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The Abbasid Mosaic Tradition and the Great Mosque of Damascus

If the medium of wall mosaic is to be associated with any one period, it would be late antiquity. Floor mosaics of stone tesserae remained popular across the Roman and then the Byzantine empire and could be found in many elite houses, public buildings, and churches; glass tesserae were increasingly used to decorate walls and apses, especially in churches.[1] The stunning mosaic programs in early Islamic monuments of the late seventh and early eighth centuries follow directly in this tradition.

The golden age of Islamic mosaicking lasted for about a generation, between the 690s and 710s. During this time, the Dome of the Rock and the Aqsa Mosque in Jerusalem, the Holy Mosque in Mecca, the Prophet's Mosque in Medina, the Great Mosque of Damascus, and the Great Mosque of Aleppo were either built and decorated, or substantially redecorated, with glass wall mosaics.[2] Considering these high-profile mosques together, approximately 22,000 square meters of mosaic, representing about 350 person-years of work, were applied to their walls over three decades.[3] In addition, many of the Umayyad palaces were decorated with wall and floor mosaics.[4] Smaller mosques, wealthy houses, and civic buildings would have added to the list of commissions, not to mention all the churches and synagogues that were still in use.[5]

By far the largest of the Umayyad projects—containing more than a third of the total mosaic work in the six buildings listed above—was the Great Mosque of Damascus, founded by Caliph al-Walid ibn ʿAbd al-Malik (r. 705–15). This site alone must have had an appreciable effect on the mosaic trade, employing a high proportion of the mosaicists

working in the Levant at the time.[6] The demand for materials to decorate the grand Umayyad mosques probably also had an impact on the glass-making industry. For Damascus, most of the glass for the tesserae was newly made in Egypt, presumably commissioned specifically for the mosque; very few of the tesserae were recycled.[7] Al-Walid also commissioned the mosaics for the mosques of Mecca and Medina, and possibly Fustat; those in Medina were described as showing trees and palaces, as in Damascus.[8]

Such ornate programs of glass mosaic, with their late antique iconographic flavor, are not generally associated with the following centuries. It has sometimes been assumed that both the taste and the practical expertise for the medium were lost after the defeat of the Umayyads by the Abbasid caliphate in 750. In his survey of Islamic art published in 1980, Alexandre Papadopoulo writes that after the Abbasid victory, "mosaic art became extinct very rapidly, in less than thirty or forty years."[9] Studies of later medieval Islamic mosaic production, focusing on surviving examples in Cairo, Jerusalem, and Damascus, have demonstrated that there were periodic revivals of the craft between the eleventh and fourteenth centuries.[10] During these revivals the old monuments were restored, and new mosques, mausolea, and palaces were decorated with mosaic. Between the high point of al-Walid's commissions and the first of these revivals is an apparent gap of around three hundred years. If there was indeed a three-hundred-year break in production, then the medieval mosaics have to be interpreted either as complete reinventions, re-learnings of an antique craft, or as resulting from the importation of artisans and materials from regions in which the craft had been maintained. In this article, however, I will put forward an alternative explanation: I argue that the production of mosaic continued—if on a reduced scale—within the Islamic world itself.

It is recognized that the absence of mosaic after 750 was not absolute; remains from ninth-century buildings in Samarra have been known for almost a century and will be discussed below. There are also mosaics in the tenth-century mihrab of the Great Mosque of Córdoba. However, these are quite different in style, iconography, and color range from any of the Syrian examples, in addition to being three and a half thousand kilometers away. They deserve study in their own right, but cannot easily be used as evidence for contemporary practice in the eastern Mediterranean.[11] Beyond these exceptions, the existence of Islamic mosaic in the centuries immediately following the Umayyad period has been in doubt. Finbarr Barry Flood talks of "the apparent failure to develop a continuous indigenous tradition of glass mosaic in the medieval Islamic world."[12] He suggests the medium was seen as exotic and was associated with the Umayyad past, inspiring occasional revivals but without any continuous tradition. Flood concludes, "it seems likely that the idea of a flourishing school of Muslim mosaicists spanning the six hundred or so years between the erection of the Umayyad monuments and the Qalawunid period [in the thirteenth and fourteenth centuries] should be rejected," and that if any expertise survived at all, it was only in order to repair the few existing monuments.[13]

It is true that no subsequent periods matched the sheer scale of the artistic production of the mid-Umayyad period, and it is probable that in many places there was no mosaic produced for hundreds of years. Certainly, it is unlikely that any one "school" of artisans existed across the period. Nonetheless, I suggest that the picture of decline needs to be both revised in its broad factual outlines and more nuanced in its details.

In terms of factual outlines, this article will show that the real downturn in the tradition of mosaic-making did not occur at the end of the Umayyad period, but about 150 years later, at the turn of the tenth century. Until that point there is both written and

material support for a flourishing Abbasid mosaic industry. In the later eighth and ninth century, mosaics were commissioned in new and existing buildings in Mecca, Medina, Jerusalem, and Damascus, and to a lesser extent in Samarra. In Damascus and Jerusalem, there is also indirect confirmation of the continuity and evolution of mosaic techniques during the 900s in the surviving programs of the eleventh century.

The changing use of mosaic in relation to other decorative materials should also be considered. In particular, new types of glass tiles seem to have been used alongside tesserae at Abbasid sites, and to have replaced the more traditional medium in some contexts. In other contexts, such as mihrabs, mosaic continued to be seen as appropriate. The difference between the abandonment of a medium and its limitation to more specialized settings is significant from the point of view of craft knowledge. In one case, skills have to be relearned from scratch at each moment of revival, whereas in the other, they can be transmitted from one generation to the next among relatively small numbers of practitioners. I propose that the second scenario more convincingly explains the material remains.

The first part of the article will look at the literary evidence for mosaics commissioned in the Islamic world in the second half of the eighth and throughout the ninth century, looking in particular at the data for Mecca and Medina. The second part will focus on the one intact example of wall mosaic from the Abbasid period, the *Bayt al-Māl* (Treasury) of the Great Mosque of Damascus. The third part will discuss some of the changing aspects of mosaic production in the late eighth and ninth centuries, in particular the development of new decorative techniques at the courts, and the role of provincial governors as patrons. This section explores possible factors behind the decrease in mosaic commissions in the tenth century and returns to the question of continuity in Damascus and Jerusalem.

Part 1: The Mosaics of Mecca and Medina

Most of the evidence for mosaic in the Abbasid period comes from the two holy cities of the Hijaz region. At these sites, the Abbasid mosaics outnumber the Umayyad ones several times over. While several modern authors refer to these sites, the scale and significance of the mosaics have attracted little attention.[14]

It is debatable whether there was ever a "Hijazi tradition" of mosaic. On the one hand, the medium does not seem to have been as widely popular in the Arabian Peninsula in late antiquity as it was in Syria.[15] The only pre-Islamic mosaics in Arabia, as far as anyone knows, were in the churches and monasteries of Yemen.[16] On the other hand, the first specifically Islamic mosaic was made in Arabia in 684, in the Kaʿba rebuilt by the anti-Umayyad ruler Ibn Zubayr (r. 683–92), using tesserae taken from Abraha's church in Sanʿa.[17] It is possible that all the mosaics described below were made by artisans brought in from outside Mecca and Medina; some of them definitely were. Nonetheless, in terms of preferences and expectations for the decoration of grand buildings, I suggest that it makes sense to think in terms of a Hijazi tradition, one that lasted for around two hundred years and saw its high point in the early to mid-ninth century.

Al-Azraqi

The majority of our information on the Abbasid monuments of Mecca comes from the *Akhbar Makka* (Reports of Mecca) written by Abu al-Walid al-Azraqi in the mid-ninth century (precise dates unknown). Al-Azraqi's family had been Meccans for seven generations, and his grandfather, Ahmad ibn Muhammad ibn al-Walid ibn ʿUqba (d. 837), had also been a historian and collected much of the information presented in the book. Al-

Azraqi narrated his reports to a younger writer, Abu Muhammad Ishaq b. Ahmad al-Khuzaʿi (d. 921), who in turn transmitted it to his grand-nephew, Abu al-Hasan Muḥammad b. Nafiʿ al-Khuzaʿi (d. after 961).[18] Combining the knowledge of all the contributors, the *Akhbar Makka* contains eyewitness reports of events throughout the ninth century. Of course, this does not remove the possibility of selective reporting or even outright invention. But the descriptions of buildings that the immediate audience of the book could have seen for themselves are likely to be fairly accurate.

Al-Azraqi was evidently interested in architectural materials and processes. For example, when describing repairs to the Kaʿba in the 850s, he specifies the type of plaster used and how it was mixed; he also sometimes gives the names of building workers.[19] Iconography seems to have interested him less; although he writes about decorative textiles, carved and engraved stone, gilded and painted features of buildings, and mosaic, he never mentions their designs. This may reflect a categorization of decorative motifs as non-images—perhaps especially relevant when describing holy sites where images would be inappropriate—or the fact that conventions for designs in each medium were too familiar to be worth mentioning.[20] However, despite the lack of detail in reports about what the mosaics looked like, it is clear that they were a regular feature of Meccan architecture during al-Azraqi's lifetime.[21]

Hijazi Mosaics 750–800

The Masjid al-Haram at Mecca was expanded and redecorated in the 750s, shortly after the Abbasid revolution, during the reign of al-Mansur (754–75). Describing these works, al-Azraqi mentions mosaic on an arch at the entrance of the mosque, on the

columns, and a black and gold mosaic inscription above one of the doors.[22] The work was supervised by the governor of the time, al-Harithi, on behalf of the caliph al-Mansur: "And he put mosaic on the face of the columns. This was the work of the Commander of the Faithful Abu Jaʿfar al-Mansur…and he assigned all of it to the supervision of Ziyad bin ʿUbayd Allah al-Harithi."[23] During the reign of al-Mahdi (775–85), restorations were again carried out in Mecca and Medina. Al-Muqaddasi (d. 991) describes the Holy Mosque at Mecca:

> Circling the courtyard are three porticoes on marble columns, brought by al-Mahdi from Alexandria by sea to Jedda. He built the mosque. The outer walls of the porticoes were clad with mosaic. Workers from Syria and Egypt were brought there; you can see their names on it.[24]

The mosque was not literally built during al-Mahdi's caliphate, and there is a possibility that the mosaics described were from the Umayyad phase; however, al-Muqaddasi associates the decoration with the later construction.

Additions to the Prophet's Mosque at Medina at the same time are described in the *Kitāb al-Manāsik wa Amākin Ṭuruq al-Ḥajj* (The Book of Rites and Places of the Pilgrimage Routes). This guidebook for pilgrims records all the inscriptions visible in the mosque up to the 780s.[25] Al-Mahdi was credited with the building, expansion, and decoration of the mosque in at least six different inscriptions. Two inscriptions that name al-Mahdi are signed by artisans from Basra, and two that do not refer to the ruling caliph are signed by the people of Homs.[26] There is no information about what the inscriptions were made of, but mosaic is possible, since it is the only form of ornamentation mentioned at all. The book also

describes four arches worked in mosaic on the western side of the mosque.[27] Ahmad ibn Yahya al-Baladhuri (d. 892) described the same renovations, adding the names of the supervisor appointed by the caliph, ʿAbd al-Malik ibn Shabib al-Ghassani, and the governor of Medina, Jaʿfar ibn Sulaiman ibn ʿAli, who oversaw the works.[28]

Al-Azraqi also describes two columns between the Kaʿba and the hills of Safa and Marwa. Both columns supported plaques carrying gold writing. One column stood at a gate of the mosque, and was "coated with green mosaic" (*mulabbasa fusayfisāʾ akhḍar*). The other was next to a *manara* (tower); it had an arch made from teak wood above the inscription, and it was also mosaicked, although al-Azraqi does not specify its color.[29] The *manara* and gate were part of al-Mahdi's restructuring of the Masjid al-Haram,[30] so it is probable that the columns were too.

More mosaic was added to the Prophet's Mosque in Medina under Harun al-Rashid (r. 786–808), including a mosaic inscription:

> This was ordered by the servant of God Harun, Commander of the Faithful, may God prolong his life, under the direction of Ibrahim bin Muhammad, may God guide him, and is the work of the Jerusalemites [*ahl bayt al-muqadas*].[31]

At the turn of the ninth century, Hamad al-Barbari, a *mawla* (client) of Harun al-Rashid, and governor of Mecca and Yemen, seized the Dar al-Qawarir (House of Glass) in Mecca from the vizier Jaʿfar ibn Yahya al-Barmaki (d. 803). Al-Barbari had it rebuilt and decorated "for al-Rashid" with yellow and green *mīnā* on the inside (glass tiles, see below), and marble and mosaics on the outside.[32]

The Ninth Century

The most famous center of Abbasid artistic production in the ninth century was the palace-city of Samarra; the third part of this article will discuss the use of glass mosaic and tiles there. Staying in the Hijaz for now, several structures decorated with mosaic were built at the Zamzam Well in the 830s and 840s by the order of ʿUmar ibn Faraj al-Rukhkhaji. One structure covered the well itself, replacing a previous building on the site; it was decorated on the inside with gilded teak and on the outside with mosaic.[33] At the same time, al-Rukhkhaji had another dome built between the well and the Bayt al-Sharab, where the water from the well was drunk, also covered with mosaic.[34] The date of these two buildings is given either as 833–34 or 834–35, in any case during the reign of al-Muʿtasim (833–42). A decade later, in 843–44 during the reign of al-Wathiq (842–47), al-Rukhkhaji demolished the Bayt al-Sharab itself, and had three small domes built, "all dressed in mosaic."[35]

ʿUmar ibn Faraj al-Rukhkhaji seems to have spent an unusually long time in a position of authority.[36] He was a state secretary; al-Maʿmun (r. 813–33) gave him control of the land-tax of Egypt for a time, and he was responsible for preparing the Hajj route for al-Wathiq in 845–46.[37] During the reign of al-Maʿmun, Shiʿa forces opposed to the Abbasids had held power in Mecca, and the Bayt al-Sharab which al-Rukhkhaji demolished had been built by their leader, Husayn ibn Hasan ibn al-Aftas (r. 815–16).[38] Al-Rukhkhaji was strongly hostile toward the ʿAlids,[39] so his architectural changes to the pilgrimage sites are likely to have been political and religious statements, as much as aesthetic ones. He was certainly remembered by Meccans as someone who significantly altered the local landscape.[40]

There were also mosaics on, or in, the Kaʿba. Some were removed from the roof or ceiling of the shrine in 815–16, since they were letting the rain in, and replaced with plaster and "baked marble" (*al-marmor al-matbūkh*).[41] Al-Azraqi does not say how old these

mosaics were, but in the same passage he refers to the golden water-spout added by al-Walid I; as the mosaics were in a bad state of repair, it seems possible that they also dated back to the early eighth century. Then at some point between 815 and the 850s, we know that new mosaics were made for the Kaʿba because al-Azraqi describes them again in the context of renovations carried out by Ishaq ibn Salama al-Saʾigh ("the goldsmith") during the reign of al-Mutawakkil (847–61).[42] Ishaq ibn Salama was mainly concerned with the gold, silver, and marble-work of the Kaʿba, also hiring a plasterer from Sanʿa when needed. He did not repair the mosaics, but only washed them, which supports the assumption that they were relatively new. The mosaics are described this time as being under the roof or ceiling (*taḥt saqf al-Kaʿba*), presumably either on the upper part of the exterior walls, or the interior ones, or (less likely) on the underside of the ceiling itself.

