷ J.D. Dodds, *Al-Andalus: the Art of Islamic Spain* (New York, 1992), p. 212, No. 11; Atil, *Anatolian Civilisations III*, D.138; G. Fehervari, *Islamic Metalwork of the eighth to the fifteenth century in the Keir Collection* (London, 1976), No. 99 - this six-sided pavilion is decorated with pomegranates, fruit which can function as symbols of light (see above, p. 11), at its corners;

²⁶⁸ For references to a fifth-century North African lamp in the form of a miniature basilica see above, p. 275, note 274. One may also cite the use in the sixth/twelfth- and seventh/thirteenth-century churches of hanging lamps whose gilded battlements and turrets were intended to symbolise Heavenly Jerusalem, the ultimate city of light (pl. 204). Honorius of Autun, writing in the early

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.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.²⁷⁰

It should be borne in mind that even when little or no light was passing through them *qamariyyat* and *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 Mamluk *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 *qamariyyat* and *shamsiyyat* which, for reasons of symmetry, are often found even where there are no window-openings.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.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 *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.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 Aqşa Mosque are not merely the mystical musings of a weary traveller is suggested by the *waqf* document of the Süleymaniye 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.²⁷⁴ Just as, by day, the natural light admitted through the windows of the Süleymaniye 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

sixth/twelfth 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, *The Medieval Architect*, p. 227.

²⁶⁹ See above, pp. 228-9.

²⁷⁰ Al-Rāzī, *Mafatih al-Ghaib* VI, p. 286. Ibn Jubayr 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, *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; Hasan, *Researches*, p. 191.

²⁷¹ For example in Qasr al-Banat at Raqqa (ill. 28), or in the mosques of Aṣḥām al-Silāhdār and Gānī Bek in Cairo (pl. 118).

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; Baltrusaitis, *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, *Decorated window glass*, p. 327, n.2.

²⁷³ Grabar, *Alhambra*, p.184.

²⁷⁴ Necipoğlu-Kafadar, *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; Bolak, *Mosque Lighting*, pp. 14-6.

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.²⁷⁵ Evliya Çelebi makes a similar connection between the artificial lighting used in the Aqşa 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 ?"²⁷⁶

In Ottoman mosques such as the Süleymaniye the star-like brilliance of the lamps was often magnified by the use of reflective mirrored balls²⁷⁷ similar to the glass globes or eggs hung on the chains from which Mamluk mosque lamps were suspended.²⁷⁸

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 channelled 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.²⁷⁹

In the Süleymaniye 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.²⁸⁰ 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.²⁸¹ 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.²⁸² Although this evidence is late, and

²⁷⁵ Necipoğlu-Kafadar, Süleymaniye, p. 100.

²⁷⁶ Crane, *Risāle*, p. 19.

²⁷⁷ Necipoğlu-Kafadar, Süleymaniye, p. 107.

²⁷⁸ Wiet, *Lampes*, Nos. 2795-7, 3748-9.

²⁷⁹ Bourdier, *Houses of Light*, p. 67.

²⁸⁰ Necipoğlu-Kafadar, Süleymaniye, 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 Haghia 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^{asx} the lamp itself was not used in window tracery. A rare exception is in the mausoleum of Sanjar al-Gāwī 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

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 *mashrabiyya* featuring a mosque lamp and *minbar*; Jones & Michell, *Arts of Islam*, No. 455. the piece has been dated to the eighth/fourteenth 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.²⁸⁸ 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 ceramic²⁸⁹ 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 Ḥākīm 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).²⁹⁰ 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.²⁹¹ 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.²⁹² 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".²⁹³ One may also point to more general associations between the minaret, lamps, and light.²⁹⁴ 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 Shī'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 *mishkāṭ* used in Sura XXIV:35 is ambiguous. Among its several meanings are the iron chain by which a lamp is suspended,²⁹⁵ and even the metal casement of a lantern designed to hold a glass lamp.²⁹⁶ While the term used in Sura XXIV:35 is generally rendered

²⁸⁸ Behrens-Abouseif, *Fatimid Ceremonial*, pp. 33-4.

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.

²⁹² Bloom, *al-Hakim*, p. 20.

