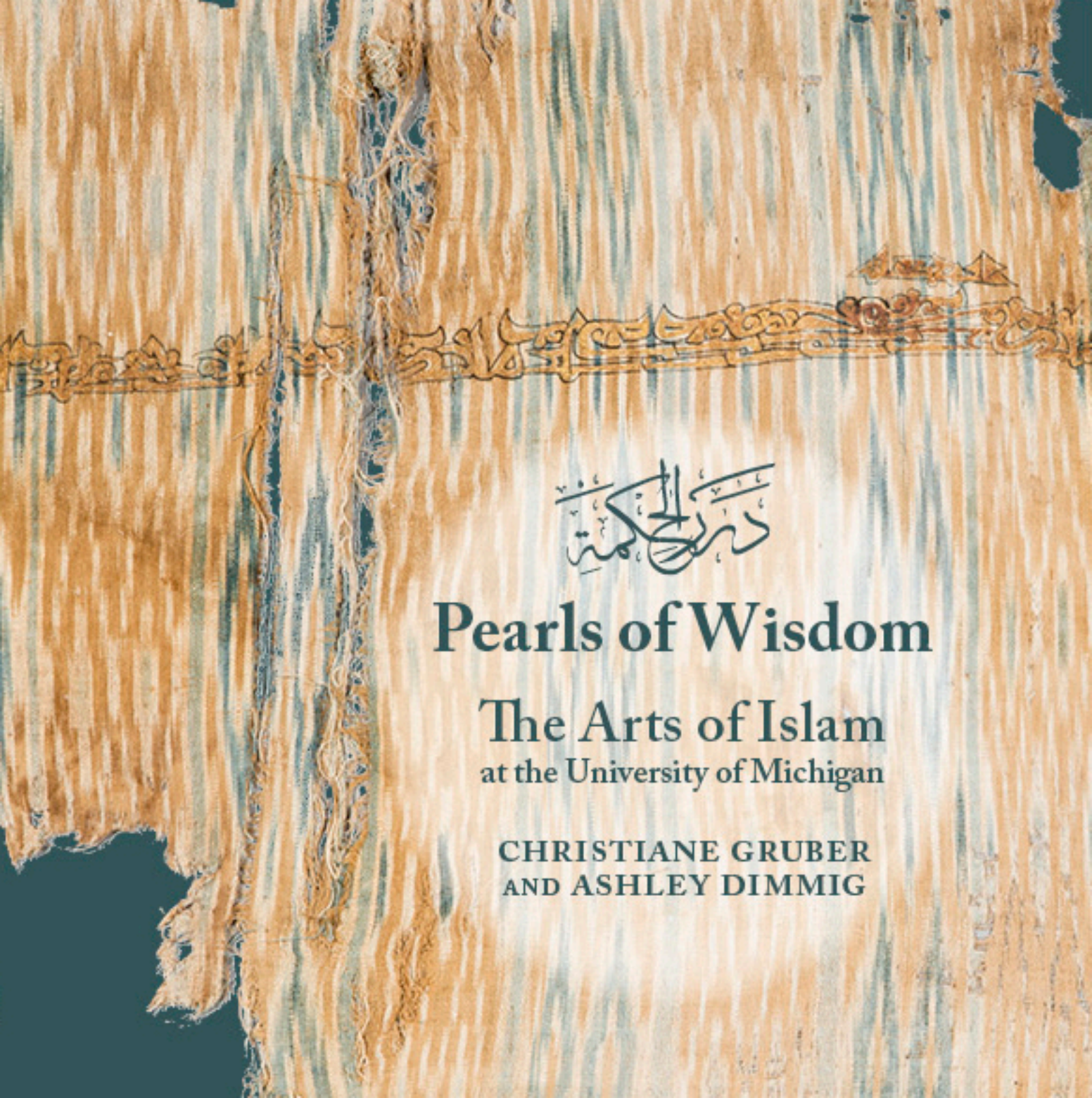


Pearls of Wisdom

The Arts of Islam
at the University of Michigan

CHRISTIANE GRUBER
AND ASHLEY DIMMIG

Pearls of Wisdom

Cover Images
Details of *tiraz* textile, Yemen or Egypt, 10th–12th centuries, cotton with resist-dyed warp (*ikat*), ink, and gold paint. Kelsey Museum of Archaeology, 22621 (cat. no. 3).

Published by
Kelsey Museum of Archaeology
434 South State Street
Ann Arbor, Michigan 48109-1390
http://www.lsa.umich.edu/kelsey/research/publications

Distributed by
ISD
70 Enterprise Drive, Suite 2
Bristol, CT 06010 USA
phone: 860.584.6546
email: orders@isdistribution.com

Exhibition Website
http://lw.lsa.umich.edu/kelsey/pearls/index.html

ISBN 978-0-9906623-0-3

Pearls of Wisdom

The Arts of Islam
at the University of Michigan

CHRISTIANE GRUBER
AND ASHLEY DIMMIG

Kelsey Museum Publication 10

Ann Arbor, Michigan 2014

Contents

Handwriting is the necklace of wisdom. It serves to sort the pearls of wisdom, to bring its dispersed pieces into good order, to put its stray bits together.[1]

—Abu Hayyan al-Tawhidi (d. after 1009–1010)

In his treatise on penmanship, the medieval calligrapher Abu Hayyan al-Tawhidi equates the calligrapher's art of beautiful writing to a jeweler stringing pearls. To his mind, both practitioners order the universe in a wise and harmonious fashion according to their respective crafts. While the jeweler chisels precious stones into glowing facets, the calligrapher's training begins with learning the proper proportions of beautiful writing. In the Arabic script, this proportional system of writing is based on the rhombus—that is, the shape the ink-soaked tip of the reed pen makes when impressed on a writing surface. Each letter of the alphabet is then formed proportionately by measuring its height and width with strands of diamonds or circles (fig. 1, cat. no. 2). These calligraphic measuring marks often appear like strung pearls, thus revealing a continuously dynamic and creative engagement across art forms within Islamic traditions.

Fig. 1 (opposite). Examples of the letter *kaf* with pearl-shaped measures in red ink, Tacbeyzade Mehmet bin Tacettin (d. 1587), Calligraphy Treatise (*Risale-yi hat*), penned by the calligrapher Kebecizade Mehmet Vasfi Efendi (d. 1831), Ottoman lands, ca. 1772, ink on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 401 (cat. no. 2).

Beyond the system of proportionality that the rhombus catalyzes, the dot can possess several symbolic meanings. For example, if executed in red pigment, this calligraphic mark may allude to the blood clot, itself generative of creation. Like the rhombus that initiates the formation of all letters, words, and thus human knowledge, the blood clot represents the primordial unit from which all sentient beings originate. In other words, like the first clot of life, the inked rhombus creates something from nothing. Moreover, in some mystical circles, letters and words carry special significance because they are equated to parts of the body or else form spiritually charged equations.[2]

In more recent years, many artists have further explored the metaphorical qualities of letterforms by building upon and expanding Arabic calligraphic traditions.[3] For example, Syrian-born contemporary painter Khaled al-Saa'i (born 1970) produces calligraphic paintings in which letters appear to dance, glide, and even swim—rather than connect to form recognizable words. In many of his paintings, including *Winter in Ann Arbor* (fig. 2, cat. no. 1), al-Saa'i purposefully transcends legibility to focus instead on the dynamic shapes of letters and the oral effects they generate. With the silhouette of a rhombus hovering over the horizon, the repeated soft letter *ha* produces the sound of sighing or exhaling. Suggestive of a beating heart

1. Rosenthal 1948, 12.

2. Schimmel 1987; and Rosenthal 1961.

3. Porter 2006, 151–187; Naef 2003, 168–171; and on the intersections between calligraphy and painting, see Porter 2000.

and breathing through mist, the *ha* shape and sound are appropriate for this painting, which al-Saa'i made during his 2002 stay in Ann Arbor. Through such letterforms, their respective sound effects, and crisp hues, the artist attempts to convey his memorable experience of a chilly yet soft Michigan winter. Calligraphy's metaphorical potential once again yields unexpected results, moving the viewer from a strict reading experience to an emotional plane of varying temperatures.

Al-Tawhidi's metaphorical thinking, the use of calligraphic pearls, and contemporary letter-paintings suggest that other art forms produced in Islamic lands were made and perceived in similarly allegorical ways as well. In some instances, ceramic objects may have been thought of as metalwares encrusted with jewels or inlaid with gold and silver, while a number of medieval buildings clad in brickwork patterns may have been intended to appear as if draped in woven textiles.[4] These cross-media metaphors can be detected across numerous art forms in Islamic traditions, including the objects in the exhibition "Pearls of Wisdom: The Arts of Islam at the University of Michigan." Inspired by al-Tawhidi's allegorical thinking and his invitation to bring together some "pearls," the exhibition aims to showcase a selection of art works held in university collections, among them the Kelsey Museum of Archaeology, the Special Collections of the Hatcher Graduate Library, the U-M Museum of Art, and the U-M Museum of Anthropological Archaeology.[5] Rather than arranged chronologically, geographically, or by media, the objects in the exhibition are organized by theme. Such themes include the intersections between function and decoration, the aesthetic power of everyday objects, visual play, wit, and magic, connections and interrelationships across art forms, and light symbolism and illumination. This exhibition not only highlights the strengths of the collections at the University of Michigan but also explores various themes integral to the conception and production of art in the Islamic world from the medieval period until the present day.

Fig. 2 (opposite). Khaled al-Saa'i (b. 1970), *Winter in Ann Arbo*r, painted in Ann Arbor in 2002, natural ink, tempera, and gouache on paper. University of Michigan Museum of Art, 2003.1.366 (cat. no. 1).

Everyday Beauty

While calligraphy takes pride of place in Islamic artistic traditions, beautiful writing is not the only art form that fulfills both utilitarian and aesthetic functions. Many objects produced in various media illustrate the harmony between utility and beauty in the arts of the Islamic world.[6] Some objects

4. On "jeweled" ceramics, see Baer 1989, and on the "thousand weave" (*hazarbaf*) brick motif, see Golombek 1988, 34.

5. For a 1978 exhibition of Islamic art held at the Kelsey Museum, see Soucek 1978 (the catalogue is arranged geographically and by media). Also see the selection of objects included in Fisher and Fisher 1982.

6. For a general discussion of beauty and aesthetics in Islamic art, see Behrens-Abouseif 1999; Leaman 2004; and Gonzalez 2001.

are made to fulfill very specific functions; they are tools or utensils of one kind or another. In other words, their *raison d'être* is, in essence, utilitarian. For example, spindle whorls are sculpted from bone, wood, and other materials into shallow hemispheres. They are made not for the beauty of their form but in order to produce the proper weight and centripetal force to spin fibers into yarn or thread.[7] However, spindle whorls are often delicately decorated as well (fig. 3, cat. no. 7). The incised patterns on whorls serve no other function than to ornament an object otherwise used for practical purposes. Moreover, the patterns often recall the spinning motion of the whorl, thus allowing the decoration to be seen both while the object is idle and when it is in rotational use.

Charm and creativity can be found in other items that are intended primarily for practical use, among them the many water filters found in Fustat (medieval Cairo).[8] Situated on the inside of the neck of a ceramic vessel, a pierced water filter serves as a barrier to keep various impurities and insects out of the water contained within (fig. 4, cat. no. 10).[9] Rather than merely puncturing the filter with small holes, the craftsman who designed this filter incised a running lion within a decorative roundel pierced with diamond-shaped holes. Like other designs depicting lively quadrupeds, this zoomorphic pattern cleverly performs the utilitarian function of filtering

7. Bacharach 2002, 35–36.

8. The Kelsey Museum holds a large collection of objects excavated at Fustat by George Scanlon and his team based at the American Research Center in Egypt (ARCE). The division of the registered objects at the close of the 1972 season legally ceded the major share to ARCE, which, in turn, transferred all items to the Kelsey Museum since it had provided financial support for the 1972 season. Although some Fustat glass objects are included in the holdings of the Kelsey Museum, all glass items from the 1972 season were given to the Corning Museum of Glass in exchange for its contribution to the excavations (personal e-mail communication between Christiane Gruber, Jere Bacharach, and George Scanlon, September 18, 2013).

9. Olmer 1932, 1–13; Scanlon 1986, 38–40, pl. 22-a; 1970, 5–51; 1968, 9–16; 1964, pl. XV, figs. 6–7.

Fig. 3 (opposite). Spindle whorls, 9th–10th centuries, Fustat (medieval Cairo), Egypt, incised bone. Kelsey Museum of Archaeology, 1969.2.60 and 1969.2.61 (cat. no. **7**).

Fig. 4 (opposite). Water filter with lion design, 10th–12th centuries, Fustat (medieval Cairo), Egypt, hand-tooled and pierced clay. Kelsey Museum of Archaeology, 1971.1.3 (cat. no. **10**).

Fig. 5. Pouring spout with ornate thumb rest, 10th–12th centuries, Egypt, blown and cut glass. Kelsey Museum of Archaeology, 1970.3.60. (cat. no. **5**).

the water while also providing a representation of an animal playfully galloping within a vessel's neck. Thus, the design is not purely ornamental since ornament is by definition superfluous or added. Instead, the zoomorphic and geometric designs that comprise these types of ceramic water filters are delightfully functional, demonstrating that utility and ornament are often mutually constitutive.

Like ceramic water filters, other vessels also display ornamental flourishes that are quite practical. For example, ewers and flasks made of glass and rock crystal are often blown or cut into smooth or faceted items that play with both form and light. Some glass ewers include intricately carved projections adjacent to their spouts (fig. 5, cat. no. 5).[10] This type of ornately carved protuberance was situated at the top of a handle on a glass pitcher, where it served to steady the hand while pouring liquid. Although any small piece of glass would have sufficed for this purpose, the thumb rest takes the shape of a finial or leaf pattern. This decorative detail is as elegant as it is practical. In addition, the colorless glass and the chiseled pattern of the ewer's spout resemble rock-cut crystal, which was employed to make luxury vessels especially during the period of Fatimid rule (909–1171) in Egypt. Thus, both glass (a molten substance) and rock crystal (transparent quartz) cultivate the aesthetic potential of gemlike translucence.[11]

10. Pinder-Wilson and Scanlon 1973, cat. no. 19, figs. 30–32; and Scanlon and Pinder-Wilson 2001, 99–114, esp. 102.

11. Bloom 2007, 101–105; Contadini 1999, 322–324, figs. 2–4; Stern 1997; and Shalem 1994.

Fig 6. Bread stamps, 9th–12th centuries, Fustat (medieval Cairo), Egypt, hand-tooled clay. Kelsey Museum of Archaeology, 1972.1.32 and 1972.1.33. (cat. no. 6).

Other objects are made to create decorative patterns and to fulfill useful quotidian functions for members of society at large. For instance, many small clay stamps survive from medieval Egypt. These round objects were used to impress various designs into soft bread dough, and their ornamentation ranges from geometric starbursts to animals and inscriptions wishing *bon appétit* (fig. 6, cat. no. 6).[12] Since bread was (and continues to be) a basic food staple, its production was well established before the advent of Islam. To a considerable extent, the inhabitants of medieval Cairo inherited bread-making practices of the Coptic period. Often individuals baked their daily bread in communal ovens, and thus one of the primary functions of bread stamps was to help customers identify their loaves as they came out of the oven. Functioning like personal seals that are at once ornamental and pragmatic,[13] these common ceramic objects created distinguishing seal-like marks in batches of freshly baked bread.

Beyond these types of portable objects, a similar use of decoration for practical purposes is often found in architecture. Numerous buildings in the Islamic world are revetted with glazed brick-, marble-, and tile-work, which help seal and strengthen a structure's rubble or clay core. Quite frequently premodern palaces, mosques, and mausolea are studded with niche-like forms set at various angles, as can be seen in the early fourteenth-century

12. Kühnel 1939 (in which Kühnel argues that bread stamps could have been used as a means of marking or recording bread quotas by the *muhtasib*, or market controller and inspector); and Grabar 1992, 98. For antecedent Coptic bread stamps, see most especially Galavaris 1970.

13. For a related question on seals as magical and practical, see Porter 2004.

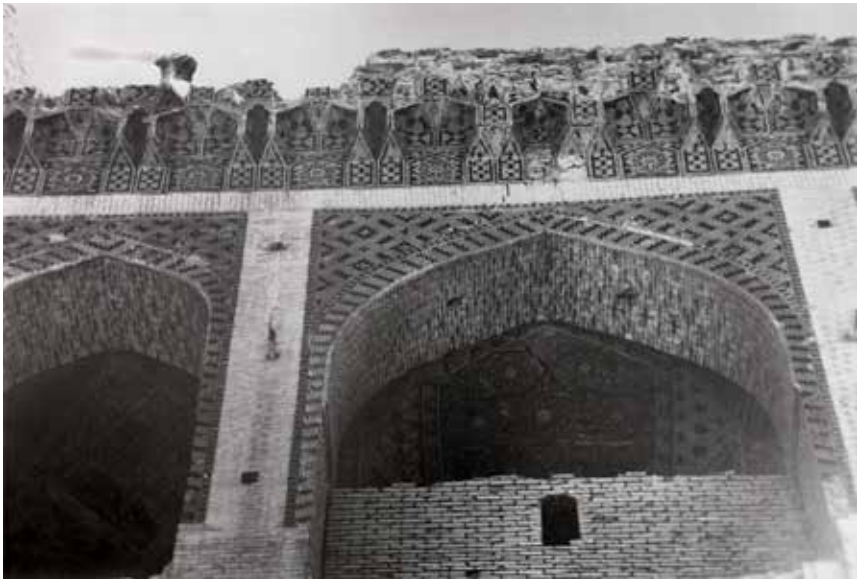


Fig. 7. Tile-mosaic *muqarnas* decoration, 1302–1312, tomb of Öljeitü, Sultaniya, Iran. Photograph by Arthur Upham Pope, 1930s. Visual Resources Center, History of Art Department, University of Michigan, 21.36.

Fig. 8. Tile mosaic *muqarnas* fragment, 13th century, Konya, modern-day Turkey, glazed ceramic in plaster. Kelsey Museum of Archaeology, 80070.
(cat. no. 4).

tomb of Sultan Öljeitü (ruled 1304–1316) located in Sultaniya, Iran (fig. 7). Here, a cornice is articulated in colorful honeycomb motifs. Such niches also can be placed within receding tiers within an edifice's curved areas, including *iwans* (archways) and *miḥrabs* (prayer niches). In medieval Anatolia (modern-day Turkey), these architectural elements are often clad with turquoise- and black-glazed ceramic pieces (fig. 8, cat. no. 4).[14] Known as *muqarnas*, these honeycomb formations serve to elegantly transition from the square form of a building to the circular base of a dome, thereby fulfilling both aesthetic and practical purposes. While *muqarnas* function structurally to support and redistribute the weight of an arch or dome, they also manipulate form, color, and light to produce dazzling crystalline effects within the built world of Islam.[15]

Another way of exploring the manifold intersections between function and beauty is through objects that are used to make oneself beautiful. The old adage that cleanliness is next to godliness has an equivalent in the Islamic context, in which personal hygiene is praised as "half of faith." While the ritual cleansing of one's body for prayer is of utmost importance in Islam, proper hygiene constitutes an integral (and not necessarily religious) aspect

14. Ettinghausen 1999; Arık and Arık 2008, 37–189; and Meinecke 1976.

15. There exist numerous studies on the *muqarnas*. For its application within domes and its use in Egyptian architecture, see in particular Tabbaa 1985; and Bloom 1988.

Fig. 9. Left: Comb, 13th–15th centuries, Fustat (medieval Cairo), Egypt, wood. Kelsey Museum of Archaeology, 1969.2.20 (cat no. **18**); Right: Comb to brush hair or detangle textile threads, probably 13th–15th centuries, Egypt, incised bone. Kelsey Museum of Archaeology, 1966.1.173 (cat. no. **8**).