Also during the caliphate of al-Mutawakkil, the Prophet's Mosque in Medina was repaired. According to al-Baladhuri:

> In the year 246 (860–61), the Commander of the Faithful Jaʿfar al-Mutawakkil, may God have mercy on him, ordered the repair of the mosque of Medina, so he brought lots of mosaic to it, and it was finished in the year 247 (861–62).[43]

There is one other building in Mecca that may have been decorated with mosaic at the end of the ninth century. The Dar al-Nadwa (council house) was converted into a mosque during the reign of caliph al-Muʿtadid (r. 892–902).[44] According to al-Khuzaʿi, one of the authors of the additions to *Akhbar Makka*, "its walls, ceilings, and balconies equaled [those of] the Great Mosque."[45] The equality is more likely to have been in decoration than in size, and the walls of the Masjid al-Haram were covered with mosaic. However, al-Khuzaʿi does not seem

to have been as interested in architecture as al-Azraqi had been, and does not give any details.

According to the descriptions above, from the beginning of the Abbasid caliphate to the end of the ninth century, mosaics were commissioned between nine and twelve times in Mecca and Medina, to decorate eight or nine different structures, if the pair of columns and al-Rukhkhaji's three small domes are counted as one each (table 1).[46] Some of these, like the structure over the Zamzam Well, may have been small jobs, but redecorating the two great mosques would have been major efforts, requiring many teams of mosaicists.

Table 1: Abbasid Commissions of Mosaic in Mecca and Medina

Site	**Date**	**Reigning caliph**
Masjid al-Haram, Mecca	c. 750s	Al-Mansur, 754–75
Masjid al-Haram, Mecca	c. 776–79	Al-Mahdi, 775–85
Prophet's Mosque, Medina	c. 775–85	Al-Mahdi, 775–85
Pair of columns, Mecca	c. 775–85	Al-Mahdi, 775–85
Prophet's Mosque, Medina	c. 786–808	Harun al-Rashid, 786–808
Dar al-Qawarir, Mecca	before 803	Harun al-Rashid, 786–808
Dome above Zamzam Well, Mecca	833–35	Al-Muʿtasim, 833–43
Dome between Zamzam and Bayt al-Sharab, Mecca	833–35	Al-Muʿtasim, 833–43
Three small domes near Zamzam Well, Mecca	843–44	Al-Wathiq, 843–47
Kaʿba, Mecca	c. 815–54	Unknown
Prophet's Mosque, Medina	860–61	Al-Mutawakkil, 847–61
Mosque replacing Dar al-Nadwa, Mecca	c. 892–902	Al-Mutadid, 892–902

Key: Uncertain date of mosaic Uncertain presence of mosaic

Buildings in the two holy cities may have been redecorated more often than those elsewhere, and Hijazi patrons may have been particularly conservative in their taste, but the region is unlikely to have been unique; if a dozen mosaics were commissioned there, some

were probably commissioned in other large cities as well. There are three pieces of information from Abbasid Jerusalem to support this theory. The Aqsa Mosque was substantially rebuilt in the 770s during the reign of al-Mahdi; the only part of the building which apparently did not need repairing was the qibla wall.[47] When al-Muqaddasi saw the building two centuries later, mosaics covered the ceilings of the northern colonnades, which may have dated back to the eighth-century construction.[48] A Greek psalter from the first half of the ninth century contains a marginal note recording that Thomas, a monk and "painter" (*zográphos*) from Damascus, created a "work of glass" (*ýelourgían*) at the Holy Sepulcher.[49] In the context of architectural decoration, and alongside the description of Thomas as a painter (rather than, for example, a lamp-maker), the work is likely to have been a mosaic. In 831, Caliph al-Maʿmun had at least the inscription inside the Dome of the Rock altered to include his name.[50] If this was the extent of the work, it was a very small job, but one which still required competent mosaicists.[51]

The Abbasid mosaics in the Aqsa Mosque are now lost, as are those in Mecca and Medina. The only major piece of mosaic from this period to survive until today is in the Great Mosque of Damascus.

Part 2: The *Bayt al-Māl*

Along with the Dome of the Rock, the Great Mosque of Damascus stands out as one of the greatest surviving examples of Umayyad mosaic, and of early Islamic art generally. But while much of what is visible in Damascus is Umayyad work, plenty more is not. Some research has been undertaken on restorations carried out by Seljuk, Ayyubid, and Zengid rulers in the eleventh and twelfth centuries, and during the reign of the Mamluk Sultan Baybars in the

mid-thirteenth century (1260–77).[52] The Mamluk mosaics, in particular, have been discussed by Flood in terms of their conscious reference to a valued past.[53] Additions later than this have not attracted much scholarly attention, beyond some unflattering comparisons with the "original" decoration,[54] and the full story of the post-Umayyad mosaics in the Great Mosque of Damascus remains to be told. The decorations of the *Bayt al-Māl* may be the earliest additions in the sequence.

The *Bayt al-Māl* or Treasury stands in the northwest corner of the courtyard (fig. 1).[55] It is a domed octagonal structure, supported by carved architraves above eight columns with Corinthian capitals, all Roman spolia. The only opening is a door on the south face. The building was originally used to store the civic treasury of the province of Dimashq; later it became a storehouse for the assets of the mosque, then a store for manuscripts, before falling out of use altogether.[56]

The Construction of the *Bayt al-Māl*

According to the writer Ibn ʿAsakir (d. 1176), the Treasury was built on the orders of the governor of Damascus, al-Fadl ibn Salih, who was in office from 766 to 775 during the reign of Caliph al-Mansur.[57] Al-Dhahabi (d. 1348) and Ibn Taghribirdi (d. 1470) also credit al-Fadl, although without giving precise dates.[58] Ibn Kathir al-Dimashqi (d. 1373) does not name the patron but says that the building, which he calls the "Dome of ʿAʾisha," was built in 776–77, during the reign of al-Mahdi.[59] A fifteenth-century writer claimed that the Treasury was built by the Umayyad caliph al-Walid along with the rest of the mosque, but aside from this, only al-Fadl ibn Salih is named as the patron, and this article will assume that the majority view is correct.[60] The treasury in the courtyard of the Great Mosque of Hama, which is almost identical in form, although without mosaic decoration, has also been associated with the

major renovations to that mosque during the reign of al-Mahdi, and may have been inspired by the Damascene example.[61]

Al-Fadl's building probably reused remnants of an earlier structure, perhaps, as Alain George argues, part of a baptistry.[62] In my opinion, however, none of the walls above the columns belonged to this pre-Islamic structure. The lower two courses and the surround of the door are made from large blocks of stone, while the rest of the walls are alternating courses of smaller stones and bricks (*opera listata*). The substantial stones give extra strength and security to the door and floor; they make sense for a monumental strong box, but not for a font canopy. That is, while some of the structure of the Treasury is probably Byzantine, the walls more likely date to al-Fadl's commission.

The Decoration in Its Current State

At present, all eight walls of the Treasury are covered with mosaic (fig. 2a–h). The panels have borders of acanthus scroll at the bottom, and strips of triangles below that. At the top of the panels are bands with alternating circles and lozenges dotted with mother-of-pearl. The south face has an acanthus scroll around the door, and narrow borders of leaves at the sides (fig. 2a). The other seven faces alternate between two designs. On the southeast, northeast, northwest, and southwest sides are acanthus scrolls interspersed with small vases, cornucopia, and mother-of-pearl medallions (fig. 2b, d, f, h). These panels do not have any vertical borders. The east, north, and west faces each have a landscape scene of buildings and a large palm tree around a lake or river, with borders of leaves and cornucopias at the sides (fig. 2c, e, g).

The medieval historians do not specify who was responsible for these mosaics. The first reference to the decoration of the *Bayt al-Māl* is by al-Muqaddasi, writing in 985, who states "on the right-hand side in the courtyard is a treasury on eight columns, its walls are inlaid with mosaic," but he does not say who commissioned them.[63] This is perhaps a hint that the construction and decoration of the building took place at the same time; if a ninth- or tenth-century patron had added mosaic to a previously plain structure, it is unlikely that this information would have already been lost by al-Muqaddasi's time.

Whether any of the mosaic currently visible on the Treasury dates to the time of its construction is another question. Like every other piece of mosaic in the mosque, the present ensemble is a patchwork of different phases (fig. 3). The majority is from the twentieth century. The upper part of the acanthus scroll on the northeast panel was added between 1948 and the mid-1950s, and the rest of the modern mosaic was added in the 1960s.[64] Most of the walls were entirely bare before these additions (figs. 4–6).

The Phases of Pre-Modern Mosaic

There is still pre-modern mosaic on the north, northeast, and south sides of the *Bayt al-Māl*. The remains on the south face consist of a vertical strip of leaves and cornucopia emerging from a fluted vase, to the right of the door, and some of the border at the top of the panel (figs. 3a, 7). The position of these fragments was changed during the twentieth century. In the 1920s, the bottom of the band of leaves was level with the bottom of the door, and there was an additional fragment below the border (fig. 4).[65] The first section has been relocated further down the wall, and the second has vanished.

The leaves on the vertical strip of mosaic are distinctive. The upward-pointing leaves are thick and straight-sided, almost rectangular, with stubby ends. The shading is simple: a

dark green for most of the leaf, and light green for the points and along the outer edge. The leaves are all outlined in black. Leaves with a similar shape and shade are found in the mosaic-covered mihrabs of the Burtasiyya Mosque in Tripoli, built before 1324,[66] and in the mosque in Damascus founded in 1317–18 by the viceroy (*nāʾib*) of Syria, Tankiz al-Nasiri (r. 1312–40).[67] The fragment on the Treasury therefore probably belongs to restorations carried out in the Great Mosque in 1330 during the governorship of Tankiz.[68] According to the contemporary writers Ibn Kathir al-Dimashqi and Ibn Fadl Allah al-ʿUmari (d. 1384), some tesserae already in the mosque were collected and reused in the prayer hall at this time,[69] and some new tesserae were made.[70] Al-ʿUmari complains that the modern tesserae are not as finely colored or consistent in size as the old ones.[71] The tesserae on the south face of the *Bayt al-Māl* are bright and fairly uniform, perhaps indicating that these are reused materials. This is not the place for a full discussion of the fourteenth-century additions to the mosaics in the Great Mosque; other likely candidates exist, but on the Treasury all that remains is this one border, and there is no way of telling whether it was originally part of a larger composition.

The patches on the north and northeast sides are more substantial. Both can be seen in photographs taken before any modern restorations (fig. 5).[72] The patch in the middle of the northeast face includes the lower half of the large acanthus scroll (figs. 2d, 8). In the late nineteenth century, the medieval mosaic on this side reached the bottom of the panel (fig. 9), but the lower section of the mosaic was lost at some point in the following decades. On the north face, a similar-sized patch includes the buildings and lake, and the trunk and hanging dates of the palm tree (figs. 2e, 10).

The two sections appear to belong to the same phase. The same form of acanthus spiral can be seen in the bottom border of the north face and in the upper part of the

fragment on the northeast, with alternating leaves of green and silver-blue emerging from a gold-brown cornucopia decorated with mother-of-pearl dots (figs. 11, 12). The gold used for the background of the two sides is the same: a medium tone, duller than the 1960s glass, with some black or brown tesserae mixed in. There are small differences between the north and northeast sides, indicating the division of labor between mosaicists. Nevertheless, the similarities are strong enough to link the panels to the same job.

The arrangement of alternating landscape scenes and acanthus scrolls created in the 1960s is based on the earlier mosaics only in the sense that the two compositions are copied from the older fragments on the north and northeast sides. There is no evidence to suggest that these designs were originally repeated. In fact, they certainly did *not* repeat all the way around the structure, because there was a fourth piece of medieval mosaic, with a different design, on the west face. The top part of this design survived into the 1870s, but had disappeared by the 1920s.[73] Bonfils captured some of the details of the fragment (fig. 13a, b).[74] Although it is difficult to be sure, the dark background does not seem reflective enough to be gold. There is a curved feature with outlines in a pale shade, two tesserae thick. The curve straightens out just before the mosaic is cut off; it must have been an oval or an arch, more plausibly the latter, rather than a circle (fig. 14). A horizontal line running across the panel is visible on the right-hand side, slightly above the level of the apex of the arch. There is a roundel of eight mother-of-pearl pieces inside the arch, and two with six mother-of-pearl pieces between the arch and the horizontal line. There are faint suggestions of lighter colors inside the curve, with some single dots of mother-of-pearl; this may have been a plant scroll.

The lost panel on the west face probably belonged to the same phase as the north and northeast walls, since medallions with six teardrop-shaped pieces of mother-of-pearl

around a circle were also used on the northeast face. The evidence here is slim, as the mother-of-pearl decorations are the only clearly visible feature in the nineteenth-century photo of the west side. This particular arrangement is not found in other parts of the mosque, however, where mother-of-pearl work in many other forms survives. It is therefore a plausible indicator of work by the same group. The section of the pre-modern jeweled band on the south face also has six-pointed mother-of-pearl medallions; thus, it probably also belongs to the same period, rather than to that of the fourteenth-century border of leaves below it.

Style and Iconography

Jean Sauvaget dated the north and northeast patches of mosaic in the *Bayt al-Māl* to the thirteenth century, while Abdul Qadir Rihawi, who conducted excavations in the courtyard of the Great Mosque in the 1960s, saw them as dating back to the construction of the Treasury.[75] On stylistic grounds, the mosaics fit most easily in the earlier period. Eustache de Lorey and Marguerite van Berchem have described the architectural forms on the Treasury as being less delicate than those in the Umayyad mosaic on the back wall of the west portico, known as the Barada Panel (fig. 15).[76] It is true that the houses on the *Bayt al-Māl* (fig. 10) do not have much in common with those in the Barada Panel. However, there are stylistic and compositional differences between the Umayyad mosaics in different areas of the mosque, presumably the result of many groups of mosaicists working separately. The houses on the Treasury are more similar to the buildings in the west vestibule, which are more colorful, with decorative checker-board strips and large arched doors (fig. 16). On the

other hand, some features of the scene, like the bright vertical stripes of the shoreline, are not found in the early eighth-century mosaics at all.

Van Berchem also distinguished the acanthus scroll on the *Bayt al-Māl* from Umayyad examples by its heavy use of mother-of-pearl (fig. 8).[77] Again, it depends which area of Umayyad mosaic is taken as the comparison; the soffits of the west vestibule and the portico in front of it have plenty of mother-of-pearl, including little blue bands dotted with pearls (fig. 17). These are not exactly the same as on the Treasury, but they are close. The leaf-clusters in the borders on the north side of the Treasury, on the other hand, are unique.

