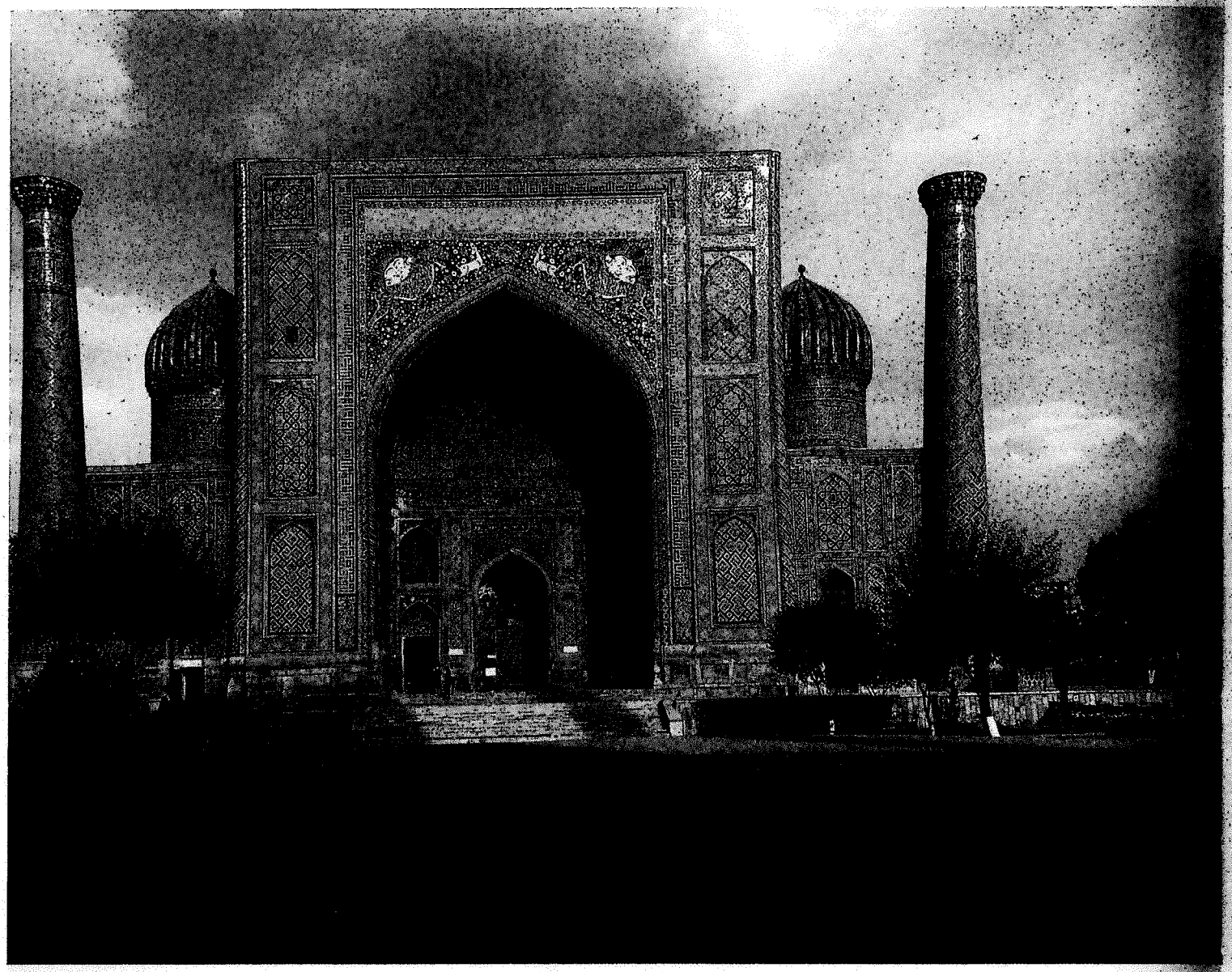
4

The Uses of Light in Islamic Architecture

استعمالات النور في العمارة الإسلامية

روبرت هلنبراند

Robert Hillenbrand



The theme of light manifests itself in remarkably diverse ways in pre-modern Islamic architecture. To impose order on this potentially chaotic mass of data, one may propose certain basic categories, and it will help to identify these quickly. First, directed light includes oculi, windows, skylights, arcades, and other openings. Second, reflected light invites discussion of water, smooth surfaces, glass mosaic, mirror decoration, and certain kinds of tilework, especially luster tiles. Third, certain materials were particularly favored for their capacity to absorb and to radiate light: ivory, rock crystal, alabaster, gold, white marble, and precious or semi-precious stones come to mind, whether as outer cladding or at selected locations within a building, for example in *muqarnas* vaults, or as grace notes. White and gold were the colors of choice. Fourth, lighting devices were crucial for practical purposes in cavernous interiors, but architects well knew how to make a virtue of necessity in how and where they used them. Fifth, there were also many ways of manipulating light and shade to create forms, whether in strongly contrasted primary tones of black and white, in more subtle shades of those tones, or even in color. And of course, sixth, external decoration in different degrees of relief is found throughout the Islamic world in the most varied forms and is enlivened by direct sunlight.

Finally, the symbolic associations of light must not be forgotten, lest this essay remain mired in the prosaic. Visual puns deserve brief mention here, but the main focus has to be on more straightforward expressions of meaning, from the use of appropriate Qur'anic quotations to titulature, from the finials of domes to the galleries of minarets. A somewhat neglected theme here is the inner designs of domes. In this context the role of the heavenly bodies—sun, moon, and stars—is crucial. The latent punning element in such examples will be discussed in due course; they have a long history in west and east alike (Lehmann 1945; Soper 1947) and Islam inherited much of both traditions (Bloom 1993). It is also worth recalling that a common poetic trope, used for example by the Persian poet Khaqani (1122–90), equated the Kaaba with the sun (Beelaert 1996, 119).

This essay will attempt to investigate these various categories, some at greater length than others. But it may be useful to begin with some general remarks. A seminal article written by Lisa Golombek a quarter-century ago developed the conceit of the clothed building, clad in variegated colors and textures, and rejoicing in extravagant displays (Golombek 1988); the Kaaba is a famous example.[1] This concept is important for the present discussion, since the play of light is an integral element of this conceit. A similar case, given the remarkable popularity of architectural inscriptions in the medieval Islamic world, could be made for the concept of a building that speaks, indeed that preaches. And here too the masters responsible, architect and craftsman alike, take full advantage of the movement of the sun, the play of light and shadow, the contrasts between harsh and soft lighting. But now there is a move from mere metaphor to actual content, and this finds expression in two ways through the medium of light.

First, and most frequently encountered, is the use of writing of religious content as surface decoration both inside and outside a building. Naturally the success of such decoration depends on its visibility, and hence on adequate lighting. Sacred names—Allah,

59 (*opposite*) Shir Dar Madrasa, Samarkand, 1616–39.

The theme of light manifests itself in remarkably diverse ways in pre-modern Islamic architecture. To impose order on this potentially chaotic mass of data, one may propose certain basic categories, and it will help to identify these quickly. First, directed light includes oculi, windows, skylights, arcades, and other openings. Second, reflected light invites discussion of water, smooth surfaces, glass mosaic, mirror decoration, and certain kinds of tilework, especially luster tiles. Third, certain materials were particularly favored for their capacity to absorb and to radiate light: ivory, rock crystal, alabaster, gold, white marble, and precious or semi-precious stones come to mind, whether as outer cladding or at selected locations within a building, for example in *muqarnas* vaults, or as grace notes. White and gold were the colors of choice. Fourth, lighting devices were crucial for practical purposes in cavernous interiors, but architects well knew how to make a virtue of necessity in how and where they used them. Fifth, there were also many ways of manipulating light and shade to create forms, whether in strongly contrasted primary tones of black and white, in more subtle shades of those tones, or even in color. And of course, sixth, external decoration in different degrees of relief is found throughout the Islamic world in the most varied forms and is enlivened by direct sunlight.

Finally, the symbolic associations of light must not be forgotten, lest this essay remain mired in the prosaic. Visual puns deserve brief mention here, but the main focus has to be on more straightforward expressions of meaning, from the use of appropriate Qur'anic quotations to titulature, from the finials of domes to the galleries of minarets. A somewhat neglected theme here is the inner designs of domes. In this context the role of the heavenly bodies—sun, moon, and stars—is crucial. The latent punning element in such examples will be discussed in due course; they have a long history in west and east alike (Lehmann 1945; Soper 1947) and Islam inherited much of both traditions (Bloom 1993). It is also worth recalling that a common poetic trope, used for example by the Persian poet Khaqani (1122–90), equated the Kaaba with the sun (Beelaert 1996, 119).

This essay will attempt to investigate these various categories, some at greater length than others. But it may be useful to begin with some general remarks. A seminal article written by Lisa Golombek a quarter-century ago developed the conceit of the clothed building, clad in variegated colors and textures, and rejoicing in extravagant displays (Golombek 1988); the Kaaba is a famous example.[1] This concept is important for the present discussion, since the play of light is an integral element of this conceit. A similar case, given the remarkable popularity of architectural inscriptions in the medieval Islamic world, could be made for the concept of a building that speaks, indeed that preaches. And here too the masters responsible, architect and craftsman alike, take full advantage of the movement of the sun, the play of light and shadow, the contrasts between harsh and soft lighting. But now there is a move from mere metaphor to actual content, and this finds expression in two ways through the medium of light.

First, and most frequently encountered, is the use of writing of religious content as surface decoration both inside and outside a building. Naturally the success of such decoration depends on its visibility, and hence on adequate lighting. Sacred names—Allah,

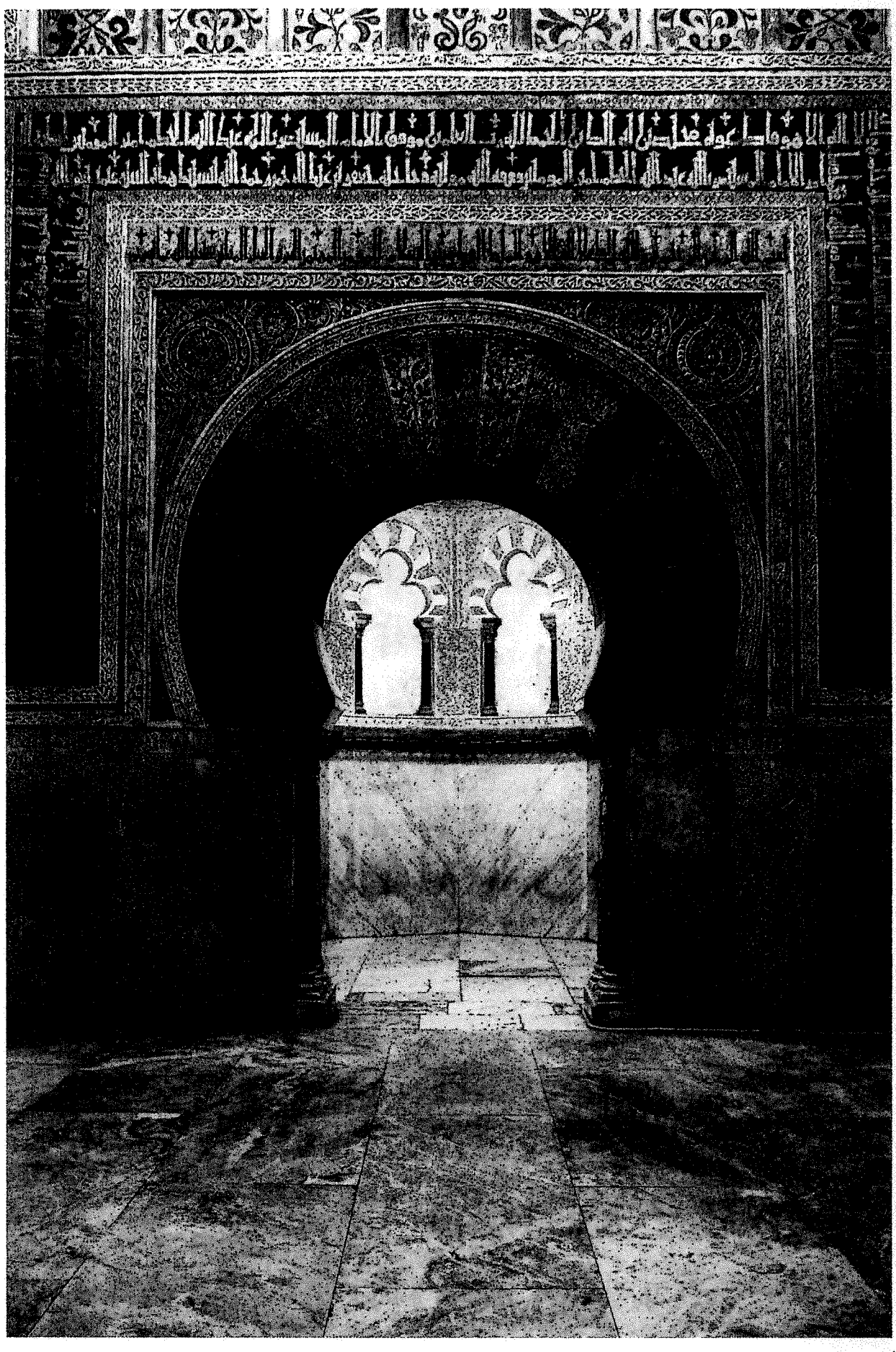
59 (*opposite*) Shir Dar Madrasa, Samarkand, 1616–39.

Muhammad, 'Ali—of gigantic size, sometimes executed in glittering glazed bricks that sparkle in the sun, sanctify the monument from afar, and may indeed, as in the Shir Dar Madrasa in Samarkand (pl. 59), carpet its outer walls in a continuous interlocking design whose knotted character may well have apotropaic associations (Kitzinger 1993, repr. 2003, 802–05). Sometimes much longer Qur'anic inscriptions in square kufic, encased in panels or even covering an entire wall, are used within a building, and here too their surfaces coruscate. This serves to spotlight individual letters or words unpredictably as the viewer moves around. Closer up, inscriptions, whether inside or outside a building, are set in broad or narrow bands, which are far more likely to be of Qur'anic than historical content. They make the building something of a sacred book, and here too light is crucial. The words may be executed in white plaster or tile on a dark ground so as to stand out more clearly, or they may be executed in contrasting colors, or indeed in relief so that light and shadow perform the same function. These devices serve to draw attention to such inscriptions, whether or not they are legible (Blair 1998, 73, 91, 133 and 135; Hillenbrand 2012a, 14, 17, 21, 24–25). After all, they may well be located too high up, or their lettering may be too small, or their style of writing too complex, to be easily understood. But for people who knew much or indeed all of the sacred text by heart, even a couple of words could open the memory bank and make the building an instrument of meditation. Light is crucial to that role.

The second way in which a building can play with ideas of light also has to do with the inscriptions that it bears. But in this case the inscriptions yield not religious but historical information. And they do so in a very particular way: through titulature. In the present context, special interest attaches to titles that evoke associations with light. The key words here, because they were so popular, are *shams*, *qamar*, *badr*, *najm*, *siraj*, and *nur* (sun, moon, full moon, star, lamp, and light respectively). But others could also be cited, such as *baha* (radiance), *diya* (brightness), *falak* (celestial body, star), *shihab* (shooting star, meteor), *zahir* (shining one),[2] and *hilal* (new moon; Garcin de Tassy 1854, 45). All the terms listed above are found in all manner of compounds, though sometimes they occur on their own—thus the caliph 'Uthman was known as Dhu'l-Nurayn, "Possessor of the Two Lights," because he had married two of the Prophet's daughters (Garcin de Tassy 1854, 25). The first four of the really popular terms—*shams*, *qamar*, *badr*, *najm*—are of particular interest in that they have to do with heavenly bodies that radiate or reflect light. The combination of the heavens and light itself allows notions of divinely ordained legitimacy to be exploited. Sometimes this involves the combination of the two celestial colors—gold and blue—as in the inscriptions of the celebrated mihrab in the Great Mosque of Córdoba (pl. 60).

But it is possible to take this notion further, for all six of these common words are frequently conjoined to *din*, especially in the eastern Islamic world (Kramers 1926, 53), so that a ruler links himself by his title not only to light but also to religion, and the title explicitly connects these two concepts. Since it was common practice for rulers to possess—and proclaim—an entire sequence of titles, it should occasion no surprise to find that some rulers bore successive titles harping on light or on religion or on both,[3] and thus by sheer dint of repetition embedding these concepts in the minds of

Mihrab of the
in Córdoba, 965.

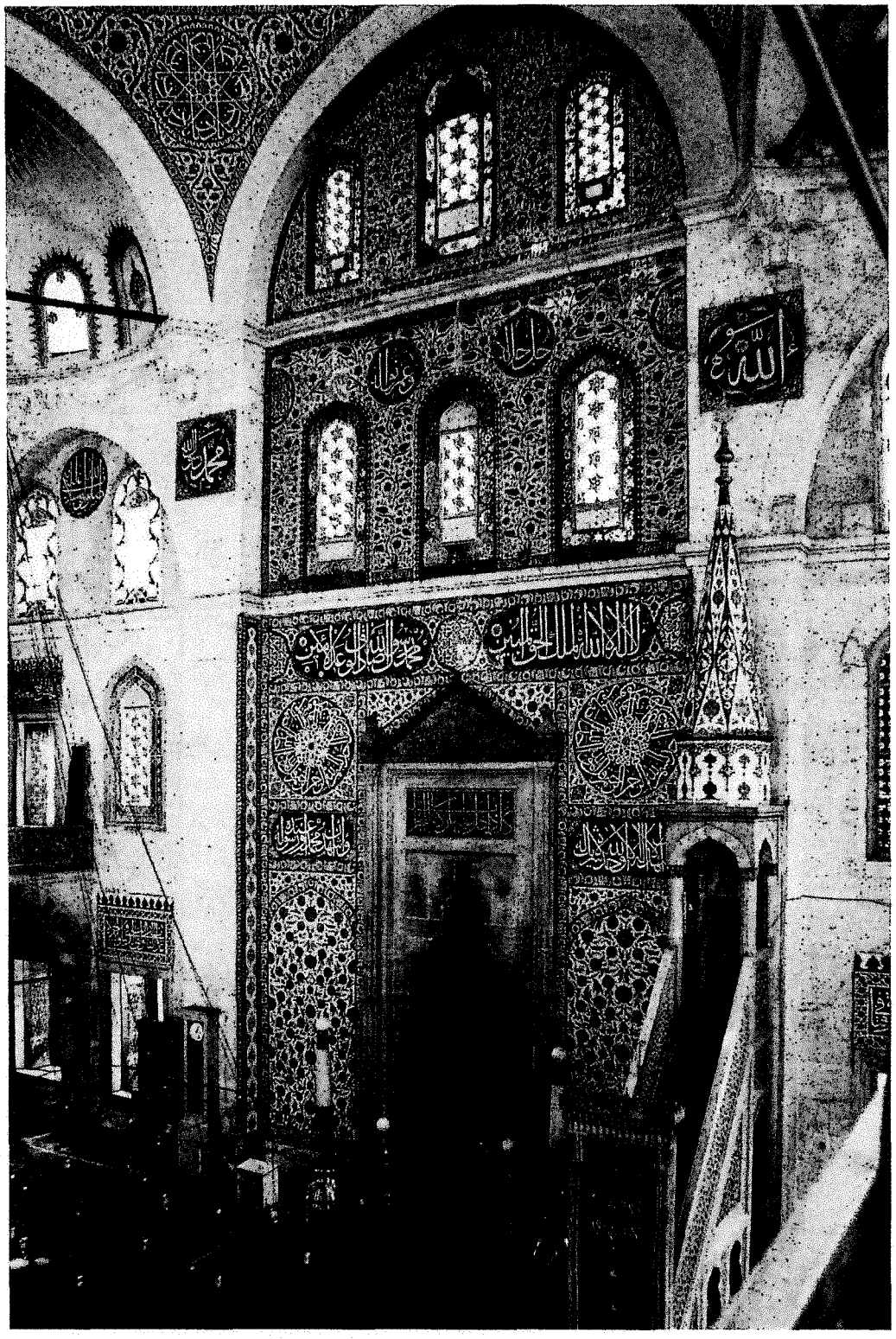


readers. A textbook case is the destroyed minbar of 1168–69 which Nur al-Din ordered for the Aqsa Mosque, Jerusalem, where numerous light-related tonal contrasts and stellar designs complement the messages of the inscriptions (Auld 2005, 58–59; 2009). Nor was the religious theme always announced by the word *din*; other popular components of such titles were *islam*, religious community (*umma*), Muslims (*muslimin*), religion (*milla*), truth (*haqq*), and holy war (*jihad*), all of them preceded by words having to do with light. It is of course a cliché, but one that requires renewed emphasis here, that the inbuilt associations of light with virtue, with knowledge, with the true path, with religious faith, with God's guidance—often in contradistinction to darkness, with all its negative connotations—are of course not peculiar to Muslim belief. They permeate Zoroastrian, Judaic, and Christian thought—to mention only three of the religions with which Islam had most to do. The evidence of titles, then, which were customarily employed in the medieval centuries as part of the historical inscriptions that graced buildings across the Muslim world, is that they often played with concepts of light and faith, sometimes conjoined but more often as successive elements in a sequence of ideas which constantly circled around a few core concepts. For those with eyes to see, then, the theme of light was omnipresent in both literal and metaphorical senses.

Directed Light

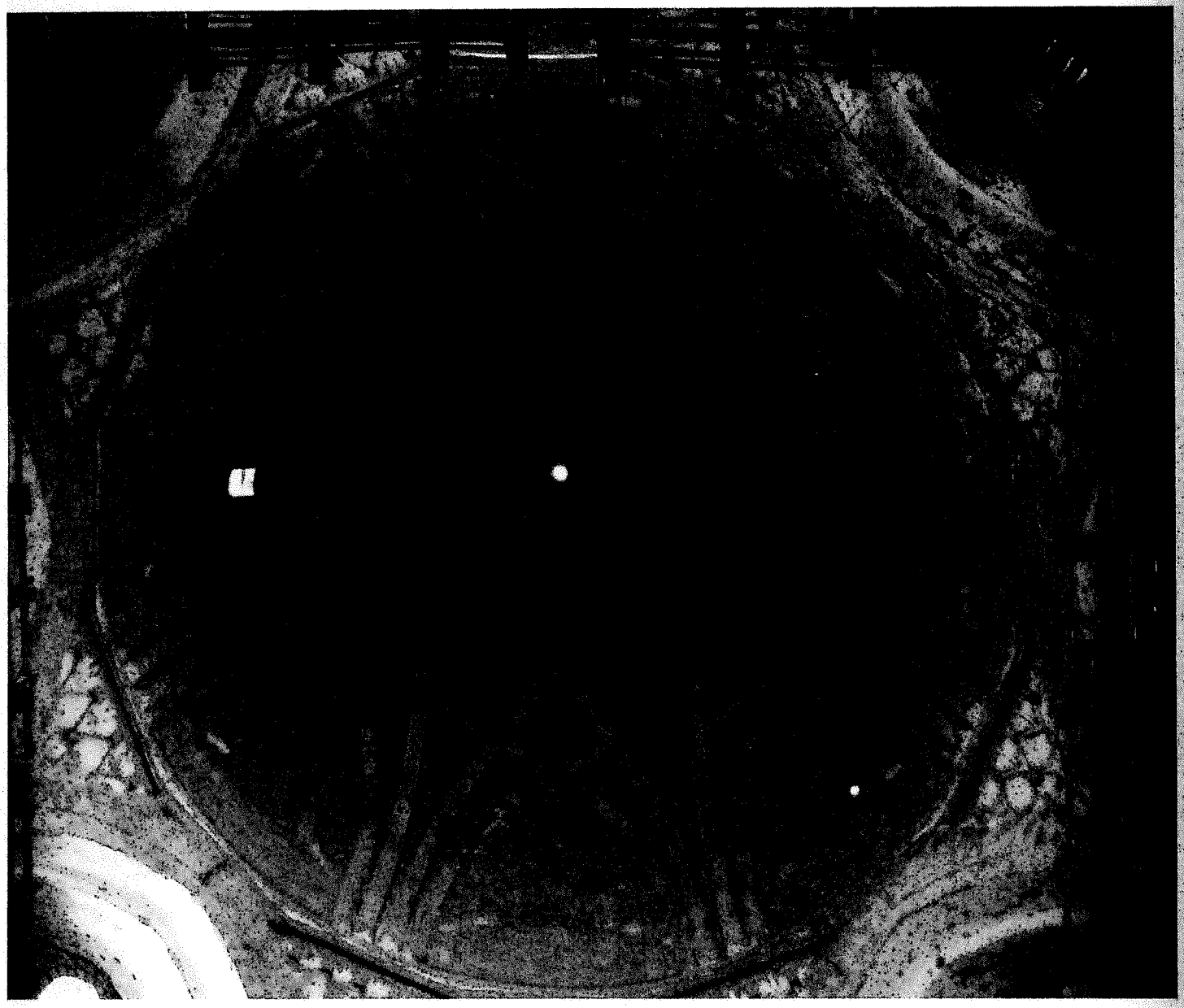
The most immediately apprehensible use of light in Islamic architecture is that which fulfills an obvious practical need, namely openings in the fabric of a building. That is of course a truism; after all, every building that has a functioning interior has to be lit to some degree. But this is precisely where choices are made, and those choices can be very revealing. Contrasts of open and closed spaces made the most of a limited ration of light, and could be used for purposes of surprise, emphasis, and what might be termed stage management. An outstanding example of this is the Alhambra Palace in Granada, which, with its plethora of bent entrances and continually shifting axes and changes in level, contrives to disorientate visitors so that it can spring a succession of surprises on them, often involving views artfully framed and lit that unfold as one rounds a corner.