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:

*Similitudo lucis ejus est sicut fenestella in pariete 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 grillework 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 *mishkāt* 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 *mishkāt* a *mihrab*, although this did not prevent the Light Verse becoming associated with the illumination of the prayer-niche. If the *mishkāt* bears any resemblance to a window it seems probable that, as the Qur'anic commentaries 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 which 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 `Aṣākir 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, *Alcorani Textus Universus* (Padua, 1698), p. 482.

²⁹⁸ A. Prévost de Longpérier, *Oeuvres*, Volume I (Paris, 1883), pp. 456-9. Clermont-Ganneau (*La Lampe*, p. 218) disputes the interpretation of Longpérier, claiming that Maracci had in mind a small niche designed to hold a lamp. In view of what follows this is more likely.

²⁹⁹ Tabari, *Jami` al-Bayān XVIII*, p. 137; Clermont-Ganneau, *La Lampe*, p. 218; Khoury, *Mihrab Image*, n. 105.

³⁰⁰ Finster, *Masjid 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 Tacas del Acceso a la Sala de la Barca*, Cuadernos de la Alhambra (XIX-XX, 1983-4), pp. 147-9.

³⁰² M.J. Kister, "A booth like the booth of Moses...", a study of an early hadith, *BSOAS* (XXV, 1962), p. 153 n.1

³⁰³ Elisséeff, *Description*, p. 33.

emerging from their summits.³⁰⁴ 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.³⁰⁵ 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*³⁰⁶ and a window.³⁰⁷

In certain *mihrabs* of later periods this ambiguity becomes even more apparent. In the Timurid alabaster *mihrabs* mentioned earlier,³⁰⁸ for example, the hanging lamp appears on an arched panel (ills. 140-2). 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 Bīdakhavīd (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.³⁰⁹

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,

³⁰⁴ Bonnenfant, *Vitraux*, p. 16. The usage is somewhat curious, for the term *qandīl* usually refers to hanging lamps rather than standing tapers. It may be that this arrangement was influenced by Mamluk prototypes, for the wall above the entrance to the Mausoleum of Qalā'ūn is pierced with a large arched opening flanked by two narrower windows; MAE II, pl. 68. The term *qamarīyyat qanadīlatūn* was used in connection with Mamluk *qamariyyat*, although the precise form of such windows is not clear; Amin & Ibrahim, *Architectural Terms*, p. 91.

³⁰⁵ Denny, *Saff and Sejjadeh*, pp. 95-6.

³⁰⁶ Williams, *Cult I*, 44-7.

³⁰⁷ Behrens-Abouseif, p. 34.

³⁰⁸ In the shrine and mosque at Bīdakhavīd and the mosque at Tulan Pusht; see above, p. 265.

³⁰⁹ An example from the mosque at Abarḳūh, dated 818/1415, is published by André Godard; Abarḳūh, *Athar-e-Iran* (I, 1936), p. 72, fig. 49. A similar slab is published by Afshar, *Yādgarhā-yi Yazd*, p. 600, fig. 202.

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 mozárabe 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 niched 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, *Saff and 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, *Saff and 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'an³¹⁷ 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'anic 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 Fahrāj 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 Fahrāj 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 Süleymaniye 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 Qur'an 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 *mihhrabs* 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 transcendental 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 paradisaical 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 ^{an} 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.

³¹⁸ See above, p. 202.

³¹⁹ Roberts, *The Jeweled Style*, p. 76.

³²⁰ Trowbridge, *The Window in Art*; M. Meiss, Light as form and symbol in some fifteenth-century paintings, *Art Bulletin* (XXVII, 1945), pp. 175-9; A. Chatelet, Fenêtre et Fontaine dans l'Annonciation, *Études d'Art Médiéval offertes à Louis Grodecki* (Paris, 1981), pp. 317-24.

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 *qamariyyat* and *shamsiyyat* 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 mythological 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.³²¹ 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

³²¹ O. Grabar, *Signs and Symbols in Islamic Art, Architecture and Community Building in the Islamic World Today*, ed. R. Holod (New York, 1983), pp. 25-32.

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 quantitative 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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