The border running around the top of the Treasury, preserved in its original form on the south face (fig. 18), belongs to a Mediterranean-wide late antique tradition of stylized images of jewels. Comparable designs, incorporating white fleur-de-lis, can be seen on floors in Jordan, at Mount Nebo in the sixth-century Church of Lot and Procopius and in the apse of the early seventh-century Theotokos Chapel, and in the Acropolis church at Maʿin of 719–20 (fig. 19).[78] Variations of jeweled bands continued to be used for many centuries after this, but the design on the Treasury is similar enough to the Jordanian examples as to suggest that it was made at about the same time. This border is not used in other areas of the mosque.

Looking beyond Damascus, there are two points of comparison between the mosaics of the *Bayt al-Māl* and those in the Dome of the Rock, which was founded by al-Walid's father, Caliph ʿAbd al-Malik ibn Marwan (r. 685–705). First, the alternating green and silver-blue leaves (figs. 8, 11, 12) are not used anywhere else in the surviving mosaics in Damascus, but are found in the Dome of the Rock, on the spandrels and piers of the circular arcade and inner octagonal arcade (fig. 20).[79] Second, the date palm on the Treasury is

distinctive. It is completely different from the green and gold fruit trees of the west portico, vestibule, and transept façade at Damascus. These follow in a long tradition, surviving primarily in sixth- to eighth-century Levantine floor mosaics, of depictions of deciduous fruit trees.[80] Palm trees are less common in late antique and early medieval mosaics, and while there are some examples on floors (fig. 21), none closely resemble the one in Damascus, at least in the design of the trunk, which is the only feature remaining in its original form.[81] As far as I am aware, the only example with a trunk composed of rows of individual shoots, as on the *Bayt al-Māl* in Damascus, is in the Dome of the Rock (fig. 22).[82] The tree in Jerusalem is framed by little bands of triangles, which are also used on the Treasury; while this is a common motif, the combination is worth noting because borders of triangles do not appear in the Umayyad mosaics in Damascus.

In terms of iconography, the combinations of buildings, trees, and rivers in the Umayyad mosaics in Damascus are ambiguous, and can be understood simultaneously as symbols of paradise and as images of an more earthly paradise, the flourishing caliphate.[83] The imagery on the north and northeast sides of the *Bayt al-Māl* is broadly similar, and the brief for the designs may have been simply that they should match the existing program. Although Damascus was no longer the center of power after 750, and so the motifs cannot be read in terms of imperial triumphalism in quite the same way after that point, they would have nevertheless maintained the same range of positive connotations; al-Muqaddasi in the tenth century still interpreted the mosaics as showing the cities of the world.[84] The balance of images is slightly different in the *Bayt al-Māl*, however. In the early eighth-century mosaics, plant scrolls were restricted to the secondary areas of soffits, spandrels, and piers. On the Treasury, however, an acanthus scroll is the main character on the

northeast side, taking up an entire panel. The palm tree is also more prominent in relation to the buildings when compared with the trees shown elsewhere in the mosque.

Some additional symbolic meaning may have been attached to this tree. According to one hadith, "The Prophet said: 'There is a tree among the trees which is similar to a Muslim and that is the date palm tree.'"[85] Another hadith records the Prophet's promise that "Whoever says: 'Glory is to Allah, the Magnificent, and with His Praise,' a date-palm tree is planted for him in Paradise."[86] Qurʾan 50.7–11 also describes how God ordered the earth and its plants, sending down rains for the harvest, and—specifically as a provision for the servants of God—supplying "lofty palm trees (having fruit) arranged in layers." The palm tree is thus open to interpretation as an image of the faithful in this world, God's provision for them in it, or their reward in the next world. Either way, the centrality of the tree tilts the balance toward a reading of it as a symbol, not (only) a stock motif representing a fertile landscape.

The lost design of the arch on the west side of the *Bayt al-Māl* is not known from any of the Umayyad mosaics, so in this case the artists may have been given more specific instructions to introduce a new motif. In the context of a mosque, a tall decorated arch might recall a mihrab, in addition to the convention, stretching back through late antiquity, of framing honored images or symbols in niches. Although no letters are visible in the fragment photographed in the late nineteenth century (fig. 13), the dark background would also be appropriate for an inscription; gold and black were used for a contemporary inscription in Mecca (see above).[87] The design may have been a more sophisticated version of a mosaic floor discovered in Ramla; there a mihrab frames the word *al-qibla* and the phrase "and be not negligent," the ending of Qurʾan 7.205.[88]

The *Bayt al-Māl*: Conclusions

On the three sides of the Treasury for which there is any evidence of the original design, the mosaicists used motifs similar to those of the Umayyad decorations—acanthus scrolls, a tree, buildings, and abstracted architectural forms—but in each case, in new ways. Similarly, there are enough stylistic similarities between the designs of the *Bayt al-Māl* and the Umayyad mosaics in the Great Mosque, as well as those in the Dome of the Rock, to support dating these mosaics within a few generations of each other—a gap across which conventions of working could easily have been transmitted. At the same time, there are enough differences to suggest that there *was* a gap in time between them. The presence of mosaic from a single phase on the north, northeast, west, and south sides (just a piece of border, in the latter case) supports the idea that this was the first phase of decoration. Of course, mosaic could have been added at any time as repairs or alterations—and some was, on the south. But the most plausible time for there to have been the money and motivation to commission entire walls of mosaic is when the structure was first built.

It seems possible that the mosaicists of the *Bayt al-Māl* came from the region south of Damascus, closer to Jerusalem, and perhaps from the city itself, given the similarities with the Dome of the Rock in the date palm and acanthus spirals, and with mosaics in western Jordan for the jeweled borders.[89] The patron, al-Fadl, also had a connection to Jerusalem, as he had stayed there with al-Mahdi and his court before returning to Damascus in 779–80.[90] He also undertook an architectural commission there; according to Abu Bakr al-Wasiti (d. 932), al-Fadl rebuilt a ruined church while he was in Jerusalem, on the orders of the caliph.[91]

The decoration of the *Bayt al-Māl* implies the continuation of a regional mosaic industry some seventy years after the Great Mosque was built, or a generation into the Abbasid caliphate. The style of mosaic in the *Bayt al-Māl* is slightly different from any of the

remaining Umayyad mosaics in the mosque, but the difference is not significantly greater than the variation among the earlier examples. The standardization and complexity of the acanthus scrolls, compared with the buildings, hints that the later artisans were more regularly asked to produce plant-based designs, but there is nothing to suggest that they were less skilled. Glass tesserae in a range of colors, including gold, were also still available.

Part 3: Changing Patterns

The descriptions and physical remains of mosaic, whether in the Hijaz or Jerusalem or Damascus, stop at the end of the ninth century. The only mosaics recorded in any Islamic building during the 900s were thousands of kilometers to the west, in the Great Mosque of Córdoba and (possibly) the palace of Madinat al-Zahra just outside the same city.[92] The absence may be mainly in the sources; the evidence for the 800s is particularly detailed, thanks to al-Azraqi. But there was probably also a genuine downturn in mosaic production at this point, which may have been caused by changing technologies and fashions at the caliphal courts in Iraq.

New Technologies

In the Abbasid palace-city of Samarra, founded on the banks of the Tigris in 836 by Caliph al-Muʿtasim, some wall mosaic of the traditional type was used. Glass tesserae have been excavated in the remains of al-Muʿtasim's palace, known as the Dar al-Khalifa, and in the mosque of al-Mutawakkil, built 848–51. Al-Shabushti (d. 988) also wrote that the walls of al-Burj ("the Fort"), one of al-Mutawakkil's palaces, were covered inside and out with mosaic and gilded marble.[93] Black, green and gold tesserae, and mother-of-pearl inlays were also

found at the entrance to the eastern iwan of the Balkuwara complex.[94] The tesserae for the mosaics at Samarra were not newly made. All the examples that have been analyzed were recycled from older sites, some imported from Egypt and some from the Levant.[95] Fragments of mosaic still embedded in plaster have been found in the mihrab of the mosque, and the tesserae are set haphazardly, at different angles, with large gaps between them (fig. 23).[96] Compared with the eighth-century work in Damascus—either Umayyad or early Abbasid— the crude design suggests less practiced mosaicists.

The problem was not a lack of glass-working skill. Al-Yaʿqubi (d. 897) described how al-Muʿtasim brought various groups of craftspeople to his new city, including glass-makers and potters from Basra.[97] In the words of Nadine Schibille and her colleagues, the techniques these groups used to produce glass for architectural decoration shows "a considerable degree of sophistication and by extension aesthetic and cultural value attributed to vitreous materials during the ninth century."[98] As well as vessels, the craftspeople produced small shaped inlays to be set in stucco, millefiori tiles (fig. 24), and tiles or plates (*ṭawābīq*) of dark purple glass.[99] These plates were also known as *mīnā* or *mīnāʾ*, the same term used by al-Azraqi to describe the green and yellow interior decoration of the Dar al-Qawarir in Mecca. Ibn al-Jawzi (d. 1201) wrote that 2,400 of these purple plates decorated the *maqsura* (ruler's enclosure) of al-Mutawakkil's mosque.[100] The plates may have decorated the entire qibla wall; it was said that anyone standing for prayer could see people entering the mosque behind them reflected in the glass.[101] The poet al-Buhturi (d. 897) also wrote about the al-Kamil palace, built for al-Muʿtazz (r. 866–69), describing its "glass walls" like "waves beating upon the seashore"; if they suggested the sea, then the tiles were probably again blue or purple, or perhaps green.[102] A fragment of aquamarine glass floor tile was found in the Dar al-Khalifa.[103] When used as floor coverings in a palace,

glass tiles may have also reminded viewers of the story of King Sulayman's hall, which Queen of Sheba mistook for water (Qurʾan 27.44).[104]

Glass tiles were thus beginning to occupy the spaces previously occupied by mosaic. In the mihrab of al-Mutawakkil's mosque, however, old-style mosaic was still used. It is possible that mosaic was seen as a higher status material and more appropriate for the focus of prayer. However, this is unlikely, since it was the tiles that commentators regarded as worth describing. Another explanation is that a pattern or motif of some kind was desired for the mihrab—perhaps a plant-scroll on a gold ground, like the painted mihrab of roughly the same date in the Great Mosque of Kairouan.[105] In terms of the relative value of mosaic and tiles, al-Muqaddasi's comment on the mosque is significant: "And in it (Samarra) is a big mosque which was preferred to the mosque of Damascus, its walls were clothed with glass tiles, and marble columns were put in it."[106] The designers of mosques across the medieval Islamic world were inspired by the Great Mosque of Damascus.[107] Two that were claimed as its equals were the congregational mosques of Aleppo and Córdoba, and in both cases the specific point of comparison was their mosaics.[108] So when a writer says that a mosque is *better* than that of Damascus, and immediately afterwards names another medium decorating its walls, the conclusion has to be that *mīnāʾ* beats mosaic.

Thinking in terms of overall aesthetic and material, and leaving aside the ability to create motifs, the tiles could be seen as an equivalent to mosaic: shiny and colorful, and not vulnerable to fading, rotting, or rusting.[109] The tiles would have been much quicker to install than mosaic, however; no chipping of tesserae was needed, and they took a fraction of the time to set in plaster. In a city where almost every new caliph initiated major building works, this may have been an important advantage. There was also the psychological advantage of the new technology. Glassmakers and ceramicists in ninth-century Iraq, particularly around

Samarra, experimented with processes and styles; the glassworkers developed plant-ash recipes to replace natron-based ones, and new methods of producing colorless glass.[110] Assuming that this was encouraged by the court, it seems likely that an innovative type of decoration (perhaps comparable to the innovative designs of their stuccowork) would have been actively preferred for palaces and great mosques.

Advances in glassmaking were also made in the twin cities of Raqqa and Rafiqa in northern Syria. Rafiqa was founded by al-Mansur and expanded by Harun al-Rashid, who used it as his capital.[111] There was a large industrial complex in Raqqa that flourished in the ninth century.[112] In particular, the Raqqans produced pottery and glass, and finds from Tell Zujaj (the Tell of Glass) show that it was intensively used for both primary glass production and secondary glass working in the Abbasid period.[113] The ceramicists and glass-makers of Raqqa worked closely together and probably combined their knowledge, resulting in what Julian Henderson describes as "a major technological innovation…a glass composition which was to last relatively unchanged for about 600 years."[114] Trays of unused cast glass have been found at Tell Zujaj, including very small cubes, 0.5 centimeters square, which could have been intended as tesserae, and others five centimeters square, which could have been used as floor tiles. As Henderson notes, a glass pavement has also been found in situ at Raqqa.[115] However, the pavement was not made from individual cubes of glass, but from larger plaques cast to *look* as if they were. The rectangular plaques of translucent green glass, 16.4 by 11.6 centimeters, were smooth on the top and with grids of square bobbles on the bottom, looking rather like modern chocolate bars (fig. 25). In "Palace B," probably built around 835 during the reign of al-Muʿtasim, these tiles were set into plaster, covering the floor and the walls of the main reception room.[116] The effect is extremely mosaic-like, and this is presumably what the makers and patrons were aiming for.

Like the palaces and congregational mosque of Samarra, the palace at Raqqa was decorated using the very latest techniques. The new materials reproduced some aspects of the aesthetic of mosaic, but the production process had changed dramatically. The skill was now in the casting of the slabs, which could have been laid fairly quickly by anyone who could mix plaster, as opposed to the teams of specialists needed to install many thousands of tesserae over weeks or months. It is unclear how widely the invention of these glass tiles would have affected practice beyond the courts. The only building in Mecca known to have had them was decorated for the caliph Harun al-Rashid, who was based in Raqqa, so the governor who organized the work may have had access to the products of the workshops around the court. But if the developments in décor became more widespread over time, this cannot have been good news for old-style mosaicists.

Patrons and Makers

In addition to changing fashions at the caliphal courts, the mosaic trade may have been impacted by shifts in patterns of patronage. Churches in the Caliphate increasingly went out of use after 800, as more people converted to Islam.[117] Given the examples of mosaics in Islamic architecture that we have discussed, clearly it was not only Christians who hired mosaicists. But before 800, churches would have been a major source of mosaic work; even small towns could have several churches, and they attracted patronage from laypeople as well as clerics.[118] Perhaps more significant, however, were political changes within the caliphate. It is notable that almost all the mosaics described above, in Mecca, Medina, and Damascus, were commissioned or supervised by regional governors. This may help to

explain both the motivation for grand architectural displays during the late eighth and ninth centuries and the lack of them in the tenth century as the political situation changed.