Fig. 10. Molar flasks, 9th–11th centuries, Egypt, cut glass. Clockwise: Kelsey Museum of Archaeology, 1968.2.41 (cat. no. **21**), 1968.2.43 (cat. no. **22**), 1970.3.1011 (cat. no. **57**), 1968.2.13 (cat. no. **19**), and 1968.2.63 (cat. no. **20**).

of everyday life and culture.[16] Thus arose the need for a range of objects to clean the body. There exist many items that were used for the purposes of maintaining personal hygiene and health, including double-sided wooden combs (fig. 9, cat. nos. **18** and **8**).[17] These combs include one side with thicker teeth to detangle hair, while the other side with finer denticulation was effective in removing dirt, residue, and lice. Although essentially functional in their application, some combs are ornamented with roundels, concentric circles, and other designs. Sometimes they also bear inscriptions that praise their aesthetic results, in which the object is imagined as gaining a voice that proudly declares: "I am a comb for the hair. I am only used for beauty."[18]

Additionally, perfumes and essential oils have played an important role in practices of hygiene and self-beautification throughout the centuries. Various vessels, such as rosewater sprinklers, incense burners, and perfume bottles, were required for the storage and application of unguents and aromatic

16. On this topic, see Farsy 1964.

17. Georges 1911, pls. III–VII, figs. 14.479–44.330; Raziq, 1972; Scanlon 1997 and 1968.

18. Raziq 1972, 407; and on "speaking objects," see Shalem 2010.

Fig. 11. Left: Cosmetic spoon, 10th–11th centuries, Fustat (medieval Cairo), Egypt, bronze. Kelsey Museum of Archaeology, 1969.2.96 (cat. no. **23**); Right: Flask, 11th–12th centuries, Egypt, free blown and marvered glass. Kelsey Museum of Archaeology, 1968.2.100 (cat. no. **42**).

Fig. 12. Bangles of various sizes, 12th–15th centuries, Fustat (medieval Cairo), Egypt, glass. Clockwise from upper left: Kelsey Museum of Archaeology, 1970.3.231, 1970.3.321, and 1970.3.337 (cat. no. **17**).

liquids (fig. 10, cat. nos. **21**, **22**, **57**, **19**, and **20**). Besides oils and fragrances, minute vessels stored other cosmetic materials, most especially kohl, a natural black powder used to darken the area around the eye. Like mascara or eyeliner, kohl is typically applied with a thin metal applicator (fig. 11, cat. nos. **23** and **42**). Vials were functional as portable storage units but also served to add fragrance and highlight parts of the human body. It was perhaps only fitting then that the vessels themselves be decorated, for example, with carved relief reminiscent of faceted teeth, echoing the pearly whites produced organically by the human body. Such delicately chiseled "molar" flasks indeed count among the most popular forms of small glass vessels of varying colors, sizes, and shapes excavated in Fustat.[19]

A great number of other items— including cosmetic implements, textiles, and jewelry—also were used to adorn the human body. The Kelsey Museum of Archaeology holds a particularly rich collection of glass jewelry produced in premodern Egypt, among them colorfully patterned bangles and beads (fig. 12, cat. no. **17**).[20] In the Islamic world, as in other world cultures, clothing and accessories keep the body clean and protected while also emphasizing the wearer's social, political, and economic status. For example, inscribed fabrics (*tiraz*) of the medieval Arab world were often given as honorific gifts, while Kashmiri shawls made in more recent centuries functioned as both status symbols and fashionable accessories in the Islamic world and, later, in Europe and America (fig. 13, cat. no. **14**).[21] Another common wardrobe item is the turban, which comes in various sizes and shapes in order to denote social position, profession, tribe, Sufi affiliation, or even crime.[22] For example, a petite headpiece could have served as the core around which a turban cloth would be wrapped, thereby fulfilling both

19. Carboni 2001, 98–100, cat. 27a–c, 124–127, cat. 2.28a–q; Jenkins 1986, 24–25, fig. 23; Scanlon 1964, pl. XVI, fig. 6; Scanlon and Pinder-Wilson 2001, 91–99.

20. Jenkins 1986, 55; Carboni 1994; Scanlon 2002; and Spaer 1992.

21. Beardsley and Sinopoli 2005, 187–189 and 239; Ames 1997; Irwin 1973; and Lévi-Strauss and Listri 1987.

22. On the turban as part of the attire of Muslim mystics, see Atasoy 2000; and Karateke and Anetshofer 2001.

Fig. 13 (opposite). Crimson shawl, probably Kashmir, ca. 1870, woven and pieced wool with embroidery. University of Michigan Museum of Anthropological Archaeology, 17369 (cat no. **14**).

Fig. 14. Conical cap (*turtur*), probably 13th–15th centuries, Egypt, probably wool. Kelsey Museum of Archaeology, 94075 (cat. no. **16**).

structural and ornamental functions (fig. 14, cat. no. **16**). This small patterned cap was worn by male and female urban-dwellers and Bedouins in the medieval Islamic world. When such conical caps were covered with odd objects like foxtails and shells, however, they were intended to mark and humiliate the wearer as a form of public punishment.[23]

All in all, these many everyday objects serve dual functions: one practical or utilitarian, the other decorative or aesthetic. From filtering water to supporting domes, and from spinning wool to wearing perfume, artists and inhabitants of the Islamic world cleverly incorporated beauty into their daily lives. Such visually appealing objects added both awe and pleasure to everyday tasks and duties, even those as seemingly mundane as the combing of one's hair or drinking water.

23. Dozy 1845, 262–278 (viz. *turtur*); and Lange 2008, 80, 85–87, 170, and 234.

Play and Protection

Beyond their aesthetic appeal, objects in the Islamic world also include images and patterns that dare viewers to decipher or solve a variety of visual challenges. While some of these art forms are lighthearted and ludic, others cater to the more serious business of imparting wisdom and curing ills. Whether used for play or protection, such objects act as potent devices to engage and test the senses as well as to cultivate and channel unseen forces.

One particularly popular decorative device applied to a variety of vessels is known as a "fishpond" motif (fig. 15, cat. no. **36**).[24] Whether molded in clay, painted on glass, or incised in bronze, the image of swimming fish on a vessel meant to hold liquid exploits the function of the object in order to play an optical joke on the viewer. The undulating liquid symbolically animates the fish, and for a brief moment it would seem as though marine life were coming alive and taking over libations. The visual pun demonstrates the cleverness of artists as they craft objects meant for the drinking of water or wine within a social setting such as a feast. As witty conversation pieces, "fishpond" cups and bowls certainly challenge their users to distinguish between animate and inanimate objects (fig. 16, cat. nos. **41–43**). Playing with similar effects, a tiny clear glass vessel is formed into the shape of a fish. Cleverly, the liquid would have been poured into and out of the fish's mouth, as if it were ingesting the liquid or spitting out his contents. Due to the translucent glass, the liquid also would have been visible inside the vial, playfully moving about in the creature's belly. Likewise, glass containers decorated with marvered patterns that resemble waves appear to deploy aquatic metaphors in order to comment visually on their own functionality.[25]

The presence of playfulness in Islamic art is not limited to visual puns.[26] Paintings of chess competitions and carved game pieces of various kinds survive as evidence of a lively medieval gaming culture. Within Egypt, dice carved out of bone and various gaming pieces were discovered in the archaeological excavations at Fustat (fig. 17, cat. nos. **24–26**). The numerals on dice are denoted with a series of concentric circles and include numbers one through five, with the final side of the cube bearing twelve circles. Dice could be used in virtually any game requiring a chance drawing of numbers, most especially backgammon.[27] Chess also was played in the Islamic world, likely entering Central Asia and Persian lands through India before the Islamic

24. Grabar 1961; Ward 1993, 84–85; Baer 1998, 104–105; 1968.

25.Soucek 1978, 5, cat. no. 43.

26. On this subject, see Atil 1994.

27. Bacharach and Rodenbeck 2002, 34–35; Scanlon 1968; 1964.

Fig. 15. Basin with fishpond motif, 12th–13th centuries, Syria or Egypt, brass. Kelsey Museum of Archaeology, 28801 (cat. no. **36**).

Fig. 16. Left: Vessel fragment, 8th–10th centuries, Egypt, free blown and marvered glass. Kelsey Museum of Archaeology, 1965.3.223 (cat. no. **43**); Center: Fish-shaped vessel, 8th–9th centuries, Fustat (medieval Cairo), Egypt, glass. Kelsey Museum of Archaeology, 1970.3.965 (cat. no. **41**); Right: Flask, 11th–12th centuries, Egypt, free-blown and marvered glass. Kelsey Museum of Archaeology, 1968.2.100 (cat. no. **42**).

Fig. 17. Left: Gaming piece or noisemaker, date unknown (possibly 10th–15th centuries), Egypt, bone. Kelsey Museum of Archaeology, 1962.1.52 (cat. no. **25**); Center: Gaming piece or furniture fragment, 9th–10th centuries, Fustat (medieval Cairo), Egypt, bone, Kelsey Museum of Archaeology, 1969.2.62 (cat. no. **26**).; Right: Die, date unknown (possibly 10th–15th centuries), Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1962.1.104 (cat. no. **24**).

Fig. 18: Figurines, 9th–10th centuries, Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1969.2.93 and 1969.2.94 (cat. nos. **28–29**).

Fig. 19: Left and right: Two amulets, 20th century, Egypt, lead; Above: Coin with six-pointed star, 1872, Fez, Morocco, copper. Kelsey Museum of Archaeology, 80681, 80682 (cat. no. **30**), and 75884.

conquests. Chess pieces were made in various media (including bone, glass, and rock crystal) and in various shapes and stylized figures.[28]

Other figurines excavated at Fustat that are carved out of bone may represent a different kind of plaything (fig. 18, cat. nos. **28–29**). These palm-sized sculptures roughly resemble the human form, with an emphasis on facial features. While such figurines were common for centuries in medieval Egypt, their specific functions remain unclear. Perhaps they were dolls—that is, toys for children. Some of these figurines have small holes drilled into the figure's ears or chest, suggesting that other elements—such as clothing, ornaments, or wigs—were attached to it. If it was used as a toy, a child could play with the doll by dressing it or changing its hairstyle. On the other hand, the holes in some figurines suggest that they were affixed to a surface or on the human body, hence implying that these small figural objects may have fulfilled apotropaic functions as well.[29]

Other images, inscriptions, and designs likewise require symbolic activation in order to serve their intended function. For example, as a form of licit magic, Islamic talismans and amulets serve to protect their wearers from harmful forces, including malevolent spirits and the evil eye. Protective designs and writings usually necessitate some kind of physical contact with the body and thus often ornament talismanic shirts and metal pendants (fig. 19,

28. Ekhtiar 2011.

29. Rodziewicz 2012, 9–20, pls. 45, 102, and 106; Bacharach and Rodenbeck 2002; and Scanlon 1968, 16–17; 1964, pl. XVII, fig. 7.

Fig. 20. Magic bowl with attached prayer tablets, probably 19th or 20th century, Iran, brass. Historic Scientific Instrument Collection, Special Collections, Hatcher Graduate Library, GL7 (cat. no. **34**).

cat. no. **30**).[30] The perceived power of such objects derives from both their visual characteristics and physical properties. Moreover, many exhibit stars and magic squares that are inscribed with letters or numbers, whose total sum remains consistent across horizontal, vertical, and diagonal lines. They also include invocations to God as the "Protector" (*al-Hafiz*) as well as the names of the Seven Sleepers of Ephesus, which are believed especially effective in ensuring safe passage at sea. Displaying alphabetic and numerical puzzles as well as other protective designs, these amulets contain dormant blessings, or *baraka,* that are thought to be activated through the owner's physical interaction with the object.[31]

Wearing talismanic objects is just one way of seeking out and harnessing protective blessings. In addition, *baraka* can also be ingested via liquids that are believed to be invigorated with healing properties. A potion's curative properties are increased through contact with the Qur'an, itself God's sacred word. Besides the chalk washed off boards containing verses of the Qur'an,[32] so-called magic bowls also contained liquids that were used in popular healing and devotional practices (fig. 20, cat. no. **34**). These kinds of medicinal bowls exhibit allover pictorial and textual designs, impregnating the liquid contents with perceived healing powers. In Islamic premodern practices of spiritual medicine, a folk doctor administered such blessed water to an

30. For related amulets, see Savage-Smith 1997, pt. 1, 133; Porter et al. 2001, 169–170; Stevenson 1920, 97–98; and Kriss and Kriss-Heinrich 1962, 84 and 96.

31. For a general discussion of seals, see Porter 2004 and Porter and Frembgen 2010; on Seven Sleeper amulets, see Porter 2007; on magic squares, see Cammann 1969; and on protective six-pointed stars, see Dawkins 1944.

32. On African Qur'an writing boards and the imbibing of their "sacred" chalk and water run-off, see Silverman 2007.

Fig. 21. Ceramic vessel fragment studded with gemlike motifs, 13th–15th centuries, Egypt, clay with stamped and applied decoration. Kelsey Museum of Archaeology, 1969.2.21 (cat. no. **48**).

individual in order to help him or her recover from the sting of a scorpion, a nosebleed, problems with fertility and child birth, and countless other ailments. Prayers were uttered during the object's ritual use. At times, such prayers are inscribed on tablets affixed by a wire or thread to the rim of a magic bowl (as in fig. 20), turning the tiny metal tabs into a sonorous rosary when shaken. Last but not least, magic bowls were also used for divination; the liquid was believed saturated with magical powers to enable the augury seeker to better see into the future.[33]

Whether for the sake of humor or healing, these few examples highlight the perceived agency and power of objects in the Islamic world. They also pay tribute to the wit and wisdom required of their makers and invite their owners and viewers to stimulate their dormant powers through the interrelated practices of visual engagement and tactile interaction.

Media Metaphors

In his treatise, al-Tawhidi draws a parallel between calligraphy and jewelry by using one art form as a metaphor for the other. This phenomenon, in which one medium mimics or refers to the qualities of another, is relatively common in Islamic art. While such connections across media can be thought of as comparative thinking put into practice, they also emerged from artists working in adjacent workshops and collaborating on multimedia projects under one roof.[34] Thus, it is not rare to find artful designs executed as drawings also present in paintings, leather bindings, textiles, tiles, glasswares, metalwares, and woodwork.

Symbolically crossing over from earthen clay to precious stones, a number of medieval ceramic vessels seem ornamented in sumptuous jewelry (fig. 21, cat. no. **48**).[35] Such "jeweled" ceramics appear as if studded with faceted and embossed precious stones as well as ornamented with pearl bands, much like gold or silver vessels encrusted with gemstones. Perhaps such bezzled ceramic vessels were merely the poor man's version of jeweled metalwork, as the more expensive material object was recreated in a much less expensive medium. However, these sphero-conical containers are not merely covered in faux-gemstones and naïve imitations of luxury wares. For example, some ceramic versions of pendants appear as if hung around the neck of the vessel, mimicking the way in which a person would wear a similar piece of jewelry. In such cases, the earthenware is rendered in distinctly corporeal terms, the

33. Perk and Paksoy 2011, 11, 108, 118, 134–135, and 139; Savage-Smith 1997, pt. 1, 72–97; Ittig 1982; Spoer 1935; Willemsen 1993; Bates 1991; and Silverman 1991.

34. For example, on the Timurid royal atelier and its many concurrent, multimedia projects, see Tabrizi 2001.

35. Watson 2004, 107–111; Baer 1989; Ettinghausen 1965; Ghouchani and Adle 1992; Keall 1993; Savage-Smith 1997, pt. 2, 324–338.

Fig. 22. Left: Molar flask, possibly 9th–10th centuries, Egypt, cut glass. Kelsey Museum of Archaeology, 1968.2.41 (cat. no. **20**); Center: Glass fragment, 9th–10th centuries, Egypt, free-blown and cut colorless glass. Kelsey Museum of Archaeology, 1970.3.933 (cat. no. **49**); Right: Pouring spout and ornate thumb rest, 10th–12th centuries, Egypt, blown and cut glass. Kelsey Museum of Archaeology, 1970.3.60 (cat. no. **5**).

metaphor extending well beyond another medium to encompass the human body itself.

Another example of intermedia relations in both practice and aesthetics can be detected in glass relief-cutting techniques, whose results recall the delicately chiseled designs of rock-cut crystal (fig. 22, cat. nos. **5**, **20**, and **49**). While glass is often blown or molded when it is in semi-liquid form, crystal is a hard stone that requires meticulous carving. One wrong tap of the hammer could crack the extraordinarily thin walls of the transparent quartz, rendering the highly expensive crystal useless. In some instances, glass—a much less expensive medium—is made to look like rock-cut crystal by using a similarly subtractive method in executing its decoration, thus emulating a luxury product typically reserved for royal patrons.[36] Furthermore, rock crystal was considered by medieval Muslim scholars to be one of the clearest and thus purest substances on earth, just after air and water. In fact, rock crystal was often analogized to light and petrified water, both of which are believed to carry life-endowing properties.[37] The play among these many substances—glass, crystal, water, air, and light—is not merely imitative. Rather, it points to

36. Scanlon and Pinder-Wilson 2001, 99–114.

37. Carboni and Whitehouse 2001, 155–161, 172–175, figs. 79–81; Carboni 2001, 84–85, cat. no. 19; Jenkins 1986, 19, 27, fig. 26; Contadini 1999, 319–323; Oliver 1961; Stern 1997; Kröger 2007; Shalem 2010; Whitehouse 1993, 54–55; Scanlon and Pinder-Wilson 2001, 99–114; and Pinder-Wilson and Scanlon 1973, 24–28.

Fig. 23. Left: Vessel fragment with cupbearer blazon, 14th–15th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1969.2.6 (cat. no. **55**); Right: Cupbearer blazon, 13th–15th centuries, Egypt, appliqué cotton. Kelsey Museum of Archaeology, 88027 (cat. no. **54**).

Figure 24: Vessel fragment with interlace design, 14th century, Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1970.4.562 (cat. no. **51**).

each artist's mastery of his craft, which allowed him to take advantage of the full range of each medium's aesthetic, physical, and material properties.

While some media purposefully mimic others, such as the ceramic vessel covered in gemlike motifs and relief-cut glass inching closer to the look of rock-cut crystal, other motifs appear in many different media regardless of their material makeup. For example, during Mamluk rule in Egypt and Syria (1250–1517), court officials were tasked with specific duties and granted symbols of office, which were applied to the portable arts and architecture they sponsored. These symbols were emblazoned on all manner of objects, from clothing and pottery to carpets and enameled glass lamps (fig. 23, cat. nos. 54–55). For example, a ceramic sherd and appliquéd roundel, the latter of which in all likelihood would have been affixed to an item of clothing, bear an image of a goblet. This chalice denotes the administrative position of the *saqi*, or royal cupbearer. As one of the sultan's close cohorts, the cupbearer oversaw food and drink at the Mamluk court and while the ruler was on the move.[38]

Although some visual elements like Mamluk blazons fluctuate across material goods, other decorative devices do in fact emerge from and cite a particular medium. For instance, ceramics may emulate metalwork and include designs reminiscent of textile patterns. Such is the case with a sherd that represents both the decoration and color scheme characteristic of Mamluk pottery (fig. 24, cat. no. 51).[39] While these incised patterns and techniques closely resemble contemporaneous metalwares, the knotted pattern is not novel. Interlacing is a process that developed in conjunction with the medium of textiles or fabric production, well before the advent of Islam. Already

38. Mayer 1933, 10–11; Whelan 1988; Walker 2000; Lamm 1937, 67; Suriano 1998, 107–108; Grube 1976, 282–292, esp. 285, cat. no. 231; and Watson 2004, 408–409 and 412–414.