In the interior of an Ottoman dome chamber, there is no ineluctable practical reason dictating that the qibla wall should be better lit than the other three walls. Yet so it often is. Thus in the qibla wall of the Ismihan Sultan Mosque, Kadırgalimanı, Istanbul of 1571–72, two tiers of three windows apiece direct a flood of light onto the area around the mihrab, making it far brighter than the rest of the interior (pl. 61). Sometimes a modest dome chamber is lit not by axial rectangular or arched windows, as common sense would lead one to expect, but by numerous scattered, small-scale openings in the inner dome. Thus the person inside that building experiences not the steady overall illumination provided by large windows, but rather shafts of light piercing the darkness. The impact is as if man were harnessing the power of the heavenly bodies themselves. An oculus at the very top of a dome, as at the tomb of Sultan Sanjar at



51 Qibla wall in the Ismihan Sultan Mosque, Kadırgalimını, Istanbul, 1571–72.

Merv (pl. 62) or the bath hall of Khirbat al-Mafjar outside Jericho, which is echoed directly below by the center of the Catherine wheel or solar mosaic, can be seen as the eye of heaven and thus as a connection with the powers above. But it does not perform the workaday task of dispelling the dimness of an interior. The skylight marking the climax of certain Timurid vaults of pyrotechnic complexity, which themselves mimic exploding stars and plunging comets (pl. 63), lends a new resonance to the familiar ancient and cross-cultural equation of a vaulted interior with the sky above,



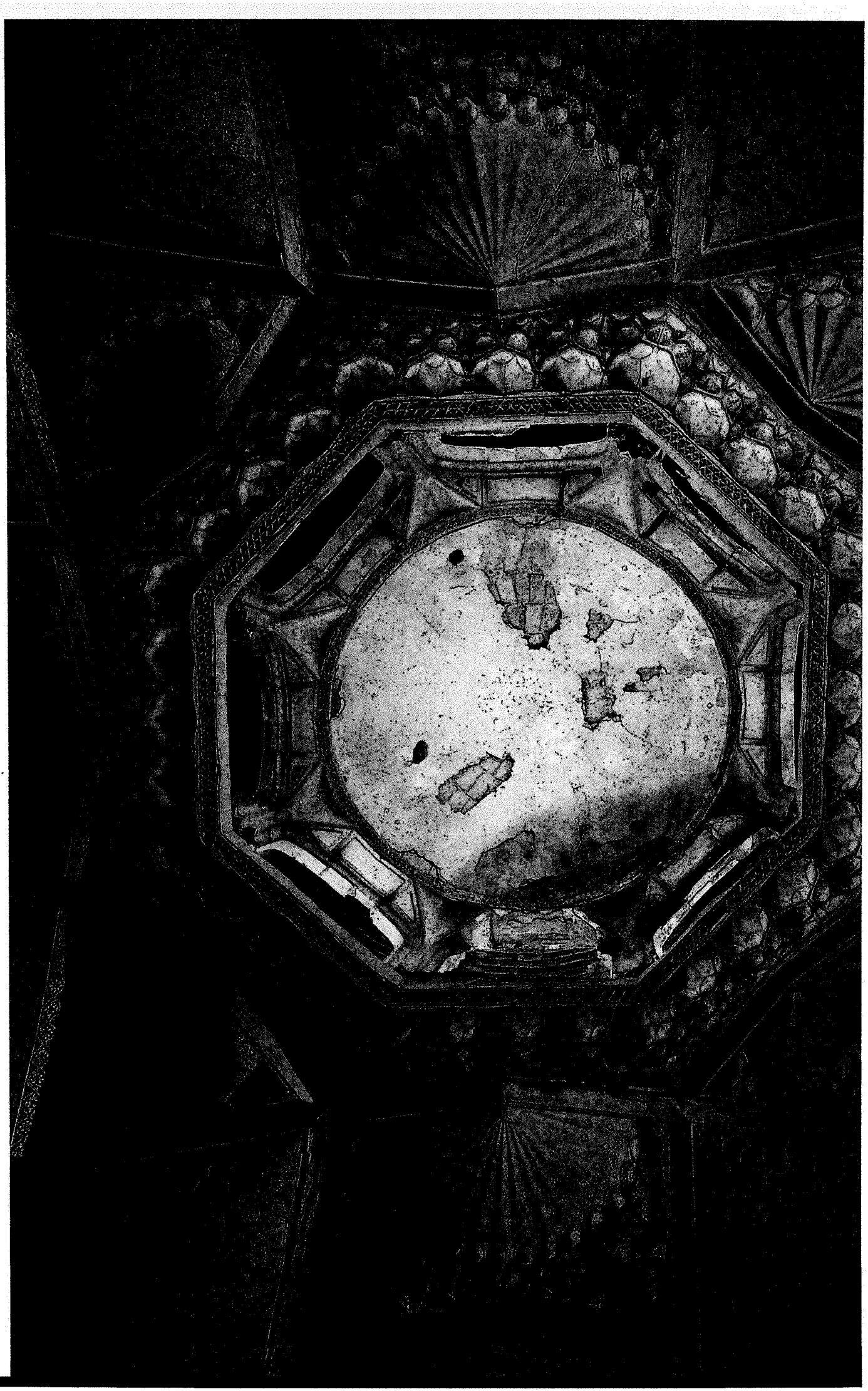
of Sultan Sanjar,
40.

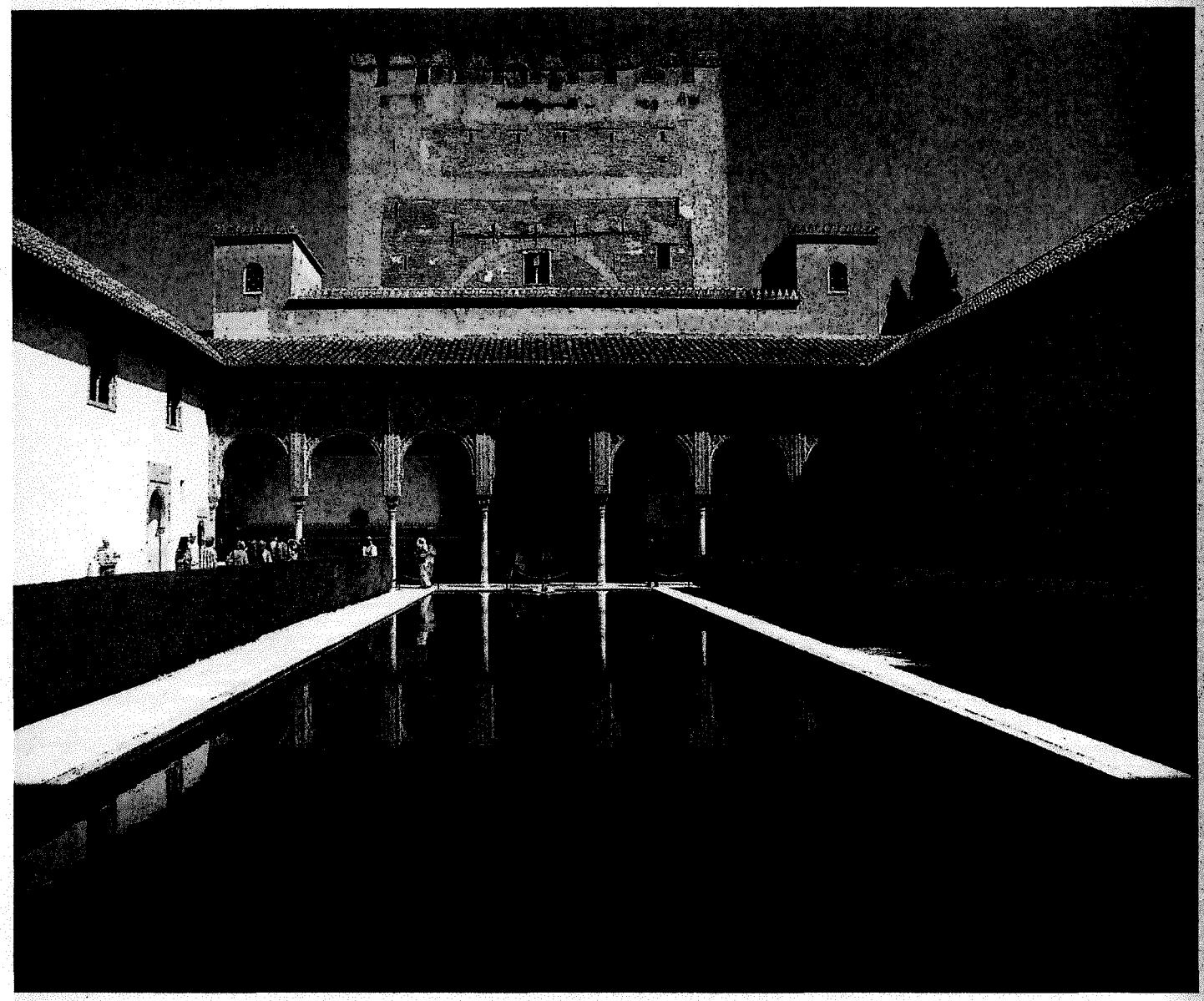
a concept that appears throughout Eurasia over millennia (O'Kane 1979, 101–03). In all these cases, then, it seems that something more than mere lighting is being attempted.

Reflected Light

So much for directed lighting. What of reflected lighting? This is of its very nature harder to pin down, both in how it works and in how it is intended. The use of water in large flat expanses makes it operate (among other things) as a mirror. Such pools are often sited so as to reflect as much as possible the architectural masses that loom nearby, as in the Court of the Myrtles at the Alhambra (pl. 64) or in such Safavid buildings as the Masjid-i Shah and the Chihil Sutun palace, both in Isfahan, and even in modern structures like the Sheikh Zayed Grand Mosque in Abu Dhabi. Thus they permit the building to replicate itself in a breathtaking though evanescent way—for the slightest breeze is apt to ruffle and then dissolve the clear outlines of the monument

) Ghiyathiyya
hargird, Iran,



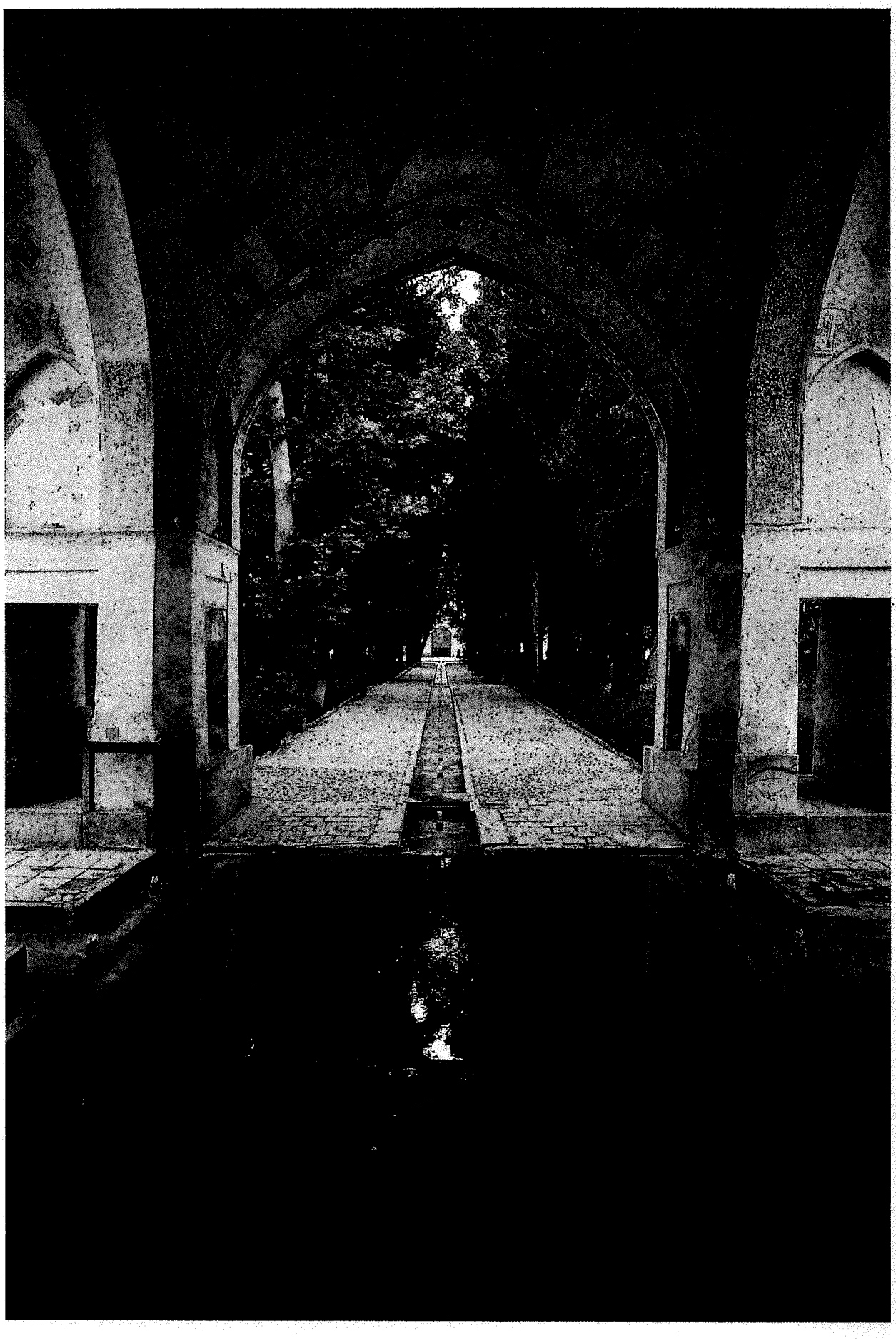


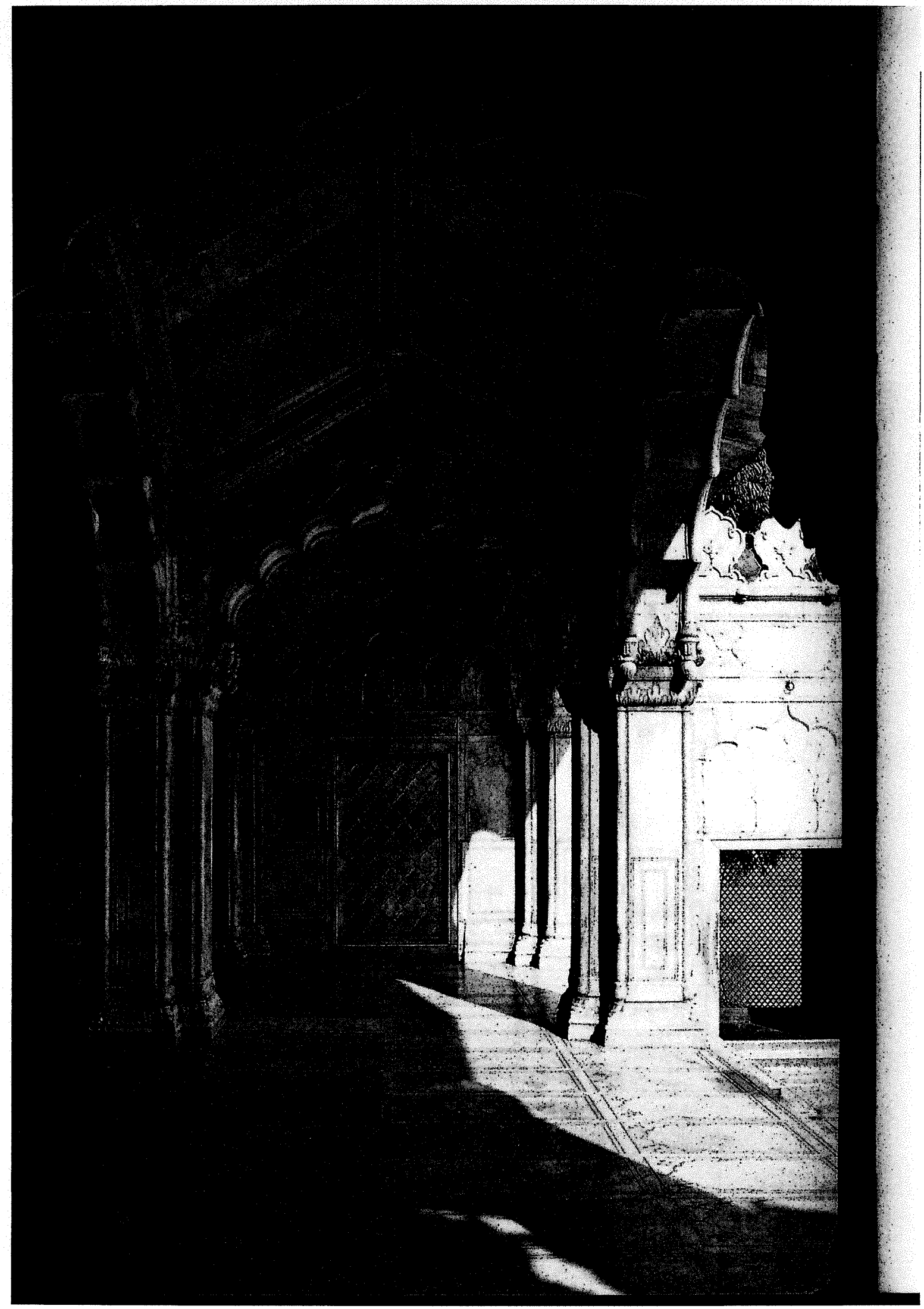
the Myrtles,
nada, 14th

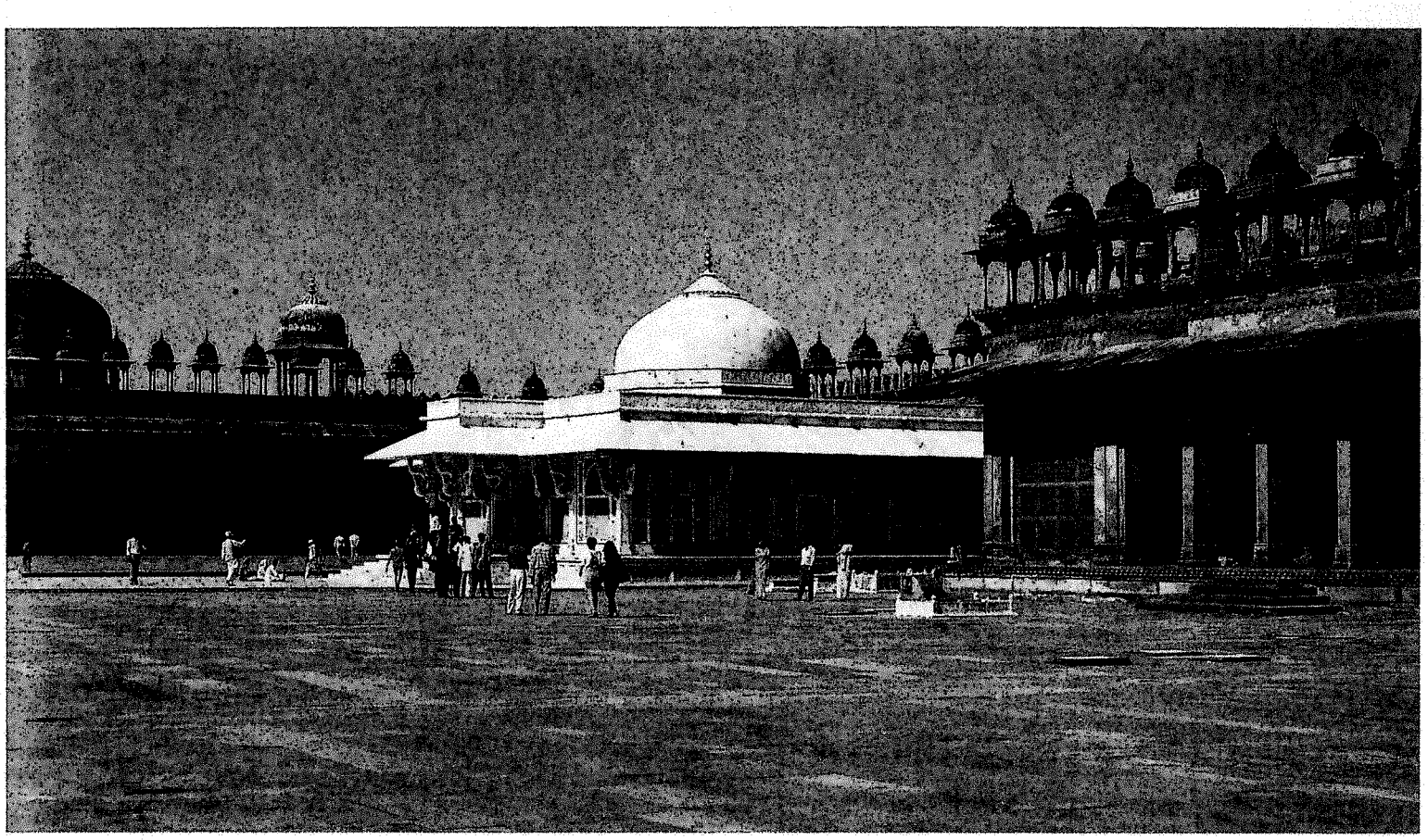
and turn it into a misty mirage of itself. This perennial effect lends itself to sobering metaphorical interpretations concerning the transitory nature of wealth, of rank, and indeed of life itself. Sermons in stones. At the same time, these pools also consistently reflect sunlight. Water in motion—running in channels or cascades or miniature waterfalls, flowing or spurting in fountains—catches light in a sparkling, iridescent, constantly changing way (pl. 65). And so it captures the very essence of mutability. Texts describing medieval palaces in Córdoba, Cairo, and Baghdad speak admiringly of small lakes or ponds filled with a metallic substance variously identified as mercury, quicksilver, or tin which, when struck with a staff, created glistening rolling waves and lightning flashes that awed the bystanders (al-Maqqari 2002, I: 236–37).

Smooth shimmering surfaces, particularly those in white marble, work even more directly on the viewer, especially in strong sunlight. This was surely the intention in such Mughal buildings as the Moti Masjid in Delhi (pl. 66) or the Taj Mahal in Agra. Sometimes the desired effect is intensified by color contrast; thus the shrine of Shaykh Salim Chishti, perhaps the most venerated saint in all of Mughal India, at Fatehpur Sikri is entirely executed in chaste white marble, the epitome of spiritual purity, that

Bagh-i Fin,
century and later.







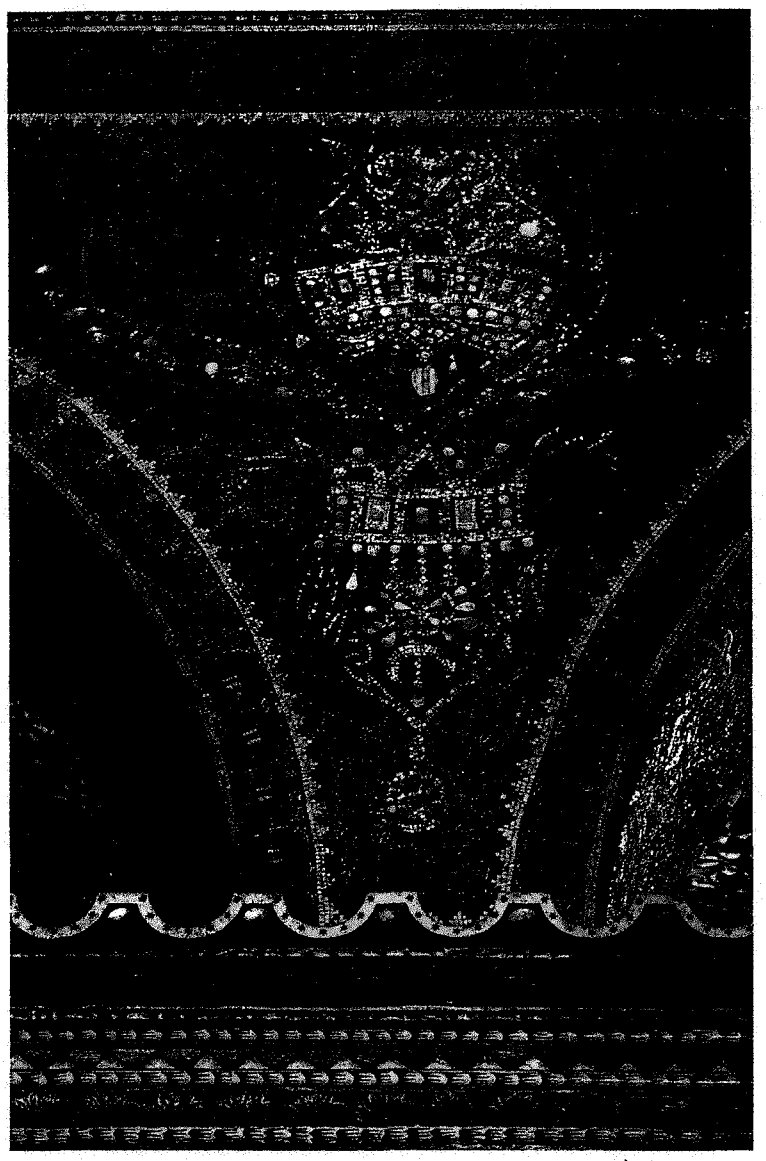
67 Shrine of Salim Chishti, Fatehpur Sikri, 16th century.

stands out from the russet sandstone of the surrounding buildings (pl. 67). In modern architecture an outstanding example of this effect is the Sheikh Zayed Grand Mosque in Abu Dhabi, where at midday the power of the sun's rays reflected alike from the white marble elevation of the building and the white marble floor of the courtyard is well-nigh blinding in its intensity. A multiplying factor seems to be at work here. Indeed, light is the enemy in an open courtyard, with an urgent corresponding need for shade—this is a case less of sunlight than of sunblight.