Although the names of the site supervisors of the Umayyad Mosque in Damascus are known from the Aphrodito papyri,[119] the only patron named in the dedicatory inscription of the Great Mosque of Damascus is al-Walid I. With the caliph living literally next door to the mosque in the Khadraʾ palace, there were probably limited opportunities for anyone else to take credit for it. But that was an exceptional situation. The inscriptions quoted above usually name a governor (a *wālī* or amir) as the immediate patron, in addition to the reigning caliph or sultan. In the Abbasid period, governors had substantial financial autonomy. In Paul Cobb's words, "the governor's control over vast sums of revenue was one of the main attractions of the position."[120] Taxes could be used within the areas where they were collected; not all the taxes were sent on to the center. Some are known to have been used for building works. An inscription in the congregational mosque of Hama, recorded by the historian Abu al-Fidaʾ (d. 1331), states that renovations in the 770–80s had been carried out using the *kharāj*, the land-tax, from Homs.[121] As well as carrying out public works, governors had the authority to appoint subordinate officials, powers that any enterprising amir could use to boost support. Precisely for this reason, a governor who established himself too successfully was a threat, especially if he was a close relative of the caliph with equal status on the family tree.[122]

To avoid this problem, al-Mansur and the caliphs after him promoted lower-status relatives where possible, or people from outside the family (such as Hamad al-Barbari the *mawla*).[123] Caliphs also frequently moved officials from place to place, or dismissed them altogether, to prevent them from getting too entrenched.[124] Mecca and Medina were partial exceptions: while remaining important as sacred sites, they were too remote to pose

much danger. They were thus ideal destinations for senior family members.[125] Even so, there are indications that caliphs preferred to not let individuals stay too long in the post. To return to some of the individuals mentioned already, Ziyad ibn ʿUbayd Allah al-Harithi was governor of Mecca and Medina from 750 to 758, but with an intermission. He had been appointed by his nephew, Caliph al-Saffah (r. 750–54), and when al-Mansur (another nephew) took power in 754, he dismissed him from office straight away. The following year the new governor died, and al-Harithi was reinstated.[126] The building works and mosaics in the Holy Mosque were commissioned after this. Ibrahim ibn Muhammad, patron of the mosaics in the Prophet's Mosque in the 790s, was governor of Mecca for the first time under al-Mansur in the 760s. He was dismissed in 774–75 shortly after al-Mahdi came to power, and was then reappointed by Harun al-Rashid, after which he directed the redecoration of the mosque. Al-Rukhkhaji, who commissioned the buildings around the Zamzam Well in the 830–40s, stayed in a position of power during the reign of three successive caliphs, but ran into trouble after al-Wathiq's unexpected death in 847. The new caliph, al-Mutawakkil, had al-Rukhkhaji arrested, and his money and property confiscated.[127]

Al-Fadl ibn Salih, the patron of the Treasury, was a son of Salih ibn ʿAli ibn ʿAbdallah ibn al-ʿAbbas (d. 769). The latter had been appointed as governor in 754, after siding with the caliph during the rebellion of the previous governor (who was Salih ibn ʿAli's brother). Salih established what Hugh Kennedy has described as a "local sub-dynasty" in Syria, especially Damascus, and many of his descendants held positions of power over several generations; Ibrahim, another son of his, was *wālī* of Cairo.[128] On the one hand, the Salih family was demonstrably loyal, but on the other hand, they must have been nearly too powerful for caliphal comfort. In 778, al-Fadl was temporarily dismissed from office,[129] then

he returned to favor when he accompanied al-Mahdi to Jerusalem in 780. In 785 he was transferred to Cairo, but only for one year; after that, the new caliph al-Hadi (r. 785–86) dismissed him again.

Despite the financial advantages, being an Abbasid governor was a precarious career. Some managed to establish themselves and their sons, and sometimes their grandsons, as rulers of a region, but there was always the possibility of being transferred or dismissed at short notice, or worse. Under the circumstances, architectural patronage in highly visible mosques might have been an important way of preserving individual and dynastic status. Mosaic was one of the most valuable decorative options available, often mentioned alongside marble, teak, and gold. The provincial officials were not always in control of the building projects; in the case of the Aqsa Mosque, al-Mahdi ordered the officials to bear the cost of the repairs.[130] But in many cases, including the Treasury of Damascus, the decision to build was probably the *wālī*'s, and any available glory would have reflected on him. The fact that several medieval writers—who do not all quote each other directly—agree that al-Fadl was the patron may indicate that at one point an inscription was visible on the *Bayt al-Māl* itself. Conversely, the writers do *not* agree on who was caliph at the time, which raises the interesting possibility that, if there was an inscription, it did not include this information.

The reliance of mosaicists on commissions from provincial officials likely had implications for their methods of organization, and their mobility. During the second half of the eighth century, it is possible that the decoration of local churches, synagogues, and houses could have provided the majority of a mosaicist's living, while occasional elite commissions such as the *Bayt al-Māl* might require longer journeys. As other sources of work dried up, these commissions would have become more important, and the balance

may have shifted towards a more itinerant lifestyle for mosaicists. The state officials and nobles who commissioned grand mosaics were highly mobile: going on pilgrimage, moving between one government post and another, or between different family properties. The Salih family to which al-Fadl belonged, for example, had estates in the provinces of Filastin, al-Urdunn, Hims, Qinnasrin, and Dimashq. Mosaicists may have needed to be equally mobile, following the money.

The role of governors as patrons of ostentatious architecture, and so of mosaics, was reduced in the 900s in both the Hijaz and the Levant, due to the fragmentation of the Abbasid caliphate. During the first few decades of the tenth century, the pilgrimage routes to Mecca came under attack from the Qarmatian sect, who in 930 attacked the city itself, massacring pilgrims.[131] In 968, Jaʿfar ibn Muhammad founded the Sharifate or Amirate of Mecca, which was allied with the Fatimid caliphate based in Cairo.[132] The Sharifate had limited resources, and was dependent on support from Egypt.[133] Meanwhile in Syria, the tenth century has been described by Ross Burns as "one of the most confused periods in Damascus' eventful history." From 944–69, Syria was ruled as an autonomous province by the Turkish commander Muhammad ibn Tughj al-Ikhshidid and his descendants, the Ikhshidids, and in 969 the region came under Fatimid control. Again in Burns's words, "Damascus, as capital of the Fatimid province of Syria, fared badly over the century of Fatimid control… frequent revolts brought brutal suppression."[134] There was also rapid turnover of regional governors. In the last decade of the tenth century and first decade of the eleventh, the average term in office in Damascus was around a year, and sometimes as little as a few weeks; amirs were also generally not from the local area, and were not familiar with the city before their appointment.[135] None of this would have been conducive to major investment in architecture, and of the three fairly minor improvements made to

the Great Mosque during this period (two fountains, and a pair of lamps on columns), two were paid for, not by governors, but by a *sharīf* (noble) and a judge.[136]

Despite the tendency—on my part as well—to refer to repairs made under, or *by*, this or that caliph, I suggest that the flourishing of the mosaic industry in the ninth century was in fact driven by the regional officials, a level down in the hierarchy.

Continuity?

In the eleventh and early twelfth century, areas of mosaic were added to the Dome of the Rock, the Aqsa Mosque, and the Great Mosque of Damascus. In terms of their scale and ambition, and their location in iconic Umayyad buildings, they are conscious revivals of eighth-century splendor. But another aspect of these programs that has not previously been foregrounded is that they provide indirect evidence for at least some mosaic-making during the tenth century.

In Jerusalem, the mosaics of the drum of the Dome were repaired in 1027–28 under the Fatimid caliph al-Zahir (r. 1021–36).[137] The acanthus spirals immediately flanking the inscription recording the repairs are similar to those covering the rest of the drum, but with subtle differences of color and leaf shape. Above the main spiral is a leaf in a new style, with tightly curved, almost scalloped edges, strongly divided zones of shading, and little pointed curves of tendrils (fig. 26b).[138] The stylization implies a tradition of working with a particular history, which had evolved in the more than three hundred years since ʿAbd al-Malik's day (fig. 20).

Mosaics were also added to the Aqsa Mosque during al-Zahir's caliphate, on the arch and in the dome before the mihrab.[139] An inscription at the top of the arch names ʿAli ibn ʿAbd al-Rahman as the craftsman, and vizier Abu al-Qasim Husaini as the supervisor, in addition to al-Zahir as primary patron.[140] Another inscription, now lost, was seen on the ceiling (*saqf*) in 1173 by the traveler al-Harawi. It read "the work of ʿAbd Allah bin al-Hasan the Egyptian mosaicist" (*ṣanaʿhu ʿAbd Allah bin al-Hasan al-miṣrī al-muzawwiq*), and gave the date of 426 (1034–35).[141] The arch is dominated by two large plant forms dotted with jewels: part acanthus, part vine, and part palmette. An ornate perspectival border runs along the curve of the arch, and the upper border is formed out of the first inscription mentioned above, written on two lines. In the drum of the dome, the mosaics depict pairs of trees on either side of vases or fountains, and the pendentives below are covered with golden tesserae arranged in overlapping scale formations, with borders of leaves, swags, and stars in green, gold, and white. As Jennifer Pruitt notes, while the designs broadly respond to the Umayyad motifs in the Dome of the Rock, "the precise forms depicted here do not have a precedent."[142] The border patterns are not found in the Umayyad monuments, and the fantastic plant forms are also new. At the same time, the mosaics are complex and of high quality, and there is a high level of internal standardization in the repeated patterns. Again, this program makes the most sense if understood as the product of a functioning craft tradition in which designs had been developed and refined over a long period, and in which mosaicists—and in this case, clearly Muslim mosaicists—continued to be trained.

In Damascus, the additions are on and around the north arcade wall, which was recorded as being renewed in inscriptions dated to 1089,[143] 1109–10,[144] and 1118.[145] Some of the construction work of these decades can be identified. There are four walls across the

ends of the porticoes, one pair in the northwest corner and the other in the northeast corner, which are built against the Umayyad structure.[146] The east end of the north arcade was also rebuilt, with slightly pointed arches and windows, unlike the Umayyad horseshoe arches. During some or all of these renovations, mosaics were added; some remain on the east end of the north arcade wall, and on the arch added to the north end of the west portico.[147] There are similarities between these two areas of mosaic—for example, both use chevrons as border patterns—but also noticeable variations. The acanthus leaves are the best example (fig. 26a–d). On the soffits and above the windows on the north portico, spiral curls of leaves are depicted as sections of smooth tube, completely divided down the middle by black lines, with small two-pointed ends jutting outwards (fig. 26c). Single leaves are deeply curved bulbs, smoothly shaded, with thin highlights around the outsides of the curves. On the end wall of the west arcade, some of the single leaves are the same bulbous type, but others have a completely different S-shape, while the spiral leaves are long strings, serrated on one side and smooth on the other (fig. 26d). All these are quite different from the leaves in the eighth-century mosaics (fig. 26a). The architectural motifs on the two walls also have little in common with each other, or with the Umayyad designs.

Thus, we see that two teams operating in Damascus fairly close to each other in time had developed their own ways of working, which were distinct from the techniques of the Umayyad mosaicists. For such development to be plausible, there must have been a reasonably continuous supply of work—beyond the simple repair of old monuments—to allow techniques to be passed from one generation to another. The examples given here are not easily interpreted as reinventions of a lost tradition, cautiously carried out by workers in another trade who had suddenly been instructed to learn an antique craft.

Conclusion

There is no doubt that the early eighth century was a good time to be a mosaicist, and the construction of the Umayyad mosques and palaces could have kept many teams in business for years at a time. But while the later projects were rarely on the same scale, in terms of the *numbers* of known commissions of glass mosaics the ninth century was the more productive.

The lack of recognition of the mosaic production in the Abbasid period may partly be due to the absence of surviving monuments; other than the fragments from Samarra, the *Bayt al-Māl* at the Great Mosque in Damascus is the only one of which I am aware. However, it also raises a methodological point about a common categorization of medieval Islamic art in which the Umayyad period is seen as one of continuity with late antiquity, and the Abbasid period is seen as an era of innovation and change. As one commentator has put it:

> During the seventh and eighth centuries, Syria, with Damascus as its center…was a melting pot in which Western and Eastern cultures combined with local traditions. Umayyad art blended these influences… [In the early Abbasid period], a remarkable change occurred in the decorative repertoire that coincided with the shifting of the center of the Islamic world from Syria to Iraq… [Samarra] established the new style, one that would become the first *purely Islamic* decorative mode (emphasis added).[148]

In Eva Hoffman's words, the Abbasid period "is widely perceived by scholars as a watershed," with Greco-Roman influence—which would certainly include a preference for mosaics—on one side, and a more "oriental" style on the other.[149] However, as Hoffman argues, this binary between East and West, and Umayyad and Abbasid artistic production, has obscured the extent to which Abbasid art continued to develop existing technologies and iconographies.[150] I have proposed above that changing fashions at the Abbasid palatial centers probably *did* have an effect; in some contexts, mosaic appears to have been supplanted by new media. But while the architecture of the Abbasid period was certainly innovative, it also embodied a considerable level of continuity with older traditions. Existing forms of decoration were also developed in new directions. In addition to the invention of glass tiles which appear to mimic tesserae, the mosaic-covered columns of Mecca could be cited; this was not a common late antique or Byzantine format. At the same time, throughout the ninth century, the Masjid al-Haram, the Prophet's Mosque, and the Kaʿba itself were decorated and redecorated with mosaic – it would seem hard for the medium to be more integrated into Islamic visual culture than this.

It may be fruitful to compare the patterns of development outlined in this article to decorative technologies outside the caliphate, both to use as analogous interpretative models, and to look for specific points of connection in patronal or artisanal practice. For example, it is interesting to note the introduction of gold-glass tiles in the late eighth-century palace chapel of San Pietro a Corte in Salerno.[151] There has also been a debate, parallel to the one described here, about the collapse or continuity of Italian mosaic-making between the late ninth and eleventh centuries. The decoration of the abbey of Monte Cassino in 1066–71 and San Clemente in Rome in the 1120s is sometimes seen—and in the case of Monte Cassino, was described at the time—as a revival of long-extinct craft.[152] Liz

James has argued, however, for the likelihood of small-scale production and repair of mosaics in Rome throughout the period.[153] Similarly, in the Byzantine empire, there were fewer mosaics made in the tenth century than there had been in the eighth or ninth, but the craft was by no means abandoned. Again, it may be that only the bigger cities could support mosaic workshops; a high proportion of the known commissions were clustered in Constantinople.[154] The trends described in the present article are part of this Mediterranean-wide picture. There was certainly a downturn in mosaic production in the tenth-century Islamic world. Nevertheless, the mosaics of eleventh-century Jerusalem and Damascus, in their coherence and variety of forms, point to the continuation of the tradition beneath the modern art historical radar. Mosaic may have played an increasingly niche role in Islamic buildings, but it continued to be an option for wealthy urban patrons. More significantly from the point of view of the craftspeople, the production of mosaic continued to be a sufficiently viable way of making a living to allow skills to be passed from one generation to the next.

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[1] Among many others on late antique and medieval mosaics, see Katherine Dunbabin, *Mosaics of the Greek and Roman World* (Cambridge, 1999); Liz James, *Mosaics in the Medieval World: From Late Antiquity to the Fifteenth Century* (Cambridge, 2017); Rina Talgam, *Mosaics of Faith: Floors of Pagans, Jews, Samaritans, Christians, and Muslims in the Holy Land* (University Park, PA, 2014).