39. Grube 1976, 282–292, cat. nos. 225–249; Jenkins 1983, 6, fig. 3; Watson 2004, 412, cat. R. 20; and Scanlon 1980.

Fig. 25. *Tiraz* textile fragment, 10th century, Egypt, undyed linen and dyed silk. Kelsey Museum of Archaeology, 22520 (cat. no. **59**).

during ancient times it was used as a decorative device on many media, including ceramics. And in a rather self-referential manner, it was even represented on textiles themselves.[40]

Another visual feature that ornaments various media but also originated in textile arts is the *tiraz* band, or line of Arabic text. Although derived from the Persian word for embroidery, generally the term *tiraz* simply indicates an object or building that bears an inscription. Epigraphic texts on objects and buildings usually include Qur'anic verses, offer blessings and well wishes to the patron or owner, list his honorific titles, and provide other useful information such as a date of manufacture or construction.[41] At other times, the text band is in pseudo- or mock Arabic calligraphy, and thus decorative and illegible. In such cases, the letterforms are not merely non-communicative. Instead, they craft icons of literate culture or else appeal to devotional feeling.[42]

Often bands of Arabic inscriptions embellish medieval textiles, the silk text woven rather than embroidered onto the undyed linen ground cloth (fig. 25, cat. no. **59**).[43] Albeit largely in fragmentary condition, many *tiraz* textiles survive today due in large part to their use in funerary contexts. In life, such "scripted" textiles were used as honorific robes, declaring both the wearer's status and his allegiance to the monarch who gifted the item to him.[44] In death, it is believed that certain words and phrases have the ability to protect and bless the deceased individual. Exiting the textile arts, inscribed bands appear in other media as well, including stone revetments and wooden friezes used in both religious and secular structures. For example, one medieval wooden panel most likely decorated the interior of a medieval Egyptian

40. Contadini 1998, 39–58, 67–70, pls. 24 and 30; Bloom 2007, 161–162, fig. 129; and Micklewright 1991, 39.

41. Blair 1998; and Dodd and Khairallah 1981 (on Qur'anic verses in Islamic architecture).

42. Ettinghausen 1974; and Aanavi 1968.

43 Day 1937, 435, 441, fig. 20; Contadini 1998, 60–61, pl. 15; Marzouk 1943, 164–166; Sokoly 1997a, 71–78; Micklewright 1991.

44. On robes of honor (*khila'*), see most especially the articles by Allsen, Hambly, Petry, Sanders, and Sourdel in Gordon 2001; and Golombek 1998, 29.

Fig. 26. Inscribed panel, 11th–12th centuries, Egypt, carved wood. Kelsey Museum of Archaeology, 10201 (cat. no. **60**).

home (fig. 26, cat. no. **60**), where it permanently offered its owner, his family, and visitors glad tidings.[45] From textiles to woodwork, *tiraz* bands show how inscribed objects were used in the Islamic world to mark social status, extend well wishes in life, and safeguard the body in death.

Besides textiles and buildings, a ruler extended his presence and declared his wealth through coinage, which embodied his political strength and dispersed his power geographically. Many Islamic coins are purely epigraphic: they provide basic statements of the faith, the ruler's name and titles, and the date and place of the coin's minting. However, a number of exemplars also employ visual metaphors and motifs, such as logos, animals, human figures, and signs of the zodiac (fig. 27, cat. nos. **66–68**). In Ottoman lands, coins often included the *tuğra*, a stylized calligraphic signature comprised of intertwining letters that form the various parts of the ruler's name and titles. This ornate monogram represented the sultan's sovereignty and, like the blazons of Mamluk officials, functioned as an immediately recognizable symbol of elite power regardless of its legibility.[46] In addition, within Egypt bust portraiture emerged in numismatic arts during the modern period, while solar, lunar, and stellar imagery appear on Iranian coins from at least the seventeenth century. By the Qajar dynasty (1785–1925), however, the image of the sun and lion (*shir o khorshid*) acquired new cosmic, political, and sectarian meanings under the Shi'i shahs of Iran.[47]

Gold and silver coins did not always weigh a standard size or include pure content. For these reasons, within medieval markets purchases were made not by a specific number of coins but rather by coin weight (fig. 28, cat. nos. **69–72**). Precious metal coins were measured on a balance against glass coin weights in order to settle on the correct monetary sum, regardless of the number of actual metal coins. Different sets of coin weights were used for gold *dinars,* silver *dirhams,* and copper *fulus*, and frequently such glass weights imitate the form and epigraphic content of their metal analogs. Moreover,

45. Glidden 1939, 94, and fig. 4; Bloom 2007, 67, fig. 38; Contadini 1998, 111–112, and pl. 52a–e; Mayer 1958, 13–14; Pauty 1931; Décobert and Gril 1981; and Wiet 1958.

46. Bates 1982, 46–61; Bates and Darley-Doran 1985, 393; Heidemann 2010; Wasserstein 1993, 303–322; Umur 2011, 256–259; and Nadir 1986, 144–149, cat. nos. 60–62.

47. Soucek 2001, 66; 2006; Piemontese 1969; and Hinz-Göttingen 1937.

Fig. 27. Egyptian, Ottoman, and Iranian coins, 19th–20th centuries, metal. Clockwise from right: Kelsey Museum of Archaeology, 75794 (cat. no. **67**), 75784 (cat. no. **68**), 75938 (cat. no. **66**), and 75939.

Fig. 28. Glass coins and weight, 8th–12th centuries, Egypt, green and brown glass. Kelsey Museum of Archaeology, 91244 (cat. no. **71**), 91481 (cat. no. **70**), 1964.2.13 (cat. no. **69**), 1964.2.14 (cat. no. **72**), and 1964.2.16.

large glass weights were also used to measure items in bulk. They are quite rare, as metal weights were far more common for measuring products—such as olive oil and grain—by the pound. While weighing coins was a common practice across the medieval Islamic world, the use of glass in particular seems to have started in Egypt, where both glass coin and pound weights were made by impressing one or more inscribed stamps into a measured globule of glass while it was in a semi-liquid state.[48]

Media metaphors are pervasive across these art forms. At times a material was valued for its particular characteristics such that other media were manipulated to emulate it, as in the case of "jeweled" ceramics. In other words, a medium's material properties—along, perhaps, with its perceived monetary value—were imitated in and symbolically carried over to another. At others, a pattern was at first popular within a particular medium and then spread to others, as is the case with interlace designs and *tiraz* inscriptions. Further still, some motifs—like swimming fish and cup blazons—entirely transcend a particular material and appear in a variety objects, from glassworks to metalwares. Through their artistic creativity and expressive freedom, artists and craftsmen often experimented with new techniques, perfecting their craft while concurrently pushing the limits of their own media.

48. Miles 1951a; Bates 1993; 1981; Balog 1981; and Ettinghausen 1939.

Fig. 29 (opposite). Illuminated double-page opening of the Qur'an, dated AH 1032/1623 CE, Ottoman lands, ink and gold on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 167 (cat. no. **80**).

Illumination

While al-Tawhidi likens beautiful handwriting to wisdom and order, another way to visually represent spiritual and intellectual enlightenment in book arts is through illumination—that is, the embellishment of manuscripts with geometric and vegetal designs painted in gold, lapis lazuli, and other organic and inorganic pigments. Islamic manuscripts, in particular copies of the Qur'an, are illuminated in a variety of ways, especially in their opening pages (fig. 29, cat. no. **80**). In Islamic metaphorical thought, light (*nur*) represents God's presence and revelation on earth. As God's sacred Word, the Qur'an is thus particularly subject to lavish illumination, where it does not merely function as ornament. Much more significantly, it serves to illuminate—to shed light on—something, in this instance the "correct path" into faith and belief. Illuminating a codex with gold pigment certainly increases its intrinsic material, and hence symbolic, value. Moreover, it also lends it glory and majesty as well as a touch of the numinous.[49]

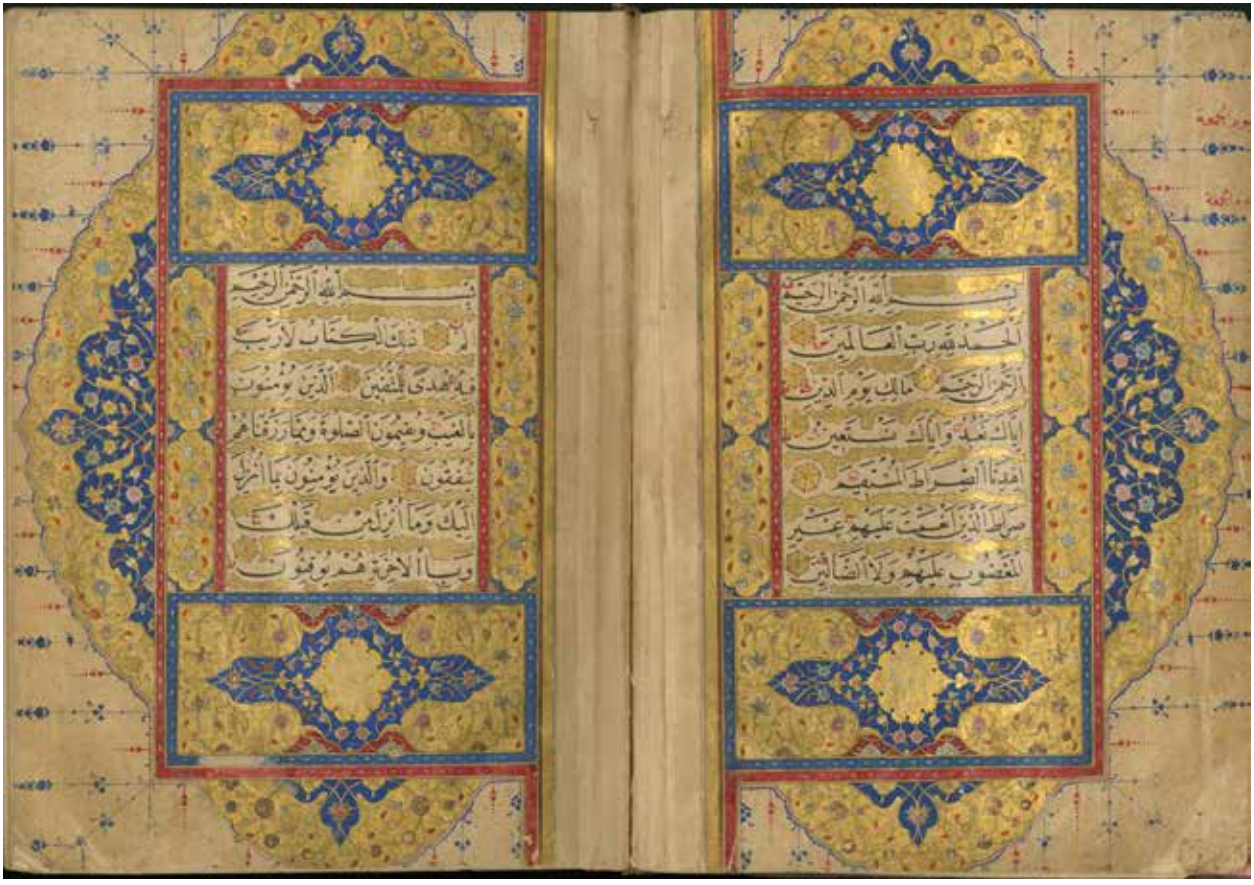
Gold paint was used alongside other pigments in Islamic pictorial traditions, including representations of historical events and religious tales. That figural representations are strictly forbidden is one of the most common misconceptions about Islamic art, both within and outside Islamic cultural spheres. Images of living entities, including holy persons, appear most especially in illustrated manuscripts made in the premodern Persian and Turkish world. For example, a painting included in an Ottoman illustrated copy of Fuzuli's *Hadiqat al-Su'ada* (Garden of the Blessed), a Shi'i martyrology, depicts the death of the Prophet Muhammad as he is surrounded by his loved ones (fig. 30, cat. no. **81**).[50] Here, the five members of the holy family (*ahl al-bayt)* are set apart by their flaming gold haloes in order to visually emphasize that they were touched by divine flux. At some later date, a viewer evidently added (rather sloppily executed) black veils to cover the faces of Muhammad and his family, while the two attendants' visages remain untouched. This later manipulation of the painting forces the viewer to contemplate solely the figures' radiant aura rather than their individual facial traits. What's more, the insertion also bears witness to fluctuating sensibilities toward figural imagery in the Islamic world over the course of several centuries.[51]

Handwritten manuscripts and printed books were not the only objects that were enriched with light-reflective pigments. Plenty of stone inscriptions and *tiraz* textiles were highlighted in gold paint as well (fig. 31, cat. no.

49. Waley 1991, 89.

50. See the manuscript's online catalogue entry at http://mirlyn.lib.umich.edu/Record/006822121/Description#tabs; and comparative paintings in Milstein 1990, 100–105, cat. nos. 14–31, figs. 12 and 21.

51. On the light of God and the Prophet Muhammad, see Rubin 1975; on "light" depictions of the Prophet in Islamic manuscript paintings, see Gruber 2009; and on the varying responses to figural images within Islamic traditions, see Flood 2002.



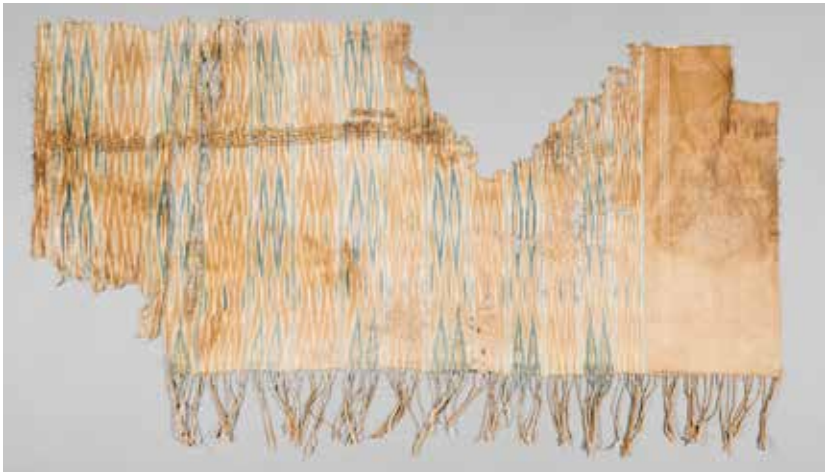


Fig. 30 (opposite). The Prophet Muhammad's death, Fuzuli (1495–1556), *Hadiqat al-Su'ada* (Garden of the Blessed), text dated AH 1006/1598 CE, possibly Ottoman Baghdad, ink, pigment, and gold on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 386, page 137 (cat. no. **81**).

Fig. 31. *Tiraz* textile, Yemen or Egypt, 10th–12th centuries, cotton with resist-dyed warp (*ikat*), ink, and gold paint. Kelsey Museum of Archaeology, 22621 (cat. no. **3**).

3). Within textile arts, the application of gold paint to a cotton base reveals the extent to which cloth could be conceptualized and used as a supple support for painterly elaboration, much like parchment or paper. Unlike manuscripts, however, the gilt inscriptions on medieval textiles were meant to be seen rather than secreted away behind book covers. Moreover, if draped on the human body, such gold-painted textiles allowed their elite wearers to both embody and exude radiance, dazzling onlookers along the way.

For both practical and spiritual reasons, there also exists an abundance of objects that literally emit light, chief among them lamps. While all lamps serve the same function, they come in a variety of forms and media, from blown enamel-painted hanging mosque lamps to smaller ceramic ones meant for domestic use. The latter are typically decorated with hand-executed or molded decorative patterns (fig. 32, cat. no. 74).[52] Some oil lamps are also covered in monochrome glazes, some of which appear iridescent. Whether made of glass or ceramic, each type of lamp emitted light but also played with it. Those with gilding would be further illuminated, as the gold painted onto the convex surface would have sparkled when lit (fig. 33, cat. no. 78).[53] The gold-painted designs, inscriptions, and blazons found especially on Mamluk glass lamps would have seemed as if haloed. While setting an interior space alight, their glowing radiance would have ricocheted off the lamps' own reflective surfaces, placing function and beauty in aesthetic concert.

52. Kubiak 1970, 3–6, fig. 1; and Scanlon 1964, pl. XVI, fig. 8.

53. Shalem 1994, 5–7; Carboni 2001, 323–369, esp. cat. nos. 92a–j, 93a–d, and 100a–c; Carboni and Whitehouse 2001, 199–273; Scanlon and Pinder-Wilson 2001, 114–119; and Rogers 2000.

Fig. 32. Oil lamp, 9th–10th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1972.1.19 (cat. no. **74**).

Fig. 33. Fragments from different vessels or lamps, 13th–15th centuries, Egypt, enamel-painted and gilded glass. Clockwise from top: Kelsey Museum of Archaeology, 1970.3.652, 1970.3.669, and 1970.3.738 (cat. no. **78**).

The aesthetics of light are explored in a multitude of ways in Islamic art. From radiant lamps and gold-painted textiles, which generate luminosity and whose bodies may glow, to the widespread use of gold in manuscript illumination and illustration, the conceptual and visual linkages among light, illumination, and spiritual enlightenment are a hallmark of Islamic artistic expressions. Fluctuating from one medium to the next, light is made visually present and palpable all the while it transcends both matter and material.

Conclusion

Al-Tawhidi's brief statement about the fine art of calligraphy raises a number of questions about art and its intersections with allegorical and analogical expression in the Islamic world. His wise saying is also made all the more nuanced and textured through an exploration of the holdings of Islamic art at the University of Michigan, Ann Arbor. The objects included in the exhibition "Pearls of Wisdom" serve to concretize, elucidate, and expand upon his poetic assertions. In addition, through its thematic approach, the exhibition explores a number of intertwining "strands"—from everyday beauty, play, and protection to media and light metaphors. The conjunction of these strands highlights how beauty and harmony are variously conceptualized and given form through the many ways artistic expression has enhanced the world of Islam from the seventh century until today.

Catalogue of Objects

1. Khaled al-Saa'i (born 1970), *Winter in Ann Arbor*, painted in Ann Arbor in 2002, natural ink, tempera, and gouache on paper. University of Michigan Museum of Art, 2003.1.366.

As the art of beautiful writing, calligraphy is not just a means to convey information. It has been admired for its form and beauty from medieval times to today. Contemporary artists have used the Arabic alphabet to produce calligraphic paintings, calligraffiti, and abstract formal compositions.

In this painting, Syrian-born contemporary calligraphic artist Khaled al-Saa'i constructs an ethereal composition by layering and juxtaposing Arabic letterforms in varying sizes. He plays with space and light while also deconstructing words into letters and rhomboids. The painter transcends legibility and instead focuses on the form of the letters and the oral effects they generate. For example, the repeated soft letter *ha* produces the sound of sighing or exhaling. Suggestive of breathing through mist, the *ha* is appropriate for this painting, which al-Saa'i made during his 2002 stay in Ann Arbor. Through letterforms, their oral effects, and crisp hues, he attempts to convey his memorable experience of a chilly and snowy—yet soothing and picturesque—Michigan winter.

Bibliography: Porter 2006, 151–187; Naef 2003, 168–171; and Schimmel 1987.

2. Examples of the letters *alif*, *ba*, *ha*, and *he* with pearl-shaped measures in red ink, Tacbeyzade Mehmet bin Tacettin (d. 1587), *Risale-yi hat* (Calligraphy Treatise), penned by the calligrapher Kebecizade Mehmet Vasfi Efendi (d. 1831), Ottoman lands, ca. 1772, ink on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 401.