Yet another type of reflected light is a special feature of glass mosaic (pl. 68). This has a unique richness, for the nature of the component cubes, with gold leaf sandwiched between transparent glass so that it has a certain depth yet appears to float, gives the gold background plenty of life and character. This introduces a sense of mobility. Moreover, variations between polished and matte cubes, and also in shades of color tones, in the setting of some cubes at various angles to ensure refracted light, in undulating or projecting beds as a setting for the tesserae, in a scattering of black, brown and silver cubes to lighten the density of the gold surface—all of these devices, often working in concert, impart a living, unpredictable glitter to gold mosaic. The absence of these subtleties in modern restorations of ancient mosaics explains their dead brassy sheen, from which the eye instinctively shies away.

Tilework permits some very varied, and distinct, types of reflection. At the simplest level are the random shafts of light generated by *cuerda seca* tiles, with their smooth unbroken surface and overall glaze, though here—as in all types of reflection—the effect comes and goes as viewers move and thus change the angle of sight. Tile mosaic has much more sparkle when the sun strikes its surface, since it comprises many small pieces fitted together, and the smallest deviation from a plane surface creates refracted

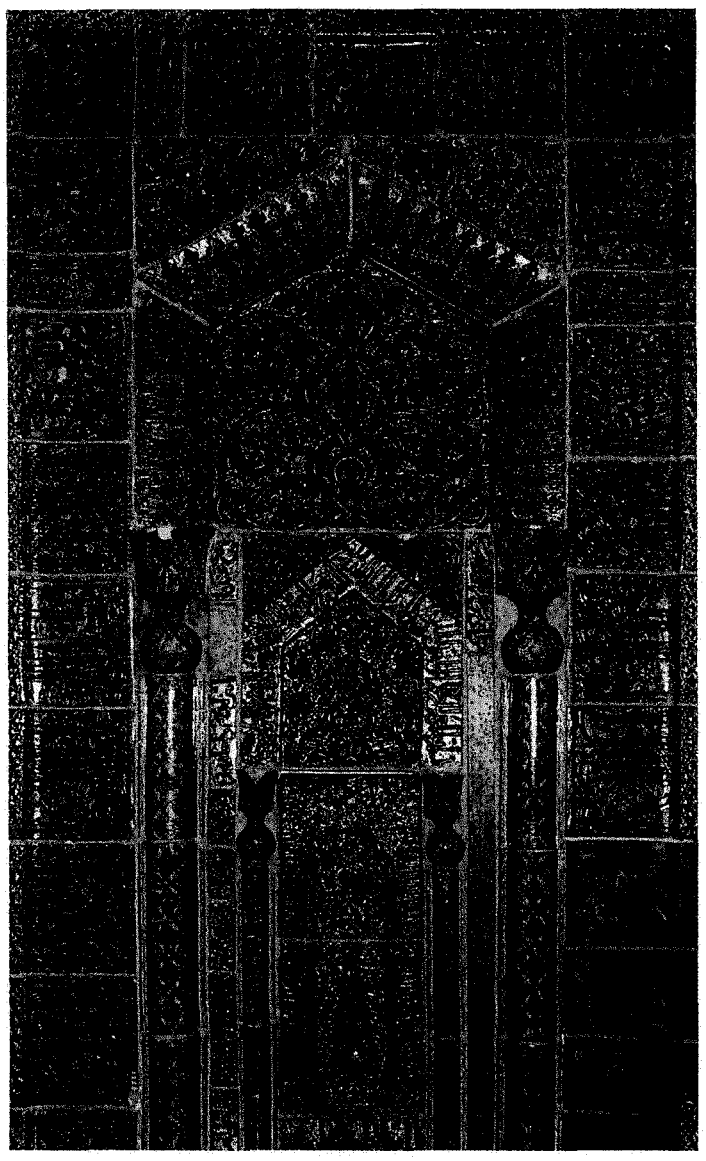
66 (*opposite*) Moti Mosque, Delhi, 17th century.



with mother of
Dome of the
em, 692.

light. But pride of place assuredly goes to luster tiles, which were usually employed for dados and could thus be studied at eye level by those seated near them. Still photographs do them no justice; indeed, they kill them stone dead. They fix a moment in time, rendering immobile precisely those effects that depend on mobility for their impact. Luster tiles were especially popular in Sufi shrines in Iran in the thirteenth and fourteenth centuries. Such tiles, with their unpredictable iridescent tints glistening in the gloom, and rendered still more changeable by the flickering, living, and shifting light cast by candles or oil lamps, aptly symbolized the sudden flashes of insight vouchsafed to mystics as they strove to approach closer to God through a cloud of unknowing. Sometimes dozens of luster tiles were put together to create a huge, fitfully illuminated mihrab, the focus of prayer, in places of worship; at times they towered over three meters high (pl. 69). Thus the built-in symbolism of the door or gate inherent in the very form of the mihrab (*Encyclopedia of Islam*/2: "Miḥrāb", 7–8)—a gate to the world beyond, to the afterlife, and to a higher level of spiritual knowledge—took on still deeper meaning thanks to the medium of luster.

Finally, the mirror-work (*'ainakari*) so popular in nineteenth-century Islamic art in Iran, and still used today, as in the Mashhad Sayyida Ruqayya in Damascus, much visited

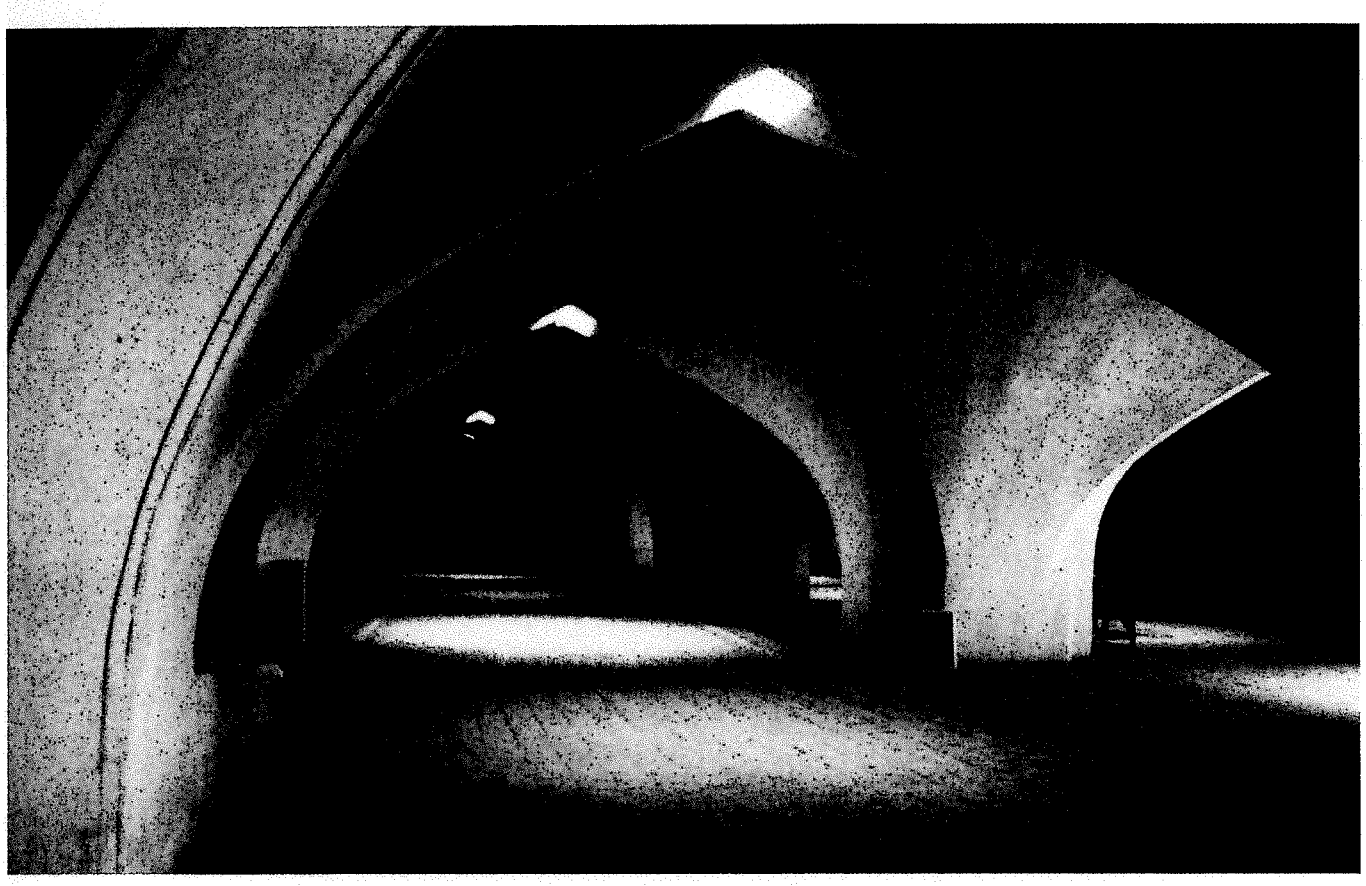


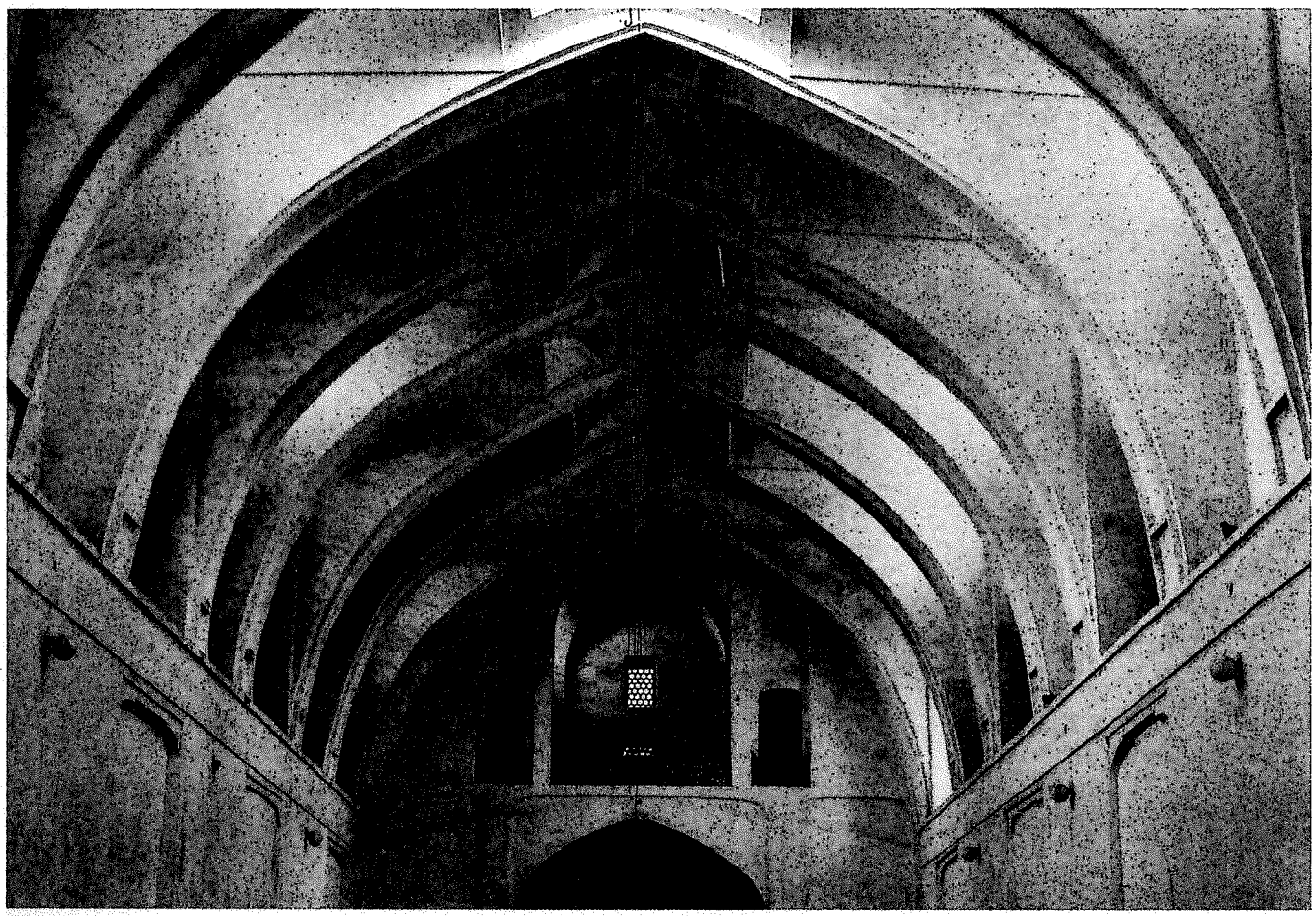
69 Molded stonepaste mihrab overglaze-painted in luster and underglaze-painted in cobalt and turquoise, Kashan, Sha'ban 663/ May 1265. Doris Duke Foundation for Islamic Art, Honolulu (48.327).

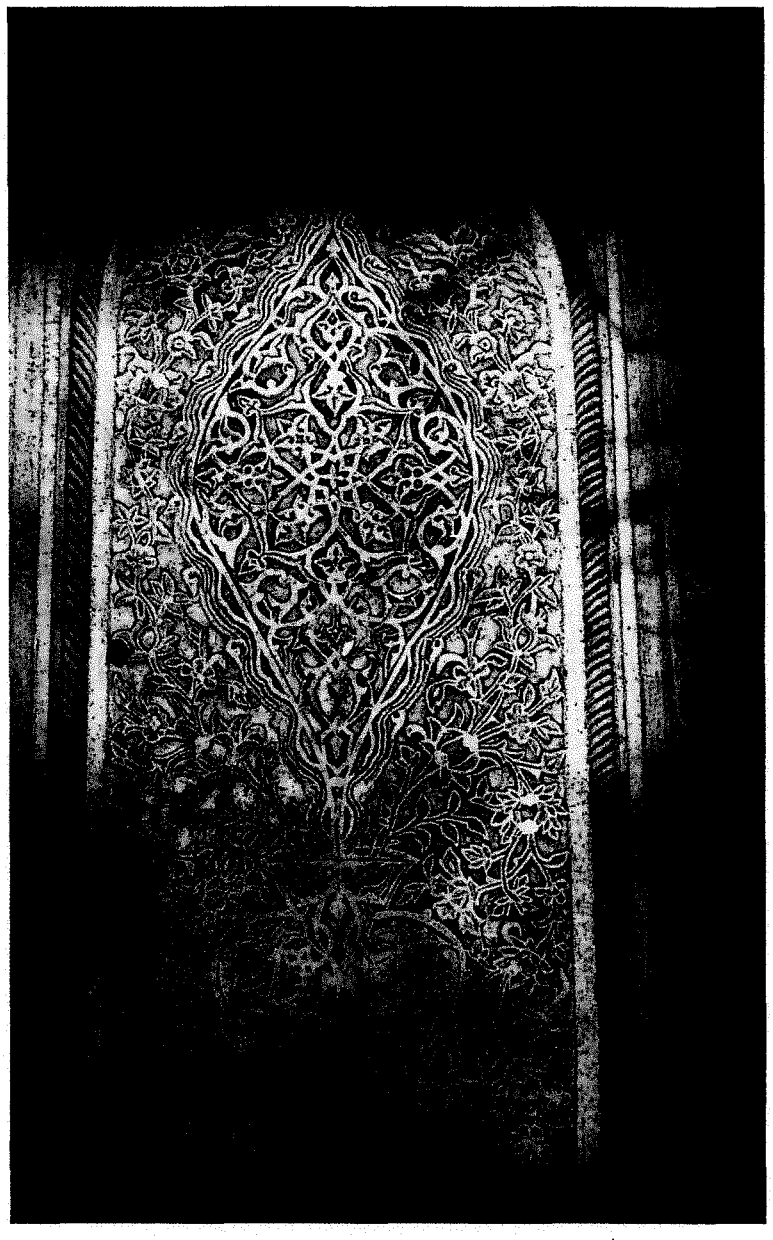
by Iranian pilgrims (Mulder 2014: 192), deserves brief notice. Interestingly enough, the location of choice for this most dazzling exploitation of light was interior vaults rather than exterior surfaces of any kind. Nevertheless, carefully placed sources of artificial light ensured that the reflective powers of this medium were exploited to the full.

Materials Associated with Light

A subset of this category of reflected light takes us to our third theme, which deals with the power of certain materials or colors, themselves often associated with particular media, to absorb and radiate light. Architects and craftsmen often capitalized on this characteristic in order to secure dramatic visual effects, and occasionally these could be captured in poetry, like the pre-Islamic Yemeni king who built his palace with an alabaster ceiling so that he could lie on his bed and watch the birds disporting themselves (Wightman and Udhari 1975, 8). It is an elaborate, and also totally fallacious, conceit, for while alabaster does indeed let the light in, it is by no means transparent. Instead, it casts a warm radiance that suffuses the immediate vicinity with a golden





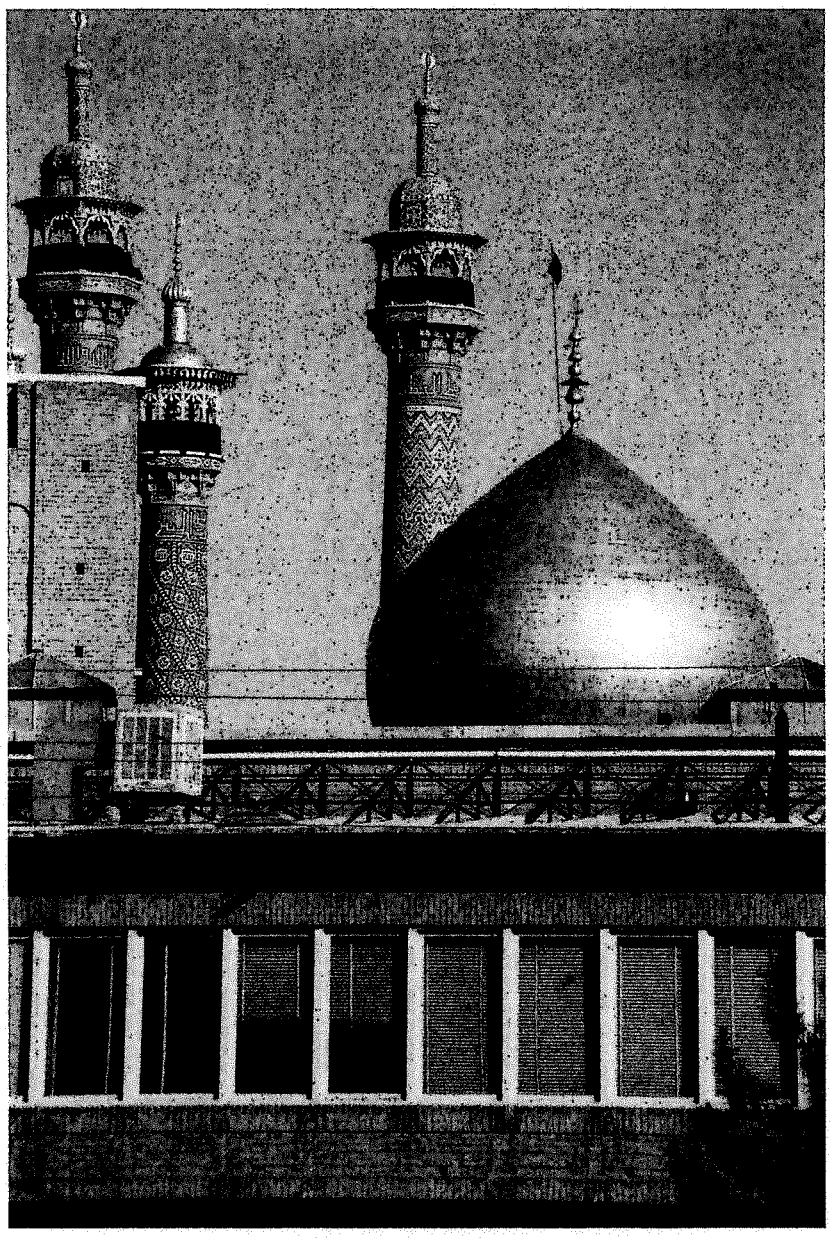


72 Yellow alabaster mihrab in the Shrine of 'Ali ibn Binyamin at Bidakhavid near Yazd, *c.* 1415.

70 (*opposite, top*) Alabaster openings in the ceiling of the winter prayer hall behind the west iwan in the Friday Mosque, Isfahan, *c.* 1444.

71 (*opposite, bottom*) Transverse vaults in the west prayer hall of the Friday Mosque at Yazd, 1364–76.

light. In a dim interior, this can make an impact over many meters, and even create pools of light amidst the darkness, as in the winter prayer hall of the Friday Mosque of Isfahan, erected *circa* 1444, whose transverse arches are pierced at the apex by square openings fitted with alabaster (pl. 70), a variation on the plain openings of the transverse vaults in the Yazd *jami'* (pl. 71). Perhaps the most dramatic expression of this idea of the mihrab as a source of light is a yellow alabaster mihrab in the shrine of 'Ali ibn Binyaman at Bidakhavid near Yazd, datable *circa* 1415 (pl. 72). Since this huge block of expensive stone fills up the entire thickness of the wall into which it is set, its exterior face can absorb sunlight from dawn to dusk and at the same time reflect that light, muted but full of power, radiating its messages in the darkness across the centuries. At one level, and this is surely the one most readily accepted, this is a mihrab, set in a qibla wall and encouraging visitors to the shrine to engage in prayer. But 'Abdallah Kahil has suggested, following the fourteenth-century exegesis of the Light Verse by Ibn Kathir, that the light generated by the lamp mentioned in that verse represents faith. By that reckoning, argues Kahil, a slab such as this, set in a funerary shrine, can



ıe in the Shrine of
n, 16th century.

be understood to represent the faith that will take ʿAli ibn Binyamin to Paradise.[4] By extension, the depiction of a lamp in a niche on the tombstones of graves (for which a qibla orientation is prescribed) is a similar proclamation of the saving faith of the deceased (Kahil, in this volume; cf. Khoury 1992, 12, 22–23). And it is worth recalling in this context that for the Shia, their Imams both received and emanated divine light (Mulder 2014, 80–81), which adds a third level of significance to such images. The Bidakhavid slab is only one of several contemporary examples, as a similar mihrab in nearby Turan Pusht shows. The same tawny alabaster, probably from Ardistan, was much in demand for dados in Safavid buildings. Placed as they were against a surface that did not admit light, they would rather absorb it.

Mother-of-pearl, with its distinctive iridescence, was a favored element of Islamic glass mosaic as early as the Dome of the Rock in Jerusalem (see pl. 68). It proved especially popular for the many mihrabs in glass mosaic that were produced in the Ayyubid and Mamluk periods from the time of the Aqsa mihrab (1187–88) onward, and indeed is found right up to modern times, for example in the minbar of the

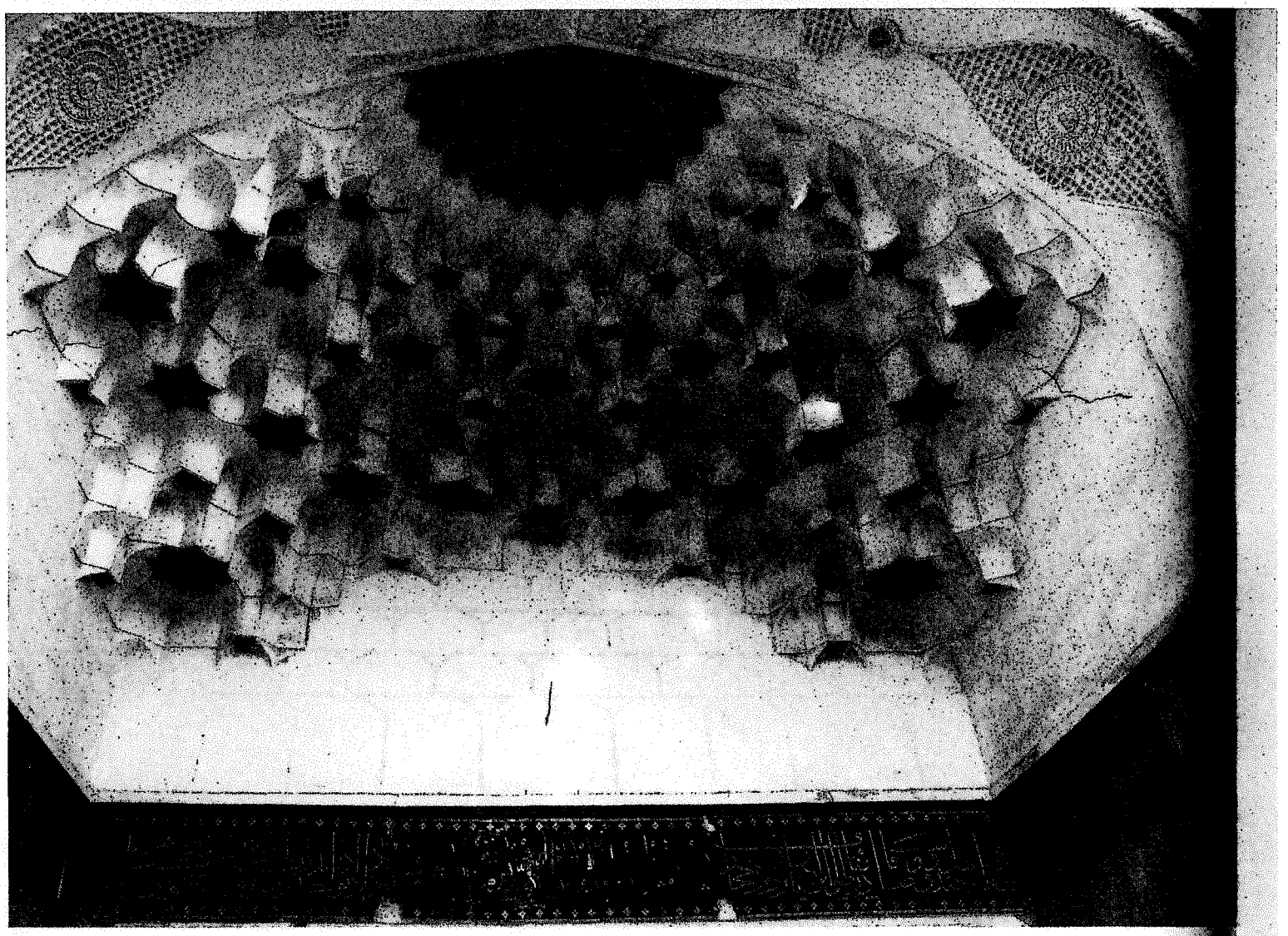
Sheikh Zayed Grand Mosque in Abu Dhabi (Hillenbrand 2012b, 126–27). Another rare material popularly believed to hold and transmit light, this time in frozen form, was rock crystal; and piers of crystal are recorded at Madinat al-Zahra in al-Andalus (al-Maqqari 2002, I, 237), though it is a safe bet that only part of a pier would display this excessively rare material. Other piers were studded with rubies and other jewels—still more transmitters of light (al-Maqqari 2002, II: 467). But pride of place belongs to the kiosk of stained glass built for a Dhu'l-Nunid monarch in Toledo in the midst of an artificial lake, so designed that the waters of the lake were piped to ripple over it as the ruler sat inside, untouched by the water, while burning wax tapers lit the kiosk from within (al-Maqqari 2002, I, 239–40).