[2] The inscription in the Dome of the Rock is dated 692: Sheila Blair, "What Is the Date of the Dome of the Rock?" in *Bayt al-Maqdis, Part One: ʿAbd al-Malik's Jerusalem*, ed. Julian Raby and Jeremy Johns (Oxford, 1992), 59–87. Tax documents sent to Aphrodito in Egypt demand contributions for the construction of a mosque in Jerusalem, presumably al-Aqsa, between 706 and 715–16: Judith McKenzie, *The Architecture of Alexandria and Egypt 300 BC–AD 700* (New Haven, 2007), 362. The Holy Mosque in Mecca was redecorated sometime between 705 and 715: Salma Samar Damluji, *The Architecture of the Holy Mosque, Makkah* (London, 1998), 44; and the Prophet's Mosque at Medina was restored between 706–7 and 709: Salma Samar Damluji, *The Architecture of the Prophet's Holy Mosque, al-Madinah* (London, 1998), 42–43; Jean Sauvaget, *La mosquée omeyyade de Médine* (Paris, 1947), 66–67. For Umayyad mosaics in Mecca and Medina, see also Barbara Finster, "Die Mosaiken der Umayyadenmoschee von Damaskus," *Kunst des Orients* 7, no. 2 (1970/71): 83–141, at 129–

36. An inscription in the Great Mosque of Damascus gave the start date as 706 according to al-Baladhuri and 705 according to al-Masʿudi; the later authors al-Damiri and al-Suyuti say the mosque took ten years to build: K. A. C. Creswell, *Early Muslim Architecture* (hereafter *EMA*), 2 vols., 2nd ed. (Oxford, 1969), 1:153–54; Finbarr Barry Flood, *The Great Mosque of Damascus: Studies on the Making of an Umayyad Visual Culture* (Leiden, 2001), 252–54. The Great Mosque of Aleppo was built by Sulayman ibn ʿAbd al-Malik (r. 715–17): Mattia Guidetti, *In the Shadow of the Church: The Building of Mosques in Early Medieval Syria* (Leiden, 2017), 143. For Umayyad mosaics generally, see James, *Mosaics in the Medieval World*, 256–69.

[3] Dome of the Rock: 1,280 square meters of mosaic (James, *Mosaics in the Medieval World*, 258). Great Mosque of Damascus: 7,500 square meters. I reached this figure on the assumption that all spandrels and soffits, and walls above the marble dado, were covered as they are in the west portico; measurements taken from Talal Akili, *The Great Mosque of Damascus: From Roman Temple to Monument of Islam* (Damascus, 2012), 267–76. The estimates below are based on comparing the overall dimensions of the mosques with those of Damascus (165 x 96 meters), and assuming similar programs of mosaic; of course, these are very approximate figures, but they should be within the right order of magnitude. Al-Aqsa: 1,875 square meters, following Rafi Grafman and Myriam Rosen-Ayalon, "The Two Great Syrian Umayyad Mosques: Jerusalem and Damascus," *Muqarnas* 16 (1999): 1–15, at 6, who give the area of the Umayyad building as 112 x 39 meters, about a quarter that of Damascus. Medina: 3,750 square meters, based on Sauvaget, *La mosquée omeyyade de Médine*, 70–71, fig. 5, who estimates 170 x 190 cubits, or approximately 85 x 95 meters,

which is half the area of Damascus; descriptions of mosaic on the upper walls, above panels of marble revetment (Sauvaget, *La mosquée omeyyade de Médine*, 80–81) also suggest a similar layout of the decoration. There is no information about the dimensions of the Holy Mosque in Mecca at the time; I am assuming that its size was equal to the Prophet's Mosque at Medina, and assigning it another 3,750 square meters of mosaic. Aleppo: 3,750 square meters, based on the dimensions of 105 x 77.75 meters given by Rami Alafandi and Asiah Abdul Rahim, "Umayyad Mosque in Aleppo Yesterday, Today and Tomorrow," *International Journal of Arts and Sciences* 7, no. 5 (2014): 319–47, at 323, again roughly half the overall dimensions of Damascus. Person-years were calculated using the figure of 5.8 person-days to produce one square meter of wall mosaic in Janet DeLaine, *The Baths of Caracalla in Rome: A Study in the Design, Construction, and Economics of Large-Scale Building Projects in Imperial Rome* (Portsmouth, RI, 1997), 113, 181–82.

[4] Khirbat al-Mafjar: Ḥamdān Ṭāhā and Donald Whitcomb, *The Mosaics of Khirbet al-Mafjar: Hisham's Palace* (Ramallah, 2014–15). Qusayr ʿAmra: Elisabetta Neri, Marco Verità, Isabelle Biron, and Maria Filomena Guerra, "Glass and Gold: Analyses of 4th–12th Centuries Levantine Mosaic Tesserae," *Journal of Archaeological Science* 70 (2016): 158–71, at 169. Qasr al-Hayr al-Gharbi: Erwin Ruprechtsberger, *Syrien: Von den Aposteln zu den Kalifen* (Linz, 1993), 518. Wall mosaics, including gold-glass, in the Umayyad towers and bathhouse at al-Sinnabra: Tawfiq Daʿadli, "Stratigraphy and Architecture of the Fortified Palace," in *Bet Yeraḥ*, vol. 3, *Hellenistic Philoteria and Islamic al-Ṣinnabra: The 1993–1986 and 2007–2013 Excavations*, ed. Raphael Greenberg, Oren Tal, and Tawfiq Daʿadli (Jerusalem, 2017), 133–

78, at 142, 160–61. Glass tesserae in floors at the Umayyad fort at Qastal: Ghazi Bisheh, "Two Umayyad Floors from Qastal," *Liber Annuus* 50 (2000): 431–38, at 432, 435.

[5] Glass wall mosaic in market building at Baysan, ca. 737–38: Elias Khamis, "Two Wall Mosaic Inscriptions from the Umayyad Marketplace in Bet Shean/Baysān," *Bulletin of the School of Oriental and African Studies* 64, no. 2 (2001): 159–76. Glass tesserae in an eighth- or ninth-century house floor mosaic in Ramla: Myriam Rosen-Ayalon, "The First Mosaic Discovered in Ramla," *Israel Exploration Journal* 26, no. 2/3 (1976): 104–19, at 105, 111, 116, 119; Israel Museum no. 1965–1474 (https://www.imj.org.il/en/collections/416637). For churches and their floor mosaics in the early Islamic period, see Karen C. Britt, 'Through a Glass Brightly: Christian Communities in Palestine and Arabia During the Early Islamic Period," in *Sacred Precincts: The Religious Architecture of Non-Muslim Communities across the Islamic World*, ed. Mohammad Gharipour (Leiden, 2015), 259–76, esp. 265–68, 272–73; Mattia Guidetti, "Churches Attracting Mosques: Religious Architecture in Early Islamic Syria," in *Sacred Precincts*, 11–27; Leah Di Segni and Yotam Tepper, "A Greek Inscription Dated by the Era of Hegira in an Umayyad Church at Tamra in Eastern Galilee," *Liber Annuus* 54 (2004): 343–50.

[6] Following medieval reports that mosaicists came to Damascus from *Rūm*, starting with Muḥammad b. Aḥmad al-Muqaddasi, *Ahsan al-Taqāsīm fī Maʿrifat al-Aqālīm*, ed. M. J. de Goeje (Leiden, 1906), 158, some authors have maintained that the mosaicists were Byzantine: Mara Bonfioli, "Syriac–Palestinian Mosaics in Connection with the Decorations of the Mosques at Jerusalem and Damascus," *East and West* 10, no. 1/2 (1959): 57–76, at 58, 71; Hamilton Gibb, "Arab-Byzantine Relations under the Umayyad Caliphate," *Dumbarton Oaks Papers* 12 (1958): 219–33, at 225–29; Henri Stern, "Notes sur les mosaïques du Dôme

du Rocher et de la mosquée de Damas a propos d'un livre de Mme Marguerite Gautier van Berchem," *Cahiers Archéologiques* 22 (1972): 201–32, esp. 223–24; also see Oleg Grabar, *The Shape of the Holy: Early Islamic Jerusalem* (Princeton, NJ, 1996), 72, who argues that the mosaicists of the Dome of the Rock came from Constantinople, "since only the capital of the Byzantine empire was able to maintain at that time a corps of craftsmen capable of the high technical competence found in the Dome of the Rock." Others have proposed that most of the mosaicists were local, from the Levantine or Syro-Palestinian region: Marguerite van Berchem, "The Mosaics of the Great Mosque of the Umayyads in Damascus," in *EMA,* 1:324–72, at 371; Ghazi Bisheh, "The Mosque of the Prophet at Madīnah throughout the First Century A.H. with Special Emphasis on the Umayyad Mosque" (PhD diss., University of Michigan, 1979), 206; Robert Hillenbrand, "Reflections on the Mosaics of the Umayyad Mosque in Damascus," in *Arabia, Greece and Byzantium: Cultural Contacts in Ancient and Medieval Times* (Riyadh, 2012), 163–201, at 173; James, *Mosaics in the Medieval World*, 269. In my opinion, the second theory is more likely; there was a strong mosaic tradition in the region already, so it would have been unnecessary to bring in artisans from further away.

[7] Nadine Schibille, personal communication: 825 tesserae taken from the Great Mosque of Damascus in the 1920s, now held by the Louvre, have recently been analyzed, and 780 (94.55%) were made with a natron-based glass, the main type produced before the ninth century. Of these, about 80% were made in Egypt in the first quarter of the eighth century, 15% were made in the Levant around the same time, and 5% were older. The other 45 tesserae (5.45%) were made with plant-ash glass, and so came from restorations. The

sample did not include gold-glass tesserae, which have been studied separately; these were also made with Egyptian and Levantine glass, some reused and some newly made in the eighth century: Neri, Verità, Biron, and Filomena Guerra, "Glass and Gold." Michael Greenhalgh, "Islamic Re-use of Antique Mosaic Tesserae," *Journal of Mosaic Research* 1 (2008): 55–81, at 56, describes tesserae being "scavenged" for the mosque, but in fact this was only a very small part of the picture.

[8] Mecca: Damluji, *Architecture of the Holy Mosque*, 44; Medina: Sauvaget, *La mosquée omeyyade de Médine*, 80–81; see also Flood, *Great Mosque of Damascus*, 187–88.

[9] Alexandre Papadopoulo, *Muslim Art*, trans. Robert Erich Wolf (London, 1980), 60.

[10] Cairo: Iman Abdulfattah and Mamdouh Mohamed Sakr, "Glass Mosaics in a Royal Mamluk Hall: Context, Content, and Interpretation," in *The Arts of the Mamluks in Egypt and Syria: Evolution and Impact*, ed. Doris Behrens-Abouseif (Bonn, 2012), 203–21; D. Fairchild-Ruggles, "Visible and Invisible Bodies: The Architectural Patronage of Shajar al-Durr," *Muqarnas* 32 (2015): 63–78; Michael Meinecke, "Das Mausoleum des Qalā'ūn in Kairo: Untersuchungen zur Genese der mamlukischen Architekturdekoration," *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 27 (1971): 47–80; Caroline Williams, "The Mosque of Sitt Hadaq," *Muqarnas* 11 (1994): 55–64. Jerusalem and Palestine: Lorenz Korn, "Ayyubid Mosaics in Jerusalem," in *Ayyubid Jerusalem: The Holy City in Context, 1187–1250*, ed. Robert Hillenbrand and Sylvia Auld (London, 2009), 377–87; Jennifer Pruitt, "The Fatimid Holy City: Rebuilding Jerusalem in the Eleventh Century," *The Medieval Globe* 3, no. 2 (2017): 25–56, at 45–48; Myriam Rosen-Ayalon, "A Neglected Group of *Mihrabs* in Palestine," in *Studies in Islamic History and Civilisation in Honour of Professor David Ayalon*,

ed. M. Sharon (Jerusalem, 1986), 553–63; Henri Stern, "Recherches sur la Mosquée al-Aqṣā et sur ses mosaïques," *Ars Orientalis* 5 (1963): 27–47. Damascus: van Berchem, "Mosaics of the Great Mosque," 321, 338, 348–52; François Bogard, "Autour d'une mosaïque médiévale de la Grande Mosquée de Damas," *Bulletin d'études orientales* 61 (2012): 91–122; Finbarr Barry Flood, "Umayyad Survivals and Mamluk Revivals: Qalawunid Architecture and the Great Mosque of Damascus," *Muqarnas* 14 (1997): 57–79; G. R. D. King, "The Origins and Sources of the Umayyad Mosaics in the Great Mosque of Damascus" (PhD diss., University of London, 1976), 63–74; Judith McKenzie, "Alexandria on the Barada: The Mosaics of the Great Mosque in Damascus," in *New Light on Old Glass: Recent Research on Byzantine Mosaics and Glass*, ed. Chris Entwhistle and Liz James (London, 2013), 291–309, at 300–304; Nasser Rabbat, "The Mosaics of the Qubbat al-Zahiriyya in Damascus: A Classical Syrian Medium Acquires a Mamluk Signature," *Aram* 9–10 (1997–98): 1–13; Bethany Walker, "Commemorating the Sacred Spaces of the Past: The Mamluks and the Umayyad Mosque at Damascus," *Near Eastern Archaeology* 67, no. 1 (2004): 26–39. Mamluk mosaic generally: Ellen Kenney, "Mixed Metaphors: Iconography and Medium in Mamluk Glass Mosaic Decoration," *Artibus Asiae* 66, no. 2 (2006): 175–200.

[11] The dominant colors of tesserae, other than gold, are blue and dark red; there is very little green, which is the most common color in the Syro-Palestinian mosaics. The chemical composition of the glass is also very different from eastern Mediterranean types: Nadine Schibille, personal communication. On the Córdoban mosaics, see Henri Stern, *Les mosaïques de la Grande Mosquée de Cordoue* (Córdoba, 1976), and note 90 below.

[12] Flood, "Umayyad Survivals and Mamluk Revivals," 70.

[13] Ibid., 70. For a comparable debate about Italian mosaic-making in the tenth and eleventh centuries, see James, *Mosaics in the Medieval World*, 352–53.

[14] An exception is Alain George, "Calligraphy, Colour and Light in the Blue Qur'an," *Journal of Qur'anic Studies* 11, no. 1 (2009): 75–125, at 98–101, with a discussion of the mosaics of al-Mansur, al-Mahdi, Harun al-Rashid, and al-Mutawakkil (the latter at Samarra). Ghazi Bisheh, "The Mosque of the Prophet at Madīnah," 207–8, refers to mosaics added under al-Mahdi and Harun al-Rashid. Oleg Grabar, "Upon Reading al-Azraqi," *Muqarnas* 3 (1985): 1–7, at 5, has two sentences on al-Maʿmun's mosaics in Mecca; and Barbara Finster, *Grove Encyclopedia of Islamic Art and Architecture* (Oxford, 2009), s.v. "Architecture: D. Mosaics," has half a paragraph on the Abbasid period.

[15] G. R. D. King, "Some Christian Wall-Mosaics in Pre-Islamic Arabia," *Proceedings of the Seminar for Arabian Studies* 10 (1980): 37–43, at 38, saw the Yemeni mosaics as Byzantine imports, concluding that mosaic "formed no part of the traditional arts of [Arabia]." Similarly, Barbara Finster and Jürgen Schmidt, "Die Kirche des Abraha in Ṣanʿāʾ," in *Arabia Felix: Beiträge zur Sprache und Kultur des vorislamischen Arabien*, ed. Norbert Nebes (Wiesbaden, 1994), 67–86, at 78, distinguish between "Ethiopian-South Arabian" features of the sixth-century church of Abraha, and others of "foreign origin" (*fremden Ursprung*).