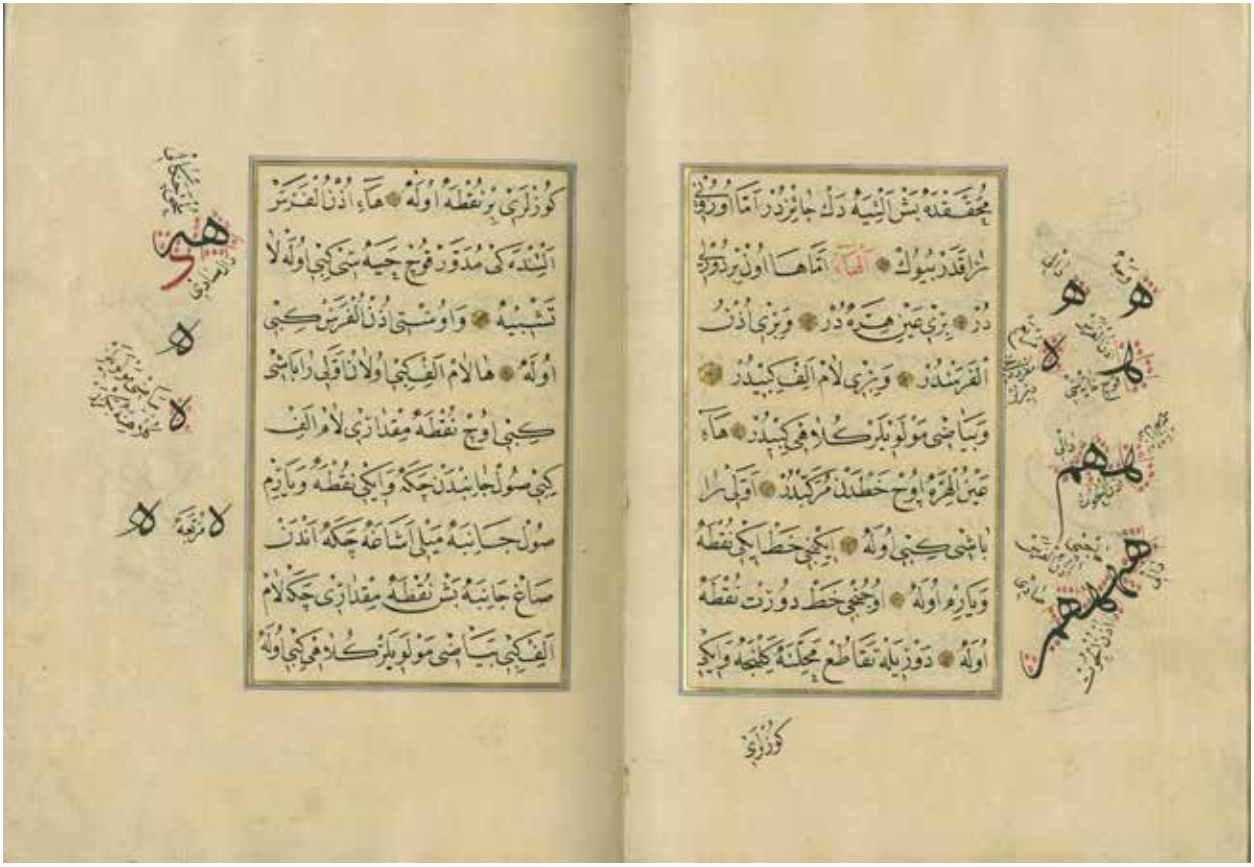
A third manuscript page showing the letter *kaf* appears opposite page 1 above.

Calligraphy in the Arabic script is created using a system of proportions based on the rhomboid. This shape is formed when the ink-soaked tip of the reed pen is pressed onto a writing surface like paper. In this calligraphic treatise written in Ottoman Turkish, the scribe demonstrates the rhombic system in the margins, measuring each Arabic letter with rows of red circles.

After many years of training, a calligrapher would not need to measure letters in this way since he could sense proper proportions with each stroke of his pen. For these reasons, this treatise showcases the mastery of the craft along with visual exemplars. Moreover, in his tract the author develops precise terminology for each letterform.

Beyond establishing a system of proportionality, these rhombic marks also possess symbolic meanings. As al-Tawhidi explains, when aligned they act like chains of ordered pearls that parallel the order of the universe and an organized mind filled with knowledge and wisdom. The rhombus is also likened to a blood clot, which represents the origin of life.

Bibliography: Manuscript's online catalogue entry (http://catalog.hathitrust.org/Record/006822263); Schick 2000; Rosenthal 1948; and Schimmel 1987.



detail

3. *Tiraz* textile, Yemen or Egypt, 10th–12th centuries, cotton with resist-dyed warp (*ikat*), ink, and gold paint. Kelsey Museum of Archaeology, 22621.

This *tiraz* (inscribed) fragment stands out not only for its painted gold inscription but also for its complex patterning of color, which is achieved by resist-dyeing the warp threads prior to weaving the cloth. This technique, known as *ikat*, is characteristic of Central Asian textiles. This particular color palette and *ikat* pattern, however, were commonly used in *tiraz* textiles produced in medieval Yemen, after which imitations started to be produced in Egypt.

The *ikat* technique has the potential to yield highly polychromatic textiles. Each color requires a new dye bath and many hours of labor to untie and retie the warp threads between dye baths. As a consequence, the technique was rather costly, yielding expensive textile products targeted to elite wearers. Whether *ikat* dyed or plain, *tiraz* textiles performed several social functions beyond mere clothing. They were used to declare allegiance in the form of robes of honor and conferred blessings when used as burial shrouds.

In this example, a barely legible Arabic benedictory inscription is painted in gold and highlighted in black pigment. Above the line of foliated script appears the short laudatory expression "Dominion belongs to Him [God]" (*al-mulk lahu*).

Bibliography: Day 1937; Ekhtiar et al. 2011, 52, cat. no. 29; Contadini 1998, 61–62, pl. 15; Baker 1995, 53–61; Micklewright 1991; Sokoly 1997a; 1997b; Marzouk 1943; Ettinghausen 1974; Aanavi 1968; and Blair 1998, 164–169.

4. Tile mosaic *muqarnas* fragment, 13th century, Konya, Turkey, glazed ceramic in plaster. Kelsey Museum of Archaeology, 80070.

This architectural fragment comprises a single unit of a complex structural formation known as *muqarnas*. When many of these niche-like units are juxtaposed at different angles and placed on several tiers, they produce a honeycomb effect that plays with color and light patterns. Yet *muqarnas* are just as functional as they are beautiful. The network of *muqarnas* niches would be used in the space between the square frame of a building and the circular base of a dome, thus embellishing an otherwise awkward transition zone. In addition to domes, *muqarnas* are used in other concave zones such as archways (*iwans*) and prayer niches (*mihrabs*). This particular *muqarnas* fragment was probably made during Seljuk rule in Konya, located in Anatolia (modern-day Turkey). It is decorated with alternating turquoise and deep purple glazed tiles in a manner that resembles a woven pattern. This decorated architectural fragment is just one example among many demonstrating how architects, designers, and artisans "clothed" and decorated buildings in the Islamic world.

Bibliography: Tabbaa 1985; Bloom 1988; Ettinghausen 1999; Baer 1998, 50ff.; Redford 2005; Arık and Arık 2008, 37–189; and Meinecke 1976, pls. 1, 8, 11, 17–18, 20, 26, 29, and 35.

5. Pouring spout and ornate thumb rest, 10th–12th centuries, Egypt, blown and cut glass. Kelsey Museum of Archaeology, 1970.3.60.

Even in their fragmentary condition, this pouring spout and thumb rest are beautiful in their translucent purity. The intricately carved piece would have been situated at the top of a handle on a glass pitcher, where it would have functioned to steady the hand while pouring. While any small piece of glass would have sufficed for this purpose, this thumb rest is highly ornamental, making it as beautiful as it is practical. The colorless glass and the chiseled pattern resemble rock-cut crystal, which was also employed to make such vessels. It is possible that glass carved in this manner was intended to mimic crystal, a more delicate and difficult to carve luxury material that in Islamic thought was analogized to petrified water.

Bibliography: Scanlon and Pinder-Wilson 2001, 99–104, fig. 43f; Bloom 2007, 101–105; Contadini 1998, 16–38; and Shalem 1994, 3.

6. Bread stamps, 9th–12th centuries, Fustat (medieval Cairo), Egypt, hand-tooled clay. Kelsey Museum of Archaeology, 1972.1.32 and 1972.1.33.

When pressed into soft dough, these small clay stamps create a decorative star design baked into bread. The production of patterned bread was common in Coptic Egypt and thus well established by the Islamic period. In medieval Cairo, individuals had their daily bread baked in communal ovens. Therefore, one of the functions of such stamps was to help distinguish different loaves as they came out of the oven to be retrieved by customers. It also is possible that bread stamps were used as a means of marking or recording bread quotas in the marketplace. While these radial patterns were quite popular, other motifs were applied as well. Among them are animal designs and inscriptions, including the well-wishing exhortation: "Eat well!"

Bibliography: Kühnel 1939; Grabar 1992, 98; and Galavaris 1990, 8–9.

7. Spindle whorls, 9th–10th centuries, Fustat (medieval Cairo), Egypt, incised bone. Kelsey Museum of Archaeology, 1969.2.60 and 1969.2.61

These small circular objects carved from bone are probably whorls—that is, the weighted part of a drop-spindle used for sustaining centripetal force while spinning yarn or thread on a spindle. Their small scale indicates that these whorls were likely used to spin a fine yarn. The incised patterns are purely decorative. However, they cleverly play with the functionality of the object, as the pattern would have been seen in both static form and in circular motion.

Bibliography: Bacharach and Rodenbeck 2002, 35–36.

8. Comb to brush hair or detangle textile threads, probably 13th–15th centuries, Egypt, incised bone. Kelsey Museum of Archaeology, 1966.1.173.

While only the base of the teeth survive, this incised bone tool clearly functioned as some sort of combing device. It may have been used as a comb to brush hair and remove dirt and lice. It also may have been an implement in artistic processes, such as detangling warp threads before weaving them into cloth.

While this type of everyday object or tool was manufactured for utilitarian purposes, it nevertheless was embellished. In this instance, the center of the comb is ornamented with a symmetrical composition of curvilinear incised patterns situated within a double-lined frame.

Bibliography: Georges 1991, pls. III–VII; Scanlon 1997; and Raziq 1972.

9. Vessel with water filter, 8th century, Fustat (medieval Cairo), Egypt, wheel-thrown clay. Kelsey Museum of Archaeology, 1969.2.24.

This ceramic vessel is historically significant for its intact condition even though the pattern of its water filter is less ornamentally complex than other extant examples. In its integral shape, this vessel demonstrates the construction and utility of vessels outfitted with water filters. On the inside of the neck a circle of pierced holes filtered impurities out of the water as it was poured out of the vessel. In addition, the filter also protected the interior liquid contents from insects, dust, and other debris.

Bibliography: Olmer 1932; Scanlon 1970a; 1964, 65–68, pl. XV, figs. 6–7; 1986, 4, fig. 6; 1968; and Watson 2004, 133, cat. Ae. 1.

10. Water filter with lion design, 10th–12th centuries, Fustat (medieval Cairo), Egypt, hand-tooled and pierced clay. Kelsey Museum of Archaeology, 1971.1.3.

This ceramic water filter includes a delicately carved lion set against a background of pierced rhomboids. The filter serves its purpose just as well as any other, but the design sets it apart as more than just a utilitarian object. The ornamented filter thus blurs the lines between beauty and utility. Besides this lively lion, zoomorphic water filters excavated at Fustat (the capital of medieval Egypt) depict a variety of animals, including birds, rabbits, elephants, gazelles, and peacocks.

Bibliography: Olmer 1932; Scanlon 1986, 38–40, pl. 22-a; 1970a; 1968; 1964; and Watson 2004, 133, cat. Ae. 1.

11. Water filter with geometric pattern, probably 13th–14th centuries, Fustat (medieval Cairo), Egypt, hand-tooled and pierced clay. Kelsey Museum of Archaeology, 1971.1.22.

The pierced holes that comprise this ceramic water filter create a star-shaped geometric pattern. The pointed tips and incised lines result in a lively radial design. Like the decoration found on spindle whorls, this filter's decorative composition plays with the round form of the ceramic vessel's neck. Delicate and functional, this kaleidoscopic lattice filtered a variety of undesirable materials from the liquid contained in a ceramic vessel.

Bibliography: Olmer 1932; Scanlon 1986; 1970a; 1968; 1964; and Watson 2004, 133, cat. Ae. 1.

12. Water filter with geometric pattern, probably 13th–14th centuries, Fustat (medieval Cairo), Egypt, hand-tooled and pierced clay. Kelsey Museum of Archaeology, 1972.1.22.

Unlike other ceramic water filters decorated with concentric geometric patterns, this example does not include a radial design. Instead, its simple triangular shapes are repeated to form a grille that resembles woven or braided textiles. These kinds of patterns that mimic textiles can be seen in many art forms, from water filters to architecture. Ornamented with rhythmically alternating rows of triangles, this utilitarian water filter (and others like it) served to add a touch of beauty to everyday life.

Bibliography: Olmer 1932; Scanlon 1986; 1970a; 1968; 1964; Watson 2004, 133, cat. Ae. 1; and Golombek 1988.

detail

13. Embroidered textile (*suzani*), 19th or 20th century, possibly Afghanistan, indigo dyed cotton with embroidery in silk thread and satin stitch. University of Michigan Museum of Anthropological Archaeology, 2010-16.2.

This modern embroidered textile, or *suzani*, is in immaculate condition. Its every inch is covered in expertly stitched embroidery. The dark indigo-black of the base cloth can hardly be seen beneath the dense embroidered patterns executed in a warm color palette of reds, oranges, and yellows, with occasional touches of pale green. The design is almost symmetrical across the width, and rows of arch-like motifs demarcate the textile's central point. The patterns of geometric motifs are worked largely on the diagonal. Such a large textile could have fulfilled a variety of functions as a wrapped garment or wall furnishing.

Bibliography: Gillow 2013, 231; Baker 1995; and Meller 2013.

14. Crimson shawl, probably Kashmir, ca. 1870, woven and pieced wool with embroidery. University of Michigan Museum of Anthropological Archaeology, 17369.

Full-page illustration on page 10 above.

Large shawls like this one were worn on the body, strategically draped to show the fine artistry of the design and craftsmanship of the construction. This square shawl in particular was made from many small pieces of woven cloth masterfully stitched together in the so-called patchwork technique. It exhibits at least a dozen colors of dyed wool woven from the down of the Cashmere goat, a fine fiber still coveted today. While popular in Kashmir during the late 19th century, such luxurious shawls also became highly fashionable garments in Europe, where they sparked a new shawl-weaving industry that was aided significantly by the advent of the automatized Jacquard loom.

Bibliography: Shawl's online catalogue entry (http://webapps.lsa.umich.edu/umma/exhibits/Koelz_Collection_2010/Shawls/shawl_17369.html); Beardsley and Sinopoli 2005, 187–189 and 239; Ames 1997; Irwin 1973; and Lévi-Strauss and Listri 1987.

detail

15. Polychrome textile with patterns and pseudo-Arabic inscriptions, probably 12th–13th centuries, Fustat (medieval Cairo), Egypt, bast and silk. Kelsey Museum of Archaeology, 94165.

This delicate linen textile fragment is covered in rows of finely woven patterns, including a few bands of barely discernable script. Such decoration was quite time-consuming and reserved for the finest cloth. Previously stark inscribed (*tiraz*) textiles became more ornamental during the Fatimid and Mamluk periods (10th–15th centuries) in Egypt, as textile designers began to add rows of colorful geometric, vegetal, and animal patterns. An inscription is present in this fragment but remains almost invisible among the detailed designs. In this instance, legibility is set aside in order to emphasize the overall ornamental quality of the fabric and its rhythmic effects. While it is impossible to determine the exact use of a piece of fabric in such fragmentary condition, the weight of the cloth and the delicacy of the designs suggest that it may have been worn on the body.

Bibliography: Day 1937; Golombek 1988; Marzouk 1943; Micklewright 1991, 39; Sokoly 1997b; Blair 1989, 329; and Ettinghausen 1974, 304.

16. Conical cap, probably 13th–15th centuries, Egypt, wool. Kelsey Museum of Archaeology, 94075.

This small patterned cap is called a *turtur* in Arabic. It most likely served as the core around which a turban cloth would have been wrapped. The undyed threads create a design in high contrast against the indigo ground. Curvilinear shapes interlock around the exterior of the cap, which is then topped with an embroidered star.

As in many world cultures, attire and headgear carry great cultural significance in the Islamic world. Such rimless, conical headpieces were worn by both men and women in medieval Egypt. They also were used by Bedouins and mystics, some of whom wore distinctive headgear adorned with star patterns. At others times, such caps were covered in strange objects (such as foxtails and shells) and worn by criminals as a form of ridicule as they were paraded through the streets. Thus, these caps could serve various functions, from personal adornment to visual punishment.

Bibliography: Atasoy 2000; Ellis 2001, 92–93, cat. nos. 64–65; Karateke 2001, esp. pl. 47; Lange 2008, 58, 80, 85–87, 170, and 234; and Dozy 1845, 262–278 (viz. *turtur*).

KM 1970.3.231

KM 1970.3.321

KM 1970.3.337

17. Bangles of various sizes, 12th–15th centuries, Fustat (medieval Cairo), Egypt, glass. Kelsey Museum of Archaeology, 1970.3.231, 1970.3.321, and 1970.3.337.

Colorful glass jewelry was produced for hundreds of years before the advent of Islam, especially during the Roman period. Therefore, dating such objects is difficult since the technology and designs changed very little over time. These bangles were made from threads of colored glass that were softened, twisted, and combined in various ways in order to create different patterns. They come in many sizes, suggesting that both adults and children wore them. Alternatively, they may have been worn on different parts of the body, such as the wrist or upper arm.

Bibliography: Carboni 1994; Jenkins 1986, 55; Spaer 1992; and Scanlon 2002.

18. Comb, 13th–15th centuries, Fustat (medieval Cairo), Egypt, wood. Kelsey Museum of Archaeology, 1969.2.20.

The wooden combs found in Fustat (medieval Cairo) were used in Egyptian everyday life. They detangled knots, and cleaned and styled hair. The different widths of denticulation allowed for the comb's dual function. The broader teeth unkinked the hair, while the finer teeth rid it of lice as well as dust and dirt. Its uses were thus hygienic and aesthetic. In addition, functional objects such as these were quite often ornamented with patterns, including series of concentric circles like those delicately carved into the center panel of this wooden comb. Other combs also include inscriptions that praise solely their aesthetic results, proudly declaring: "I am a comb for the hair. I am only used for beauty."

Bibliography: Georges 1911; Scanlon 1997; and Raziq 1972, 407.

19. Molar flask, possibly 9th–10th centuries, Egypt, cut glass. Kelsey Museum of Archaeology, 1968.2.13.

This small bottle carved from relatively opaque glass is a popular shape for glass cosmetic containers used in medieval Egypt. Commonly referred to as "molar flasks," these vessels' shape is thought to resemble a tooth. The four "feet" function as a tiny pedestal for the miniature flask, which would have been filled with various cosmetics, including kohl (a black unguent used as an eyeliner) and essential oils to perfume the body.

Bibliography: Georges 1911; Jenkins, 1986, 24; Scanlon 1964; Scanlon and Pinder-Wilson, 2001, 91–99; Pinder-Wilson and Scanlon 1973, 24–28; Carboni and Whitehouse 2001; and Carboni 2001, cat. 27a–c, 124–127, cat. 2.28a–q.

20. Bottle, 10th–11th centuries, Egypt, cut glass. Kelsey Museum of Archaeology, 1968.2.63.

Rather than a molar tooth, this glass cosmetic container resembles a miniature amphora. The delicately carved aqua-colored glass vial mimics the cut-relief work of rock crystal objects made in Egypt during the 10th and 11th centuries. These types of small glass vessels were used to store unguents, oils, and cosmetics. For example, kohl, a black powder, would be stored in small flasks and applied to the eyes using a wetted applicator—much like modern-day eyeliner. Perfumes and essential oils have played important aromatic and olfactory roles in the Islamic world throughout the centuries. For these reasons, a variety of vessels have been produced, from rosewater sprinklers to perfume bottles.