But of course the principal agent among these varied materials is gold, which is also pre-eminently suited to reflect light. From the very beginning of Islamic architecture, at the Dome of the Rock, the impact of expanses of gold—actually gold leaf on copper—as cladding for domes or for tiles was well understood, despite theological objections (Jairazbhoy 1964, 41–51). The sheer value of such decoration meant that it was liable to be removed in times of dearth, unrest and war, and gradually its use was confined to buildings whose sanctity usually protected them from being plundered. Undoubtedly the Shii shrines of Iraq and Iran are the principal examples of this fashion (pl. 73), and the wealthy faithful vied with each other to embellish the mausolea of their Imams in this way, so that gold leaf covered not only domes but also the underside of vaults, including *muqarnas* vaults and even minarets. This lavish decoration was sometimes applied in fulfillment of a vow, in the wake of major conquests or indeed for ecumenical reasons (Allan 2012, 44–45).

And in other media, the unparalleled status of gold as a metal purified by fire and connoting from ancient times connections with the sun, with worship, and with spirituality found many another expression in Islamic art and architecture. Gold backgrounds gave heightened significance to the otherworldly Umayyad mosaics of Jerusalem and Damascus. It could also highlight a name, a title, or a key portion of the design. Gold was not the only means of creating a strong focus of light with potential spiritual associations. The more imaginative architects knew how to concentrate the impact of a burst of whiteness, as in the snowy cascade of *muqarnas* cells in the mosque of Gawhar Shad in Mashhad (Golombek and Wilber 1988, II: pl. 246) or the Safavid transverse *muqarnas* vaults at Mahan (Hillenbrand 1986, 792–93, 829 and pl. 42), or yet other white vaults there festooned with tilework stars (pl. 74).

Lighting Devices

Next, the fourth theme, lighting devices. These were quite varied. Their effect was necessarily limited: less a matter of light, perhaps, than of darkness visible. Candles, either plain or decorated with stellar or solar designs (Gray 1947, pl. 4), were placed on stands, often on either side of the mihrab (see pl. 61), and a similar arrangement of successive niches containing lamps and flanked by candles is depicted on some cenotaphs (Mulder



s vault over the
to the Shrine of
: Mahan, Iran,

2014, 80–81). They could be huge; the museum on the Haram al-Sharif in Jerusalem preserves two beeswax candles, apparently of medieval date, several meters long, as thick as tree trunks and of a weight that would require several men to lift.

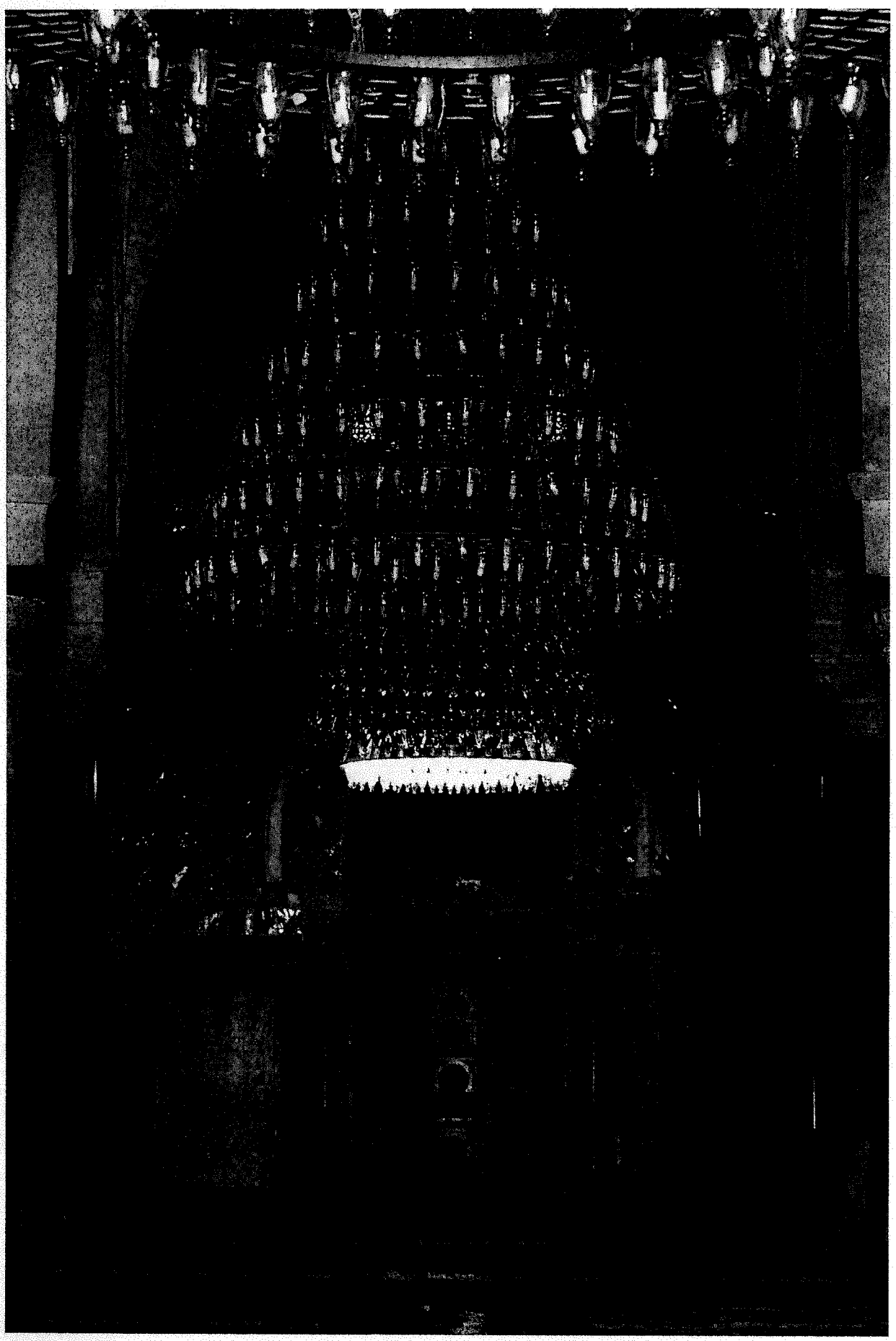
But the main instruments of interior lighting in medieval times were lamps. The medieval sources record that the Córdoba mosque, for instance, had between 113 and 280 lamps. Some lamps were of pierced metal (see pl. 6) and would when lit have radiated complex patterns; the earliest surviving examples are of tenth-century date, and they have remained popular into modern times. Despite their beauty, however, they would have been only moderately successful in fulfilling what was presumably their primary purpose, namely to radiate light. Transparent glass was obviously a much more suitable medium for this purpose, and a unique Qur'anic frontispiece of Umayyad date found in San'a shows just how such lamps were used at that time (pl. 75). High-necked and globular, undecorated and with a floating wick, they were suspended by chains in rows from the tie beams which spanned the arcades of the sanctuary. This system ensured an even spread of light, and it remained standard for centuries to come. The high-water mark of mosque lamps was reached in Mamluk times, especially in mid-fourteenth-century Egypt, where they bore bold *thulth* inscriptions blazing forth in the darkness the name of the patron who commissioned them or, much less frequently, verses from the Qur'an.

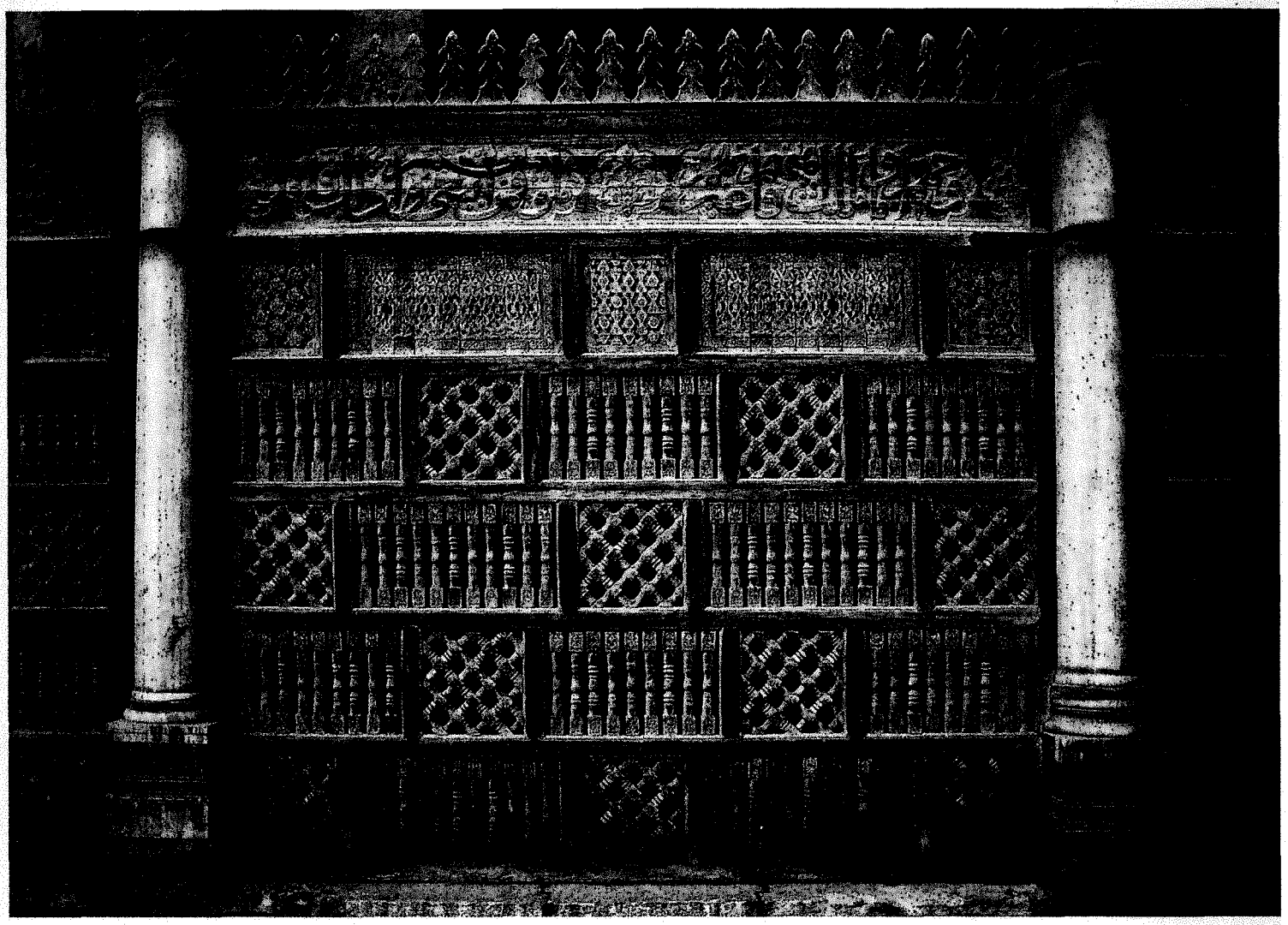
Of special importance were bronze polycandela derived from Byzantine prototypes. These were essentially hanging circular, lobed, or polygonal trays suspended from

75 Hanging lamps depicted in the left half of the frontispiece to an Umayyad Qur'an manuscript. Sana'a, Dar al-Makhtutat (20-33.1).

chains, with a network of holes, usually circular, for holding small glass lamps with a floating wick. The more elaborate ones were tiered on an inclined plane so that they resembled a pyramid (pl. 76). These are especially popular in the Maghrib—many a Moroccan madrasa or mosque, such as Taza, still has one *in situ*. The empty apertures would project magnified shadows of typically Islamic geometric design. Thanks to the cumulative power of their many tiers of serried lamps, they could transform the impact of a dim interior and were often placed with special care to emphasize given parts of a building, such as the mihrab itself, the bay preceding it, or a long sequence of arcades leading to a vanishing point. Even when they were not lit, the pinpoint of light at the end of a long enfilade of arches would bring the entire arcade to life.

The combined effect of these various kinds of illumination—candles, metal and glass lamps, polycandela—is impossible to recapture in modern times, when such lighting has lost its essential living, flickering, unpredictable nature thanks to the steady, harsh, deadening glare of neon. The words of Paul the Silentiary's *ekphrasis* of Haghia Sophia, delivered in 563, eloquently evoke such vanished splendors: "no words are sufficient to describe the illumination in the evening: you might say that some nocturnal sun filled the majestic temple with light" (Mango 1972, 89). In modern buildings electricity has changed all this, and has opened up a vast range of possibilities for the use of artificial light. These are a study in themselves.





77 *Mashrabiyya* screen in the Mosque of al-Maridani, Cairo, 1340.

The Use of Light and Shade to Create Forms

Transient patterned spaces, in which light and shadow played equal roles, were mostly created by screens or by *mashrabiyya* grilles. Typically, the latter, used as shutters placed in front of windows or other openings, allowed those within to see without being seen. Thus they served a triple purpose, firstly as dense external decoration, secondly as a device for ensuring privacy, and thirdly to filter and tone down strong sunlight. They were made of small pieces of turned wood set into larger designs, mostly of geometric shape—stellar patterns were popular and made it seem as if a window were filled with stars. Some even depict mosque interiors. The Mamluk period in Egypt and Syria saw the golden age of *mashrabiyya* woodwork (pl. 77).

Much larger wooden screens were used from Morocco to Iran as balconies or as dividers between a courtyard and the corridors or chambers adjoining it, and these could yield dramatic floor patterns in slanting sunlight. But similar designs in marble windows inaugurated this fashion in the early eighth century, as can be seen at the Great Mosque of Damascus (Creswell 1969, pl. 59), and imitated at Córdoba (Brisch 1966). Furthermore, an apparently inexhaustible range of vegetal motifs, using the identical *ajouré* technique, but this time executed in carved stucco, filled the *claustra* above the door lintels in Qasr al-Hayr West in Syria in the early eighth century

76 (*opposite*) Polycandelon hanging in the Great Mosque at Kairouan.

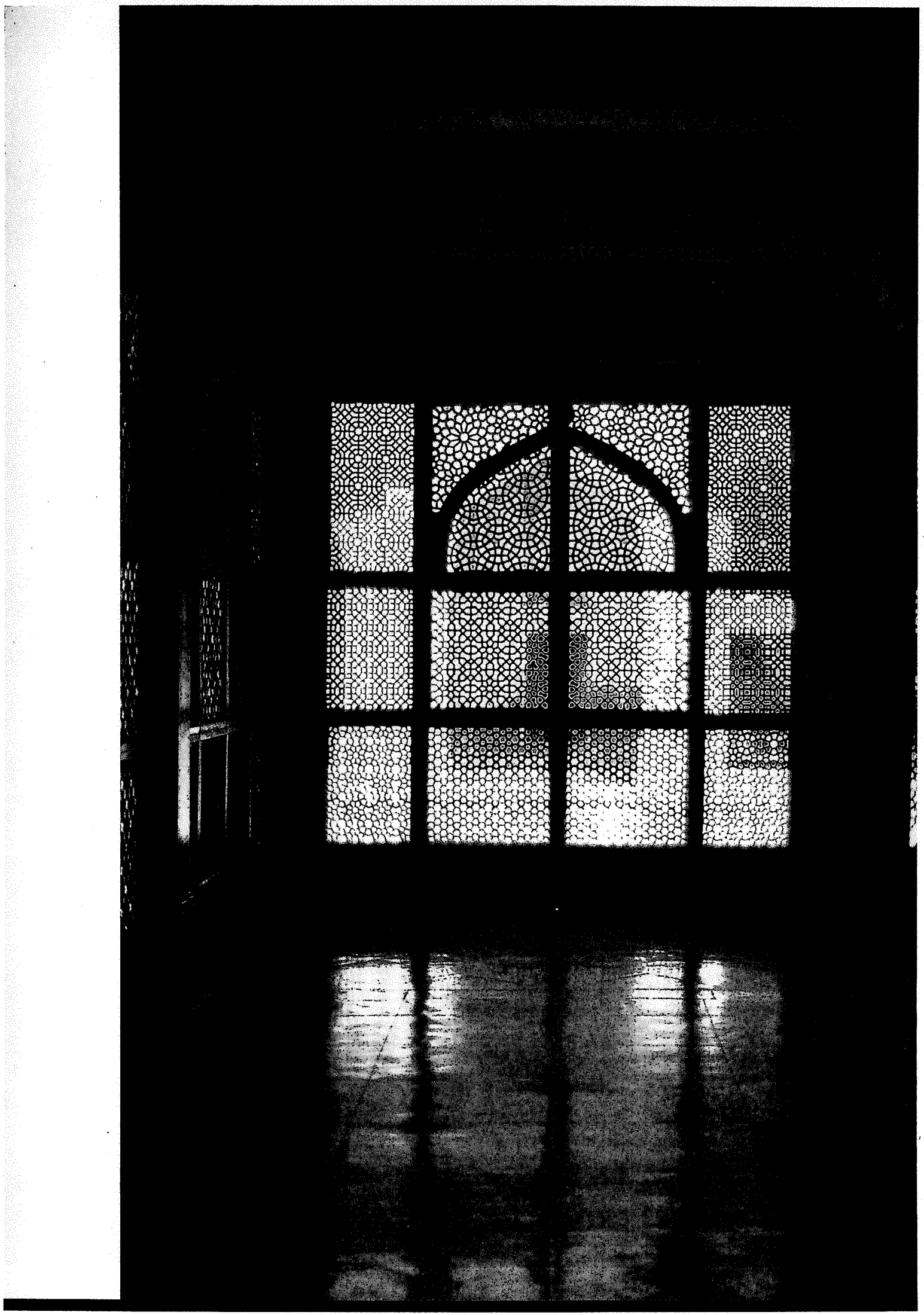
(Schlumberger 1986, pls. 76–80). Clear openings in the walls could translate into strong bars of light patterning walls and floors alike, as in the mosque of Gulbarga (1375) in the Deccan (Hoag 1977, pl. 390).

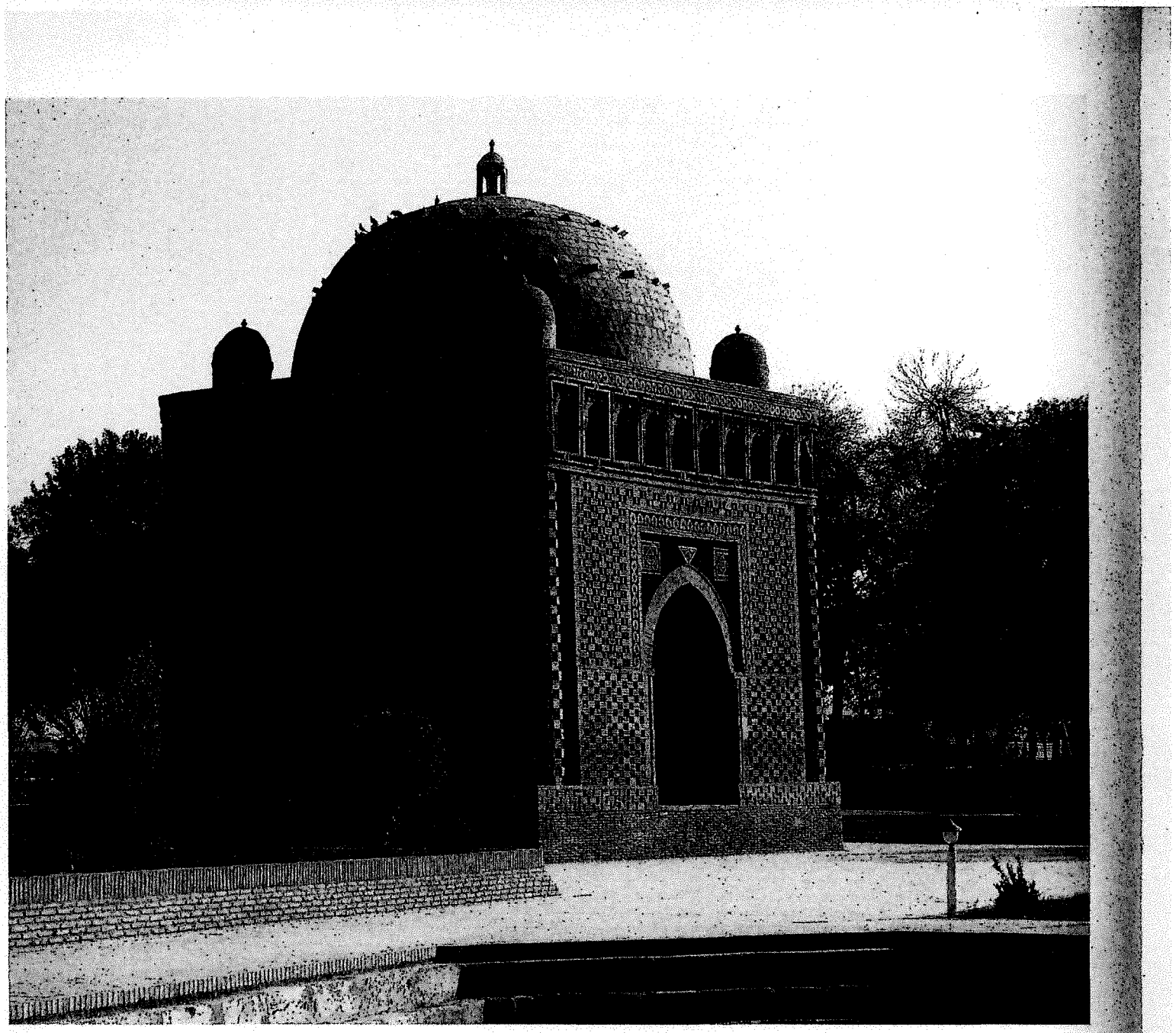
The most widespread use of screens in Islamic architecture is in the Indian subcontinent, especially in the Mughal period. These screens are known as *jali*s and are usually executed in stone or marble (Batley 1954, viii and pl. 20). Their designs are predominantly geometric, but occasionally they bear vegetal designs, as in a celebrated window from the mosque of Sidi Sa'id in Ahmedabad (1572) in Gujarat (Alfieri and Borromeo 2000, 104). They tend to be set closer to the ground than the *mashrabiyya* grilles, which were set within window frames. *Jali*s have very different roles depending on whether they are viewed from the outside or from within a building. Viewed externally, they serve as decorative two-dimensional cladding. But their impact on interior space is much more varied (pl. 78). If one looks up, the light streams in through clearly defined spaces, each of which encloses a pattern. If one looks down, those patterns are replicated on the floor, crisply if the sunlight is strong, but in a blurred and hazy fashion if it is weak. And in certain conditions of sunlight there is a magnifying and perspectival effect, so that a pattern which is relatively small when it fills a window high up in the building covers a much larger surface area by the time it is projected onto the floor (Volwahsen 1969, 34–35, 75 and 120). To the person looking out through a *jali* screen, the world takes on a fragmented, unreal quality, as though one were seeing it at one remove, through a glass darkly. And lastly, there is something kaleidoscopic about the effects of multiple different *jali* designs as one moves through a building, in that the patterning on floors and walls changes from one moment to the next. Stained glass set in a window of geometric or vegetal design could add the extra dimension of color to such patterns. Thus light is transformed into decoration.

External Relief Decoration

The role of external ornament in Islamic architecture could scarcely be overestimated. Whatever its nature—whether it is vegetal, geometric, or epigraphic, or indeed whether it depicts living creatures, it depends on making the most of the changing sunlight throughout the day, giving a monument a subtly different character from one hour to the next. The sharpness of early morning light, the blaze of noon, the soft contours of twilight, the differences between raking and direct light—such varied conditions can give a building a distinctively different character from one hour to the next, as shown by numerous buildings with brick decoration in the Iranian world (pl. 79). The use of brick as both a building material and a decorative medium lent such buildings a formidable integration. Polygonal tomb towers lent themselves especially well to such ornament, since even slight alterations of plane would catch the sun at a different angle, and thus allow the viewer to enjoy a whole sequence of differently textured panels at a single glance. Small wonder that such ornament prompted Edwin Lutyens to exclaim "Speak not of Persian brickwork, but of Persian brick magic." Indeed, a tower at

Jali in the tomb
ti, Fatehpur Sikri,





the Samanids,

Kharraqan (1093) near Qazvin in northwest Iran displays almost 70 discrete patterns in brick, sometimes applied as cladding and sometimes part of the actual structure, sometimes flush, sometimes recessed, and sometimes outset and thus exploiting shadow lines to the full (Stronach and Young 1966, 14–16, 19–20 and pls. XVI–XXIV). In India, Anatolia, Syria, and Egypt the availability of good-quality stone encouraged the development of panels of ornament in vegetal and geometric designs, and in late Mamluk Egypt such ornament, applied in high relief, enveloped the exteriors of domes, making them ornamental landmarks rising from the rooftops.