[16] The mosaics at Sanʿa are described in Abū al-Walīd al-Azraqī, *Akhbār Makka wa-mā jā'a fīhā min al-āthār*, ed. ʿAbd al-Malik b. Duhaysh (Mecca, 2003), 215; those in churches in Najran are described by Abū ʿUbayd al-Bakrī (d. 1094), *Mu'jam mā Ista'jam = Das geographische Wörterbuch des Abu ʿObeid ʿAbdallah ben ʿAbd el-ʿziz el-Bekri*, ed. Ferdinand Wüstenfeld, 2 vols. (Göttingen, 1876), 1:367–68. The mosaics in the Ghassanid monasteries

mentioned by Abū al-Faraj al-Iṣfahānī (d. 973–74) are known from quotations in works by later authors: Jalīl al-ʿAṭiyya, ed., *Kitāb al-Diyārāt li-Abī l-Faraj al-Iṣbahānī* (London, 1991), 163–64. Also see Irfan Shahîd, "Byzantium in South Arabia," *Dumbarton Oaks Papers* 33 (1979): 23–94, at 69, 71; King, "Some Christian Wall-Mosaics"; Finster and Schmidt, "Die Kirche des Abraha," 71–78; Irfan Shahîd, *Byzantium and the Arabs in the Sixth Century* (Washington, DC, 2009), 278–81.

[17] Abū al-Ḥasan ʿAli ibn al-Ḥusayn al-Masʿūdī, *Murūj al-Dhahab wa Maʿādin al-jawāhir* = *Les prairies d'or*, ed. Charles Barbier de Meynard, 5 vols. (Paris, 1869), 5:192–93; Barbara Finster, "Cubical Yemeni Mosques," *Proceedings of the Seminar for Arabian Studies* 21 (1991): 49–68, at 54–55; King, "Some Christian Wall-Mosaics," 38.

[18] J. W. Fück, *Encyclopaedia of Islam, Second Edition* (hereafter *EI*) (Leiden, 2012), s.v. "al-Azraḳī"; Grabar, "Upon Reading al-Azraqi."

[19] Al-Azraqī, *Akhbār Makka*, 421; Grabar, "Upon Reading al-Azraqi," 3–4.

[20] An exception to al-Azraqi's avoidance of descriptions of motifs, is his record of the paintings of angels, prophets, and trees that Muhammad washed off the walls of the Kaʿba: *Akhbār Makka*, 248.

[21] The word used for mosaic in the examples below is *fusayfisaʾ*: G. Marçais, *EI*, s.v. "Fusayfisāʾ." The other word used by medieval authors was *faṣṣ*, pl. *fuṣūṣ*. Both terms referred to glass mosaic, as can be seen from descriptions of the mosque at Damascus: al-Muqaddasi uses *fusayfisaʾ* (*Ahsan al-Taqāsīm*, 157); Ibn Kathir uses *fusayfisaʾ* for the entire mosaics; *fuṣūṣ* for the tesserae when describing damage caused by a fire in 1096 (*al-Bidāya*

wa-l-Nihāya, vol. 12, 97–98); and *fuṣūṣ* again to describe tesserae collected for repairs in 1329 (ibid., vol. 14, 148). ʿAbd Allāh ibn Muḥammad al-Badri (d. 1504) also uses both words: "some historians have said that the area of the mosque [in Damascus] was furnished with gold-plated *fuṣūṣ*, called *fusayfisaʾ*": *Nuzhat al-Anām fī Maḥāsin al-Shām* (Beirut, 1980), 25. Muḥammad ibn Aḥmad Ibn Jubayr (d. 1217) referred to "*fuṣūṣ* of marble" in the Syrian mosques of Nayrab and Bayt Lahya, a qualification implying that the term normally meant glass: *Rihlat Ibn Jubayr* = *The Travels of Ibn Jubair*, ed. M. J. de Goeje (Leiden, 1907), 277; Nikita Élisséeff, *La description de Damas d'Ibn ʿAsākir* (Damascus, 1959), 166.

[22] Al-Azraqī, *Akhbār Makka*, 601.

[23] Al-Azraqī, *Akhbār Makka*, 599–601, quote at 601. Translation with the assistance of Alain George.

[24] Al-Muqaddasi, *Ahsan al-Taqāsīm*, 73; Bisheh, "Mosque of the Prophet at Madīnah," 207. Translation with the assistance of Alain George.

[25] Anon., *Kitāb al-Manāsik wa-Amākin Ṭuruq al-Ḥajj wa-Maalim al-Jazirah*, ed. Ḥamad Jasir (Riyadh, 1969); for the attribution to Ibrāhīm ibn Isḥāq al-Ḥarbī (d. 898) see Bisheh, "Mosque of the Prophet at Madīnah," 25–26.

[26] *Kitāb al-manāsik*, 389–92.

[27] Ibid., 389.

[28] Aḥmad ibn Yaḥyā al-Balādhurī, *Kitāb Futūḥ al-Buldān* = *Liber expurgationis regionem*, ed. M. J. de Goeje (Leiden, 1866), 7; Philip Khuri Hitti, *The Origins of the Islamic State, Being a*

Translation from the Arabic Accompanied with Annotations, Geographic and Historic Notes of the Kitāb Futūḥ al-Buldān (New York, 1916), 21. Also see Francis Peters, *Mecca: A Literary History of the Muslim Holy Land* (Princeton, 1994), 112–15.

[29] Al-Azraqī, *Akhbār Makka*, 666; Francis Peters, *The Hajj: The Muslim Pilgrimage to Mecca and the Holy Places* (Princeton, 1994), 131–32.

[30] Jonathan Bloom, *The Minaret* (Edinburgh, 2013), 49–50, 61–65, fig. 3.5.

[31] *Kitāb al-manāsik*, 389; also Aḥmad ibn Rustah Iṣfahānī, *al-Aʿlāq al-Nafīsa*, ed. Ferdinand Wüstenfeld, *Bibliotheca Geographorum Arabicorum*, vol. 7 (Leiden, 1892), 74–75; Bisheh, "Mosque of the Prophet at Madīnah," 208; quote in George, "Calligraphy, Colour and Light," 100–101.

[32] Al-Azraqī, *Akhbār Makka*, 602–3, 884; the phrase "for al-Rashid" (*li-l-Rashīd*) is only at 844. Al-Barbari: Abū Jaʿfar Muḥammad ibn Jarīr al-Ṭabarī (d. 923), *Tārīkh al-Rusul wa-l-Mulūk = The History of al-Ṭabarī*, 40 vols. (1989–2007), vol. 30, *The ʿAbbāsid Caliphate in Equilibrium*, trans. C. E. Bosworth (New York, 1989), 173; E. de Zambour, *Manuel de genealogie et de chronologie pour l'histoire de l'Islam* (Hanover, 1927), 20; Patricia Crone, *Slaves on Horses: The Evolution of the Islamic Polity* (Cambridge, 1980), 191. Al-Barmaki: *The History of al-Ṭabarī*, vol. 30, 202; Dominique Sourdel, *EI*, s.v. "al-Barāmika." The word *qawārīr* is used with the meaning of glass in Qurʾan 27.44, the story of the Queen of Sheba being fooled by King Sulayman's glass floor.

[33] Al-Azraqī, *Akhbār Makka*, 639, 641–42.

[34] Al-Azraqī, *Akhbār Makka*, 581–82; at 640 the description is repeated almost word-for-word, except without the description of mosaic on the structure above the well. Also see Grabar, "Upon Reading al-Azraqi," 4; Damluji, *Architecture of the Holy Mosque*, 50.

[35] Al-Azraqī, *Akhbār Makka*, 646–47; Hassan Mohammed el-Hawary and Gaston Wiet, ed. Nikita Elisséeff, *Matériaux pour un Corpus Inscriptionum Arabicarum*, pt. 4.1, *Arabie: Inscriptions et monuments de la Mecque* (Cairo, 1985), 66–67. For the Bayt al-Sharab, see Ahmad Ghabin, "The Zamzam Well Ritual in Islam and Its Jerusalem Connection," in *Sacred Space in Israel and Palestine: Religion and Politics*, ed. Marshall J. Breger, Yitzhak Reiter, and Leonard Hammer (London, 2012), 116–36, at 123.

[36] Al-Isfahani (d. 967) talks of him being installed in Mecca and Medina by al-Mutawakkil, to oppose "the people of Abi Talib": Abū al-Faraj al-Iṣfahānī, *Maqātil al-Ṭālibīyīn*, ed. Aḥmad Ṣaqr (Beirut, nd), 559; the timing cannot be right, however, as al-Rukhkhaji was arrested shortly after al-Mutawakkil took power: see page 33. Dominique Sourdel, *Le vizirat ʿAbbāside de 749 a 936* (Damascus, 1959), 237, describes him as a "prefect" of al-Maʿmun. Al-Rukhkhaji does not appear in Zambour's list of Abbasid governors (*Manuel de genealogie*, 20). ʿUmar's father Faraj ibn Ziyad al-Rukhkhaji had been a slave, but ended up as a commander for al-Maʿmun, as well as governor of Ahwaz in Iran: *The History of al-Ṭabarī*, vol. 32, *The Reunification of the ʿAbbāsid Caliphate*, trans. C. E. Bosworth (New York, 1987), 107; ibid., vol. 33, *Storm and Stress along the Northern Frontiers of the ʿAbbāsid Caliphate*, trans. C. E. Bosworth (New York, 1991), 12; Crone, *Slaves on Horses*, 190.

[37] *History of al-Ṭabarī*, vol. 32, 164; ibid., vol. 33, 174; ibid., vol. 34, *Incipient Decline*, trans. Joel Kraemer (New York, 1989), 35–36.

[38] Edmund C. Bosworth, *Historic Cities of the Islamic World* (Leiden, 2007), 347; el-Hawary and Wiet, *Inscriptions et monuments de la Mecque*, 67; for al-Aftas, see *History of al-Ṭabarī*, vol. 32, 29–31.

[39] Josef van Ess, *Theology and Society in the Second and Third Centuries of the Hijra: A History of Religious Thought in Early Islam*, vol. 3, trans. Gwendolin Goldbloom (Leiden, 2018), 531.

[40] In the passages from *Akhbar Makka* referred to in the previous two paragraphs, the phrase "then he [al-Rukhkhaji] changed it" (*thumma ghayyarahā/ghayyarahu*) appears four times.

[41] Al-Azraqī, *Akhbār Makka*, 405. When referring to marble columns or slabs, al-Azraqi uses the word *rakhām*; thus, in the context of repairing a leaking roof, the "baked" *marmor* may refer to some kind of cement.

[42] Al-Azraqī, *Akhbār Makka*, 415–21; Sheila Blair, "Review: Madeleine Schneider, *Mubārak al-Makkī: An Arabic Lapicide of the Third/Ninth Century*," *Journal of Semitic Studies* 42, no. 2 (1997): 431–33, at 433.

[43] Aḥmad ibn Yaḥyā Al-Balādhurī, *Futuh al-Buldan*, ed. M. J. de Goeje (Leiden, 1866), 7; Hitti, *Origins of the Islamic State*, 21.

[44] Al-Azraqī, *Akhbār Makka*, 649–56, 889. A similar account is given by al-Fasi (d. 1429): Taqī al-Dīn al-Fāsī, *Shifāʾ al-Gharām bi-Akhbār al-Balad al-Harām*, ed. Umar ʿAbd al-Salām Tadmuri, 2 vols. (Beirut, 1985), 1:363–64. Also see el-Hawary and Wiet, *Inscriptions et monuments de la Mecque*, 78; Damluji, *Architecture of the Holy Mosque*, 50.

[45] Al-Azraqī, *Akhbār Makka*, 655.

[46] The minimum count excludes al-Mahdi's redecorations of the Prophet's Mosque and Holy Mosque, and the mosque on the site of the Dar al-Nadawa.

[47] The caliph ordered a number of provincial officials to take responsibility for the work and to pay for one aisle each: Al-Muqaddasi, *Ahsan al-Taqāsīm*, 168; Francis Peters, *Jerusalem: The Holy City in the Eyes on Chroniclers, Visitors, Pilgrims, and Prophets from the Days of Abraham to the Beginnings of Modern Times* (Princeton, 1985), 216; Pruitt, "The Fatimid Holy City," 36–37.

[48] Al-Muqaddasi, *Ahsan al-Taqāsīm*, 169; Guy Le Strange, ed. and trans., *Palestine under the Moslems: A Description of Syria and the Holy Land from A.D. 650 to 1500* (Boston and New York, 1890), 99. Marcus Milwright, *The Dome of the Rock and Its Umayyad Mosaic Inscriptions* (Edinburgh, 2016), 27: "It seems most likely that it was Aqsa III [of al-Mansur and al-Mahdi] that was seen and described by al-Muqaddasi in the late tenth century."

[49] A. Frolow, "Le peintre Thomas de Damas et les mosaïques du Saint Sépulcre," *Bulletin d'Études Orientales* 11 (1946): 121–30, esp. 122 for the translation and interpretation of *ýelourgían*.

[50] Christel Kessler, "ʿAbd al-Malik's Inscription in the Dome of the Rock: A Reconsideration," *The Journal of the Royal Asiatic Society of Great Britain and Ireland* 1 (1970): 2–14, at 10.

[51] Milwright, *Umayyad Mosaic Inscriptions*, 35, refers to the observation of Charles-Jean-Melchior de Vogüé, that the blue of the altered words is different from the Umayyad lettering. This shows that the mosaicists had a separate supply of tesserae, rather than reusing ones from the earlier inscription. Kessler, "ʿAbd al-Malik's Inscription," 10–12, discusses the possibility of further alterations to the mosaic inscription under al-Maʿmun, and concludes that it was unlikely.

[52] See note 10.

[53] Flood, "Umayyad Survivals and Mamluk Revivals."

[54] Van Berchem, "Mosaics of the Great Mosque," 338: "The style is degenerate, the design weak and clumsy, the colours loud. This fragment must have been fairly recently executed during the Turkish domination…This picture is in sharp contrast, with its bad taste and un-skillful execution, to the works of art that have already been described"; King, "Origins and Sources of the Umayyad Mosaics," 73: "The restorations which Mme van Berchem has attributed to the Ottomans are all crude and unpleasant. The major Ottoman contribution…on the outer surface of the arcade of the west *riwāq*…is poorly drawn and of coarse colouring." Both writers are describing the mosaic on the exterior of the first pier from the south, on the west arcade. Kenney, "Mixed Metaphors," 182, following Eustache de Lorey, "Les mosaïques de la Mosquée des Omayyades à Damas," *Syria* 12, no. 4 (1931):

326–49, at 347–48, suggests that it might instead be part of the fourteenth-century repairs of Tankiz.