Bibliography: Georges 1911; Jenkins 1986, 24–25, fig. 23; Scanlon 1964; Scanlon and Pinder-Wilson 2001, 91–104, fig. 43g; Pinder-Wilson and Scanlon 1973, 24–28; Carboni and Whitehouse 2001; and Carboni 2001, 98–100, cat. 27a–c, 124–127, cat. 2.28a–q.

21. Molar flask, possibly 9th–10th centuries, Egypt, cut glass. Kelsey Museum of Archaeology, 1968.2.41.

This so-called molar flask is made of clear glass and has a long neck. The unguent or oil housed in this diminutive vial would have been applied to the body or face using a wooden or metal applicator, such as a cosmetic spoon (see cat. no. 23).

Bibliography: Georges 1911; Jenkins 1986, 24; Scanlon and Pinder-Wilson 2001, 91–99; Pinder-Wilson and Scanlon 1973, 24–28; Carboni and Whitehouse 2001; and Carboni 2001, cat. 27a–c, 124–127, cat. 2.28a–q.

22. Large molar flask, possibly 9th–10th centuries, Egypt, cut glass. Kelsey Museum of Archaeology, 1968.2.43.

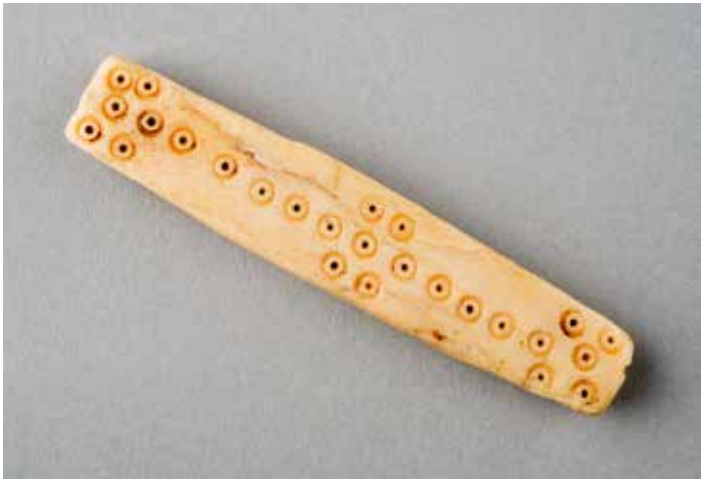
This deep blue flask is relatively large for a glass cosmetic container. In addition to essential oils and perfumes, these types of vessels stored kohl, a natural black powder used to darken the area around the eye, like mascara or eyeliner. Such items were functional and also served to ornament and beautify the human body. It is thus fitting that the vessels themselves were decorated, and typically with carved relief designs. Although such flasks are small and delicate, they have been found in substantial quantities in Fustat (medieval Cairo).

Bibliography: Georges 1911; Jenkins 1986, 24; Scanlon 1964; Scanlon and Pinder-Wilson 2001, 91–99; Pinder-Wilson and Scanlon 1973, 24–28; Carboni and Whitehouse 2001; and Carboni 2001, cat. 27a–c, 124–127, cat. 2.28a–q.

23. Cosmetic spoon, 10th–11th centuries, Fustat (medieval Cairo), Egypt, bronze. Kelsey Museum of Archaeology, 1969.2.96.

This long and thin metal implement would have fit perfectly into the small glass containers used to store cosmetics such as perfumes, oils, and kohl. If used as a kohl applicator, the tip of the tool would be moistened and dipped into the black powder and then drawn around the eye, like modern-day eyeliner. Kohl served to protect, beautify, and highlight the eyes of men, women, and children.

Bibliography: Georges 1911; Bacharach 2002; and Scanlon 1968; 1964.



24. Die, date unknown (possibly 10th–15th centuries), Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1962.1.104.

In addition to various gaming pieces, carved bone dice such as this one were found in the archaeological excavations at Fustat (medieval Cairo). The numerals are marked by a series of concentric circles, and they include numbers one through five, with the final side of the cube bearing twelve circles. Dice could be used in virtually any game requiring a chance drawing of numbers, chief among them backgammon.

Bibliography: Bacharach and Rodenbeck 2002, 34; and Scanlon 1968; 1964.

25. Gaming piece or noisemaker, date unknown (possibly 10th–15th centuries), Egypt, bone. Kelsey Museum of Archaeology, 1962.1.52.

The function of this carved bone piece decorated with a pattern of concentric circles remains unclear. It may be an amulet that was worn as a pendant or a noisemaker, since a small rod could be attached to the object and scraped along the pattern to produce sound. Alternatively, it may have been a piece belonging to an unknown game.

Bibliography: Rodziewicz, 2012, 20–22, pls. 52 and 107; Bacharach and Rodenbeck 2002, 35–38; and Scanlon 1968; 1964.

26. Gaming piece or furniture fragment, 9th–10th centuries, Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1969.2.62.

This small bone piece was carved on a lathe. It is impossible to determine with certainty its function, however. Perhaps it served as a decorative element for a wooden object, such as a cabinet or window grille. Alternatively, it may have been part of a chess set, a highly popular board game in the Islamic world.

Bibliography: Rodziewicz 2012, 7–9, 20–22, pls. 28 and 93–95; Bacharach and Rodenbeck 2002, 84; Jenkins 1986, 52; and Ekhtiar et al. 2011, 112.

27. Gaming piece, Roman or Islamic, Egypt, millefiori glass. Kelsey Museum of Archaeology, 1970.3.1045.

Because glass-making techniques changed very little over the centuries, glass objects such as this small piece are hard to date. Their pattern is created by a technique called millefiori or "thousand flowers," which dates back to the Roman period. Long rods of colored glass are gathered and fused together. Then the cylinder is cut to reveal a pattern that resembles many tiny flowers. While it is difficult to determine with certainty the various functions of these small objects, they may have been used in a board game like backgammon.

Bibliography: Carboni 2001, 45, cat. no. 1.13a; Carboni and Whitehouse 2001, 147–153; and Jenkins 1986, 52.

28. Figurine, 9th–10th centuries, Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1969.2.93.

While it might be easy to label this minute figure carved out of bone a "doll," the function of the statuette remains unclear. It may have been a toy, but the holes pierced through the chest suggest that it may have been tied to another object and thus fulfilled amuletic functions. What is clear, however, is that the body of the figure was carved quickly and easily from a piece of bone. The deep cuts that form the arms and legs suggest a human body and are not modeled naturalistically. More detailed attention is given to the figurine's head, with its delicately carved ears, nose, mouth, and especially large eyes.

Bibliography: Rodziewicz 2012, 9–20, pls. 47 and 99; Bacharach and Rodenbeck 2002; and Scanlon 1968, 16–17; 1964.

29. Figurine, 9th–10th centuries, Fustat (medieval Cairo), Egypt, bone. Kelsey Museum of Archaeology, 1969.2.94.

While only the head remains of this small statuette, its features are carved delicately. A thin brow surmounts its wide-open eyes, which are especially large in relation to the minute nose and mouth. Great attention has been paid to other details, including the pierced ears. These holes may have enabled the affixing of a miniature wig or earrings. The purpose of these small bone figurines remains unclear. They may have functioned as amulets as well as children's toys.

Bibliography: Rodziewicz 2012, 9–20, pls. 45, 102, and 106; Bacharach and Rodenbeck 2002; and Scanlon 1968, 16–17; 1964.

obverse

reverse

30. Amulet with five-pointed star, 20th century, Cairo, Egypt, bronze. Kelsey Museum of Archaeology, 80682.

The ring at the top of this pendant suggests it is to be worn, perhaps as a necklace. The pentagram may be related to the six-pointed star known as the seal of Solomon. The five- or six-pointed star recalls the seal or sign that allowed Solomon to maintain his power over the *jinns* (evil spirits). Often the seal of Solomon can be found in talismanic shirts, prayer books, and amulets. Wearing such protective designs and objects comprised a form of licit magic in the Islamic world, as it was used to protect the wearer from both earthly and spiritual harm.

Bibliography: Savage-Smith 1997, pt. 1, 132ff.; Porter et al. 2011, 170; Porter 2004; Porter and Frembgen 2010; Dawkins 1944; Blair 2001; Gruber 2012; 2010, 137–142; and Kriss and Kriss-Heinrich 1962, pl. 66.

obverse

reverse

31. Amulet with magic square and the Seven Sleepers of Ephesus, 20th century, Cairo, Egypt, lead. Kelsey Museum of Archaeology, 80681.

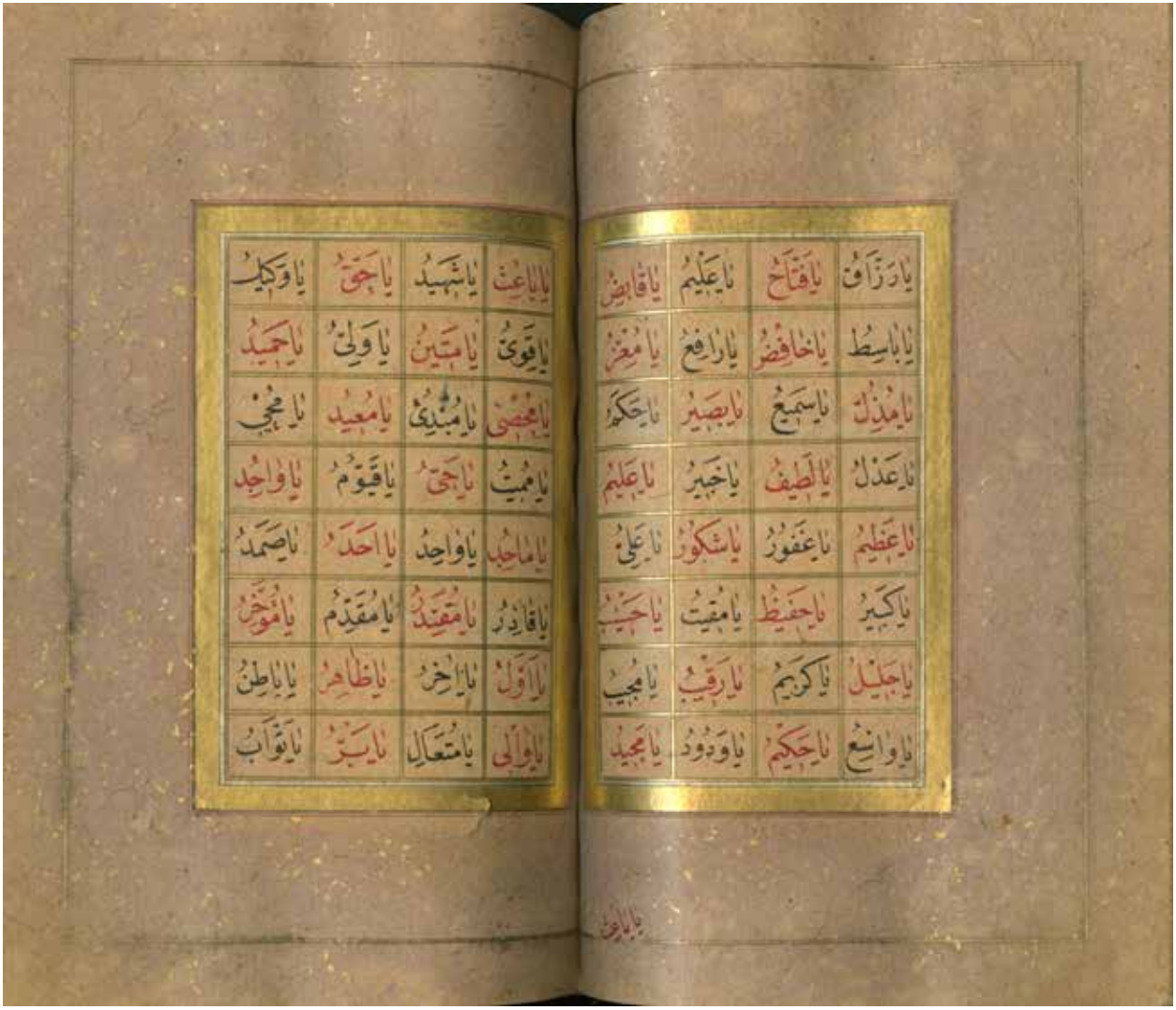
This tear-shaped lead amulet is clearly a pendant meant to be worn. It includes inscriptions on its front and back, which are intended to physically and spiritually protect the wearer. At the top of the amulet's front side appears the phrase "*Ya Hafiz*," which invokes God as the "Protector" (*Hafiz*). Below, a circle of intersecting words (forming a five-pointed star) provides the names of the Seven Sleepers of Ephesus, ancient legendary figures who are said to have slept for hundreds of years. The Sleepers are mentioned in the Qur'an (18:9–26), and in later centuries it was believed that inscribing and reciting their names could protect an individual from harm. On the amulet's back side, a five-by-five grid comprises a magic square, or *murabba'*. Within this checkerboard design are inscribed pairs of letters that are slight permutations of the so-called mysterious letters initiating some chapters in the Qur'an (here, chapters 19 and 42). Encircling the magic square are the names of the four protective archangels: Gabriel, Michael, Israfil, and 'Azra'il.

Bibliography: Savage-Smith 1997, pt. 1, 133; Porter et al. 2011, 169–170; Stevenson 1920, esp. 97–98; Kriss and Kriss-Heinrich 1962, pls. 77–79 and 83; Porter 2004; 2007; Cammann 1969; and Porter and Frembgen 2010.

32. Checkerboard of the "Beautiful Names" of God, Muhammad ibn Sulayman al-Jazuli (d. 1465), *Dala'il al-Khayrat* (Proofs of Good Deeds), 1799, Ottoman Turkey, ink on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 249.

This collection of prayers includes a grid containing the ninety-nine "Beautiful Names" of God (*al-asma' al-husna*). The text area is bordered by a thick gold frame, situated within a lavender-dyed and gold-flecked page. The names of God are written in the vocative and transcribed in alternating colors of red and black ink within separate cells. The "Beautiful Names" of God comprise his many attributes and epithets, including *al-Rahman* (The Compassionate) and *al-Rahim* (The Merciful). As part of prayer practices, devotees recite these names, often with the aid of a string of thirty-three prayer beads.

Bibliography: Witkam 2007; Pearson 1907; and Burrell and Daher 1995.


يا رزاق يا فتاح يا عليم يا قابض
يا باسط يا خافض يا رافع يا معز
يا مذل يا سميع يا بصير يا حكم
يا عدل يا لطيف يا خبير يا عليم
يا عظيم يا غفور يا شكور يا علي
يا كبير يا حفيظ يا مقيت يا حسيب
يا جليل يا كريم يا رقيب يا مجيب
يا واسع يا حكيم يا ودود يا مجيد
يا باعث يا شهيد يا حق يا وكيل
يا قوي يا متين يا ولي يا حميد
يا محصي يا مبدئ يا معيد يا محيي
يا مميت يا حي يا قيوم يا واجد
يا ماجد يا واحد يا احد يا صمد
يا قادر يا مقتدر يا مقدم يا مؤخر
يا اول يا اخر يا ظاهر يا باطن
يا والي يا متعال يا بر يا توآب

exterior

interior

33. Magic bowl, 19th or 20th century, Iran (?), brass. Historic Scientific Instrument Collection, Special Collections, Hatcher Graduate Library, GL6.

Like its counterpart (cat. no. 34), this magic bowl displays the signs of the zodiac on the outer surface. Inside, however, appears the image of an archer, situated above two stylized and interlaced dragons snarling at each other. Vegetal and geometric patterns, including inscribed magic squares, fill the rest of the surface. An object used in folk medicine, this type of bowl was used to heal spiritual ailments such as affliction by the evil eye and physical illnesses like the pains of childbirth or gastro-intestinal problems. When it was filled, the bowl's incised motifs were believed to imbue the liquid with power and blessing (*baraka*), which the afflicted would then imbibe as a curative potion.

Bibliography: Perk and Paksoy 2011; Savage-Smith 1997, pt. 1, 72–97; Ittig 1982; Spoer 1935; Willemsen 1993; Bates 1991; Khan 2013, 237–238; and Silverman 1991; 2007.

34. Magic bowl with attached prayer tablets, probably 19th or 20th century, Iran, brass. Historic Scientific Instrument Collection, Special Collections, Hatcher Graduate Library, GL7.

Every surface of this metal bowl is incised with inscriptions framed by variously shaped cartouches. It also depicts the signs of the zodiac. In the Islamic world, this type of magic bowl was used for healing purposes and/or divination. When filled, the vessel was believed to transfer the power of the word into the liquid, which then was consumed by a patient or customer to cure various ailments or discern the future.

The central protrusion inside the dish is called an omphalos, or *göbek* in Turkish, meaning "navel." A hole in the rim allows for a string of tablets to be affixed to the bowl. These tablets—known in Turkish as *kırk anahtar* (forty keys)—include *bismillah* prayer formulas. It is believed that these tablets function like prayer beads or rosaries. Although they are attached by a string to this particular magic bowl, other surviving exemplars show the tablets attached to the rim by a metal wire or else affixed around the central omphalos. Whether located on the outside of the bowl's rim or else encircling its central *göbek*, these tablets would have rattled while the bowl was in use.

Bibliography: Perk and Paksoy 2011, 11, 108, 118, 134–135, and 139; Savage-Smith 1997, pt. 1, 72–97; Ittig 1982; Spoer 1935; Willemsen 1993; Bates 1991; Kriss and Kriss-Heinrich 1962, pl. 109; Khan 2013, 237–238; and Silverman 1991; 2007.

35. Water filter with pseudo-Arabic inscription, 10th century, Egypt, clay. Kelsey Museum of Archaeology, 1971.1.21.

In addition to geometric patterns and zoomorphic imagery, ceramic water filters were also decorated with Arabic and pseudo-Arabic inscriptions. This filter features a cartouche filled with Arabic letters, set against a diamond within a circle patterned with waves. As with any other filter, the pierced holes would have served to prevent contaminants from entering and exiting the water contained within. Moreover, given the widespread belief in the talismanic power of the written word in the Islamic world, it is possible that the text imbued the liquid with symbolic protection as it passed through the filter.

Bibliography: Olmer 1932; Scanlon 1970a; 1986, 40–41; 1968; 1964; Blair 1989; and Ettinghausen 1974.

detail

36. Basin with fishpond motif, 12th–13th centuries, Syria or Egypt, brass. Kelsey Museum of Archaeology, 28801.

Although dented and worn, this large brass basin originally would have shone brightly with silver and gold inlay. The different metals would have played with the light as it hit the concave and convex surfaces. The outlines of inscription bands and pictorial motifs remain. Around the basin's outer surface, a large calligraphic inscription praises the last Ayyubid prince Najm al-Din Ayyub. The interior of the basin includes a design known as a fishpond motif. The incised circle is filled with the outlines of dozens of small fish that appear to be swimming about. When filled with water, the reflective metal and the basin's contents would have animated the fish, making it appear as though marine life had infiltrated the libations.

Bibliography: Grabar 1961; Ward 1993, 84–85; and Baer 1998, 104–107; 1968.

37. Celadon glaze stoneware bowl with molded double fish motif, 14th century, Longquan kilns, Zhejiang Province, China, glazed ceramic. University of Michigan Museum of Anthropological Archaeology, 35226.

This ceramic vessel's pale green glaze is typical of Chinese celadon wares. While lotus petals decorate the dish's exterior, a molded design forms two small scaly fish on its interior. The double fish motif is a traditional Chinese symbol of marital happiness as the word for fish (*yu*) is a homophone for wealth and abundance. The fish would have appeared to come to life when the bowl was filled with undulating liquid. These and other Chinese ceramics were imported into the Islamic world, where they inspired Muslim artisans to imitate and experiment with Chinese designs and colors. Most frequently, the Islamic versions of these imported wares emphasized the aesthetic look of the imported product over fidelity to its material makeup and manufacturing technique.