Symbolism

Sometimes visual puns drove home the desired message, and it is a pity that this aspect of Islamic architecture has attracted so little notice to date, especially as such puns proliferate in other media such as book painting. Egypt's only female sultan, Shajar

80 Glass mosaic in the Tomb of Shajar al-Durr, Cairo, *c.* 1250.

al-Durr, whose name means Tree of Pearls, placed an image of a pearl-laden tree in the glittering medium of glass mosaic in the hood of the mihrab of the mausoleum which she presciently built for herself in Cairo in 1250, shortly before her murder (pl. 80). Pearls were widely regarded as bearers of light. Similarly, the crescent or circular finials that are so often placed on domes and minarets are often gilded, so of course they catch the sunlight and thus draw attention to the building which they crown, as at Bijapur (Jairazbhoy 2003, 166; Volwahsen 1969, 87). Numerous references to the rising or setting sun, sometimes using an appropriate color scheme, sometimes not, occur in unexpected contexts, and may echo an adjoining architectural form, like the floor and vault of the royal apse in the bath hall at Khirbat al-Mafjar (Hamilton 1959, 90–91, 335–36; Ettinghausen 1972, 33, 38–40; Hillenbrand 1988, 5–13). This same rayed theme found even richer and indeed classic expression in 961–65, in the Córdoba mihrab and in the design of the dome directly above it (Barrucand and Bednorz 1992, 78–79).

The place of honor for solar puns or sunbursts is just where one would expect it—at the inner apex of a dome, sometimes with gadrooned ribs suggesting the rays of the sun (Grabar 1978, 173, pl. 100), sometimes with the solar radiance expressed in a more understated way, as in the inner dome of the Lutfallah Mosque in Isfahan erected between 1601 and 1618 (pl. 81), and at yet other times the effect is intensified by the reflection of actual sunlight, as in the inner dome of the Shah (Imam Khomeini) Mosque, also in Isfahan, datable to 1612–38 (pl. 82). Many more variations in the design of inner domes could be cited, from the riddling pentangle of the north dome of the Isfahan *jami'* (Seherr-Thoss *et al.* 1968, 45, pl. 11), which could be linked to the cosmic themes found in the Qur'anic inscriptions of this same chamber (Grabar 1990, 39–40 and 50), to the sacred names in tiny boxes of white square kufic wheeling in the firmament, as at the Varamin *jami'* of 1322–25 (Kratchkovskaïa 1931, 47, fig. 12; Seherr-Thoss *et al.* 1968, 129, pl. 58), or the stellar and solar motifs inside the dome of the

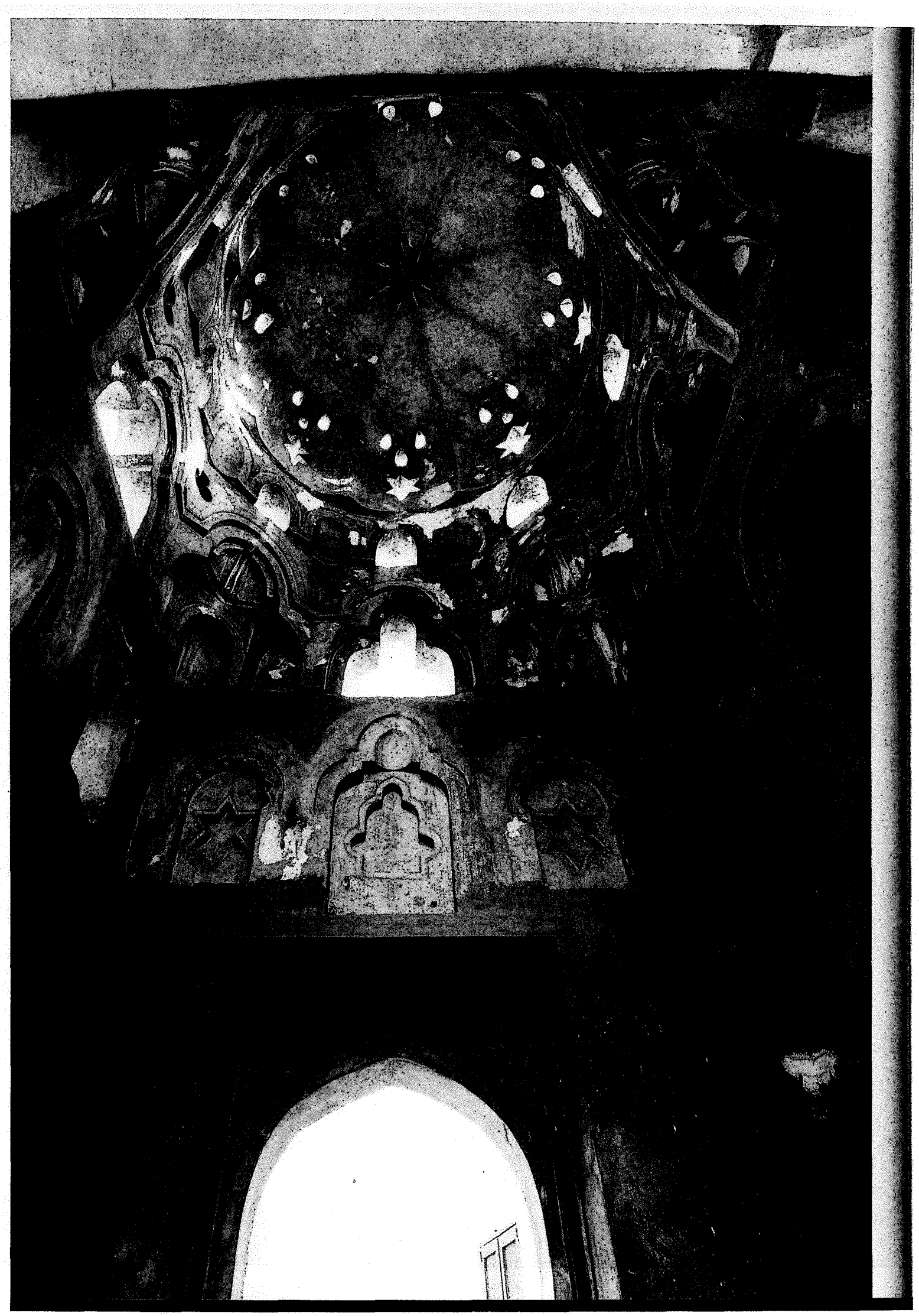
83 Hood on the façade of the Aqmar mosque, Cairo, 1125.

Karatay *madrasa* in Konya (Hill and Grabar 1965, pl. 421; Seherr-Thoss *et al.* 1968, 255, pl. 117). Some have read religious and mystical messages into such designs (Bürgel 2005, 65–69). And an occasional inscription supports the notion that light had symbolic associations. Thus the mosque of Nasmus near Barda in the Caucasus had an inscription dated 720/1320 which proclaimed "mosques are the houses of God on earth; they send light to the inhabitants of the heavens just as stars send light to the inhabitants of the earth" (Khanykov 1864, 146–47).

But the most celebrated pun of all, found in dozens of examples across the centuries and the continents, is solidly anchored in the Qur'an itself–the image of the hanging lamp in a mihrab niche, sometimes accompanied by a star, or indeed with a star–or black sun–instead of the lamp, as in the mihrab in the cave of the Dome of the Rock (Baer 1985; Melikian-Chirvani 1990, 118). Often enough the arch was framed by the very verse (24: 35) to which the image refers, positive proof of the close link between the mihrab and light, which has generated much theological commentary, of which the *Mishkat al-Anwar*, often attributed to al-Ghazali, is among the best known (Gairdner 1952). A substantial case has been made on quite other grounds, rooted in Buddhist and Zoroastrian practice, for this connection (Melikian-Chirvani 1990, 112–23). When entire mihrabs with this motif are executed in luster ceramic, the labile play of light invests them with mystery (see pl. 69). This theme is often found on small individual molded turquoise tiles made for a mass market; these could easily serve to mark the direction of prayer, for example as supplementary mihrabs (Pinder-Wilson 1969, pl. 178), as could the more expensive luster mihrab tiles (Watson 1985, 149, pls. 125 and 129 and color pl. N). Many tombstones also have a version of this design; in addition

81 (*opposite, top*) Interior of the dome in the Lutfallah Mosque, Isfahan, 1601–18.

82 (*opposite, bottom*) Interior of the dome over the mihrab in the Shah (Imam Khomeini) Mosque, Isfahan, 1612–38.

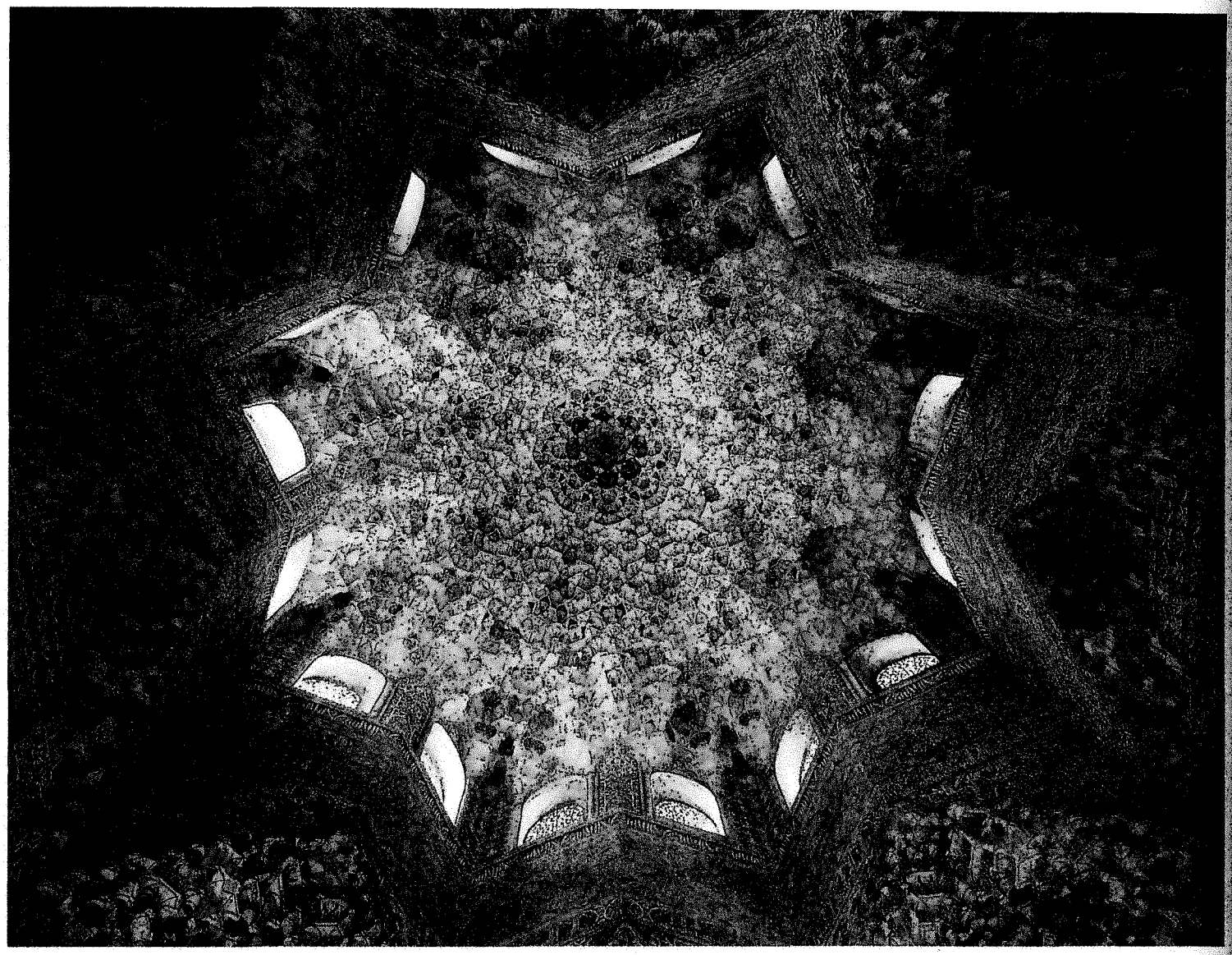


85 Interior of the dome in the Suleymaniye Mosque, Istanbul, 1550–57.

84 (*opposite*) Interior of the dome in a tomb at Qus, 11th or 12th century.

to evoking the Qur'anic text, they indicate the correct orientation for burial (Féhervári 1972). This is not the only symbolic motif associated with mihrabs. A host of variations on the theme of the rayed nimbus, its rays streaming out from a sacred name—usually Allah, but sometimes ʿAli or Muhammad—is found in Fatimid and Mamluk contexts (Hillenbrand 1988, 29–31). The holy name is placed in a semi-circle centered at the base of the mihrab hood with the ribs of the semi-dome performing double duty as solar rays streaming from it. The façade of the Aqmar mosque in Cairo (1125) illustrates several variations on this theme (pl. 83). The taste for inlaid marble in Mamluk times allowed the motif to develop further in quite dramatic ways, with the individual rays resembling forked lightning (see pl. 205a).

Bathhouse domes frequently display star-shaped or circular openings that would have offered to those inside a simulacrum of the heavens, an effect intensified by the dimness within and the strongly focussed light streaming from these openings. The selfsame effect is known in certain Fatimid mausolea, such as the example at Qus (pl. 84). Nor should one forget the intimate relationship with the minaret, whose very etymology proclaims its links with light (*nur*) and/or fire (*nar*) (Adle and Melikian-Chirvani 1972, 264–65; but cf. Bloom 2013, 260–61, 263–64). In medieval times, lamps were placed at the summit of minarets in the hours of darkness (Melikian-Chirvani 1990, 109–12; Hillenbrand 1994, 132–33 and 154–55), and today these have been replaced by neon

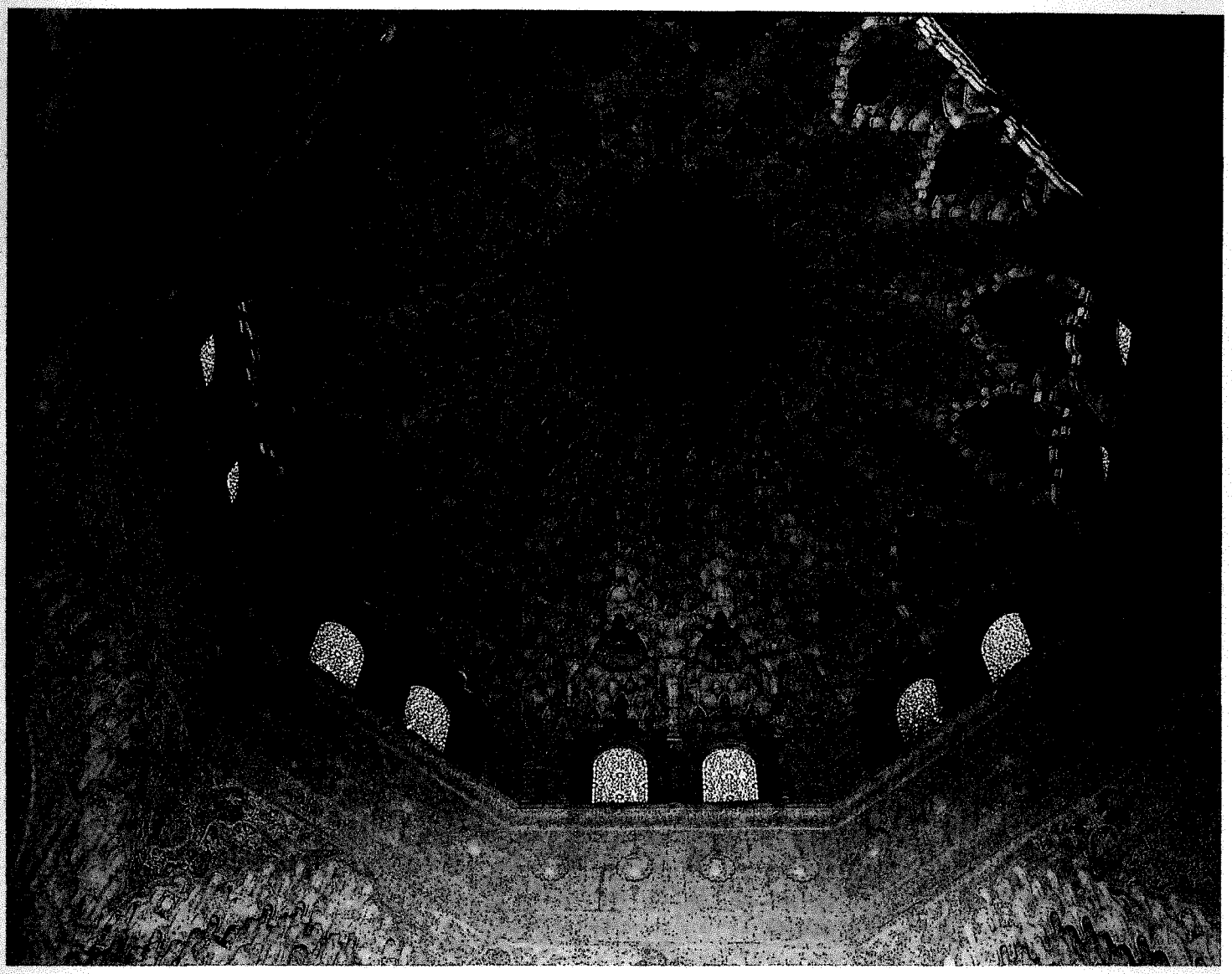


all of the Abencerrajes, ıra, Granada, 14th

lights. The association of the minaret with light is, then, a tenacious Islamic tradition and etymology merely underlines that fact.

Another such pun is the epigraphic roundel, which mimics the rays of the sun—the association with light and indeed enlightenment is no accident—by placing the letters on the outer rim of an imaginary circle with the shafts all pointing toward the center and thus functioning as rays of light. The pronounced verticality of such scripts as *riq'a* and *muhaqqaq* lent itself particularly well to such designs since it stressed the length of these shafts, and thereby emphasized the parallel with the sun. This could be further underlined by the use of gold for the letters, as in many an epigraphic roundel in Mamluk metalwork which trumpets the ruler's name and titles and, in more subliminal fashion, his divinely ordained legitimacy (Hillenbrand 1988, 33–35; Blair and Bloom 2013, 8 and 10, pl. 5). Such roundels became an Ottoman specialty and were used predominantly at the apex of an inner dome (Necipoğlu 2005, pls. 161, 179–81, 183, 185, 218, 257, 273, 310, 329–30, 369, 383, 440, and 443). Thus they had obvious solar connotations (pl. 85).

It seems appropriate to end with some of the most spectacular manifestations of light in Islamic architecture, all of them in the Alhambra. Some contain verse



87 Hall of the Two Sisters, Alhambra, Granada, 14th century.

inscriptions (Grabar 1978, 143–48), the longest by the Grenadine court poet Ibn Zamrak, in which these buildings apostrophize themselves, comparing the ruler to the sun, evoking the Pleiades and Gemini, the planets, and Solomon's rotating palanquin. Thus they specifically encourage a metaphorical reading of their signature lofty *muqarnas* domes. The carefully calibrated rationing of light in other medieval *muqarnas* domes, from Natanz (Seherr-Thoss *et al.* 1968, 125, pl. 56) to Sitt Zubayda in Baghdad (Janabi 1982, pl. 9), invites similar speculations. But the examples in the Alhambra stand out from similar experiments in the expressive power of the *muqarnas* precisely by their use of inscriptions to load these forms with extra meaning. They trap and filter, radiate and reflect light in kaleidoscopic fashion. In the Hall of the Abencerrajes the link with the constellations is driven home in that the entire vault rests on a gigantic eight-pointed star (pl. 86), while in certain lighting conditions the still larger *muqarnas* dome of the Hall of the Two Sisters resolves itself into a series of overlapping stars. As one looks upward, the eye darts from one pinpoint of light after another as the sun's rays strike, as if at random. The whole mass of scintillating cells, more than 5,000 of them in this triumph of illusion–for they are not load-bearing–seems to come to life and turn in perpetual motion. This ethereal vision brings to life the verses of Ibn Zamrak

ceiling over the
nbassadors,
nada, 14th

inscribed high above in epigraphic bands: "the stars would gladly descend from their zones of light, and wish that they lived in this hall instead of in heaven" (pl. 87). Similar ideas are embodied, this time without benefit of words or of a *muqarnas* dome, in the upper reaches of the Hall of the Ambassadors (pl. 88). This throne room, ensconced in the massive bulk of the tower known appropriately enough as al-Qamariyya ("the lunar"), boasts a cedarwood ceiling whose sequentially stepped planes may well be intended to echo the Seven Heavens of the Qur'an. Its dark wood is inlaid with white, blue, and gold stars, crowns and circles large and small, a Milky Way in miniature. It is, moreover, some 75 feet high, and the feeble illumination available in medieval times would have ensured that its upper reaches would have remained shrouded in darkness, but for twinkling pinpoints where the inlaid motifs (presumably using bone or ivory, or even paint) caught a glimmer of light, thereby strengthening the analogy with the night sky. This technical tour de force of woodcarving can surely claim to represent the very essence of light in Islamic architecture.

This essay has shown that Islamic architecture, which stretches across half the world, expresses a corresponding wealth of responses to the ways that light can adorn, enliven,

and transform monuments. This is an architecture that is far more religious than secular in function, and therefore it is not difficult to sense that these buildings so saturated in piety, and proclaiming on their walls the sacred text of the Qur'an, are a silent paean to that God who is the Light of the heavens and of the earth.

Notes

1 See Beelaert 1996, 149–67, for an extended discussion of the literary trope of the Kaaba as a woman, and especially 156, n. 25 for the colors of the *kiswa*.

2 For these five terms, see Kramers 1926, 67; for a much longer tally of titles ending in *din*, none of them listed by Kramers, see Dietrich 1960, 45–53; see also 54, which gives a staggering cumulative list in Arabic script of all the 186 known titles incorporating *din*.

3 For the case of Badr al-Din Lu'lu', see van Berchem 1906, 206; for that of Nur al-Din, see Elisséeff 1952–54, 157–58, and 187.

4 Personal communication.

p. 122: Detail of rock crystal ewer, early 11th century. Victoria and Albert Museum (7904-1862).