[55] ʿAbd al-Qādir al-Rīḥāwī, "Ashām fī Dirāsa al-Jāmiʿ al-Umawī bi-Dimashq: Ṣaḥn al-Jāmiʿ," *Ḥawlīyāt al-atharīyah al-ʿArabīyah al-Sūrīyah / Les annales archéologiques arabes syriennes* 13 (1963): 53–70, at 63–65; van Berchem, "Mosaics of the Great Mosque," 353–54; King, "Origins and Sources of the Umayyad Mosaics," 63–68; Akili, *From Roman Temple to Monument of Islam*, 92–95; Saʿīd Ḍāmin Al-Joumānī, "Tārīkh Qubbat al-Māl, aw Qubbat ʿĀʾīsha, aw al-Qubba al-Gharbiyya fī al-Jāmiʿ al-Umawī bi-Dimashq," in *The Damascus Fragments: Towards a History of the Qubbat al-Khazna Corpus of Manuscripts and Documents*, ed. Arianna D'Ottone Rambach, Konrad Hirschler, and Ronny Vollandt (forthcoming); Alain George, *The Great Mosque of Damascus: Art, Faith and Empire in Early Islam* (forthcoming), chapter 3.

[56] Al-Joumānī, "Tārīkh Qubbat al-Māl"; Cordula Bandt and Arndt Rattmann, "Die Damaskusreise Bruno Violets 1900/1901 zur Forschung der Qubbet el-Chazne," *Codices Manuscripti* 76/77 (2011): 1–20; Ronny Vollandt, "A Muslim Genizah in Damascus," *Cambridge University Library Fragment of the Month* (June 2018), https://doi.org/10.17863/CAM.34051.

[57] Abū al-Qāsim ʿAlī ibn ʿAsākir, *Tārīkh Madīnat Dimashq*, ed. ʿAlī Shīrī (Beirut, 1995–98), vol. 48; al-Fadl at 317–19; construction of the treasury at 318.

[58] Shams al-Dīn al-Dhahabī, *Tārīkh al-Islām wa-Wafayāt al-Mashāhīr wa-l-Aʿlām*, ed. Bashshār ʿAwwād Marūf (Beirut, 2003), vol. 4, 707; Abū al-Maḥāsin Jamāl al-Dīn Yūsuf ibn

Taghrībirdī, *Nujūm al-Zāhira fī Mulūk Miṣr wa-l-Qāhira*, 16 vols. (Cairo, 1929–72), 2:60–61. Al-Dhahabi does not give al-Fadl's dates in office, and Ibn Taghribirdi says that he commissioned the Treasury while he was governor of Damascus, before moving to Egypt in 785–86.

[59] Abū al-Fidāʾ ʿImad al-Dīn (Ibn Kathīr), *al-Bidāya wa-l-Nihāya fī al-Tārīkh*, 14 vols. (Cairo, 1932–39), 9:159.

[60] Abū al-Tuqā al-Badrī, *Nuzhat al-Anām fī Maḥāsin al-Shām* (Beirut, 1980), 26. See George, *Art, Faith and Empire*, chapter 3, for a detailed discussion of all the historical sources.

[61] Al-Joumānī, "Tārīkh Qubbat al-Māl."

[62] George, *Art, Faith and Empire*; for the continuation of the Treasury columns below the courtyard pavement, see al-Rīḥāwī, "Ṣaḥn al-Jāmiʿ," 54–58, 64–65.

[63] Al-Muqaddasi, *Ahsan al-Taqāsīm*, 157.

[64] Anon., *Fusayfisaʾ al-Jāmiʿ al-Umawī* (Damascus, 1964); van Berchem, "Mosaics of the Great Mosque," 325, 329; Loreline Simonis, *Les relevés des mosaïques de la grande mosquée de Damas* (Paris, 2012), 19–21.

[65] For a photo of this fragment in its original position, before the plaster had been entirely removed from around it, see Stern, "Notes sur les mosaïques du Dôme du Rocher et de la mosquée de Damas," 204, fig. 1.

[66] Hayat Salam-Liebich, *The Architecture of the Mamluk City of Tripoli* (Cambridge, MA, 1983), 35, 39, 49, fig. 38; Williams, "Mosque of Sitt Hadaq," 61–62, fig. 5; Kenney, "Mixed Metaphors," 181, fig. 11.

[67] Williams, "Mosque of Sitt Hadaq," 61–63, fig. 6; Flood, "Umayyad Survivals and Mamluk Revivals," 68; Kenney, "Mixed Metaphors," 180–81, figs. 9–10, and 181–84 for Tankiz's other projects involving mosaic, including at the Great Mosque of Damascus.

[68] Ṣalāḥ al-Dīn al-Munajjid, *Masjid Dimashq* (Damascus, 1948), 19; Kenney, "Mixed Metaphors," 181–82. Jean Sauvaget, *Les monuments historiques de Damas* (Beirut, 1932), 23, also dates this piece to the fourteenth century.

[69] Ibn Kathīr, *al-Bidāya wa-l-Nihāya*, vol. 14, 148; and vol. 13, 91 for Taqi al-Din ibn Marajal's position as director of the mosque.

[70] Ibn Faḍl Allāh al-ʿUmarī, *Masālik al-Abṣār fī Mamālik al-Amṣār* (Cairo, 1924), 193. Al-ʿUmarī also said that the tesserae used in the Great Mosque were left over from the mosque of Tankiz: Doris Behrens-Abouseif, "The Fire of 884/1479 at the Umayyad Mosque in Damascus and an Account of Its Restoration," *Mamlūk Studies Review* 8, no. 1 (2004): 279–97, at 282–83.

[71] Al-ʿUmarī, *Masālik al-Abṣār fī Mamālik al-Amṣār*, 193; Flood, "Umayyad Survivals and Mamluk Revivals," 67, 69.

[72] Also Creswell, *EMA,* 1, figs. 417–18.

[73] Many thanks to Alain George for drawing this to my attention.

[74] The presence of mosaic on this wall was also recorded in the 1870s by the illustrator Harry Fenn, for Charles W. Wilson, *Picturesque Palestine, Sinai and Egypt*, 2 vols. (New York, 1881), 1:388.

[75] Sauvaget, *Les monuments historiques de Damas*, 23; al-Rīḥāwī, "Ṣaḥn al-Jāmiʿ," 65. King, "Origins and Sources of the Umayyad Mosaics," 65–68, sees all the fragments of pre-modern mosaic on the Treasury as Umayyad or Abbasid; Talal Akili, personal communication, sees them all as later medieval.

[76] De Lorey, "Les mosaïques de la Mosquée des Omayyades," 344–45; van Berchem, "Mosaics of the Great Mosque," 353.

[77] Van Berchem, "Mosaics of the Great Mosque," 353.

[78] Michele Piccirillo, *The Mosaics of Jordan* (Amman, 1993), 151, 164–65, figs. 200, 202, 210, 213.

[79] Van Berchem, "Mosaics of the Great Mosque," 317, pls. 18a, 20a; Saïd Nuseibeh and Oleg Grabar, *The Dome of the Rock* (London, 1996), 86–87, 90–91, 122–23, 124, 128.

[80] Gábor Kalla, "Date Palms, Deer/Gazelles and Birds in Ancient Mesopotamia and Early Byzantine Syria: A Christian Iconographic Scheme and Its Sources in the Ancient Orient," in *Across the Mediterranean – Across the Nile*, vol. 2, *Studies in Egyptology, Nubiology and Late Antiquity*, ed. Tamás A. Bács, Ádám Bollók, and Tivadar Vida (Budapest, 2018), 863–99, at 877; Rivka Ben-Sasson, "Botanics and Iconography: Images of the Lulav and the Etrog," *Ars Judaica* 8, no. 7 (2012): 7–22, at 22.

[81] On a fifth-century synagogue floor at Huqoq in Israel, the trunks have serrated edges: https://uncnews.unc.edu/2019/07/01/newly-discovered-1600-year-old-mosaic-sheds-light-on-ancient-judaism/. The tree trunk in the eighth-century mosaic of the Kathisma Church in Jerusalem, like the one at Jnah in Lebanon (fig. 21) has curved stripes between smooth outlines. Jnah: Maurice Chéhab, *Mosaïques du Liban* (Paris, 1958), 61, pl. 27; Kathisma: Rina Avner, "The Dome of the Rock in the Light of the Development of Concentric Martyria in Jerusalem: Architecture and Architectural Iconography," *Muqarnas* 27 (2010): 31–49, at 41–43, fig. 9. In a sixth-century floor at Tall Biʿa in Syria, a palm trunk is shown with horizontal wedge-shaped shadows: Kalla, "Date Palms," figs. 1–2; in the Church of the Palm Tree in Umm al-Rasas in Jordan, which probably also dates to the sixth century, the tree has a straight trunk: Piccirillo, *Mosaics of Jordan*, 241, fig. 393.

[82] Marguerite van Berchem, "The Mosaics of the Dome of the Rock in Jerusalem," in *EMA,* 1:263–64, fig. 207, pl. 11.

[83] Nasser Rabbat, "The Dialogic Dimension of Umayyad Art," *RES: Anthropology and Aesthetics* 43 (2003): 78–94; Alain George, "Paradise or Empire: On a Paradox of Umayyad Art," in *Power, Patronage and Memory in Early Islam: Perspectives on Umayyad Elites*, ed. Alain George and Andrew Marsham (Oxford, 2018), 39–68; George, *Art, Faith and Empire*, chapter 6.

[84] Al-Muqaddasi, *Ahsan al-Taqāsīm*, 157.

[85] Muḥammad ibn Ismāʿīl al-Bukhārī, *Ṣaḥīḥ al-Bukhārī = The Translation of the Meanings of Ṣaḥīḥ al-Bukhārī*, ed. and trans. Muḥammad Musin Khan, 9 vols. (Lahore, 1979), 7:219, 220, nos. 5448, 5444.

[86] Muḥammad ibn ʿĪsā Tirmidhī, *Jāmīʿ al-Tirmidhī*, ed. Abū Tāhir Zubair ʿAlī Zaʾī, trans. Abū Khalīl, 6 vols. (Riyadh, 2007), 6:188, nos. 3464, 3465.

[87] George, "Calligraphy, Colour and Light," 98.

[88] Rosen-Ayalon, "The First Mosaic Discovered in Ramla," pl. 23c, 119.

[89] Ana Silkatcheva, "Byzantine Mosaic Workshops in North-West Jordan" (MA diss., University of Sydney, 2014), 118, notes that the border motif of jewels and fleur-de-lis is rare in northern Jordan, appearing at only one site (Khirbet al-Samra), but is common further south around Madaba.

[90] Paul Cobb, *White Banners: Contention in ʿAbbasid Syria, 750–880* (New York, 2001), 27–28.

[91] Abū Bakr Muḥammad ibn Aḥmad al-Wāsitī, *Faḍāʾil al-Bayt al-Muqaddas*, ed. Isaac Hasson (Jerusalem, 1979), 84; Cobb, *White Banners*, 156n27.

[92] Córdoba: Susana Calvo Capilla, "The Visual Construction of the Umayyad Caliphate in Al-Andalus through the Great Mosque of Cordoba," *Arts* 7, no. 36 (August 2018): https://doi.org/10.3390/arts7030036; Madinat al-Zahra: Aḥmad ibn Muḥammad al-Maqqarī, *Nafh al-ṭīb min ghuṣn al-Andalus al-ratīb = Analectes sur l'histoire et la littérature des Arabies d'Espagne*, ed. Reinhart Dozy et al., 2 vols. (Leiden, 1855–60), 1:346; D. Fairchild

Ruggles, *Gardens, Landscape, and Vision in the Palaces of Umayyad Spain* (University Park, PA, 2000), 67. Al-Maqqari uses the word *ballūr* (crystal) for the decorations at Madinat al-Zahra. The inscription in the drum of the Dome of the Rock uses this term to refer to the mosaics restored in 1027–28: *RCEA*, vol. 6, 196, no. 2359; van Berchem, *Syrie du Sud: Jerusalem*, 1:274–76, no. 223.

[93] Abū al-Ḥasan ʿAlī b. Muḥammad al-Shābushtī, *Kitāb al-Diyārāt*, ed. Kurkīs ʿAwwād (Baghdad, 1966), 160–61; Alastair Northedge, *The Historical Topography of Samarra* (London, 2007), 284; Michael Greenhalgh, *Marble Past, Monumental Present: Building with Antiquities in the Mediaeval Mediterranean* (Leiden, 2009), 103. Also see George, "Calligraphy, Colour and Light," 100–103; Thomas Leisten, *Excavations in Samarra. Volume I: Final Report of the First Campaign, 1910-1912* (Mainz, 2003), 46, 54, 97–98. Tesserae from Samarra are held by the British Museum: e.g., nos. OA+.10605; OA+.12180.1-175; OA+.12389.a-b; OA+.12456.1-600; OA+.13520, and the Victoria and Albert Museum, nos. A.58-1922; A.59-1922.

[94] Leisten, *Excavations in Samarra*, 97–98.

[95] Carl Johan Lamm, *Das Glas von Samarra* (Berlin, 1928), 112–18; Nadine Schibille et al., "The Glass Walls of Samarra (Iraq): Ninth-Century Abbasid Glass Production and Imports," *PLOS One* 13, no. 8 (2018): https://doi.org/10.1371/journal. pone.0201749, 1–15, at 6, 9.

[96] Leisten, *Excavations in Samarra*, 54, also 97, where he comments that fragments embedded in plaster at Balkuwara "were rather coarse in technique."

[97] Northedge, *Historical Topography*, 271.

[98] Schibille et al., "Glass Walls," 11–12.

[99] Stefano Carboni, "The Use of Glass as Architectural Decoration in the Islamic World," *Annales du 15e congrès de l'Association internationale pour l'histoire du verre, New York-Corning, 15-20 October 2001* (Nottingham, 2003), 127–32, at 127–28; Stefano Carboni and David Whitebouse, *Glass of the Sultans* (New York, 2001), 148, no. 61; Lamm, *Das Glas von Samarra*, 106–9, no. 304; Northedge, *Historical Topography*, 122–23; Schibille et al., "Glass Walls," fig. 1.

[100] Abū al-Faraj ʿAbd al-Raḥman ibn ʿAlī ibn al-Jawzī, *Al-Muntaẓam fī Tārīkh al-Mūlūk wa-l-Umam*, ed. Naʿīm Zarzūr, 11 vols. (Beirut, 1992), 11:252; Northedge, *Historical Topography*, 122–23, 328–39. The millefiori tile published in *Glass of the Sultans*, no. 61, was 16 centimeters square; if the purple tiles were the same then 2,400 of them would cover 384 meters square. The qibla wall was about 150 meters long, so if Ibn al-Jazwi's figure is accurate, the tiles could have covered an area 2.5 meters high along the whole wall.

[101] ʿAlī ibn Muḥammad al-Kāzarūnī, *Mukhtaṣar al-Tārikh: Min Awwal al-Zamān ilā Muntahā Dawlat Banī al-ʿAbbās*, ed. Mustafa Jawād (Baghdad, 1970), 139–40; Northedge, *Historical Topography*, 329.

[102] Julie Scott-Meisami, "The Palace-Complex as Emblem: Some Samarran Qaṣīdas," in *A Medieval Islamic City Reconsidered: An Interdisciplinary Approach to Samarra*, ed. Chase Robinson (Oxford, 2001), 69–78, at 73; Matthew Saba, "Abbasid Lusterware and the Aesthetics of *ʿAjab*," *Muqarnas* 29 (2012): 187–212, at 203–4. For the long tradition of imagining the sea in marble, see Fabio Barry, "Walking on Water: Cosmic Floors in Antiquity

and the Middle Ages," *The Art Bulletin* 89, no. 4 (2007): 627–56; Marcus Milwright, "'Waves of the Sea': Responses to Marble in Written Sources (Ninth-Fifteenth Centuries)," in *The Iconography of Islamic Art: Studies in Honour of Robert Hillenbrand*, ed. Bernard O'Kane (Edinburgh, 2005), 211–21.