Bibliography: Grube 1976, 278–281; Gompertz 1958, 104–105; Baer 1968; Crowe 1975–1977, 264–272; 1976; Gyllensvard 1973; and Scanlon 1984, 116–117; 1970b, 88.

38. Base of a bowl decorated with two fish, 14th century, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1968.3.52.

The two small fish at the bottom of this glazed ceramic bowl can be considered a variant of the so-called fishpond motif. The presence of aquatic motifs on the surface of bowls and cups made of ceramic, metal, and glass added a playful commentary on the function of these types of vessels. With its fish molded in relief and greenish glaze, this fragment clearly mimics Chinese celadon wares. Chinese ceramics were imported into the Islamic world as early as the 9th century. From then on, Muslim ceramicists, including those active in medieval Cairo, responded to these luxury imports by creating local imitations of Chinese prototypes.

Bibliography: Grube 1976, 278–281, cat. nos. 223–224; Gompertz 1958; Baer 1998, 104–105; 1968; Crowe 1975–1977, 264–272; 1976; Gyllensvard 1973; Scanlon 1984, 116–117; 1970b, 88; and Whitehouse 1973.

interior

exterior

39. Bowl with fish motif, 14th–15th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1969.2.22.

The greenish color and fish pattern on this large ceramic vessel may have been initially inspired by imported Chinese celadon wares. However, the final result clearly shows significant innovation on the part of the Muslim craftsman. The vessel's exterior wall is decorated with a band of large-scale pseudo-Arabic inscriptions. In its interior, a row of silhouetted fish swim around the inner wall of the bowl. At the bottom, this circular motion is enhanced by a spiral design. When it was filled, the liquid inside would further animate the motifs, setting the whole scene into symbolic motion. Even the vessel's lip is decorated with undulating vegetation, as if plant life were growing on the surface of this ceramic "fishpond."

Bibliography: Grube 1976, 282; Baer 1998, 104–105; 1968; Crowe, 1975–1977; 1976; Gyllensvard 1973; Scanlon 1984; 1970b, 88; and Whitehouse 1973.

40. Vessel fragment with fish motif, 13th–14th centuries, Egypt, enamel-painted glass. Kelsey Museum of Archaeology, 1970.3.654.

Aquatic motifs can be found on vessels made in various media. Here, an enamel-painted fish appears to swim above a band of inscriptions on a blue background. It is located on the upper rim of what likely would have been a beaker or drinking cup. The metallic sheen would have reflected light, further enhancing the motif's resemblance to a living sea creature. The mottled glass also resembles a natural pool of opalescent water.

Bibliography: Carboni 2001, 350; Carboni and Whitehouse 2001, 199–209; Jenkins 1986, 38–47; and Baer 1998, 104–105; 1968.

41. Fish-shaped vessel, 8th–9th centuries, Fustat (medieval Cairo), Egypt, glass. Kelsey Museum of Archaeology, 1970.3.965.

This tiny clear glass vessel is formed into the shape of a fish. The fins are made from heated threads of glass that were strategically affixed and pinched. The vessel's liquid—perhaps a perfume or essential oil—would have been poured out of the fish's mouth. Due to the translucent glass, the liquid also would have been visible inside the vial, playfully moving about in the creature's belly.

Bibliography: Georges 1911; Baer 1998, 104–105; 1968; Scanlon and Pinder-Wilson 2001; and Pinder-Wilson and Scanlon 1973.

42. Flask, 11th–12th centuries, Egypt, free-blown and marvered glass. Kelsey Museum of Archaeology, 1968.2.100.

This spear-shaped flask is decorated with a wave pattern, which is created by marvering white threads of glass around a glass body of contrasting color. The threads are combed or pulled while still in a semi-liquid form. This color combination of blue-purple glass with white threads is typical of the technique of glass marvering, which was quite popular in the medieval period. This small flask would have been used to store cosmetic materials such as kohl powder or essential oils.

Bibliography: Carboni 2001, 304; Carboni and Whitehouse 2001, 139; Jenkins 1986, 37; Scanlon and Pinder-Wilson 2001; and Pinder-Wilson and Scanlon 1973.

43. Vessel fragment, 8th–10th centuries, Egypt, free-blown and marvered glass. Kelsey Museum of Archaeology, 1965.3.223.

The fragmentary condition of this blown glass vessel does not detract from its fine decoration. The deep blue glass is decorated with threads of white glass marvered across and melded to the vessel's surface. The color and pattern evoke sea waves and foam. The vessel's aquatic look was perhaps intended to reflect its function—namely, to hold liquids.

Bibliography: Carboni 2001, 300; Carboni and Whitehouse 2001, 138; Jenkins 1986, 37; Scanlon and Pinder-Wilson 2001; and Pinder-Wilson and Scanlon 1973.

44. Architectural revetment tile with rabbit motif, 14th century, Iran, glazed luster-painted ceramic. Kelsey Museum of Archaeology, 1971.1.48.

A spotted rabbit hides among large flowering vegetation on this polygonal glazed tile. The animal turns around, ears perked, as if it has just heard a noise. As an architectural revetment, this tile was fitted into others and used to decorate the exterior surface of a building. In order to cover a building, tiles such as this one were mass-produced using a technique wherein wet clay is pressed into a plaster mold before being fired and glazed. Perhaps the tile that would have abutted this one bore a predatory animal such as a lion or dragon, poised to strike. While it is impossible to know the overall pictorial or narrative context of this tile, this lively scene painted in luster would have reflected light and brought pleasure to the building's viewer.

Bibliography: Hirx, Leona, and Meyers 2002; Masuya 2002; Porter 1995, 32–61, figs. 17 and 21; and Watson 1985, 17.

45. Water filter with rabbit design, 10th–12th centuries, Fustat (medieval Cairo), Egypt, hand-tooled and pierced clay. Kelsey Museum of Archaeology, 1969.2.120.

This lively rabbit pierced into the neck of a ceramic water filter recalls the minute rabbits woven into a tapestry also from the Fatimid period (see cat. no. 46). Indeed, animals were popular decorative motifs on everyday objects in medieval Egypt. While serving the primary purpose of filtering water and preventing unwanted impurities from entering the vessel, this filter design aesthetically enhances an otherwise utilitarian object. Playing with the function of this object, the prancing rabbit was perhaps meant to appear as if splashing in a water puddle.

Bibliography: Olmer 1932; Scanlon 1986, 38–40, pls. 21c–d; 1970a, esp. fig.6e–f; 1968; 1964, esp. fig.12c; and Grube 1976, 123–125, cat. nos. 78–81.

detail

46. Textile fragment with rabbits, 11th century, Egypt, cotton. Kelsey Museum of Archaeology, 22645.

Although in fragmentary condition, this textile is delicately designed. Several registers of finely woven dyed cotton are superposed to form various patterns. The central band consists of tiny rabbits running within a row of red roundels. The miniscule creatures are playful, with their ears perked and feet poised to jump. These types of patterned textiles emerged from the tradition of decorating plain fabric with densely woven or embroidered decorative polychrome bands. In this manner, the more durable and valuable bands of ornament could be reused when the plain linen or cotton ground cloth wore out. This type of textile ornamented with animal figures flourished during the Fatimid period in Egypt.

Bibliography: Hoskins 2002; Baker 1995, 62; Contadini 1998, 67, 69–70, and pls. 23 and 29; Day 1937; and Baer 1998, 35.

exterior

interior

47. Bowl with bird and inscription design, 11th century, Iraq, Syria, or Egypt, luster-painted ceramic. Kelsey Museum of Archaeology, 29964.

The iridescence of the luster-painted designs on this ceramic bowl was achieved through a double-firing technique. The second firing is necessary to create the lustrous, light-reflective effect of the bird and inscription band. Luster-painted ceramics were popular in Egypt and the Levant during the medieval period. Many surviving vessels and sherds display a variety of designs, including animals and zodiac signs as well as Arabic inscriptions and pseudo-inscriptions. The metallic sheen produced from luster painting on ceramic mimics metalwork inlaid with gold, thereby achieving a similar effect in a more affordable medium.

Bibliography: Grube 1976, 126–154, cat. nos. 82–100; Jenkins 1983, 5, 14, and 24; Pancaroğlu 2007, 49–63, cat. nos. 9, 10, and 20; Bloom 2007, 93–96; Watson 2004, 279–281; and Contadini 1998, 71–84, pls. 34–37.

48. Ceramic vessel fragment studded with gemlike motifs, 13th–15th centuries, Egypt, clay with stamped and applied decoration. Kelsey Museum of Archaeology, 1969.2.21.

The exterior surface of this thick ceramic vessel fragment is adorned with large protuberances that resemble pearls and cut gemstones. The object appears to mimic jewelry and thus wealth and luxury, but in a more affordable medium. The function of these "jeweled" sphero-conical vessels has, however, remained a subject of debate. It has been suggested that they were used to store various liquids or unguents such as perfumes, mercury, or alchemical concoctions. Evidence also suggests that they functioned as beer gourds or water pipes. Some scholars have even suggested that they could have been used as medieval grenades, although this hypothesis has been largely refuted. While the scholarly community has yet to come to a consensus, the most likely explanation is that they were used for a variety of purposes.

Bibliography: Watson 2004, 107–111; Baer 1998, 105ff.; 1989; Ettinghausen 1965; Ghouchani and Adle 1992; Keall 1993; and Savage-Smith 1997, pt. 2, 324–338.

49. Glass fragment, 9th–10th centuries, Egypt, free-blown and cut colorless glass. Kelsey Museum of Archaeology, 1970.3.933.

This clear glass fragment is adorned with patterns carved in relief. The ornamentation is highly delicate given the thinness of the vessel's walls and the fragility of its medium. The chiseling technique used to relief-cut this glass resembles the way rock crystal is worked. Rock crystal, or transparent quartz, was considered by medieval Muslim thinkers to be one of the clearest substances on earth, just after air and water. In fact, rock crystal was often analogized to light and petrified water, both of which are believed to carry life-endowing properties. Thus, this remarkably clear glass, which is carved in a manner similar to rock crystal, was perhaps used as a beaker or, more metaphorically, a fountain of life.

Bibliography: Carboni and Whitehouse 2001, 155–161, 172–175, figs. 79–81; Carboni 2001, 84–85, cat. no. 19; Jenkins, 1986, 19; 1983, 27, fig. 26; Contadini 1999, 319–323; Oliver 1961; Stern 1997; Kröger 2007; Shalem 1994; Porter 2009; Whitehouse 1993, 54–55; Scanlon and Pinder-Wilson 2001, 99–104; and Pinder-Wilson and Scanlon 1973, 25–26, cat. no. 19, figs. 30–32.

50. Textile fragment with interlace design, 11th–12th centuries, Egypt, linen and silk. Kelsey Museum of Archaeology, 91614.

During the Fatimid period in Egypt, the ornamental bands found in textiles became much more elaborate than in centuries past. As can be seen in this example, a polychrome tapestry fragment is stitched to a plain linen ground. The pattern consists of interlacing ribbons in a silky and metallic yellow color that resembles gold. Interestingly, the practice of interlacing is a textile technique, but in this instance the image of interlace is woven as a decorative pattern. This type of knotted motif also appears in other media, including ceramics.

Bibliography: Contadini 1998, 39–58, 67–70, pls. 24 and 30; Bloom 2007, 161–162, fig. 129; Micklewright 1991, 39; and Baer 1998, 81ff.

51. Vessel fragment with interlace design, 14th century, Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1970.4.562.

This sherd displays both the decoration and color scheme characteristic of pottery made in Egypt during the 14th century. The vessel's body is made of red clay, while the ornamentation is incised in a white slip under an amber glaze. The knotted patterns resemble those found in contemporary metalwork and textiles (see cat. no. 50). Besides interlacing designs, ceramic vessels similar to this one also include inscriptions and blazons, the latter a hallmark of Mamluk art.

Bibliography: Grube 1976, 282–292, cat. nos. 225–249; Jenkins 1983, 6, fig. 3; Watson 2004, 412, cat. R. 20; Scanlon 1980; and Baer 1998, 81ff.

52. Fragment of tile mosaic, 16th century, Iran, glazed ceramic in stonepaste. Kelsey Museum of Archaeology, T2007.34.

With its deep blue, turquoise, white, and ochre glazes, this fragment epitomizes the color palette of tile mosaic produced during the Safavid period in Iran. The pieces of glazed ceramic are carefully cut and formed into a composition of blooming vines. Lush garden imagery is common in the Islamic world and appears in almost all media, including architecture, ceramics, book arts, and textiles. During the winter months when gardens were not in bloom, verdant imagery on architectural tiles such as this one provided an enduring vision of blossoming flowers and trees.

Bibliography: Porter 1995, 64–79; Watson 1985, 23, fig. 11; and Pope 1964.

53. Lambrequin, 14th–15th centuries, Egypt, appliqué cotton. Kelsey Museum of Archaeology, 88026.

Shaped like a banner or flag, this small appliqué fragment is a lambrequin. It was used to decorate pillows or ceremonial tents during the Mamluk period (1250–1517). The undyed white cotton against the deep indigo blue ground creates an ornate pattern in high color contrast. Tents were used as portable dwellings as well as in imperial rituals and ceremonies. Cairo was well known for its tent-making workshops, which continued to function after the Ottoman conquest in 1517. In fact, there are expert appliqué tent craftsmen still working in Cairo today.

Bibliography: Ellis 2001, 74–77, figs. 51–53; Hoskins 2002, 223–224, fig. 18; Lamm 1937, 75; Andrews 1999; Mansel 1988; O'Kane 1993; and Bowker 2014.

54. Cupbearer blazon, 13th–15th centuries, Egypt, appliqué cotton. Kelsey Museum of Archaeology, 88027.

This rather unadorned appliqué roundel is divided into three registers, with a silhouetted image of a goblet in the center. The roundel would have been stitched to a garment and worn as a blazon or symbol of office. During the Mamluk period in Egypt, this blazon represented the office of the *saqi*, or royal cupbearer. As one of the sultan's close cohorts, the cupbearer served the ruler wine and other libations. This and other blazons were represented on objects (such as glass lamps and ceramic vessels) and architecture, in which they served to identify an individual by the office he held.

Bibliography: Ellis 2001, 80–81, fig. 54. Lamm 1937, 67; Mayer 1933, 10–11; Suriano 1998; Walker 2000; and Whelan 1988, 220.

55. Vessel fragment with cupbearer blazon, 14th–15th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1969.2.6.

The image of a goblet on this ceramic vessel denotes the position of royal cupbearer. Each of the offices of the Mamluk court was represented by such symbols. This sherd in particular possesses two of these official symbols: the cup and the napkin, the latter represented by a pale ochre diamond shape. The napkin is the symbol of the master of the imperial wardrobe. Here, the combination of the two symbols shows that the individual who owned this vessel held both offices. These royal blazons were painted, chiseled, and stitched onto many objects, from ceramic vessels and buildings to glass lamps and carpets.

Bibliography: Grube 1976, 282–292, esp. 285, cat. no. 231; Watson 2004, 408–409 and 412–414; Mayer 1933, 10–11; and Whelan 1988, 220.

KM 1970.3.514

KM 1970.3.515

56. Iridescent glass vessel fragments, 8th–9th centuries, Fustat (medieval Cairo), Egypt, scratch-engraved glass. Kelsey Museum of Archaeology, 1970.3.514 and 1970.3.515.

These two glass vessel fragments share a rich aubergine color, and both are ornamented through an engraving or scratching technique. While this decorative process antedates the advent of Islam in Egypt, the deep blue-purple color was particularly popular among Muslim craftsmen. The designs were scratched into the surface of the dark colored glass with a pointed tool, resulting in light-colored geometric striations. This type of freehand "sketching" technique in glass allows for a great flexibility of designs, including crystalline patterns, floral motifs, and cloud bands.

Bibliography: Carboni and Whitehouse 2001, 155–162, figs. 68 and 72; Carboni 2001, 76, cat. no. 17a; Jenkins 1986, 19; Scanlon and Pinder-Wilson 2001; and Pinder-Wilson and Scanlon 1973.

57. Molar flask (unguentarium), 9th–10th centuries, Egypt, blown and cut glass. Kelsey Museum of Archaeology, 1970.3.1011.

This clear glass vial was formed and decorated by a wheel-cutting technique that was popular during late antiquity and later revived during the medieval period in Islamic lands. The small vessel was likely used to house cosmetics such as kohl or unguents such as perfumes and essential oils. The shape of the minute vessel, with its four feet and chiseled sides, has earned it the appellation "molar flask."

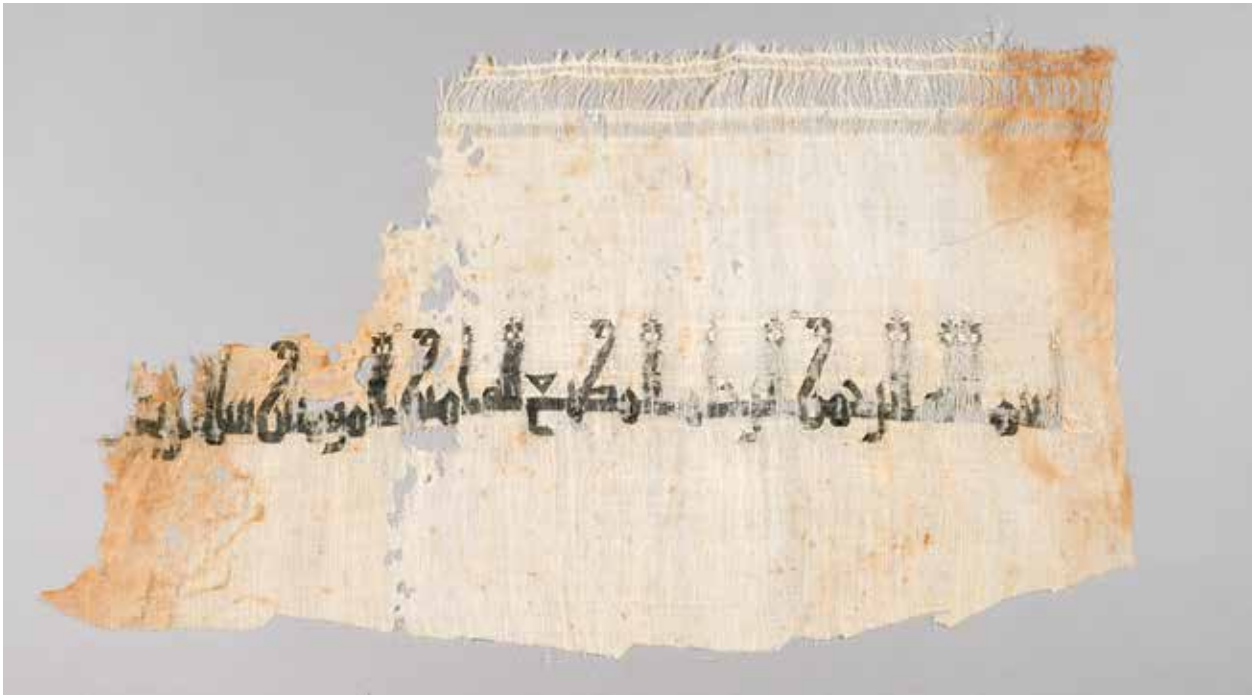
Bibliography: Carboni 2001, 98–100, cat. no. 27a–c and 124–127, cat. no. 2.28a–q; Georges 1911; and Jenkins 1986, 25, fig. 23.

58. *Hilye* (verbal icon of the Prophet Muhammad), calligraphed by Hafiz Osman, dated AH 1099/1687–1688 CE, Ottoman lands, ink and pigment on paper mounted on three folding panels. Special Collections, Hatcher Graduate Library, Isl. Ms. 238.