Bibliography

'Abd al-Bāqī, Muḥammad Fu'ād. 1407/1987. *Al-Mu'jam al-mufahras li-alfaz al-Qur'ān al-karīm.* Cairo: Dar al-Hadith

'Abd al-Razzāq ibn Hammām al-Ḥimyarī al-San'ānī. 1999. *Tafsīr.* Ed. Maḥmūd Muḥammad 'Abduh. 3 vols. Beirut: Dar al-Kutub al-'Ilmiyyah

Abū'l-Faẓl 'Allāmī. 1872. *Ain-i Akbari,* vol. I. Ed. Henri Blochmann. Bibliotheca India 58. Calcutta: Asiatic Society of Bengal

Adle, Chahryar and Assadullah Suren Melikian-Chirvani. 1972. "Monuments du XI[e] siècle du Dâmqân," *Studia Iranica,* 1, pp. 229–97

Afshar, Iraj. 1992. *Ganjinah-yi Aksha-yi iran: hamrah-i tarikhchah-i vurud-i akkasi bih iran* (A treasury of early Iranian photographs, together with a concise account of how photography was first introduced in Iran). Tehran: Nashr-e Farhang-e Iran

Alcouffe, Daniel. 1991. "Aiguière de cristal," in *Le trésor de Saint-Denis: Musée du Louvre, Paris, 12 mars–17 juin 1991.* Ed. Daniel Alcouffe *et al.* Paris: Réunion des Musées Nationaux, pp. 163–66, cat. no. 26

Alfieri, Bianca Maria, and F. Borromeo. 2000. *Islamic Architecture of the Indian Subcontinent.* London: Laurence King

Allan, James W. 2012. *The Art and Architecture of Twelver Shi'ism: Iraq, Iran and the Indian Sub-continent.* London: Azimuth Editions

Altafsir.com. Internet website with texts of 100 major *tafsīrs.* Sponsored by the Royal Aal al-Bayt Institute for Islamic Thought. Accessed June–December 2013

Ambros, Arne A., with S. Procházka. 2006. *The Nouns of Koranic Arabic: Arranged by Topics.* Wiesbaden: Reichert Verlag

Amīn, Muḥammad, M. 1980. *al-Awqāf wa al-ḥayāt al-ijtimā'iyya fi Miṣr 648–923.1250–1517 dirāsa tārikhiyya wathā'iqiyya.* Cairo: Dar al-nahda al-'arabiyyabi

Amin, Muhammad, M. 1990. *Architectural Terms in Mamluk Documents (648–923).* Cairo: The American University in Cairo Press

Amīr Khusraw. 1343. *Dīvān-i kāmil-i Amīr Khusraw-Dilhavī.* Ed. Sa'īd Nafīsī. Tehran: Intisharat-i Javidan

And, Metin. 1959. *Kırk Gün, Kırk Gece: Eski Donanma ve Şenliklerde Seyirlik Oyunları.* Istanbul: Taç Yayınları

Andaloro, M., ed. 2006. *Nobiles Officinae: Perle, filigrane e trame di seta dal Palazzo Reale di Palermo.* 2 vols. Catania: Giuseppe Maimone

Andrae, Tor. 1918. *Die Person Muhammeds in Lehre und Glauben seiner Gemeinde.* Archives d'Études Orientales, ed. J.-A. Lundell, vol. 16. Stockholm: P.A. Norstedt & Söner

Arago, Dominique François. 1839. "The Daguerrotype," *The London Literary Gazette & Journal of the Belles Lettres, Arts, Sciences, etc.,* 1148 (Saturday 19 January), p. 43

———. 1980. "Report," in *Classic Essays on Photography.* Ed. Alan Trachtenberg. New Haven, C.T.: Leete's Island Books

Arberry, A.J. 1955. *The Koran Interpreted.* London: George Allen & Unwin

Arslan, Mehmet. 2008–. *Osmanlı Saray Düğünleri ve Şenlikleri.* Istanbul; Taç Yayınları

Arts Council of Great Britain. 1976. *The Arts of Islam: Hayward Gallery 8 April–4 July 1976.* London: Arts Council of Great Britain

al-Ash'arī, Abu'l-Hasan 'Alī ibn Ismā'īl. 1963. *Maqālāt al-islāmiyyīn wa-ikhtilāf al-muṣallīn.* Ed. Hellmut Ritter. 2nd ed. Wiesbaden: Franz Steiner Verlag

Asher, Catherine B. 1992. *Architecture of Mughal India.* The New Cambridge History of India: I: 4. Cambridge: Cambridge University Press

———. 2004. "A Ray from the Sun: Mughal Ideology and the Visual Construction of the Divine," in *The Presence of Light: Divine Radiance and Religious Experience.* Ed. Matthew T. Kapstein. Chicago: University of Chicago Press, pp. 161–94

Ashraf Husain, M. 1951–52. "Arabic and Persian Inscriptions in the Agra Fort," in *Epigraphica Indica, Arabic and Persian Supplement,* pp. 1–12

Atasoy, Nurhan. 1997. *1582 Surname-i Hümayun: Düğün Kitabı.* Istanbul: Koçbank

Atıl, Esin. 1981. *Renaissance of Islam: Art of the Mamluks.* Washington D.C.: Smithsonian Institution Press

———, ed. 1990. *Arte islamica e mecenatismo: tesori dal Kuwait.* New York: Rizzoli

———. 1993. "The Story of an Eighteenth-Century Ottoman Festival," *Muqarnas* 10, pp. 181–200

'Aṭṭār, Farīduddīn. 1366. *Dīvān-i 'Aṭṭār.* Ed. M. Darvīsh. Tehran: Intisharat-i Javidan

Auld, Sylvia. 2005. "The *Minbar* of al-Aqsa: Form and

Function," in *Image and Meaning in Islamic Art*. Ed. Robert Hillenbrand. London: Altajir Trust, pp. 42–60

———. 2009. "The *Minbar* of Nur al-Din in Context," in *Ayyubid Jerusalem: the Holy City in Context 1187–1250*. Ed. Robert Hillenbrand and Sylvia Auld. London: Altajir Trust, pp. 79–91

Baer, Eva. 1985. "The Mihrab in the Cave of the Dome of the Rock," *Muqarnas*, 3, pp. 8–19

Bahari, Ebadollah. 1996. *Bihzad: Master of Persian Painting*. London and New York: I.B. Tauris

Bahgat, Aly, and Felix Massoul. 1930. *La Céramique musulmane de l'Égypte*, Cairo: Imprimerie de l'Institut français d'archéologie orientale

Bailey, Gauvin Alexander. 1998. *The Jesuits and the Grand Mogul: Renaissance Art at the Imperial Court of India, 1580–1630*. Occasional Papers 1998/vol. 2. Washington, D.C.: Freer Gallery of Art/Arthur M. Sackler Gallery

———. 1999a. *Art on the Jesuit Missions in Asia and Latin America 1542–1773*. Toronto: University of Toronto Press

———. 1999b. "The Truth-Showing Mirror: Jesuit Catechism and the Arts in Mughal India," in *The Jesuits*. Ed. John W. O'Malley, S.J. *et al.* Toronto: University of Toronto Press, pp. 380–401

Bar-Asher, Meir M. 1999. *Scripture and Exegesis in Early Imāmī Shiism*. Leiden, Boston, Köln: Brill, and Jerusalem: Magnes Press

Barjasteh van Waalwijk van Doorn, Ferydoun and Gillian M. Vogelsang-Eastwood, eds. 1999. *Sevruguin's Iran*. Rotterdam and Tehran: Barjesteh, Zaman

Barrucand, Marianne, and Achim Bednorz. 1992. *Moorish Architecture in Andalusia*. Cologne: Taschen

Batley, Claude. 1954. *The Design Development of Indian Architecture*. London: A. Tiranti

Beach, Milo Cleveland. 1965. "The Gulshan Album and Its European Sources," *Bulletin of the Museum of Fine Arts, Boston*, 63/332, pp. 63–91

———. 1980. "The Mughal Painter Abu'l Hasan and Some English Sources for His Style," *Journal of the Walters Art Gallery*, 38, pp. 6–33

———. 2004. "Jahangir's Album: Some Clarifications," in *Arts of Mughal India: Studies in Honour of Robert Skelton*. Ed. Rosemary Crill, Susan Stronge, and Andrew Topsfield. London: Mapin Publishing, pp. 111–18

———. 2012. *The Imperial Image: Paintings for the Mughal Court*. Washington, D.C.: Freer Gallery of Art/Arthur M. Sackler Gallery/Mapin Publishing

———. 2011. "Mansur," in *Masters of Indian Painting, 1100–1650*. Ed. Milo Beach, Eberhard Fischer, and B.N. Goswamy. Zurich: Artibus Asiae Publishers, pp. 243–58

Beaulieu, Jill, and Mary Roberts, eds. 2002. *Orientalism's Interlocutors: Painting, Architecture, Photography*. Durham, N.C.: Duke University Press

Beelaert, Anna Livia Fermina Alexandra. 1996. "A Cure for the Grieving: Studies on the Poetry of the 12th-century Persian Court Poet Khāqānī Širwānī." PhD. Dissertation, University of Leiden

Behrens-Abouseif, Doris. 1987. *The Minarets of Cairo*. Cairo: The American University Press

———. 1992. "The Façade of the Aqmar Mosque in the Context of Fatimid Ceremonial, *Muqarnas*, 9, pp. 29–38

———. 1995. *Mamluk and Post-Mamluk Metal Lamps*. Cairo: Institut français d'archéologie orientale

Berchem, Max van. 1906. "Monuments et inscriptions de l'atabek Lu'lu' de Moussoul," in *Orientalische Studien, Theodor Nöldeke zum siebzigsten Geburtstag*. Ed. C. Bezold. Gieszen, vol. 1. pp. 197–210. Reprinted in *Opera Minora*. Geneva, 1978, vol. 2, pp. 659–72

Bernus Taylor, Marthe. 1990. "Pièces de jeu d'échec," in *Soliman le Magnifique: 15 février au 14 mai 1990, Galeries nationales du Grand Palais*. Paris: Ministère des Affaires Étrangères, Secrétariat d'Etat aux Relations Culturelles Internationales, Association Française d'Action Artistique, pp. 224–25, cat. no. 238

Beveridge, Henry, trans. and ed. 1989. *The Akbar Nama of Abu-l-Fazl*. 3 vols. Reprint New Delhi: Atlantic Publishers & Distributors

al-Bīrūnī, Muḥammad ibn Aḥmad. 1936. *Kitāb al-jamāhir fi ma'rifat al-jawāhir*, Hyderabad: Pakistan Hijra Council

Björnbo, Axel Anthon, and Sebastian Vogl, eds. 1912. *Alkindi, Tideus und Pseudo-Euklid: Drei optische Werke*. Abhandlungen zur Geschichte der mathematischen Wissenschaften 3/26. Leipzig and Berlin: Teubner, pp. 97–119

Blair, Sheila S. 1992. *The Monumental Inscriptions from Early Islamic Iran and Transoxiana*. Leiden: Brill

———. 1998. *Islamic Inscriptions*. Edinburgh: Edinburgh University Press

———. 2007. "Written, Spoken, Envisioned: the Many Facets of the Qur'an in Art," in *Word of God, Art of Man: the Qur'an and its Creative Expressions*. Ed. Fahmida Suleman. Oxford: Oxford University Press in association with the Institute of Ismaili Studies, pp. 271–84

Blair, Sheila S., and Jonathan M. Bloom. 1994. *The Art and Architecture of Islam: 1250–1800*. New Haven and London: Yale University Press

———, eds. 2009. *Rivers of Paradise: Water in Islamic Art and Culture*. Proceedings of the Second Biennial Hamad bin Khalifa Symposium on Islamic Art and Culture. London: Yale University Press

———, eds. 2013. *God is Beautiful and Loves Beauty: the Object in Islamic Art and Culture*. Proceedings of the Fourth Biennial Hamad bin Khalifa Symposium on Islamic Art and Culture. London: Yale University Press

Blochmann, H. trans. 1872/1977. *The Ā'īn-i Akbarī by Abū'l-Fazl 'Allāmī*. Second edition revised and edited by Lieut. Colonel D. C. Phillott. Vol. 1. Calcutta: Lewis; reprint New Delhi: Oriental Books Reprint Corporation

Bloom, Jonathan M. 1983. "The Mosque of al-Hakim in Cairo," *Muqarnas*, 1, pp. 15–36

———. 1993. "The *Qubbat al-Khadrā'* and the Iconography of Height in Early Islamic Architecture." *Ars Orientalis*, 23, pp. 135–42

———. 2003. "Epic Images Revisited: an Ilkhanid Legacy in Easly Safavid Painting," in *Society and Culture in the Early Modern Middle East*. Ed. Andrew J. Newman. Leiden and Boston: Brill, pp. 237–48

———. 2007. *Arts of the City Victorious: Islamic Art and*

Architecture in Fatimid North Africa and Egypt. New Haven and London: Yale University Press

———. 2013. *The Minaret.* Edinburgh: Edinburgh University Press

Bloom, Jonathan, and Sheila Blair. 1997. *Islamic Arts.* London: Phaidon

———, eds. 2011. *And Diverse are Their Hues: Color in Islamic Art and Culture,* Proceedings of the Third Biennial Hamad bin Khalifa Symposium on Islamic Art and Culture. London: Yale University Press

Bohrer, Frederick N. 1999. *Sevruguin and the Persian Image: Photographs of Iran, 1870–1930.* Washington D.C.: Arthur M. Sackler Gallery, Smithsonian Institution; Seattle: University of Washington Press

Bonetti, Maria Francesca and Alberto Prandi. 2013. "Italian Photographs in Iran, 1848–64," *The History of Photography,* 37/1 (February), pp. 14–31

Bosworth, C.E. 1968. *The Book of Curious and Entertaining Information: the Laṭā'if al-ma'ārif of Tha'ālibī.* Edinburgh: Edinburgh University Press

Böwering, Gerhard. 2001. "The Light Verse: Qur'ānic Text and Sūfi Interpretation," *Oriens,* 36, pp. 113–44

Brand, Michael, and Glenn D. Lowry, eds. 1985. *Fatehpur-Sikri. A Sourcebook.* Cambridge, M.A.: The Aga Khan Program for Islamic Architecture at Harvard University and the Massachusetts Institute of Technology

Brend, Barbara. 2003. *Perspectives on Persian Painting: Illustrations to Amīr Khusrau's* Khamsah. London: Routledge Curzon, Taylor and Francis Group

———. 2005. "The Iconography of Husayn Bayqara," in *The Iconography of Islamic Art: Studies in Honour of Robert Hillenbrand.* Ed. Bernard O'Kane. Edinburgh: Edinburgh University Press, pp. 81–92

———. 2010. *Muhammad Juki's Shahnamah of Firdausi.* London: Royal Asiatic Society and Philip Wilson Publishers, Ltd

———, and Charles Melville. 2010. *Epic of the Persian Kings: The Art of Ferdowsi's* Shahnameh. London and New York: I.B. Tauris

Brisch, Klaus. 1966. *Die Fenstergitter und verwandte Ornamente der Hauptmoschee von Córdoba. Eine Untersuchung zur spanisch-islamischen Ornamentik.* Madrider Forschungen. Berlin: De Gruyter

al-Bukhārī, Muḥammad ibn Ismā'īl. *Ṣaḥīḥ.* 9 vols. [Cairo 1958]. Reprint Beirut: Dar Ihya' al-Turath al-'Arabi

Bürgel, J.-C. 2005. "Mightiness, Ecstasy and Control: Some General Features of Islamic Arts," in *Image and Meaning in Islamic Art.* Ed. R. Hillenbrand. London: Altajir Trust, pp. 61–72

Burton, H.E. 1945. "The Optics of Euclid," *Journal of the Optical Society of America,* 35, pp. 357–72

Çağman, Filiz. 1978. "The Miniatures of the Divan-i Hüseyni and the Influence of their Style," *Fifth International Congress of Turkish Art, 1975.* Ed. G. Fehér. Budapest: Akadémiai Kiadó, pp. 231–59

Caiger-Smith, Alan. 1973. *Tin-Glaze Pottery in Europe and the Islamic World.* London: Faber and Faber

Camps, Arnulf. 1957. *Jerome Xavier S.J. and the Muslims of the Mogul Empire: Controversial Works and Missionary Activity.* Schöneck-Beckenried: Administration de la Nouvelle Revue de Science Missionaire

Canard, Marius. 1942(–1947). "L'Imperialisme des Fatimides et leur propagande," *Annales de l'Institute d'Etudes Orientales de la Faculté des Lettres d'Alger,* 6, pp. 156–93

Canby, Sheila R. 1998. *Princes, Poets & Paladins: Islamic and Indian Paintings from the Collection of Prince and Princess Sadruddin Aga Khan.* London: British Museum Press

———. 2011. *The* Shahnama *of Shah Tahmasp: the Persian Book of Kings.* New York: Metropolitan Museum of Art

Cappelli, Federica. 2008. "Una brocchetta fatimida in cristallo di rocca dal Museo degli Argenti. Problematiche di intervento," in *A Scuola di Restauro. Le migliori tesi degli allievi dell'Istituto Centrale per il Restauro e dell'Opificio delle Pietre Dure negli anni 2003–2005.* Florence: Gancemi Editore, pp. 145–53

Cardinal, Roger. 1992. "Nadar and the Photographic Portrait in Nineteenth-Century France," in *The Portrait in Photography.* Ed. Graham Clarke. London: Reaktion Books, pp. 6–24

Carvalho, Pedro Moura, with Wheeler M. Thackston. 2012. *Mir'āt al-quds (Mirror of Holiness): A Life of Christ for Emperor Akbar.* Leiden: Brill

Çelik, Zeynep. 2000. "Speaking Back to Orientalist Discourse at the World's Columbian Exposition," in *Noble Dreams: Orientalism in America, 1870–1930.* Ed. Holly Edwards. Princeton, N.J.: Princeton University Press, pp. 77–98

Chardin, John. 1811. *Voyages du chevalier Chardin, en Perse, et autres lieux de l'orient.* Ed. L. Langlès. 10 vols. Paris: Le Normant

Christie's. 2008. "A Fatimid Carved Rock Crystal Ewer," *Art Of The Islamic And Indian Worlds.* London. 7 October

Contadini, Anna. 1995. "Islamic Ivory Chess Pieces, Draughtsmen and Dice in the Ashmolean Museum," in *Islamic Art in the Ashmolean Museum.* 2 vols. Ed. J. Allan. Oxford Studies in Islamic Art 10. Oxford: Oxford University Press, part 1, pp. 111–54

———. 1998. *Fatimid Art at the Victoria and Albert Museum.* London: V&A Publications

———. 1999. "The Cutting Edge: Problems of History, Identification and Technique of Fatimid Rock Crystals," in *L'Egypte fatimide. Son Art et son Histoire.* Ed. Marianne Barrucand. Paris: Presses de l'Université de Paris-Sorbonne, pp. 319–29

———. 2010. "Translocation and Transformation: Some Middle Eastern Objects in Europe," in *The Power of Things and the Flow of Cultural Transformations: Art and Culture between Europe and Asia.* Ed. Lieselotte E. Saurma-Jeltsch and Anja Eisenbeiß. Munich: Deutscher Kunstverlag, pp. 42–64

Cooper, Islay. 1993. "Sikhs, Saints and Shadows of Angels," *South Asian Studies,* 9, pp. 11–28

Covel, John. 1893. "Extracts from the Diaries of Dr. John Covel, 1670–1679," in *Early Voyages and Travels in the Levant.* Ed. J. Theodore Bent. London: Hakluyt Society

Creswell, K.A.C. 1969. *Early Muslim Architecture.* 2nd ed. in 2 parts. Oxford: Clarendon Press

Crill, Rosemary, and Kapil Jariwala, eds. 2010. *The Indian Portrait, 1560–1860.* London: National Portrait Gallery

Curatola, Giovanni. 2010. *Al-Fann. Arte della civiltà islamica: La collezione al-Sabah, Kuwait.* Milan: Skira

Daftary, Farhad. 1990. *The Ismāʿīlīs: their History and Doctrines.* Cambridge: Cambridge University Press

———. 2004. *Ismaili Literature.* London: I.B. Tauris

Daguerre, Louis Jacques Mandé. 1980. "Daguerrotype," in *Classic Essays on Photography*, Ed. Alan Trachtenberg. New Haven, C.T.: Leete's Island Books

Damianos, Archbishop. 2004. "The Icon as a Ladder of Divine Ascent in Form and Color," in *Byzantium: Faith and Power (1261–1557).* Ed. Helen C. Evans. New York: Metropolitan Museum of Art and New Haven: Yale University Press, pp. 335–40

al-Dārimī, ʿAbd Allāh Ibn ʿAbd al-Rahmān. [1972?]. *Sunan.* 2 vols. in 1. Ed. Muḥammad Aḥmad Duhmān. Cairo: Dar Ihya' al-Sunna al-Nabawiya

Darrāj, Aḥmad, ed. 1963. *Ḥujjat waqf al-Ashraf Barsbāy.* Cairo: Institut Français d'archéologie orientale

Das, Asok Kumar. 2009. "Salim's *Taswirkhana*," in *Allahabad: Where the Rivers Meet.* Ed. Neelum Saran Gour. Mumbai: Marg Publications, pp. 56–71

Dawood, N. J. 1956. *The Koran.* Harmondsworth: Penguin Books

Deck, Théodore. 1887. *La faïence.* Paris: Maison Quantin

Diba, Layla S. 1999. "Images of Power and the Power of Images: Intention and Response in Early Qajar Painting (1785–1834)," in *Royal Persian Painting: The Qajar Epoch 1785–1925.* Ed. Layla Diba with Maryam Ekhtiar. Brooklyn: Brooklyn Museum of Art, pp. 30–49

———. 2013. "Qajar Photography and its Relationship to Iranian Art: A Reassessment," *The History of Photography*, 37/1 (February), pp. 85–98

Dietrich, Albert. 1960. "Zu den mit addīn zusammengesetzten islamischen Personnamen," *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, 110, pp. 43–54

al-Dīnawarī, ʿAbd Allah ibn Muḥammad. See Ibn ʿAbbās

Elias, Jamal J. 2003. "Light," *Encyclopaedia of the Qur'ān.* Ed. J. D. McAuliffe *et al.* 5 vols. and index vol. Leiden and Boston: Brill [2001-06], 3: 186-87

Elisséeff, Nikita. 1952–54. "La titulature de Nūr al-Dīn d'après ses inscriptions," *Bulletin des Études Orientales*, 14, pp. 155–96

Encyclopedia Iranica. 1982–. Ed. Ehsan Yarshater. New York: Encyclopaedia Iranica Foundation

Encyclopedia of Islam/2. 1960–2004. Ed. H.A.R. Gibb *et al.* Leiden: E.J. Brill

Encyclopaedia of the Qur'ān. 2001-06. Ed. J.D. McAuliffe *et al.* 5 vols. and index vol. Leiden and Boston: Brill

Erdmann, Kurt. 1951. "Fatimid Rock Crystals," *Oriental Art* 3/4, pp. 142–46

Ertuğ, Ahmet, ed. 2000. *Sûrnâme: an Illustrated Account of Sultan Ahmed III's Festival of 1720.* Bern: Ertuğ & Kocabıyık

Ettinghausen, Richard. 1957. "Persian Ascension Miniatures of the Fourteenth Century," in *Accademia Nazionale dei Lincei, Atti dei Convegni di scienze morali, storiche et filologiche*, 12, pp. 360–83. Reprinted, 1984. *Islamic Art and Archaeology, Collected Papers.* Ed. Myriam Rosen-Ayalon. Berlin: Gebr. Mann Verlag, pp. 244–83

———. 1961. *Paintings of the Sultans and Emperors of India in American Collections.* Delhi: Lalit Kala Akademi

———. 1972. *From Byzantium to Sasanian Iran and the Islamic World: Three Modes of Artistic Influence.* Leiden: Brill

Fārābī, Abū Naṣr. 1968. *Iḥṣāʾ al-ʿulūm.* Ed. ʿUthman Amin. Cairo: Maktabat al-Anjlū al-Misrīya

Farhad, Massumeh, with Serpil Bağcı. 2009. *Falnama: the Book of Omens.* Washington, D.C., and London: Smithsonian Institution and Thames and Hudson

Fārisī, Kamāl al-Dīn. 1928–30 (1347–48 AH). *Kitāb Tanqīḥ al-Manāẓir li-dhawʾ al-ibṣār wa a-baṣāʾir.* 2 vols. Hyderabad: Dāʾira l-Maʿārif al-ʿUthmānīya

———. 1984. (1404 AH). *Kitāb Tanqīḥ al-Manāẓir li-dhawʾ al-ibṣār wa a-baṣāʾir*, part I. Ed. M. Hijazi and M. Mukhtar. Cairo: al-Hay'a al-Misriya al-ʿĀmma l'il-Kitāb

Faroqhi, Suraiya. Forthcoming. "Fireworks in Seventeenth-Century Istanbul," in *Medieval and Early Modern Performance in the Eastern Mediterranean.* Ed. Arzu Öztürkmen and Evelyn Birge Vitz

Féhervári, Geza. 1972. "Tombstone or Miḥrāb? A Speculation," in *Islamic Art in the Metropolitan Museum of Art.* Ed. Richard Ettinghausuen. New York: Metropolitan Museum of Art, pp. 241–55

Flood, Finbarr B. 1992. "The Iconography of Light in the Monuments of Mamluk Cairo," *Cosmos*, 7, pp. 169–93

Foster, William. 1990. *The Embassy of Sir Thomas Roe to India 1615–19.* New Delhi: Mushiram Manoharlal [revised edition]

Fouquet, D.M. 1900. *Contribution à l'étude de la céramique orientale.* Cairo: Institut Égyptien

———. 1922. *Art Égyptien et Égypto-Arabe de la collection du Docteur Fouquet du Caire.* Auction catalogue, 12–14 June. Paris: Galerie Georges Petit

Gairdner, W.H.T., trans. 1952. Al-*Ghazāli's Mishkāt al-anwār* (*"The niche for lights"*). Lahore: Sh.M. Ashraf

Garcin de Tassy, M. 1854. *Mémoire sur les noms propres et les titres musulmans.* Paris: Imprimerie impériale

al-Ghazzālī, Abū Ḥāmid Muḥammad. 1964. *Mishkāt al-anwār.* Ed. Abū al-ʿAlāʾ ʿAfīfī. Cairo: al-Dar al-Qawmiyya lil-tibaʿa wa'l-nashr

———. 1998. *The Niche of Lights/Mishkāt al-Anwār* [parallel English/Arabic texts]. Trans. David Buchman. Provo, U.T.: Brigham Young University Press

al-Ghuzūlī, ʿAlī ibn ʿAbd Allah al-Bahāʾī. 1299–1300/1881–83. *Matāliʿ al-budūr fī manāzil al-surūr.* Cairo: Idarat al-Watan

Gimaret, Daniel. 1988. *Les Noms divins en Islam: exégèse lexicographique et théologique.* Ed. H. Daiber and D. Pingree, vol. 37. Paris: Les Éditions du Cerf

Golia, Maria. 2010. *Photography and Egypt.* London: Reaktion Books

Golombek, Lisa. 1988. "The Draped Universe of Islam," in *Content and Context of Visual Arts in the Islamic World.* Ed. Priscilla P. Soucek. University Park, P.A. and London: College Art Association of America, pp. 25–50

———, and Donald Wilber. 1988. *The Timurid Architecture of Iran and Turan.* Princeton, N.J.: Princeton University Press

Govi, Gilberto. 1885. *L'Ottica di Claudio Tolomeo, da Eugenio, ammiraglio di Sicilia...* Turin: Stamperia reale della ditta G.B. Paravia e c. di I. Vigilardi

Grabar, Oleg. 1978. *The Alhambra.* Cambridge, M.A.: Harvard University Press

———. 1990. *The Great Mosque of Isfahan.* New York: New York University Press

Gray, Basil. 1947. *Persian Painting from Miniatures of the XIII.–XVI. Centuries.* New York and Toronto: Oxford University Press

———. 1961. *Persian Painting.* Geneva: Skira

Guerreiro, Fernao, 1930. *Jahangir and the Jesuits. With an Account of the Travels of Benedict Goes and the Mission to Peru.* Trans. C.H. Payne. London: George Routledge & Sons

Gyllensvärd, B. 1973. "Recent Finds of Chinese Ceramics at Fostat; part 1," *Bulletin of the Museum of Far Eastern Antiquities*, 45, pp. 99–119

———. 1975. "Recent Finds of Chinese Ceramics at Fostat; part 2," *Bulletin of the Museum of Far Eastern Antiquities*, 47, pp. 93–117

Hafiz Mehmet. 2008. *Şehzâdelerin Sünnet Dü-ğünü: Sûr-ı hümâyûn 1720.* Ed. Seyit Ali Kahraman. Istanbul: Kitap Yayınev

Ḥāfiẓ Shīrāzī, Khwāja. 1367. *Dīvān-i Khwāja Ḥāfiẓ-i Shīrāzī.* Ed. Sayyid Abū'l-Qāsim Injuvī Shīrāzī. Tehran: Sazman-i Intisharat-i Javidan (References are to page and line number)

Hahnloser, H.R., ed. 1971. *Il Tesoro di San Marco: Il tesoro e il museo*, vol. 2. Firenze: Sansoni