[103] Matthew Saba, "A Restricted Gaze: The Ornament of the Main Caliphal Palace of Samarra," *Muqarnas* 32 (2015): 156–95, at 173–74.

[104] Tziona Grossmark, "Marble as Building Material in Rabbinic Literature," *Mediterranean Chronicle* 2 (2012): 61–78, at 74–76, discusses the shared associations of glass, marble, and water in the context of the story of the Queen of Sheba's visit to King Solomon.

[105] Lucien Golvin, "Le Miḥrāb de Kairouan," *Kunst des Orients* 5, no. 2 (1968): 1–38, at 8–12, figs. 4–5.

[106] Al-Muqaddasi, *Ahsan al-Taqāsīm*, 122; Northedge, *Historical Topography*, 329.

[107] Jonathan Bloom, "On the Transmission of Designs in Early Islamic Architecture," *Muqarnas* 10 (1993): 21–28, at 24–26; Flood, "Umayyad Survivals and Mamluk Revivals," 57.

[108] Aleppo: Ibn al-Shiḥna, *al-Durr al-muntakhab fī tārīkh mamlakat Ḥalab*, ed. ʿAbd Allāh Muḥammad al-Darwīsh (Damascus, 1984), 61–62; Creswell, *EMA*, 1:483. Córdoba: Susana Calvo Capilla, "Analogies entre les grandes mosquées de Damas et Cordoue: mythe et réalité," in *Umayyad Legacies: Medieval Memories from Syria to Spain*, ed. Antoine Borrut and Paul Cobb (Leiden, 2011), 281–311, at 293–97; James, *Mosaics in the Medieval World*, 265.

[109] For the importance of shine and luster in Abbasid art, see Saba, "Abbasid Lusterware."

[110] Lamm, *Das Glas von Samarra*; Carboni and Whitehouse, *Glass of the Sultans*, 17–19; Schibille et al., "Glass Walls." The concept of the sudden "Samarra horizon" has been revised in favor of a series of innovations, not all based at Samarra, over the course of the ninth century; nonetheless the presence of the court was an important factor: Alastair Northedge and Derek Kennet, "The Samarra Horizon," in *Cobalt and Lustre: The First Centuries of Islamic Pottery*, ed. Ernst Grube (London, 1994): 21–35.

[111] Stefan Heidemann, "Die Geschichte von ar-Raqqa/ar-Rāfiqa – ein Überblick," in *Raqqa II. Die islamische Stadt*, ed. Stefan Heidemann and Andrea Becker (Mainz, 2003), 9–56, esp. 9–13.

[112] Julian Henderson, Sean McLoughlin, and David S. McPhail, "Radical Changes in Islamic Glass Technology: Evidence for Conservatism and Experimentation with New Glass Recipes from Early and Middle Islamic Raqqa, Syria," *Archaeometry* 46, no. 3 (2004): 439–68; Julian Henderson et al., "Experiment and Innovation: Early Islamic Industry at al-Raqqa, Syria," *Antiquity* 79 (2005): 130–45; Stefan Heidemann, "The History of the Industrial and Commercial Area of ʿAbbasid Al-Raqqa, called Al-Raqqa Al-Muḥtariqa," *Bulletin of the School of Oriental and African Studies* 69, no. 1 (2006): 33–52.

[113] Julian Henderson, *The Science and Archaeology of Materials: An Investigation of Inorganic Materials* (London and New York, 2000), 76–90.

[114] Henderson, *The Science and Archaeology of Materials*, 90; and Henderson et al., "Experiment and Innovation," 143, for links between glass and ceramic glaze production.

[115] Henderson, *The Science and Archaeology of Materials*, 82.

[116] Nassib Saliby, "XII. Les fouilles du Palais B 1950–1952," in *Baudenkmäler und Paläste I*, ed. Verena Daiber and Andrea Becker (Mainz, 2004), 77–94, at 78–79, nos. 47, 68, 69, 90, fig. 17, pls. 17, 26, 27, 55; Ruprechtsberger, *Syrien*, 518; Carboni, "Use of Glass as Architectural Decoration," 128; Mona al-Moadin, "Fragment of a Glass Floor Tile with a Plaster Base," *Discover Islamic Art, Museum With No Frontiers* (2019): http://islamicart.museumwnf.org/database_item.php?id=object;ISL;sy;Mus01;9;en.

[117] Ross Burns, *Damascus: A History* (London and New York, 2005), 134; Robert Schick, *The Christian Communities of Palestine from Byzantine to Islamic Rule: A Historical and Archaeological Study* (Princeton, 1995), 220–24. See James, *Mosaics in the Medieval World*, 329, for tenth-century mosaics commissioned in churches in Islamic lands.

[118] Leah Di Segni, "Epigraphic Documentation on Building in the Provinces of *Palaestina* and *Arabia*, 4th–7th C," in *The Roman and Byzantine Near East*, vol. 2, *Some Recent Archaeological Research*, ed. John H. Humphrey (Ann Arbor, MI, 1999), 149–78, at 150, 167–78; Lihi Habas, "Donations and Donors as Reflected in the Mosaic Pavements of Transjordan's Churches in the Byzantine and Umayyad Periods," in *Between Judaism and Christianity: Art Historical Essays in Honor of Elisheva (Elizabeth) Revel-Neher*, ed. Katrin Kogman-Appel and Mati Meyer (Leiden, 2009), 73–90.

[119] The supervisors' names were ʿAbd al-Rahman ibn [Salman?] and ʿUbayd ibn Hormuz: H. I. Bell, *Greek Papyri in the British Museum: Catalogue, With Texts*, vol. 4, *The Aphrodito Papyri*

(London, 1910), 42–43; H. I. Bell, "Translations of the Greek Aphrodito Papyri in the British Museum," *Der Islam* 2 (1911): 269–83, 372–84, at 374, no. 1368; Creswell, *EMA*, 1:15.

[120] Cobb, *White Banners*, 14.

[121] ʿImād al-Dīn Ismāʿīl Abī al-Fidāʾ, *al-Mukhtaṣar fī Akhbār al-Bashar*, 4 vols. (Cairo, 1907), 1:160; Guidetti, *In the Shadow of the Church*, 29; Al-Joumānī, "Tārīkh Qubbat al-Māl."

[122] Cobb, *White Banners*, 22–23; Jacob Lassner, "Provincial Administration Under the Early ʿAbbasids: Abū Jaʿfar al-Manṣūr and the Governors of the Ḥaramayn," *Studia Islamica* 49 (1979): 39–54, esp. 39–41; Jacob Lassner, "Provincial Administration under the Early ʿAbbasids: The Ruling Family and the *Amṣār* of Iraq," *Studia Islamica* 50 (1979): 21–35.

[123] Lassner, "Governors of the Ḥaramayn," 39–41; Cobb, *White Banners*, 27–28.

[124] Hugh Kennedy, "Central Government and Provincial Élites in the Early ʿAbbasid Caliphate," *Bulletin of the School of Oriental and African Studies* 44, no. 1 (1981): 26–38, at 33.

[125] Lassner, "Governors of the Ḥaramayn," 41–44.

[126] *The History of al-Ṭabarī*, vol. 28, *ʿAbbasid Authority Affirmed*, trans. Jane Dammen McAuliffe (New York, 1995), 5–6; Zambour, *Manuel de genealogie*, 20.

[127] *The History of al-Ṭabarī*, vol. 34, 65–66, 73–74; Ibn al-Jawzī, *Al-Muntaẓam fī Tārīkh al-Mūlūki*, 11:191.

[128] Hugh Kennedy, *The Early Abbasid Caliphate: A Political History* (London, 1981), 74–75; Adolf Grohman and Hugh Kennedy, *EI*, s.v. "Ṣāliḥ b. ʿAlī"; Cobb, *White Banners*, 27–31, esp. 27–28. See Zambour, *Manuel de genealogie*, 26, for Ibrahim and al-Fadl's posts in Cairo.

[129] *The History of al-Ṭabarī*, vol. 29, *Al-Manṣūr and al-Mahdī*, trans. Hugh Kennedy (New York, 1990), 203.

[130] See note 47.

[131] El-Hawary and Wiet, *Inscriptions et monuments de la Mecque*, 80–83; Peters, *Mecca: A Literary History*, 122–27.

[132] Richard Mortel, "Zaydi Shiʿism and the Ḥasanid Sharifs of Mecca," *International Journal of Middle East Studies* 19, no. 4 (1987): 455–72, at 456–57; el-Hawary and Wiet, *Inscriptions et monuments de la Mecque*, 83–90.

[133] Richard Mortel, "Taxation in the Amirate of Mecca During the Medieval Period," *Bulletin of the School of Oriental and African Studies* 58, no. 1 (1995): 1–16, at 1. Architectural patronage picked up again in the eleventh and twelfth centuries: Richard Mortel, "'Ribāṭs' in Mecca during the Medieval Period: A Descriptive Study Based on Literary Sources," *Bulletin of the School of Oriental and African Studies* 61, no. 1 (1998): 29–50, at 31–32; Richard Mortel, "Madrasas in Mecca during the Medieval Period: A Descriptive Study Based on Literary Sources," *Bulletin of the School of Oriental and African Studies* 60, no. 2 (1997): 236–52, at 237–38, 251.

[134] Burns, *Damascus: A History*, 136–37 (quote at 136); also see Yaacov Lev, "The Fāṭimids and the Aḥdāth of Damascus 386/996–411/1021," *Die Welt des Orients* 13 (1982): 97–106, at 99–100.

[135] Zambour, *Manuel de genealogie*, 29–30; Lev, "Fāṭimids and the Aḥdāth," 102–3; Burns, *Damascus: A History*, 138.

[136] There is no information on the patron of the first fountain, built in 977. The second fountain was commissioned in 1025 by the *sharīf* Fakhr al-Dawla Abu Yaʿla Hamza, acting "as if he was director of the mosque" (*ka'annahu kāna nāẓir al-jāmiʿ*): Ibn Kathīr, *al-Bidāya wa-l-Nihāya*, vol. 9, 159. Lamps on columns were erected in 1049 "with the authorization of the judge of the town": al-Munajjid, *Masjid Dimashq*, 12. There was no governor that year, as the appointee, Abu al-Fadl Rifq al-Khadim, was killed before he reached Damascus, so the judge (qadi) would have been the most powerful individual in the city, and may also have been one of the *ashrāf*: Zambour, *Manuel de genealogie*, 29; David Ayalon, *Eunuchs, Caliphs and Sultans: A Study in Power Relationships* (Jerusalem, 1999), 341.

[137] Max van Berchem, ed., *Matériaux pour un Corpus Inscriptionum Arabicarum*, pt. 2.2, *Syrie du Sud: Jerusalem*, 3 vols. (Cairo, 1920–27), 1:274–76, no. 223; Grabar, *Shape of the Holy*, 81–84, figs. 31–32. Also see Gülru Necipoğlu, "The Dome of the Rock as Palimpsest: ʿAbd al-Malik's Grand Narrative and Sultan Süleyman's Glosses," *Muqarnas* 25 (2008): 17–105, at 46.

[138] Van Berchem, "Mosaics of the Dome of the Rock," 300–303, fig. 361, pl. 37; Jennifer Pruitt, *Building the Caliphate: Construction, Destruction, and Sectarian Identity in Early Fatimid Architecture* (New Haven and London, 2020), fig. 5.7.

[139] Grabar, *Shape of the Holy*, 149–51, figs. 79–82; Pruitt, *Building the Caliphate*, 140–43, figs. 5.9, 5.12–14; Stern, "Recherches sur la Mosquée al-Aqṣā."

[140] Grabar, *Shape of the Holy*, 151; Pruitt, *Building the Caliphate*, 141–42.

[141] Abū'l-Hasan ʿAlī b. Abī Bakr al-Harawī (d. 1215), *Kitāb al-Ishārāt ilá maʿrifat al-ziyārāt* = Guide des lieux de pèlerinage, ed. Janine Sourdel-Thomine (Damascus, 1957), 64–65.

[142] Pruitt, *Building the Caliphate*, 141.

[143] Max van Berchem, *Inscriptions arabes de Syrie* (Cairo, 1897), 428–31, 441, 509; *Répertoire chronologique d'épigraphie arabe* (hereafter *RCEA*), 18 vols. (Cairo, 1931–91), 7:245–50, no. 2778.

[144] *RCEA*, 8:80–81, no. 2933.

[145] *RCEA*, 8:120, no. 2976.

[146] These may represent two phases of repair, as the method of construction differs between the pairs.

[147] North portico mosaics: van Berchem, "Mosaics of the Great Mosque," 348–52, figs. 410–12; Zaraza Friedman, "The Ship Depicted on the North Colonnade of the Great Mosque at Damascus: A Nilotic Theme or the Representation of Paradise?" *Journal of Mosaic Research* 8 (2015): 17–31; King, "Origins and Sources of the Umayyad Mosaics," 60, 70–71; McKenzie,

"Alexandria on the Barada," 300–307. There are mid-twelfth-century mosaics, some dating to the reign of Nur al-Din, at the north end of the east portico: van Berchem, "Mosaics of the Great Mosque," 352–53, figs. 413–15; King, "Origins and Sources of the Umayyad Mosaics," 71–72; McKenzie, "Alexandria on the Barada," 302. The style of these is different again from the mosaics discussed above.

[148] Mina Moraitou, "Ornamental motifs in Early Islamic Art," in *Byzantium and Islam: Age of Transition 7th–9th Century*, ed. Helen C. Evans and Brandie Ratliff (New Haven and London, 2012), 223–29, at 224.

[149] Eva Hoffman, "Between East and West: The Wall Paintings of Samarra and the Construction of Abbasid Princely Culture," *Muqarnas* 25 (2008): 107–32, at 107.

[150] Hoffman, "Between East and West," esp. 127–28.

[151] Paolo Peduto, "'Quasi un mare di cristalli'. La decorazione musiva," in *Salerno. Una sede ducale della Langobardia meridionale*, ed. Paolo Peduto, Rosa Fiorillo, and Angela Corolla (Spoleto, 2013), 61–68, at 64–67; Alessandro Di Muro, *La cultura artistica della Longobardia minor nell'VIII secolo e la decorazione pavimentale e parietale della cappella palatina di Arechi II a Salerno* (Salerno, 1996), 30–31, figs. 32–34.

[152] *Chronica Monsterii Casinensis* 3.27-28 = *Die Chronik von Montecaassimno*, ed. Hertmut Hoffmann (Hannover, 1980), 396–97.

[153] James, *Mosaics in the Medieval World*, 352–53.

[154] James, *Mosaics in the Medieval World*, chapter 9, esp. 329–31; Cyril Mango, *The Art of the Byzantine Empire 312–1453* (Englewood Cliffs, NJ, 1972), 184–87, 196–206.