Executed by the famous Ottoman calligrapher Hafiz Osman (1642–1698), this calligraphic triptych verbally depicts the Prophet Muhammad. Organized into a diagram, the text describes the Prophet's moral and physical attributes. The center panel consists of one large circle (*göbek*, or "navel" in Turkish) flanked by four small circles that frame the names of the first four caliphs, who succeeded Muhammad as leaders of the early Muslim community. At the head of the triptych appears a delicately painted image of the Ka'ba, the holiest site in Islam that every Muslim, if capable, must visit at least once in their lives. This *hilye*, or verbal icon of Muhammad, thus provides a contemplative device to envision the Prophet's presence and the sacred city of Mecca. Last but not least, it is executed on three folding panels, thereby allowing its owner to transport it safely and also affix it to a wall much like a religious icon.

Bibliography: Hilye's online catalogue entry (http://catalog.hathitrust.org/Record/006796301); Safwat 1996, 46–51; Taşkale and Gündüz 2006; Zakariya 2003–2004; and Schick 2008.


بسم الله الرحمن الرحيم
أبو بكر
عمر
عثمان
علي
وما ارسلناك الا رحمة للعالمين



59. *Tiraz* textile fragment, 10th century, Egypt, undyed linen and dyed silk. Kelsey Museum of Archaeology, 22520.

Although derived from the Persian word for embroidery, the word *tiraz* indicates an inscription band. While this *tiraz* fragment is in fact a textile, the silk text is woven rather than embroidered onto the undyed linen ground cloth. The bold design of deep blue on pale linen is typical of *tiraz* textiles produced during the 10th century in Egypt. This example in particular includes an inscription dedicated to al-Muti' lillah, placing its manufacture around 946–966. In later centuries, inscriptions on textiles became increasingly less legible and at times quite stylized. While *tiraz* textiles were not the only type of patterned fabrics produced in medieval Egypt, their survival rate is largely due to their use in funerary contexts. Archaeological excavations of the late 19th and early 20th centuries uncovered many *tiraz* textiles that were used as burial shrouds. It was believed that certain words and phrases could protect and transmit blessings (*baraka*) to the deceased individual.

Bibliography: Day 1937, 435, 441, fig. 20; Golombek 1988; Contadini 1998, 39–58; Baker 1995, 53–61; Marzouk 1943; Micklewright 1991; Sokoly 1997a; 1997b; Blair 1998, 164–181; and Ettinghausen 1974.

60. Inscribed panel, 11th–12th centuries, Egypt, carved wood. Kelsey Museum of Archaeology, 10201.

Woodcarving flourished in Egypt during the 11th and 12th centuries. At this time, a number of mosques, churches, and palaces were decorated with architectural friezes made of wood. This example probably served as a beam or panel surmounting a door within a private residence. Its use in a secular building is suggested by its non-Qur'anic contents. The panel's inscription offers blessings, grace, and happiness. The epigraphic band thus embellished a private home while also offering well wishes to the property owner, dwellers, and visitors.

Bibliography: Glidden 1939, 94, fig. 4; Bloom 2007, 67, fig. 38; Contadini 1998, 111–112, pl. 52a–e; Ekhtiar et al., 2011, 110, cat. no. 68; Mayer 1958, 13–14; Pauty 1931, pl. G, cat. no. 9042 and pl. LXVI, cat. nos. 4729–4730; Décobert and Gril 1981; and Wiet 1958.

61. Inscribed textile, ca. 1350–1400, Egypt, linen. Kelsey Museum of Archaeology, 22709.

Several bands of embroidered inscriptions form a decorative corner pattern on this Mamluk textile fragment. The dark blue thread stitched into a tabby or plain weave ground that is undyed is typical of Mamluk embroideries. While embroidery was an independent art form at this time, some embroideries are stitched so that they resemble more complicated and thus more expensive woven patterned fabrics. In addition to this media mimicry, many Mamluk designs were not bound by a particular medium. For example, similarly stylized floral elements are found across the media, including wood- and metalwork.

Bibliography: Ellis 2001; Walker 2000, 186 and 189; Lamm 1937; Falk 1985, 211–213; Blair 1998, 164–181; and Ettinghausen 1974.

62. Textile with inscription band and floral designs, 9th–10th centuries, Egypt, wool tapestry. Kelsey Museum of Archaeology, 91604.

The line of text written in deep ochre on a red ground repeats the Arabic word *al-mulk*, meaning power or kingdom. It is executed in tapestry, one of the more common techniques for producing *tiraz* textiles in medieval Egypt. The decorative program of this textile fragment is further enhanced with a dark blue and white repeating pattern of stylized tulips or lotus blossoms. The thickness of the tapestry weave makes the fabric more durable. For this reason, many *tiraz* textiles consist of tapestry-woven inscriptions stitched onto a lighter, plain cloth. Once the ground cloth wore out, the tapestry inscription could be cut out and sewn onto a new cloth, thus extending its life.

Bibliography: Blair 1998, 164–181; and Ettinghausen 1974.

63. Umayyad *dirham*, 8th century, Spain, silver. Kelsey Museum of Archaeology, 2009.1.174.

The first Muslim rulers to mint their own coins adopted and adapted the international language of coinage symbolism. However, by the late 7th century new designs began to set Islamic coins apart from other currencies in circulation. Islamic coins became largely epigraphic, as exemplified by this silver coin, or *dirham*, which was minted in Spain (*al-Andalus*) during the rule of the Umayyad caliph al-Hisham (723–743). This *dirham* includes the Muslim monotheistic creed along with the 112th chapter from the Qur'an (*Surat al-Ikhlas*), which proclaims God's all-encompassing unity. For the early Muslim caliphs who ruled from the Arabian Peninsula all the way to Spain, one of the most important declarations of their international standing and authority was the minting of coins. Last but not least, this particular *dirham* is also pierced with a hole, suggesting that in later centuries it may have functioned as a pendant or amulet.

Bibliography: Wasserstein 1993; Heidemann 2010; Al-Saa'd 1999; Bates 1982, 46–61; Bates and Darley-Doran 1985, 393; Klat 2002; Miles 1950, 140–142; and Dodds 1992, 384–391, cat. no. 127.

64. Fatimid *dinar*, 11th century, Egypt, gold. Kelsey Museum of Archaeology, 2009.1.102.

Once the basic layout for Islamic epigraphic coins was established, the design changed very little between the 8th and 13th centuries. However, the coins produced under the Fatimid dynasty of Egypt (909–1171) showcase a new layout. The text is often organized into concentric rings rather than horizontal lines, as can be seen in this gold coin (*dinar*) minted during the rule of al-Hakim (996–1021). Perhaps this shift in coinage design was meant to visually differentiate this Shi'i dynasty from its Sunni neighbors while concurrently serving as a means by which Fatimid rulers could assert their power through economic exchange and trade.

Bibliography: Wasserstein 1993; Heidemann 2010; Bates 1982, 30–31; Bates and Darley-Doran 1985, 370–371, figs. 443–444; Miles 1951b, 16–22; and Nicol 2006.

65. Ilkhanid coin, AH 714/1314–1315 CE, Jajarm, Iran, silver. Kelsey Museum of Archaeology, 1985.1.194.

This silver coin was minted in 1314–1315 for Sultan Öljeitü (ruled 1304–1316), a prominent monarch of the Ilkhanid dynasty, which ruled over greater Iran between 1256 and 1335. Öljeitü is known for having converted from Sunni to Shi'i Islam. This coin reflects his adherence to Shi'ism as the phrase "'Ali is the friend of God" (*'Ali wali Allah*) is added to the standard profession of faith: "There is no God but God and Muhammad is his Messenger." In addition to this sectarian textual proclamation, the overall design of the coin differs from its predecessors. Rather than set in circular, square, or quatrefoil cartouches, the inscriptions are placed within hexafoil and heptafoil medallions.

Bibliography: Wasserstein 1993; Heidemann 2010; Bates 1982, 40–42; Bates and Darley-Doran 1985, 377–378, cat. nos. 477–478; Blair 1983; and Diler 2006, 384–427.

obverse

reverse

66. Qajar coin with sun motif, AH 1240/1824 CE, Tabriz, Iran, copper. Kelsey Museum of Archaeology, 75938.

Facial features are included in this sun motif, which is stamped onto the obverse of a small copper coin minted in Tabriz in 1824. While epigraphic coins were most common throughout the Islamic world, extant examples display a range of motifs, including animals, human figures, heraldic emblems, and signs of the zodiac. Solar, lunar, and stellar imagery appear on Iranian coins from the 17th century onward. By the Qajar period (1785–1925), however, the image of the sun acquired heraldic and sectarian meanings under the Shi'i rulers of Iran, who envisioned themselves as cosmic rulers endowed with the light of God. Additionally, coins made of copper tended to be more experimental in their designs, as evidenced by this anthropomorphized sun.

Bibliography: Wasserstein 1993; Heidemann 2010; Bates 1982, 46–61; Bates and Darley-Doran 1985, 393; Soucek 2001, 66; 2006; Hinz-Göttingen 1937; and Piemontese 1969.

obverse

reverse

67. Coin with bust portrait of King Faruk I, AH 1357/1938 CE, Egypt, bronze. Kelsey Museum of Archaeology, 75794.

Donning a fez, King Faruk I (ruled 1936–1952) is depicted in sharp profile on this Egyptian bronze coin. Figural representation in coins was not unknown in the Islamic world prior to the 20th century. However, this coin's use of the bust profile and its inclusion of a Gregorian date (1938) on its reverse clearly follow contemporary European numismatic trends. The ways in which a Muslim ruler could declare his authority via coinage varied over the centuries. The earliest Islamic coins tend to proclaim rulership epigraphically, but even texts can be arranged into visual forms. Such is the case for the Ottoman imperial emblem, or *tuğra*. Additionally, some modern Persian dynasts experimented with solar imagery and heraldic devices. This coin, however, reproduces solely the ruler's visage in a manner similar to coins that are in circulation today.

Bibliography: Wasserstein 1993; Heidemann 2010; Bates 1982, 46–61; Bates and Darley-Doran 1985, 393–395; and Nicol, al-Nabarawy, and Bacharach 1982, 208 and fig. 6238 (for a 1927 commemorative medal of King Farouk I).

obverse

reverse

68. Ottoman coin with the *tuğra* of Mahmud II, AH 1223/1808 CE, Constantinople, Ottoman lands, bronze. Kelsey Museum of Archaeology, 75784.

At the center of this large bronze coin appears the imperial emblem, or *tuğra*, of the Ottoman sultan Mahmud II (ruled 1808–1839). This royal calligraphic monogram is comprised of intertwining letters that form the various parts of the sultan's names and titles. Each ruler of the Ottoman dynasty had his own distinctive *tuğra*, whose form became relatively standardized from the 16th century onward. Here Mahmud II's *tuğra* is encircled by a patterned crescent, framed on its perimeter by a blooming wreath. The coin's reverse specifies that it was struck in the city of Constantinople (modern-day Istanbul) in 1223 of the *hijri* calendar (1808 CE).

Bibliography: Bates 1982, 46–61; Bates and Darley-Doran 1985, 393; Wasserstein 1993; Heidemann 2010; Nadir 1986, 144–149, cat. nos. 60–62; and Umur 2011, 256–259.

69. Coin weight, AH 99–101/717–720 CE, Egypt, turquoise glass. Kelsey Museum of Archaeology, 1964.2.13.

Inscribed glass disks like this transparent turquoise "coin" were used to weigh metal currency for payments in market transactions. This particular glass weight includes the name of Hayyan b. Shurayh, a finance director active in Egypt during the years 717–720. This early glass weight was thus made less than one hundred years after the emergence of Islam in the Arabian Peninsula. Just as significantly, coins such as this one attest to systematic efforts to regulate economic affairs in North Africa as early as the Umayyad period (661–750).

Bibliography: Miles 1951a; Morton 1985; Bates 1993; 1981; Balog 1981; and Sijpesteijn 2013, 90, 96, 193, and 300.

70. Coin weight, 8th–9th centuries, Egypt, brown glass. Kelsey Museum of Archaeology, 91481.

As glass comes in various colors and levels of opacity, glass weights are found in many different colors and even slightly mottled, like this example. Because coins were not always minted according to standard weight and purity levels, glass weights were used to measure the appropriate sum of money required for a purchase, regardless of the number of actual metal coins. Different sets of weights were used for gold, silver, and copper coins. This glass weight is quite small and thus could have been used to weigh a small amount of currency. Indeed, its brownish color is reminiscent of smaller and cheaper copper coins. When used in conjunction with differently sized glass weights, it would have measured weight more accurately.

Bibliography: Miles 1951a; Morton 1985; Bates 1993; 1981; and Balog 1981.

71. Coin weight, 10th–12th centuries, Egypt, green glass. Kelsey Museum of Archaeology, 91244.

Glass weights were made by impressing an inscribed stamp into a measured globule of glass while it was still in a semi-liquid state. Emulating the layout of some metal coins, this weight's text is arranged in concentric rings. Glass weights came in many sizes and denominations. They were regulated and used in medieval Egypt to measure many different items, from grains and olive oil to coins. Metal coins varied in weight and did not always contain pure gold and silver. For these reasons, in market transactions the weight of precious metal coins would be measured on a balance against glass coins in order to determine a correct sum of money. Glass weights were thus not used as currency but as a means to weigh metal coins accurately. Moreover, their common use in commercial affairs is recorded in medieval letters written by merchants who used the Arabic verb "to weigh" (*wazana*) as a synonym for "to pay."

Bibliography: Miles 1951a; Morton 1985; Bates 1993; 1981; and Balog 1981.

72. Large weight, 8th–12th centuries, Egypt, green glass. Kelsey Museum of Archaeology, 1964.2.14.

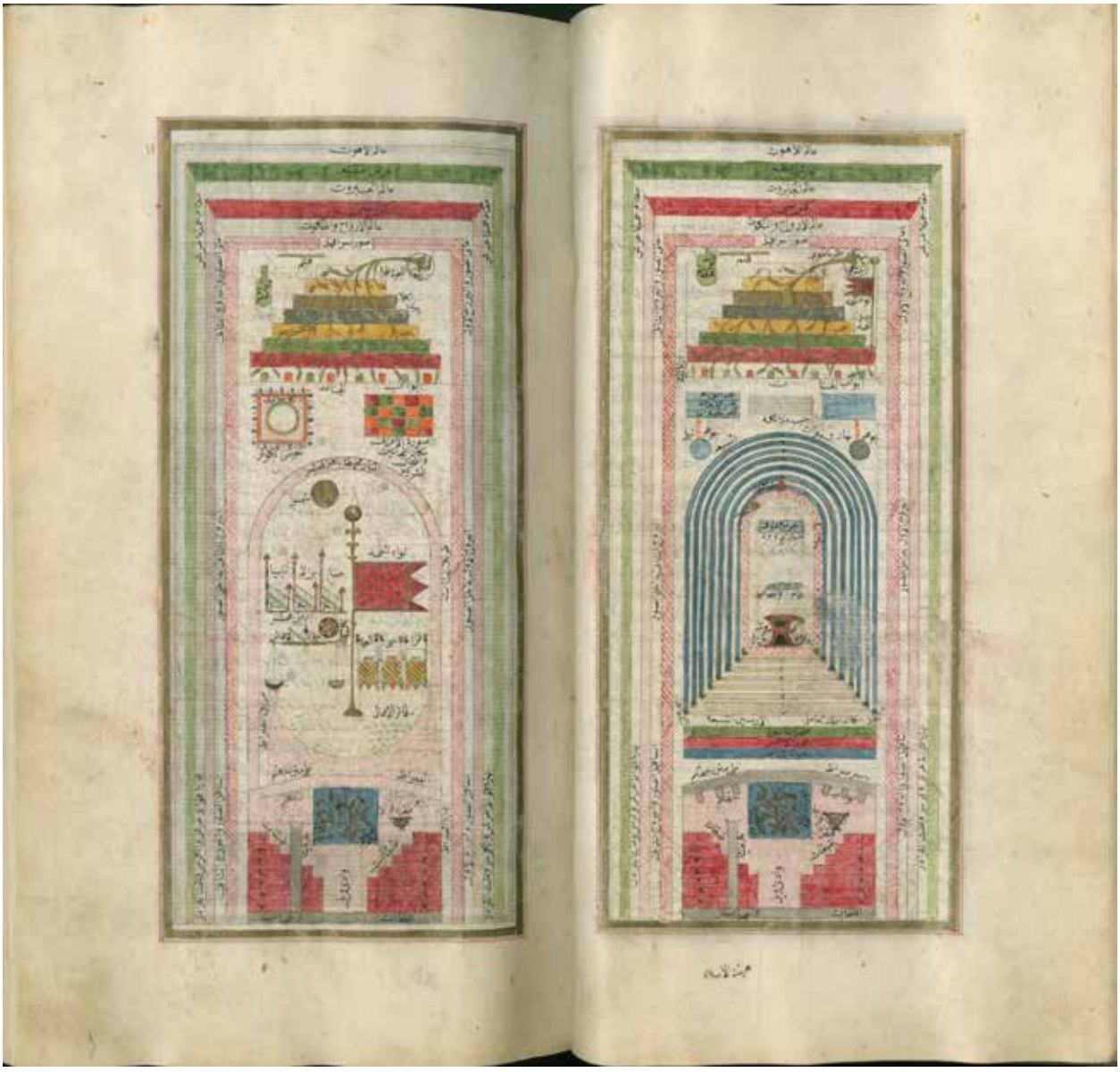
This double-stamped glass weight is of very large size. It was likely used for weighing a substantial quantity of metal currency or various commodities sold in retail transactions. The irregular rectangle shape is somewhat unusual for weights of this heft, as pound weights (*ratl*) were more commonly formed in the shape of rings, making them more graspable or suspendable. Metal weights were far more common than glass weights for measuring materials in bulk. While weighing coins was a widespread practice across the medieval Islamic world, the use of glass in particular seems to have started in Egypt.

Bibliography: Miles 1951a; Morton 1985; Ettinghausen 1939; Bates 1993; 1981; and Balog 1981.

73. Double-page painting showing Mecca (on the right) and the Last Judgment with scales of justice (on the left), Erzurumlu Ibrahim Hakkı, *Ma'rifetname* (Book of Gnosis), manuscript dated AH 1237/1822 CE, Ottoman lands, ink and pigment on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 397.

This 19th-century manuscript is an illustrated copy of an 18th-century text covering a variety of topics including geography, astronomy, natural sciences, theology, and mysticism. This double-page diagrammatic painting at the end of the text's introduction depicts the organization of the cosmos, including the so-called scales of justice used to weigh men's deeds on the Day of Judgment. These scales, which are depicted slightly below the center of the left composition, determine whether the deceased will count among the saved in paradise (represented by a golden tree above) or the damned in hell (shown as a series of purple strata below).

Bibliography: Manuscript's online record (http://mirlyn-classic.lib.umich.edu/F/?func=direct&doc_number=006822255&local_base=AA_PUB); Gruber 2014, 55, fig. 11; Karamustafa 1992, 88, fig. 3.18; Titley 1981, 48, cat. no. 40; Rustomji 2009, 138–140, figs. 7.5–7.6; Fisher and Fisher 1982, 102, cat. no. 58; Milstein 1990, 37–39, pls. 8–9; and Ziaee 2010.



74. Oil lamp, 9th–10th centuries, Fustat (medieval Cairo), Egypt, molded ceramic. Kelsey Museum of Archaeology, 1972.1.19.

This small molded oil lamp dating to the 9th–10th centuries is the oldest type of Islamic oil lamp found in Fustat (medieval Cairo), and it hardly differs from its Christian predecessors. The intricate relief patterns adorning the top of the lamp consist of abstracted vegetation, including stylized grape vines and a palm tree. When the lamp was lit, the rather shallow ornament would have been cast in higher relief due to the flickering light of the burning wick. The short spout bears scorch marks from lapping flames, and the interior is blackened from use.