Haidar, Navina Najat. 2011. "Mango-shaped Flask," in *Masterpieces from the Department of Islamic Art in the Metropolitan Museum of Art.* Ed. Maryam D. Ekhtiar *et al.* New York: Metropolitan Museum of Art and New Haven: Yale University Press, pp. 367–68, cat. no. 257

Hamilton, R.W. 1959. *Khirbat al-Mafjar; an Arabian Mansion in the Jordan Valley.* Oxford: Clarendon Press

Hamza, Feras, and Sajjad Rizvi, with Farhana Mayer, eds. and trans. 2008. *An Anthology of Qur'anic Commentaries.* Qur'anic Studies Series, vol. 5. Oxford: Oxford University Press and London: the Institute of Ismaili Studies

al-Harithy, Huwayda, ed. 2001. *Kitāb waqf al-sulṭān al-nāṣir Ḥasan b. Muḥammad b. Qalāwūn ʿalā madrasatih bi'l-Rumayla.* Bibliotheca Islamica 45. Beirut: Orient-Institut der DMG

Hautecoeur, Louis, and Gaston Wiet. 1932. *Les Mosquées du Caire*, 2 vols. Paris: Ernest Leroux

Heath, Peter. 2003. "Metaphor," *Encyclopaedia of the Qur'ān.* Ed. J.D. McAuliffe *et al.* 5 vols. and index vol. Leiden and Boston: Brill [2001-06], 3: 384–88

Heiberg, J.L. 1895. *Optica, Opticorum recensio Theonis.* Bibliotheca scriptorium Graecorum et Romanorum Teuberiana; Euclidis Opera Omnia 7. Leipzig: Teuberni

Heinrichs, Wolfhart. 1984. "On the Genesis of the Ḥaqīqah-Majāz Dichotomy," *Studia Islamica*, 59, pp. 111–40

———. 1991–92. "Contacts between Scriptural Hermeneutics and Literary Theory in Islam: the Case of *Majāz*," *Zeitschrift für Geschichte der Arabischen Wissenschaften*, 7, pp. 253–84

Hermann, G., *et al.* 1996. "The International Merv Project–Preliminary Report on the Fourth Season (1995)," *Iran*, 34, pp. 1–22

Hevelius, Johannes. 1967. *Selenographia.* New York: Johnson Reprint Corporation

Hilālī Chaghatāyī. 1337. *Shāh u darvīsh* in *Dīvān-i Hilālī Chaghatāyī.* Ed. Sa'īd Nafīsī. Tehran: Sana'i

Hill, Derek, and Oleg Grabar. 1965. *Islamic Architecture and its Decoration, A.D. 800–1500: a Photographic Survey.* Chicago: University of Chicago Press

Hillenbrand, Robert. 1973. "Die Kunst der Umayyaden," in *Propyläen Kunstgeschichte. Die Kunst des Islam.* Ed. B. Spuler and J. Sourdel-Thomine. Berlin: Propyläen Verlag, pp. 145–77

———. 1986. "Safavid Architecture," in *The Cambridge History of Iran. 6. The Timurid and Safavid Periods.* Ed. Peter Jackson and Laurence Lockhart. Cambridge: Cambridge University Press, pp. 759–842

———. 1988. "The Symbolism of the Rayed Nimbus in Early Islamic Art," *Cosmos*, II, pp. 1–52

———. 1994. *Islamic Architecture.* Edinburgh: Edinburgh University Press

———. 2002. "The Arts of the Book in Ilkhanid Iran," in *The Legacy of Genghis Khan: Courtly Art and Culture in Western Asia, 1256–1353.* Ed. Linda Komaroff and Stefano Carboni. New York: The Metropolitan Museum of Art, pp. 134–67

———. 2012a. *The Sheikh Zayed Grand Mosque: a Landmark of Modern Islamic Architecture.* Abu Dhabi: Shawati'

———. 2012b. "Islamic Monumental Inscriptions Contextualised: Location, Content, Legibility and Aesthetics," in *Beiträge zur Islamischen Kunst und Archäologie*, 3. Ed. Lorenz Korn and Anya Heidenreich. Wiesbaden: Ludwig Reichert Verlag, pp. 13–38

al-Hindī, ʿAlī b. Ḥusām al-Dīn al-Muttaqi. 2005. *Kanz al-ʿummāl fi sinan al-aqwāl.* Beirut: Bayt al-Afkar al-Dawliyya

Hoag, John D. 1977. *Islamic Architecture.* New York: Abrams

Hobson, R.L. 1907. "Notes on an Early 'Persian' Bowl and 'Rice-Grain' Wares," *Burlington Magazine*, 11 (50), pp. 83–85, 89

———. 1932. *A Guide to the Islamic Pottery of the Near East.* London: British Museum Press

Hodivala, Shahpurshah Hormasji. 1923. *Historical Studies in Mughal Numismatics.* Calcutta: Numismatic Society of India

Hollstein, Friedrich Wilhelm Heinrich. 2007. *Hollstein's Dutch & Flemish Etchings, Engravings and Woodcuts, 1450–1700.* Vol. LXXI. *The Wierix Family Book Illustrations.* Part II. Compiled Harriet Stroomberg; ed. Jan Van Der Stock. Amsterdam: Sound & Vision Publishers

Honey, W.B. 1927. "The Origin of Lustre-Painting: Review of *Islamic Pottery: A Study Mainly Historical* by A.J. Butler," *Burlington Magazine*, 50, pp. 339–40

Ibn Abī ʿUṣaybiʿa. 1882–84. *ʿUyūn al-anbāʾ fī Ṭabaqāt al-aṭibbāʾ.* Ed. August Müller. 2 vols. Cairo: Königsberg

Ibn al-Haytham, Abu ʿAli al-Hasan. 1357/1938–39. *Rasāʾil.* Hyderabad: Dāʾirat al-Maʿārif al-ʿUthmānīya

———. 1983–2002. *Kitāb al-Manāẓir.* Ed. A.I. Sabra. Kuwait: National Council for Culture, Arts, and Letters

Ibn al-Qifṭī. 1903. *Taʾrīkh al-ḥukamāʾ.* Ed. Julius Lippert. Leipzig: Dieterich'sche Verlagsbuchhandlung

Ibn Ḥanbal, Ahmad. Reprint 1978. *Musnad.* Ed. Muḥammad az-Zuhrī al-Ghamrāwī. 6 vols. Beirut: Maktab al-Islami li'l-Taba'a wa'l-Nashr

Ibn Hishām [and Ibn Isḥāq]. 1391/1971. *Al-Sīra al-nabawīya*. Ed. Muṣṭafā al-Saqqā, Ibrāhīm al-Ibyārī, and ʿAbd al-Ḥafīẓ Shalabī. 2 vols. Beirut: Dar al-Turath al-ʿArabi

Ibn Jubayr. 1952. *Travels*. Trans. R.J.C. Broadhurst as *The Travels of Ibn Jubayr*, London: Jonathan Cape

Ibn Kathīr, ʿImād al-Dīn Abū al-Fidāʾ Ismāʿīl. 1969. *Tafsīr al-Qurʾān al-ʿaẓīm*. 4 vols. Beirut: Dar Ihya al-Turath al-arabi

Ibn Mājah, Muḥammad ibn Yazīd. 1952–53. *Sunan*. Ed. Muḥammad Fuʾād ʿAbd al-Bāqī. 2 vols. Cairo: Dar Ihyaʾ al-Kutub al-ʿArabiyya

Ibn Saʿd, Muḥammad. 1388/1968. *Al-Ṭabaqāt al-kubrá*. 8 vols. in 4. Cairo: Dar al-Tahrir

Ibn ʿAbbās [ascribed to]. 1987. [Possibly authored by ʿAbd Allah ibn Muḥammad al-Dīnawarī (d. 308/920)?]. *Tafsīr* [also known as *Tanwīr al-Miqbās min Tafsīr Ibn ʿAbbās*]. Ed. ʿAbd al-ʿAzīz ibn ʿAbd Allāh al-Ḥumaydi. 2 vols. Mecca: Umm al-Qurá University

———. *Tafsīr ibn ʿAbbās*. 2008. Trans. Mokrane Guezzou. Louisville, K.Y.: Fons Vitae

Ibrāhīm, ʿAbd al-Laṭīf. 1958. "Silsilat al-dirāsāt al-wathāʾiqiyya," in *al-Wathāʾiq fī khidmat al-āthār: al ʿaṣr al-mamlūkī. Al-muʾtamar al-thānī li-al-āthār fi al-bilād al-ʿarabiyya, Baghdad 1957*. Cairo: Dar al-Tibāʿah al-Hadītha, pp. 205–87

———. 1979. "*Silsilat al-dirāsāt al-wathāʾiqiyya*," in *al-Wathāʾiq fi khidmat al-āthār: al ʿaṣr al-mamlūkī 2: wathīqat al-Sulṭān Qaʾitbāy: al-madrasa bi al-Quds wā al-Jāmiʿ bi-Ghazza*." Cairo: Dar al-Tibāʿah al-Hadītha, pp. 483–539

İntizâmi Sûrnâmesi. 2009. *Osmanlı Saray Düğünleri ve Şenlikleri*, vol. 2. Ed. Mehmet Arslan. Istanbul: Sarayburnu Kitaplığı

Jackson, A.V., and Abraham Yohannan. 1914. *A Catalogue of the Collection of Persian Manuscripts, Including also some Turkish and Arabic, Presented to the Metropolitan Museum of Art New York by Alexander Smith Cochran*. New York: Columbia University Press

Jahangir, Nur al-Din Muhammad. 1359 solar/1980. *Jahangir-Nameh/Tuzak-i Jahangiri*. Ed. Mohammad Hashem. Tehran: Bunyad-i Farhang-i Iran

Jairazbhoy, R.A. 1964. *Art and Cities of Islam*. Bombay: Asia Pubishing House

———. 2003. *An Outline of Islamic Architecture*. Revised edition. Karachi: Oxford University Press

Jāmī, ʿAbd al-Raḥmān. 1361. *Mathnavī-i haft awrang-i Jāmī*. Ed. Murtażā Mudarris-Gīlānī. Tehran: Saʿdi

Jamison, Evelyn Mary. 1957. *Admiral Eugenius of Sicily: His Life and Works*. London: Oxford University Press

Janabi, Tariq Jawad. 1982. *Studies in Mediaeval Iraqi Architecture*. Baghdad: Ministry of Culture and Information, State Organization of Antiquities and Heritage

Jeffery, Arthur. 1938. *The Foreign Vocabulary of the Qurʾān*. Gaekwad's Oriental Series, ed. B. Bhattacharyya, vol. 79. Baroda: Oriental Institute

Jenkins, Marilyn. 1968. "Muslim: an Early Fatimid Ceramist," *Bulletin of The Metropolitan Museum of Art*, 26, pp. 359–69

———. 1988. "Saʿd: Content and Context," in *Content and Context of Visual Arts in Islamic World*. Ed. P.P. Soucek. University Park, P.A. and London: Pennsylvania State University Press, pp. 65–89

Jones, Alexander. 1994. "Peripatetic and Euclidean Theories of the Visual Ray," *Physis*, 31/1, pp. 47–76

Kafadar, Cemal. Unpublished lecture. "Coffee and the Conquest of the Night in the Early Modern Era"

Kahle, Paul. 1935. "Die Schätze der Fatimiden," *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, 89, pp. 329–62

———. 1936. "Bergkristall, Glas and Glasflüsse nach dem Steinbuch von el-Beruni," *Zeitschrift der deutschen morgenländischen Gesellschaft*, 90, pp. 322–56

———. 1942. "Chinese Porcelain in the Lands of Islam," *Transactions of the Oriental Ceramic Society (1940–1941)*, 18, pp. 27–46

Kalīm. 1336. *Dīvān Abū-Ṭālib Kalīm-i Kāshānī*. Ed. Ḥusayn Partaw-Bayżāʾī. Tehran: Khayyam

Kapstein, Matthew T., ed. 2004. *The Presence of Light: Divine Radiance and Religious Experience*. Chicago: University of Chicago Press

Keene, Manuel, and Salam Kaoukji. 2001. *Treasury of the World: Jewelled Arts of India in the Age of the Mughals*. London: Thames & Hudson in association with The al-Sabah Collection. Dar al-Athar al-Islamiyyah, Kuwait National Museum

Kerr, Rose, and Nigel Wood. 2004. *Ceramic Technology*. Vol 5, part 12. *Science and Civilisation in China*. Cambridge: Cambridge University Press

Khanykov, N. 1864. *Mémoire sur la partie méridionale de l'Asie centrale*. Paris: [s.n.]

Khāqānī. 2537. *Dīvān-i Khāqānī-i Shirvānī*. Ed. ʿAlī ʿAbdurrasūlī. Tehran: Khayyam

Kheirandish, Elaheh. 1996. "The Arabic Version of Euclidean Optics: Transformations as Linguistic Problems in Transmission," in *Tradition, Transmission, Transformation*. Ed. F. Jamil Ragep and Sally P. Ragep, with Stephen Livesy. Leiden and New York: E.J. Brill

———, ed. and trans. 1999. *The Arabic Version of Euclid's Optics: Kitāb Uqlīdis fī Ikhtilāf al- manāẓir*. 2 vols. New York: Springer-Verlag

———. 2000. "A Report on Iran's 'Jewel' Codices of Ṭūsī's Kutub al-Mutawasiṭāt," in *Naṣīr al-Dīn al-Ṭūsī: philosophe et savant de 11e siècle*. Ed. N. Pourjavady and Ziva Vesel. Tehran: Institut Français de Recherche en Iran (IFRI), pp. 131–36

———. 2003. "The Many Aspects of Appearances: Arabic Optics to 950 AD," in *The Enterprise of Science in Islam: New Perspectives*. Ed. Jan P. Hogendijk and Abdelhamid Sabra. Cambridge, M.A.: MIT Press, pp. 55–83

———. 2004. "Mathematical Sciences through Persian Sources: the Puzzle of Ṭūsī's's Optical Works," in *Les sciences dans la monde iranien*. Ed. N. Pourjavady and Ziva Vesel, Tehran: Institut Français de Recherche en Iran (IFRI), pp. 197–213

———. 2006. "Organizing Scientific Knowledge," in *Organizing Knowledge: Encyclopaedic Activities in the Pre-Eighteenth Century Islamic World*. Ed. Gerhard Endress. Leiden: Brill, pp. 135–54

———. 2007. "Qusṭā Ibn Lūqā," *Biographical Encyclopedia of Astronomers*. Ed. Thomas Hockey *et al.* New York: Springer, vol. II: pp. 948–49; online at http://islamsci.mcgill.ca/RASI/BEA/Qusta_ibn_Luqa_al-Balabakki_BEA.htm

———. 2008. "Windows into Early Science: Historical Dialogues, Scientific Manuscripts, Printed Books," *Iranian Studies*, 41/4, pp. 481–93

———. 2009. "Footprints of 'Experiment' in Early Arabic Optics," *Early Science and Medicine*, 14/1–3, pp. 79–104

———. 2013. "The Mixed Mathematical Sciences: Optics and Mechanics in the Islamic Middle Ages," in *The Cambridge History of Science*. Vol. 2. *The Middle Ages*. Ed. David C. Lindberg and Michael Shank. Cambridge: Cambridge University Press, pp. 84–108

Khoury, Noha. 1992. "The Mihrab Image: Commemorative Themes in Medieval Islamic Architecture," *Muqarnas*, 9, pp. 11–27

Kingery, W.D., and P.B. Vandiver. 1986. *Ceramic Masterpieces: Art, Structure, Technology*. New York: Macmillan

Kitzinger, Ernst. 1993. "Interlace and Icons: Form and Function in Early Insular Art," in *The Age of Migrating Ideas: Early Medieval Art in Northern Britain and Ireland*. Ed. R.M. Spearman and J. Higgitt. Edinburgh and Stroud: National Museums of Scotland and Alan Sutton Publishing Ltd., pp. 3–15

———. 2003. "Interlace and Icons: Form and Function in Early Insular Art," reprinted in *Studies in Late Antique, Byzantine and Medieval Western Art*, vol. II. London: The Pindar Press, pp. 801–28

Knorr, Wilbur R. 1994. "Pseudo-Euclidean Reflections in Ancient Optics: a Re-examination of Textual Issues Pertaining to the Euclidean *Optica* and *Catoptrica*," *Physis*, 31/1, pp. 1–45

Koch, Ebba. 1991. *Mughal Architecture*. Munich: Prestel-Verlag

———. 2001. *Mughal Art and Imperial Ideology: Collected Essays*. New Delhi: Oxford University Press

Koezuka, Takashi, ed. 1993. *The Arts of the Indian Courts: Miniature Paintings and Decorative Arts*. Osaka: NHK Kinki Media Plan

Komaroff, Linda, ed. 2011. *Gifts of the Sultan: the Arts of Giving at the Islamic Courts*. New Haven and London: Yale University Press

Koslofsky, Craig. 2011. *Evening's Empire: A History of the Night in Early Modern Europe*. Cambridge and New York: Cambridge University Press

Kramers, Johannes H. 1926. "Les noms musulmans composes avec Din," *Acta Orientalia*, 5, pp. 53–67

Kratchkovskaïa, Vera. 1931. "Notice sur les inscriptions de la Mosqué Djoum'a à Véramine," *Revue des Études Islamiques*, pp. 25–58

Kurz, Otto. 1967. "A Volume of Mughal Drawings and Miniatures," *Journal of the Warburg and Courtauld Institutes*, 30, pp. 251–71

Lalani, Arzina R. 2000. *Early Shī'ī Thought: the Teachings of Imam Muḥammad al-Bāqir*. London: I.B. Tauris

Lamm, C. J. 1928. *Das Glas von Samarra*. Berlin: D. Reimer

———. 1929–30. *Mittelalterliche Gläser und Steinschnittarbeitein aus dem Nahen Osten*. 2 vols. Berlin: D. Rimer

———. 1941. *Oriental Glass of Mediaeval Date Found in Sweden and the Early History of Lustre-Painting*. Stockholm: Wahlström & Widstrand

Lane, Arthur. 1947. *Early Islamic Pottery*. London: Faber and Faber

———. 1948. "Sung Wares and the Saljuq Pottery of Persia," *Transactions of the Oriental Ceramic Society, 1946–47*, 22, pp. 19–30

———. 1957. *Later Islamic Pottery*. London: Faber and Faber

Lane, Edward William. 1863. *An Arabic-English Lexicon*. London: Williams & Norgate

Lehmann, Karl. 1945. "The Dome of Heaven," *The Art Bulletin*, 27/1, pp. 1–27

Lejeune, Albert. 1956/R1989. *L'Optique de Claude Ptolémée dans la version latine d'après l'arab de l'émir Eugène de Sicile*. Louvain: Bibliothèque de l'Université; reprint, Leiden: Brill

Liddle, Andrew V. 2013. *Coins of Jahangir: Creations of a Numismatist*. New Delhi: Manohar Publishers & Distributors

Lindberg, David C. 1975. *A Catalogue of Medieval and Renaissance Optical Manuscripts*. Toronto: Pontifical Institute of Medieval Studies

———. 1976. *Theories of Vision from Al-Kindi to Kepler*. Chicago: Chicago University Press

———. 1978. "The Intromission-Extramission Controversy in Islamic Visual Theory: Alkindi versus Avicenna," in *Studies in Perception: Interrelations in the History and Philosophy of Science*. Ed. Peter K. Machamer and Robert C. Turnbull. Columbus, O.H.: Ohio State University Press

———. 1985. *The Discourse of Light from the Middle Ages to the Enlightenment*: papers read at a Clark Library seminar, 24 April 1982, by David C. Lindberg, Geoffrey Cantor. Los Angeles: William Andrews Clark Memorial Library, University of California

Losty, J.P. 2013. "The Carpet at the Window: a European Motif in the Mughal Jharokha Portrait," in *Themes, History and Interpretations: Indian Painting: Essays in Honour of B. N. Goswamy*. Ed. Mahesh Sharma and Padma Kaimal. Ahmadabad: Mapin Publishing, pp. 52–64

Mackenzie, Colin, and Irving Finkel, eds. 2004. *Asian Games: the Art of Contest*. New York: Asia Society

Maclagan, Sir Edward. 1932/1972. *The Jesuits and the Great Mogul*. London: Burnes Oates & Washbourne Ltd; reprint New York: Octagon Books

Mahmoud, Samir. 2011. "Color and the Mystics: Light, Beauty, and the Spiritual Quest," in *And Diverse Are Their Hues: Color in Islamic Art and Culture*. Ed. Jonathan Bloom and Sheila Blair. Proceedings of the Third Biennial Hamad bin Khalifa Symposium on Islamic Art and Culture. London: Yale University Press, pp. 99–119

Majumdar, R.C., ed. 1974. *The Mughul Empire: the History and Culture of the Indian People*. Bombay: Bharatiya Vidya Bhavan

Makariou, Sophie. 2006. "Le cristal de roche islamique et ses avatars liturgiques dans l'Occident roman," *Les Cahiers de Saint-Michel de Cuxa*, 38, pp. 239–48

Makdisi, Ussama. 2002. "Ottoman Orientalism," *American Historical Review*, 107/3 (June), pp. 768–96

Mālik ibn Anas. 1228/1918. *al-Muwaṭṭa*. Ed. Muḥammad Fu'ād 'Abd al-Bāqī. Cairo: n.p.

Mango, Cyril A. 1972. *The Art of the Byzantine Empire, 312–1453: Sources and Documents*. Englewood Cliffs, N.J.: Prentice-Hall

al-Maqqarī, Abu'l-'Abbās Aḥmad ibn-Muḥammad. 2002. *The*

History of the Mohammedan Dynasties in Spain. 2 vols. London: Routledge Curzon

al-Maqrīzī, Taqī al-Dīn Aḥmad ibn ʿAlī. 1270/1853. *al-Mawāʿiẓ wa'l-iʿtibār fī dhikr al-khiṭaṭ wa'l-āthār.* 2 vols. Cairo: Bulaq

———. 2003. *al-Mawāʿiẓ wa al-iʿtibār fi dhikr al-khiṭaṭ wa al-āthār.* 5 vols. London: Mu'assasat al-furqan li'l-turath al-islami

Martin, F.R. 1899. *The Persian Lustre Vase in the Imperial Hermitage at St Petersburg and some Fragments of Lustre Vases found near Cairo.* Stockholm: G. Chelius

———. 1926. *Miniatures from the Period of Timur: a Ms. of the Poems of Sultan Ahmad Jalair.* Vienna: printed for the author

———. 1929. *Lustre on Glass and Pottery in Egypt: from the Period of Hadrian to Saladin.* Faenza: F. Lega

Mason, Robert. 2004. *Shine Like the Sun: Lustre-Painted and Associated Pottery from the Medieval Middle East.* Costa Mesa: Mazda

———, and E.J. Keall. 1990. "Petrography of Islamic Pottery from Fustat," *Journal of the American Research Center in Egypt,* 27, pp. 165–84

Meisami, Julie Scott. 1995. *Nizami: Haft Paykar: a Medieval Persian Romance.* Oxford and New York: Oxford University Press

Melikian-Chirvani, Assadullah Souren. 1987. "The Lights of Sufi Shrines," *Islamic Art,* 2, pp. 117–48

———. 1990. "The Light of Heaven and Earth: from the *Chahar-taq* to the *mihrab*," *Bulletin of the Asia Institute,* 4, pp. 95–131

———. 1999. "Ranjit Singh and the Image of the Past," in *The Arts of the Sikh Kingdom.* Ed. Susan Stronge. London: V&A Publications, pp. 60–73

———. 2002. "Sa'ida-ye Gilani and the Iranian Style Jades of Hindustan," *Bulletin of the Asia Institute,* n. s. 13, pp. 83–140

———. 2004. "The Jewelled Objects of Hindustan," *Jewellery Studies,* 10, pp. 9–32

———. 2005. "The Red Stones of Light in Iranian Culture. I. Spinels," *Bulletin of the Asia Institute,* n. s., pp. 77–110

Mikami, T. 1982. "China and Egypt: Fustat," *Transactions of the Oriental Ceramic Society (1980–1981),* 45, pp. 67–89

Mohammadi Nameghi, Khadijeh and Carmen Pérez González. 2013. "From Sitters to Photographers: Women in Photography from the Qajar Era to the 1930s," *The History of Photography,* 37/1 (February), pp. 48–73

Moin, A. Azfar. 2012. *The Millennial Sovereign: Sacred Kingship and Sainthood in Islam.* New York: Columbia University Press

Morse, Samuel F.B. 1839. "The Daguerreotipe," *New-York Observer,* 17/16 (20 April), p. 62

Mouliérac, Jeanne. 1999. *Céramiques du monde musulman.* Paris: Institut du Monde Arabe

Mujāhid ibn Jabr. 1424/2003. *Tafsīr al-Imām Mujāhid ibn Jabr.* Ed Muḥammad ʿAbd al-Salām Abū al-Nīl. Hawalli, Kuwait: Maktabat al-Falah

Mulder, Stephennie. 2014. *The Shrines of the ʿAlids in Medieval Syria: Sunnis, Shiʿis and the Architecture of Coexistence.* Edinburgh: Edinburgh University Press

Muqātil ibn Sulaymān. 1969–87. *Tafsīr.* Ed. ʿAbdullāh Maḥmūd Shiḥāta. 4 vols. Cairo: al-Hay'a al-Misriya al-ʿAmma

———. 2010. *Al-Wujūh wa'l-nazā'ir fī l-qur'ān al-ʿaẓīm.* Ed. Ḥātim Ṣāliḥ aḍ-Ḍāmin. Riyad: Maktabat al-Rushd Nashirun

Muslim ibn al-Ḥajjāj. 1374–75/1955–56. *Ṣaḥīḥ.* Ed. Muḥammad Fu'ād ʿAbd al-Bāqī. 4 vols. and index. Beirut: Dar Iḥya' al-Turath al-ʿArabi

Mustafa Âli, Gelibolulu. 1996. *Câmi'u'l-Buhûr der Mecâlis-i Sûr.* Ed. Ali Öztekin. Ankara: Türk Tarih Kurumu Basımevi.

Najīb, Muṣṭafā Muḥammad. 1995. "Dirāsa li-khizānāt al-zayt bi-baʿḍ al-munshaʾāt al-dīniyya bi-al-Qāhira fi al-ʿaṣrayn al-mamlūkī wa al-ʿuthmānī; dirāsa miʿmāriyya wathāʾiqiyya," *Majjalat Kulliyat al-ādāb, kulliya al-ādāb bi-Qanā,* 4, pp. 421–98

Najmabadi, Afsaneh. 1998. "Reading for Gender through Qajar Painting," in *Royal Persian Paintings: The Qajar Epoch 1785–1925.* Ed. Layla S. Diba with Maryam Ekhtiar. Brooklyn: Brooklyn Museum of Art, pp. 76–89

Nasir-i Khusraw. 1881/1970. *Sefer nameh.* Ed. C. Schefer. Paris: E. Leroux; reprint Amsterdam: Philo Press

Naẓīf, Muṣṭafā. 1942–43. *Al-Hasan ibn al-Haytham: His Researches and Discoveries in Optics.* 2 vols. Cairo: Matbaʿat Misr

Necipoğlu, Gulru. 2005. *The Age of Sinan: Architectural Culture in the Ottoman Empire.* London: Reaktion Books

Neuwirth, Angelika. 2004. "Images and Metaphors in the Introductory Sections of the Makkan *Sūras*," in *The Koran: Critical Concepts in Islamic Studies.* Vol. 3. *Style and Structure.* Ed. Colin Turner. London and New York: Routledge Curzon, pp. 244–73

Niẓāmī. 1351. *Kulliyyāt-i khamsa-i Ḥakīm Niẓāmī-i Ganja'ī.* Tehran: Amir Kabir

Nutku, Özdemir. 1995. "Eski Şenliklerde Donanma ve Gece Eğlenceleri," in *Tarihimizden Kültür Manzaralar.* Istanbul: Kabalcı Yayınevi, pp. 55–67

Nwiya, Paul. 1970. *Exégèse coranique et langage mystique: Nouvel essai sur le lexique technique des mystiques musulmans.* Beirut: Dar el-Machreq (Imprimerie Catholique)

O'Kane, Bernard. 1979. "Tāybād, Turbat-i Jām and Timurid Vaulting," *Iran,* 17, pp. 87–104

al-Qaddumi, Ghada al-Hijjawi, trans. 1996. *Book of Gifts and Rarities (Kitāb al-Hadāya wa al-Tuḥaf).* Cambridge, M.A.: Harvard University Press

al-Qummī, ʿAlī b. Ibrāhīm. 1991. *Tafsīr.* Ed. Tayyib al-Mūsawī al-Jazā'irī. 2 vols. Reprint Beirut: Dar al-Surur

Paris. 1998. *Art Arabe des Collections du Comte de Toulouse-Lautrec,* auction catalogue. Drouot-Richelieu (25 September)

Payne, C.H. 1926. *Akbar and the Jesuits: An Account of the Jesuit Missions to the Court of Akbar by Father Pierre du Jarric, S.J.* London: George Routledge & Sons Ltd.

Perez, Nissan N. 1988. *Focus East: Early Photography in the Near East (1839–1885).* New York: Harry N. Abrams

Philon, Helen. 1980. *Early Islamic Ceramics: Ninth to Twelfth Centuries.* London: Islamic Art Publications

Picinelli, Filippo. 1653. *Mondo Simbolico o sia università d'imprese.* Milan: Stampatore Archiepiscopale

Pinder-Wilson, Ralph H. 1969. *Islamic Pottery 800–1400.* London: The Hillingdon Press

———. 1988. "Rock Crystals," in *Islamic Art in the Keir Col-*

lection. Ed. B.W. Robinson. London: Faber and Faber, pp. 287–309

Plessner, M. [rev. A. Rippin]. 1993. "Mu'atil b. Sulaymān," *Encyclopaedia of Islam New* [2nd] Edition (Leiden: Brill), 7: 508-09

Pliny, Caius Secundus [Pliny the Elder]. 1962/reprint 2001. *Natural History*, vol. X, Books 36–37. Trans. D.E. Eichholz. Loeb Classical Library No. 419. Cambridge, M.A.: Harvard University Press

Porter, Venetia, and Oliver Watson. 1987. "'Tell Minis' Wares," in *Syria and Iran: Three Studies in Medieval Ceramics*. Oxford Studies in Islamic Art 4. Eds J. Allan and C. Roberts, pp. 175–248

Porter, Yves. 1992. *Peinture et arts du livre*. Paris: Institut Français de Recherche en Iran

Pradines, Stéphane. 2013. "The Rock Crystal of Dembeni, Mayotte Mission Report 2013," *Nyame Akuma* 80, pp. 59–72

Pratt, Mary Louise. 1992. *Imperial Eyes: Travel Writing and Transculturation*. New York: Routledge

Procházka-Eisl, Gisela. 1995. *Das Sūrnāme-i Hümāyūn: die Wiener Handschrift in Transkription, mit Kommentar und Indices versehen*. Istanbul: Isis

Puerta Vílchez, José Miguel. 2009. "Chromatic Geometries of Light," *Homage to al-Hasan ibn al-Haytham*. Available at http://www.artspacedubai.com/publications/Kamal%20Boullata.pdf

Al-Qummī, Alī b. Ibrāhīm. 1991. *Tafsīr*. Ed. Tayyib al-Mūsaw al-Jazā'irī. 2 vols. [Najaf, 1967]. Repr. Beirut: Dār al-Surūr

Rabbat, Nasser. 2002. "Reception of Architecture in Mamluk Sources," *Mamluk Studies Review*, 6, pp. 155–71

Rashed, Roshdi. 1973. "Kamāl al-Dīn Al-Fārisī," *Dictionary of Scientific Biography* (*DSB*), 7, pp. 212–19

———. 1993. *Géométrie et dioptrique au Xe siècle: Ibn Sahl, Al-Quhi, et Ibn al-Haytham*. Paris: Les Belles Lettres

———. 1997. *Oeuvres philosophiques et scientifiques d'al-Kindi*, vol. 1. Leiden: Brill

———. 2005. *Geometry and Dioptrics in Classical Islam*. London: al- Furqan Foundation

Riazul Islam. 1979. *A Calendar of Documents of Indo-Persian Relations*, vol. 1. Tehran: Iranian Culture Foundation and Karachi: Institute of Central & West Asian Studies

Rice, D.S. 1956. "A Datable Islamic Rock Crystal," *Oriental Art*, 2/ 3, pp. 85–93

Richards, J.F. 1998. "The Formulation of Imperial Authority under Akbar and Jahangir," in *Kingship and Authority in South Asia*. Ed. J.F. Richards. Delhi: Oxford University Press, pp. 285–326

Rippin, Andrew. 1981. "Ibn Abbās's *Al-Lughāt fī l-Qur'ān*," *Bulletin of the School of Oriental and African Studies*, 44, pp. 15–25

———. 1983. "Ibn 'Abbās's *Gharīb al-Qur'ān*," *Bulletin of the School of Oriental and African Studies*, 46, pp. 332–33

———. 1994. "*Tafsīr Ibn 'Abbās* and Criteria for Dating early *Tafsīr* Texts," *Jerusalem Studies in Arabic and Islam*, 19, pp. 38–83

Risner, Friedrich. 1572. *Opticæ thesavrvs*. Alhazeni Arabis libri septem, nuncprimùm editi. Eivsdem liber De crepvscvlis & nubium ascensionibus. Item Vitellonis Thvringopoloni libri x. Omnes instaurati, figuris illustrati & aucti, adiectis etiam in Alhazenum commentarijs, à Federico Risnero, Basileæ, per Episcopios.

Rizvi, Saiyid Athar Abbas. 1983. *A History of Sufism in India*. Vol. II. *From Sixteenth Century to Modern Century*. New Delhi: Munshiram Manoharlal Publishers

Roberts, Mary. 2007. *Intimate Outsiders: the Harem in Ottoman and Orientalist Art and Travel Literature*. Durham, N.C.: Duke University

Robinson, B.W. 1998. *Persian Paintings in the Collection of the Royal Asiatic Society*: London: Royal Asiatic Society

Rogers, J.M., and Cengiz Köseoğlu. 1987. *The Topkapı Saray Museum: the Treasury*. Boston: Little, Brown & Company

Rubin, Uri. 1975. "Pre-existence and Light: Aspects of the Concept of *Nūr Muḥammad*," *Israel Oriental Studies*, 5, pp. 62–119

Rūmī, Jalāluddīn Muḥammad. 1362. *Dīvān-i kāmil-i Shams-i Tabrīzī*. 3 vols. in 1. Tehran: Sazman-i Intisharat-i Javidan (References are to volume, ghazal, and line number)

Saba, Matthew D. 2012. "Abbasid Lusterware and the Aesthetics of *'Ajab*," *Muqarnas*, 29/1, pp. 187–212

Sabra, A.I. 1964. "Explanations of Optical Reflection and Refraction: Ibn al-Haytham, Descartes, Newton," *Actes du Dixième Congres Internationale d'Histoire des Sciences: Ithaca, 26.8–2.9 1962*. Paris: Hermann, pp. 551–54

———. 1971a. "Ibn Al-Haytham," in *Al-Shukūk 'ala Baṭlamyūs* (*Dubitationes in Ptolemaeum*). Ed. A.I. Sabra and N. Shehaby. Cairo: National Library Press

———. 1971b. "The Astronomical Origin of Ibn al-Haytham's Concept of Experiment," in *Actes du XIIe Congrès International d'Histoire des Science: Paris 1968*. Paris: Albert Blanchard. Reprinted, 1994. *Optics, Astronomy and Logic: Studies in Arabic Science and Philosophy*. Aldershot: Ashgate, Variorum Reprints, no VI

———. 1972. "Ibn al-Haytham," in *Dictionary of Scientific Biography* 6, pp. 189–210

———. 1976. "The Physical and the Mathematical in Ibn al-Haytham's Theory of Light and Vision," in *Commemoration Volume of Biruni International Congress in Tehran*. Tehran: Markaz-i Muṭāla'āt wa Hamāhangī-i Farhangī, pp. 439–78. Reprinted 1994. *Optics, Astronomy and Logic: Studies in Arabic Science and Philosophy*. Aldershot: Ashgate, variorum reprints, no. VII

———, trans. 1989. *The Optics of Ibn al-Haytham: Books I–III: On Direct Vision*. 2 vols. London: Warburg Institute

———. 1998. "One Ibn al-Haytham or Two: an Exercise in Reading Bio-bibliographical Sources," *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*, 12, pp. 1–50

———. 2002/3. "One Ibn al-Haytham or Two: An Exercise in Reading Bio-bibliographical Sources," *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*, 15, pp. 95–108

———. 2003a: "Vita: Ibn al-Haytham: Brief Life of an Arab Mathematician, Died circa 1040," *Harvard Magazine*, September–October pp. 54–55; available online at http://harvardmagazine.com/2003/09/ibn-al-haytham-html

———. 2003b. "Ibn al-Haytham's Revolutionary Project in Optics: the Achievement and the Obstacle," in *The Enterprise of Science in Islam: New Perspectives*. Ed. Jan P. Hogendijk

and AbdelHamid Sabra. Cambridge, M.A.: MIT Press, pp. 85–118

———. 2007. "The Commentary that Saved the Text: the Hazardous Journey of Ibn al-Haytham's Arabic Optics," *Early Science and Medicine*, 12, pp. 117–33

———, trans. Forthcoming. *The Optics of Ibn al-Haytham.* Books IV–V.

Sa'dī Shīrāzī. 1363. *Kulliyyāt-i Sa'dī.* Ed. Muḥammad 'Alī Furūghī. Tehran: Amīr Kabīr (References are to page and line number)

Ṣā'ib Tabrīzī. 1333. *Kulliyyāt-i Ṣā'ib-i Tabrīzī.* Ed. Amīrī Fīrūzkūhī. Tehran: Khayyam (References are to ghazal and line number)

Salmān Sāvajī. 1367. *Dīvān-i Salmān-i Sāvajī.* Ed. Manṣūr Mushfiq. Tehran: Safi 'Alīshah

Sands, Kristin Zahra. 2006. *Ṣūfī Commentaries on the Qur'ān in Classical Islam.* London and New York: Routledge

Sauvaget, Jean. 1948. *Ahbār aṣ-Ṣīn wa l-Hind: Relation de la Chine et de l'Inde rédigée en 851.* Paris: Belles Lettres

Scanlon, George T. 1967. "Fusṭāṭ Expedition: Preliminary Report 1965: Part II," *Journal of the American Research Center in Egypt*, 6, pp. 65–86

———. 1999. "Fustat Fatimid Sgraffiato: Less than Lustre," in *L'Egypte Fatimide; son art et son histoire: actes du colloque organisé à Paris les 28, 29 et 30 mai 1998.* Ed. M. Barrucand. Paris: Presses de l'Université de Paris-Sorbonne, pp. 266–83

Schefer, Charles. 1881. *Sefer Nameh, relation du voyage de Nassiri Khosrau.* Paris: Ernst Leroux

Schimmel, Annemarie. 1975. *Mystical Dimensions of Islam.* Chapel Hill, N.C. and London: University of North Carolina Press

———. 1985. *And Muhammad is His Messenger: the Veneration of the Prophet in Islamic Piety.* Chapel Hill, N.C. and London: University of North Carolina Press

Schlumberger, Daniel. 1986. *Qasr El-Heir El Gharbi.* Paris: Geuthner

Schmitz, Barbara, and Ziyaud-Din A. Desai. 2006. *Mughal and Persian Paintings and Illustrated Manuscripts in The Raza Library, Rampur.* New Delhi: Indira Gandhi National Centre for the Arts, Rampur Reza Library Rampur and Aryan Books International

Schramm, Matthias. 1963. *Ibn al-Haytham Weg zur Physik.* Weisbaden: F. Steiner

Séguy, Marie-Rose. 1977. *The Miraculous Journey of Mahomet:* Mirâj Nâmeh. Trans. Richard Pevear. London: Scholar Press Ltd.

Seherr-Thoss, Sonia P., and Hans C. Seherr-Thoss. 1968. *Design and Color in Islamic Architecture: Afghanistan, Iran, Turkey.* Washington, D.C.: Smithsonian Institution

Seipel, W., ed. 1998. *Schätze der Kalifen: Islamische Kunst zur Fatimidenzeit.* Vienna: Kunsthistorisches Museum and Skira

Serjeant, R.B. 1972. *Islamic Textiles: Material for a History up to the Mongol Conquest.* Beirut: Librairie du Liban

Seyller, John. 2013. "Five Folios from the Jahangir Album," in *God is Beautiful and Loves Beauty: the Object in Islamic Art and Culture.* Ed. Sheila Blair and Jonathan Bloom. Proceedings of the Fourth Biennial Hamad bin Khalifa Symposium on Islamic Art and Culture. London: Yale University Press, pp. 302–37

Shalem, Avinoam. 1994. "Fountains of Light: the Meaning of Medieval Islamic Rock Crystal Lamps," *Muqarnas*, 11, pp. 1–11

Shani, Raya. 2005. "The Lion Image in Safavid *Mi'raj* Paintings," in *A Survey of Persian Art* vol. 18. Ed. Abbas Daneshvari. Costa Mesa: Mazda, pp. 265–426

Simpson, Marianna Shreve. 1979. *The Illustration of an Epic: the Earliest* Shahnama *Manuscripts.* New York and London: Garland Publishing, Inc.

———. 1997. *Sultan Ibrahim Mirza's* Haft Awrang. Washington, D.C., New Haven, and London: Yale University Press in association with the Smithsonian Institution

Simpson, St John. 2001. "The Early Islamic Crucible Steel Industry at Merv," *IAMS [Institute for Archaeo-Metallurgical Studies]*, 21, pp. 14–15

Sims, Eleanor. 2002. *Peerless Images: Persian Painting and its Sources.* New Haven and London: Yale University Press

Skelton, Robert. 1988. "Imperial Symbolism in Mughal Painting," in *Content and Context of Visual Arts in the Islamic World.* Ed. Priscilla P. Soucek. University Park, P.A.: Pennsylvania University Press, pp. 177–91

Smith, A. Mark. 1996. *Ptolemy's Theory of Visual Perception: an English Translation of the Optics.* Philadelphia: American Philosophical Society

———. 2001a. "The Latin Source of an Italian Translation of Alhacen's *De aspectibus* (vat Lat 4595)," *Arabic Sciences and Philosophy*, 11/1, pp. 27–43

———. 2001b. *Alhacen's Theory of Visual Perception.* Philadelphia: American Philosophical Society

———. 2006. *Alhacen on the Principles of Reflection.* Philadelphia American Philosophical Society

———. 2008. *Alhacen on Image-formation and Distortion in Mirrors.* Philadelphia: American Philosophical Society

———. 2010. *Alhacen on Refraction.* Philadelphia: American Philosophical Society

Smith, Edmund W. 1909/1994. *Akbar's Tomb, Sikandarah, near Agra.* Archaeological Survey of India 35. Allahabad: F. Luker; reprint New Delhi: Director General, Archaeological Survey of India

Soper, Alexander Coburn. 1947. "The 'Dome of Heaven' in Asia," *Art Bulletin*, 29/4, pp. 225–48

Soudavar, Abolola. 1999. *Art of the Persian Courts: Selections from the Art and History Trust Collection.* New York: Rizzoli

Stanley, Tim. 2004. *Palace and Mosque.* London: V&A Publications

Stchoukine, Ivan. 1954. *Les peintures des manuscrits tîmûrides.* Paris: Institut français d'archéologie de Beyrouth (Bibiothèque archéologique et historique, tome LX)

Stout, Robert Elliott. 1966. "The Sûr-i-Hümâyun of Murad III: a Study of Ottoman Pageantry and Entertainment." PhD. Dissertation: The Ohio State University

Stronach, David, and Theodore Cuyler Young. 1966. "Three Saljuq tomb towers," *Iran*, 4, pp. 1–20

Stronge, Susan. 1996. "The Myth of the Timur Ruby," *Jewellery Studies*, 7, pp. 5–12

———. 1999. *The Arts of the Sikh Kingdoms.* London: V&A Publications

———. 2002. *Painting for the Mughal Emperor: the Art of the Book 1560–1660.* London: V&A Publications

———. 2013. "Jahangir's Itinerant Masters," in *Themes, History and Interpretations: Indian painting: Essays in Honour of B. N. Goswamy.* Ed. Mahesh Sharma and Padma Kaimal. Ahmadabad: Mapin Publishing, pp. 125–35

Suhayli Khansari, Ahmad. 1968. "Muraqqa' Golshan," *Honar u Mardom*, 73, pp. 16–18

al-Ṭabarī, Abū Ja'far Muḥammad ibn Jarīr. 1373–77/1954–57. *Jāmi' al-bayān 'an ta'wīl āy al-qur'ān.* Ed. Aḥmad Sa'id 'Alī *et al.* 30 vols. Cairo: Mustafa al-Babi al-Halabi

Tagg, John. 1993. *The Burden of Representation: Essays on Photographies and Histories*, Minneapolis, M.N.: University of Minnesota Press

Tait, Hugh, ed. 1991/R1995. *Five Thousand Years of Glass.* London: British Museum Press

Tassy, Garcin de. 1854. *Mémoire sur les noms propres et les titres musulmans.* Paris: Imprimerie Impériale

Tavernier, Jean-Baptiste. 1678. *The Six Voyages of John Baptista Tavernier*, London: Printed for R.L. and M.P.

Terzioğlu, Derin. 1995. "The Imperial Circumcision Festival of 1582: an Interpretation," *Muqarnas*, 12, pp. 84–100

Thackston, Wheeler M. 1986. *Nāṣer-e Khosraāw's Book of Travels (Safarnāma).* Albany, N.Y.: Bibliotheca Persica

———, trans. 1999. *The Jahangirnama. Memoirs of Jahangir, Emperor of India.* New York: Oxford University Press in association with the Freer Gallery of Art and the Arthur M. Sackler Gallery, Smithsonian Institution, Washington, D.C.

Theisen, Wilfred R. 1972. 'The Mediaeval Tradition of Euclid's Optics.' Unpublished PhD thesis, University of Wisconsin

Tifāshī, al- Aḥmad ibn Yūsuf. 1977. *Kitāb Azhār al-Afkār fī Jawāhir al-Aḥjār.* Ed. M.Y. Hasan and M.B. Khafaji. Cairo: al-Hay'ah al-Miṣrīyah al-'Āmmah lil-Kitāb

Tirmizi, S.A.I. 1989. *Mughal Documents 1526–1627.* New Delhi: Manohar

Titley, Norah M. 1983. *Persian Miniature Painting.* London: British Library

Tonghini, Cristina. 1996. "Recent Excavation At Qal'at Ja'bar: New Data for Classifying Syrian Fritware," *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period: Proceedings of a Colloquium held at the Seminar für Vorderasiatische Altertumskunde, Freie Universität Berlin, 6th– 9th April, 1994.* Ed. Karin Bartl and Stefan Hauser. Berlin: Reimer, pp. 287–300

Ṭūsī, Naṣīr al-Dīn. 1304/1886–87. *Taḥrīr al-Manāẓir.* Tehran: lithographed ed.

———. 1358/1939. *Taḥrīr al-Manāẓir.* Hyderabad: Dā'irat al-Ma'ārif al-'Utmāniyya

Tustari, Sahl. 2002. *Tafsīr.* Ed. Muḥammad Bāsil 'Uyūn al-Sūd. Beirut: Dar al-Kutub al-'Ilmiyyah

Untracht, Oppi. 1997. *Traditional Jewelry of India.* London: Thames & Hudson

'Urfī Shīrāzī. 1339. *Kulliyyāt-i 'Urfī-i Shīrāzī.* Ed. Ghulām-Ḥusayn Javāhirī. Tehran: Muhhammad 'Ali 'Ilmi

'Uthman, Muḥammad 'Abd al-Sattar. 1983. *Wathīqat waqf Jamāl al-Dīn Yūsuf al-Ustadār: Dirāsa tārīkhiyya athariyya wathā'iqiyya.* Cairo: Dar al-Ma'arif

Vaḥshī Bāfqī. 1336. *Dīvān-i Vaḥshī-i Bāfqī.* Ed. Ḥusayn Nakha'ī. Tehran: Amir Kabir

Vehbi, Seyyit. 2008. *Sûrnâme: Sultan Ahmet'in Düğün Kitabı.* Ed. Mertol Tulum. Istanbul: Kabalcı Yayınevi

Ver Eecke, Paul. 1959. *Euclide: L'optique et La catoptrique.* Paris: Albert Blanchard

Vernoit, Stephen. 2006. "The Visual Arts in Nineteenth-Century Muslim Thought," in *Islamic Art in the 19th-Century: Tradition, Innovation, and Eclecticism.* Ed. Doris Behrens-Abouseif and Stephen Vernoit. Leiden: Brill, pp. 19–35

Volwahsen, Andreas. 1969. *Living Architecture: Indian.* New York: Grosset & Dunlap

Ward, Rachel. 2012. "Mosque Lamps and Enamelled Glass: Getting the Dates Right," in *The Arts of the Mamluks in Eygypt and Syria: Evolution and Impact.* Ed. Doris Behrens-Abouseif. Goettingen: Bonn University Press, pp. 55–76

Watson, Oliver. 1985. *Persian Lustre Ware.* London: Faber and Faber.

———. 1994. "Documentary Mina'i and Abu Zaid's Bowls," in *The Art of the Saljuqs in Iran and Anatolia.* Ed. Robert. Hillenbrand. Costa Mesa, C.A.: Mazda, pp. 170–80

———. 1999. "Fritware: Fatimid Egypt or Saljuk Iran?," in *L'Egypte Fatimide; son art et son histoire: Actes du colloque organisé à Paris les 28, 29 et 30 mai 1998.* Ed. Marianne Barrucand. Paris: Presses de l'Université de Paris-Sorbonne, pp. 297–307

———. 2004. *Ceramics from Islamic Lands.* London: Thames & Hudson in association with the al-Sabah Collection, Dar al-Athar al-Islamiyyah, Kuwait National Museum

———. 2014. "Revisiting Samarra," in *Hundert Jahre Grabungen in Samarra.* Ed. J. Gonnella. Beiträge zur Islamischen Kunst und Archäologie 4, Ernst Herzfeld Gesellschaft. Wiesbaden: Dr. Ludwig Reichert Verlag

Webbe, Edward. 1868. *Edward Webbe, Chief Master Gunner, His Trauailes.* Ed. Edward Arber. London: A. Murray and Sons

Weber, Stefan. 2011. "Ein Objekt aus Stein und Licht. Der tausendjährige Bergkristallkrug aus der Sammlung de Unger," *Museums Journal*, 3, pp. 34–36

Werrett, Simon. 2010. *Fireworks: Pyrotechnic Arts and Sciences in European History.* Chicago and London: University of Chicago Press

Wiedemann, Eilhard. 1911. "Über das Leben von Ibn al-Haitham und al-Kindī," *Jahrbuch für Photographie, Kinematographie, und Reproductionsverfahren*, 25, pp. 6–11

Wiet, Gaston. 1929. *Catalogue general du Musée Arabe du Caire: Catalogue des lampes et bouteilles en verre émaillé.* Cairo: IFAO

Wightman, G.B.H., and Abdullah Udhari. 1975. *Birds through a Ceiling of Alabaster: Three Abbasid Poets: Arab Poetry of the Abbasid Period.* Harmondsworth: Penguin

Wikipedia. 2013. "Lux" http://en.wikipedia.org/wiki/Lux. Accessed 18 January 2014.

Williams, Caroline. 1983. "The Cult of 'Alid Saints in the Fatimid Monument of Cairo. Part I: The Mosque of al-Aqmar," *Muqarnas*, 1, pp. 37–52