Bibliography: Kubiak 1970, 3–6, fig. 1.

75. Oil lamp, 12th–13th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1969.2.162a.

Although fractured in several areas, this footed ceramic oil lamp clearly had more than one spout. These multiple spouts would have allowed for several wicks to be lit simultaneously, increasing the light emitted from the lamp. The bulbous body would have been filled with oil, poured into the tall funnel-like opening at the top of the lamp. The turquoise glaze is rather typical of ceramic oil lamps that were found in Fustat (medieval Cairo).

Bibliography: Kubiak 1970.

76. Oil lamp, 13th–15th centuries, Fustat (medieval Cairo), Egypt, glazed ceramic. Kelsey Museum of Archaeology, 1970.4.423.

Oil lamps made in Fustat (medieval Cairo) during the Mamluk period are generally simpler in form and cruder in design than their predecessors. This small turquoise-glazed lamp is essentially a wheel-thrown saucer that is pinched to form a spout. It has a central chamber for oil, and its simple handle is tucked within the cavity. This type of lamp could be made quickly and easily, unlike the molded and wheel-thrown pieces, which required greater skills to produce and assemble.

Bibliography: Kubiak 1970, 15–16, fig. 15.

77. Oil lamp, 9th–10th centuries, Nishapur, Iran, glazed ceramic. Kelsey Museum of Archaeology, 1996.3.1.

This small ceramic oil lamp has a polygonal body and a flattened rectangular nozzle. Its clay surface is covered with a glaze that now displays an iridescent patina. Oil lamps were practical items for lustration in private homes, including those located in medieval Nishapur, Iran.

Bibliography: Wilkinson 1973, 233–234, 245, figs. 14–24.

KM 1970.3.652

KM 1970.3.669

KM 1970.3.738

78. Fragments from different vessels or lamps, 13th–15th centuries, Fustat (medieval Cairo), Egypt, enamel-painted and gilded glass. Kelsey Museum of Archaeology, 1970.3.652, 1970.3.669, and 1970.3.738.

These glass fragments from three different vessels bear Arabic inscriptions painted in enamel. Two include calligraphy painted in gold and outlined in red, and one displays letters in white surrounded by blue tendrils. At times, enameled glass vessels are so filled with decoration that their transparent glass body is almost entirely concealed. These fragments may have belonged to lamps or vessels. If on glass lamps, the inscriptions would have glowed from a lit wick placed within the object. Those with gilding would have sparkled even more. During the Mamluk period in particular, enamel-painted glass lamps illuminated the interior spaces of mosques and tombs in Egypt and the Levant. At times, such lamps include the "Light Verse" (*ayat al-nur*) from the Qur'an, which describes God as the "Light of the heavens and earth" and a glittering lamp.

Bibliography: Carboni 2001, 323–369, cat. nos. 92a–j, 93a–d, and 100a–c; Carboni and Whitehouse 2001, 199–273; Ward 1998; Wiet 1932; Rogers 2000; and Scanlon and Pinder-Wilson 2001, 114–119, pls. 46b–t.

exterior

interior

79. Mamluk pen box (*qalamdan*), 14th century, Egypt, brass inlaid with gold and silver. Kelsey Museum of Archaeology, 28802.

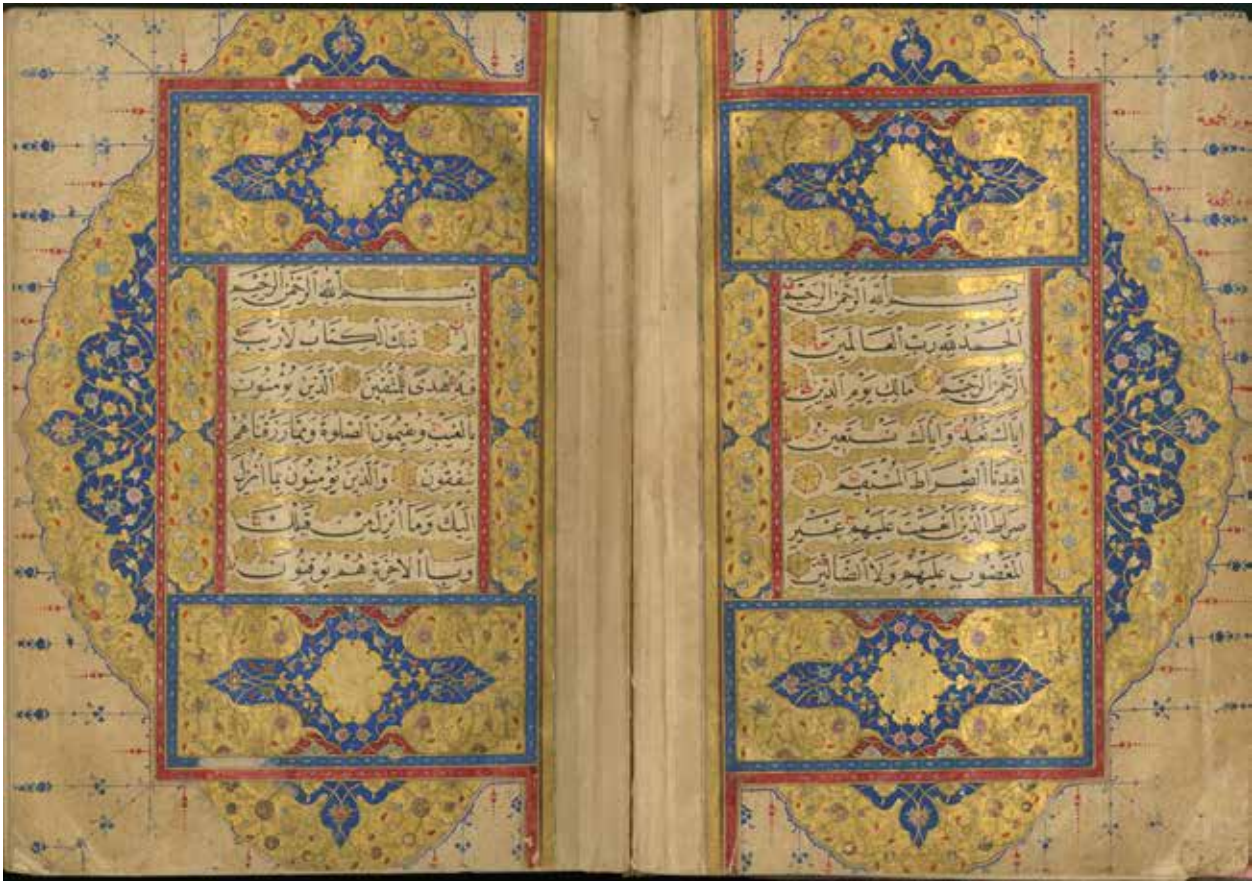
This oblong, hinged pen box is made of brass and inlaid with gold and silver, much of which is now lost. The case belonged to a Mamluk official (*amir*) active in Egypt during the mid-14th century. The *amir*'s name, Sharaf al-Din, appears on the box three times within bands of Arabic inscriptions listing his various titles—such as "Warrior for the Faith" and "Defender of the Frontiers"—and the positions he held, including that of royal chamberlain. Ornately decorated and inlaid boxes such as this one functioned as tools and symbols of high office. Kept inside were a reed pen (*qalam*) and inkpot. A good pen could last decades if cared for properly, while its use in administrative and literary practices symbolized wisdom and learning.

Bibliography: Grabar 1961; Ward 1993, 106–120, fig. 85; and Zakariya 1991.

80. Illuminated double-page opening of the Qur'an, dated AH 1032/1623 CE, Ottoman lands, ink and gold on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 167.

As a sacred text, the Qur'an is frequently illuminated, as can be seen in this particularly fine 17th-century Ottoman example. Illumination is a nonfigurative form of ornamentation in which a manuscript page is decorated by colored pigments, in particular lapis lazuli and gold. Because of its lustrous properties, gold is the favored medium for illumination. It can be applied as foil or paint, the latter allowing much finer detail work. In this manuscript copy, a large portion of the page is covered in gold and further decorated with flowers and vegetal patterns painted in red, blue, and various pastels. Besides adding radiant beauty and material value, this type of illumination also bestows visual majesty, thereby metaphorically showing the Qur'an as the "enlightened" word of God.

Bibliography: Manuscript's online catalogue entry (http://catalog.hathitrust.org/Record/002641723); Waley 1991; and Zakariya 1991, 5.



81. The Prophet Muhammad's death, Fuzuli (1495–1556), *Hadiqat al-Su'ada* (Garden of the Blessed), text dated AH 1006/1598 CE, possibly Ottoman Baghdad, ink, pigment, and gold on paper. Special Collections, Hatcher Graduate Library, Isl. Ms. 386, page 137.

This painting depicts the death of the Prophet Muhammad surrounded by members of his family. It is included in a late 16th-century illustrated copy of Fuzuli's *Hadiqat al-Su'ada* (Garden of the Blessed), a martyrology that recounts the suffering and death of members of Muhammad's family. This particular manuscript includes thirteen paintings, which depict Muhammad and his household (the *ahl al-bayt*) with flaming halos—and thus as a holy family touched by divine light. Except for Fatima, the Prophet's daughter who bears a white facial veil, all other characters would have originally been shown without any facial veils. The rather sloppy swathes of black paint appear to have been added at a later date. They may have been inserted by a viewer who believed that figural representations are forbidden in Islam—itself one of the most widespread misconceptions about Islamic art.

Bibliography: Manuscript's online catalogue entry (http://mirlyn.lib.umich.edu/Record/006822121/Description#tabs); and Milstein 1990, esp. 100–105, cat. nos. 14–31, figs. 12 and 21.

82. Khaled al-Saa'i (born 1970), *Resurrection*, triptych painted in Ann Arbor in 2002, natural ink, tempera, and gouache on paper. University of Michigan Museum of Art, 2003.1.367A–C.

Syrian-born contemporary artist Khaled al-Saa'i creates delicate calligraphic paintings composed of Arabic letters. While some letters are discernable within the composition, *Resurrection* explores the formal potential and dynamic movement of letter shapes. Entangled in an ethereal mist, large calligraphic forms hover in mid-air, rising as if from a mound of debris below. At the top of the left panel a single rhombic dot marks a fading horizon. In Islamic traditions, the rhombus is considered the genesis of all Arabic letters. Classical calligraphers were trained to use the rhomboid to measure the strokes of their letterforms. Like strung pearls, chains of rhomboids calculate the proper proportions of each letter. In this calligraphic triptych, al-Saa'i builds upon older Islamic calligraphic traditions to further explore the rhombus as a creative force as his letters emerge from the brown earth and "resurrect" into new spiritual forms.

Bibliography: Porter 2006; Ali 1997, 151–187; Naef 2003, 168–171; and Schimmel 1987.

Bibliography

Aanavi, Don. 1968. "Devotional Writing: 'Pseudoinscriptions' in Islamic Art," *The Metropolitan Museum of Art Bulletin* 26/9: 353–358.

Ali, Wijdan. 1997. *Modern Islamic Art: Development and Continuity*. Gainesville: University of Florida Press.

Ames, Frank. 1997. *The Kashmir Shawl and Its Indo-French Influence*. Woodbridge, Suffolk: Antique Collectors' Club.

Andrews, Peter. 1999. *Felt Tents and Pavilions: The Nomadic Tradition and Its Interaction with Princely Tentage,* 2 vols. London: Melisende.

Arık, Rüçhan, and M. Oluş Arık. 2008. *Tiles: Treasures of Anatolian Soil: Tiles of the Seljuk and Beylik Periods*. Istanbul: Kale Group Culture Publications.

Atasoy, Nurhan. 2000. *Derviş çeyizi: Türkiye'de tarikat giyim-kuşam tarihi*. Istanbul: T. C. Kültür Bakanlığı.

Atıl, Esin. 1994. "Humor and Wit in Islamic Art," *Asian Art and Culture* 7/3 (Fall): 13–29.

Bacharach, Jere. 2002. *Fustat Finds: Beads, Coins, Medical Instruments, Textiles, and Other Artifacts from the Awad Collection*. Cairo: American University in Cairo Press.

Bacharach, Jere, and Elizabeth Rodenbeck. 2002. "Bone, Ivory, and Wood," in *Fustat Finds: Beads, Coins, Medical Instruments, Textiles, and Other Artifacts from the Awad Collection*, ed. Jere Bacharach, 32–43. Cairo.

Baer, Eva. 1968. "'Fish Pond' Ornaments on Persian and Mamluk Metal Vessels," *Bulletin of the School of Oriental and African Studies, University of London* 31/1: 14–27.

———. 1989. "Jeweled Ceramics from Medieval Islam: A Note on the Ambiguity of Islamic Ornament," *Muqarnas* 6 (1989): 83–97.

———. 1998. *Islamic Ornament*. New York: New York University Press.

Baker, Patricia. 1995. *Islamic Textiles*. London: British Museum Press.

Balog, Paul. 1981. "Fatimid Glass Jetons: Token Currency or Coin Weights?," *Journal of the Economic and Social History of the Orient* 24/1 (January): 93–109.

Bates, Michael. 1981. "The Function of Fatimid and Ayyubid Glass Weights," *Journal of the Economic and Social History of the Orient* 24/1 (January): 63–92.

———. 1982. *Islamic Coins.* New York: American Numismatic Society.

———. 1993. "How Egyptian Glass Coin Weights Were Used," *Rivista Italiana di Numismatica e Scienze Affini* 95: 541–545.

Bates, Michael, and Robert Darley-Doran. 1985. "The Art of Islamic Coinage," in *Treasures in Islam*, ed. Toby Falk, 350–395. London: Sotheby's/Philip Wilson Publishers.

Bates, Ülkü. 1991. "The Use of Calligraphy on Three-Dimensional Objects: The Case for 'Magic Bowls'," in *Brocade of the Pen: The Art of Islamic Writing,* ed. Carrol Garrett Fisher, 55–61. East Lansing, MI: Kresge Art Museum, Michigan State University.

Beardsley, Grace, and Carla Sinopoli. 2005. *Wrapped in Beauty: The Koelz Collection of Kashmiri Shawls*. Ann Arbor, MI: Museum of Anthropology, University of Michigan.

Behrens-Abouseif, Doris. 1999. *Beauty in Arabic Culture.* Princeton: Markus Wiener Publishers.

Blair, Sheila. 1983. "The Coins of the Later Ilkhanids: A Typological Analysis," *Journal of the Economic and Social History of the Orient* 26/3: 295–317.

———. 1989. "Legibility Versus Decoration in Islamic Epigraphy: The Case of Interlacing," in *World Art: Themes of Unity in Diversity: Acts of the XXVIth International Congress of the History of Art*, ed. Irving Lavin, 329–334. University Park, PA: Pennsylvania State University Press.

———. 1998. *Islamic Inscriptions*. New York: New York University Press.

———. 2001. "An Amulet from Afsharid Iran," *The Journal of the Walters Art Museum* 59: 85–102.

Bloom, Jonathan. 1988. "The Introduction of the Muqarnas into Egypt," *Muqarnas* 5: 21–28.

———. 2007. *Arts of the City Victorious: Islamic Art and Architecture in Fatimid North Africa and Egypt*. New Haven: Yale University Press.

Bowker, Sam. 2014. "The Urban Fabric of Cairo: *Khayamiya* and the *Suradeq*," *International Journal of Islamic Architecture* 3/2, special issue on *Islamic Architecture on the Move*, ed. Christiane Gruber, 475–501.

Burrell, David, and Nazih Daher (transl.). 1995. *Al-Ghazali: The Ninety-Nine Beautiful Names of God (al-Maqsad al-asna fi sharh asma' Allah al-husna).* Cambridge: The Islamic Texts Society.

Cammann, Schuyler. 1969. "Islamic and Indian Magic Squares: Parts I and II," *History of Religion* 8/3 (February): 181–209 and 8/4 (May): 271–299.

Carboni, Stefano. 1994. "Glass Bracelets from the Mamluk Period in the Metropolitan Museum of Art," *Journal of Glass Studies* 36: 126–129.

———. 2001. *Glass from Islamic Lands*. New York.

Carboni, Stefano, and David Whitehouse. 2001. *Glass of the Sultans*. New York: Metropolitan Museum of Art.

Contadini, Anna. 1998. *Fatimid Art in the Victoria and Albert Museum.* London: V&A Publications.

———. 1999. "The Cutting Edge: Problems of History, Identification and Technique of Fatimid Rock Crystals," in *L'Egypte Fatimide, son art et son histoire: Actes du colloque organisé à Paris les 28, 29, et 30 mai 1998,* ed. Marianne Barrucand, 319–328. Paris: Presses de l'Université de Paris–Sorbonne.

Crowe, Yolande. 1975–1977. "Early Islamic Pottery and China," in *Transactions of the Oriental Ceramic Society,* 263–279.

———. 1976. "The Islamic Potter and China," *Apollo* 103/170: 296–301.

Damalı, Atom, and Bilhan Akçaşar. 2010. *Osmanlı Sikkeleri Tarihi: History of Ottoman Coins.* Ankara: Nilüfer Damalı Eğitim, Kültür ve Çevre Vakfı.

Dawkins, James. 1944. "The Seal of Solomon," *Journal of the Royal Asiatic Society,* 145–150.

Day, Florence. 1937. "Dated Tiraz in the Collection of the University of Michigan," *Ars Islamica* 4: 420–447.

Décobert, Christian, and Denis Gril. 1981. *Linteaux à épigraphes de L'oasis de Dakhla.* Cairo: Institut Français d'Archéologie Orientale.

Diler, Ömer. 2006. *Ilkhanids: Coinage of the Persian Mongols.* Istanbul: Turkuaz Kitapçılık.

Dodd, Erica, and Shereen Khairallah. 1981. *The Image of the Word: A Study of Qur'anic Verses in Islamic Architecture.* Beirut: American University of Beirut.

Dodds, Jerrilynn (ed.). 1992. *Al-Andalus: The Art of Islamic Spain.* New York: The Metropolitan Museum of Art.

Dozy, Reinhart. 1845. *Dictionnaire détaillé des noms de vêtements chez les arabes*. Amsterdam: Jean Muller.

Ekhtiar, Maryam. 2011. "*Shah Mat!* (Checkmate!)," in *The Game of Kings: Medieval Ivory Chessmen from the Isle of Lewis*, exhibition blog: http://www.metmuseum.org/exhibitions/listings/2011/the-game-of-kings-medieval-ivory-chessmen-from-the-isle-of-lewis/exhibition-blog/game-of-kings/blog/shah-mat.

Ekhtiar, Maryam, et al. 2011. *Masterpieces from the Department of Islamic Art in the Metropolitan Museum of Art*. New York: Metropolitan Museum of Art.

Ellis, Marianne. 2001. *Embroideries and Samplers from Islamic Egypt*. Oxford: Ashmolean Museum.

Ettinghausen, Elizabeth. 1999. "Woven in Stone and Brick, Seljuk Architectural Decoration," in *Turkish Art: 10th International Congress of Turkish Art, Geneva, 17–23 September 1995, Proceedings,* ed. François Déroche, Antoinette Harri, and Allison Ohta, 315–325. Geneva: Fondation Max Van Berchem.

Ettinghausen, Richard. 1939. "An Umaiyad Pound Weight," *The Journal of the Walters Art Gallery* 2: 73–76.

———. 1965. "The Uses of Sphero-Conical Vessels in the Muslim East," *Journal of Near Eastern Studies* 24/3 (July): 218–229.

———. 1974. "Arabic Epigraphy: Communication or Symbolic Affirmation," in *Near Eastern Numismatics, Iconography, Epigraphy and History,* ed. Dickran Kouymjian, 297–317. Beirut: American University of Beirut.

Falk, Toby. 1985. *Treasures of Islam*. London: Sotheby's/Philip Wilson Publishers.

Farsy, Muhammad. 1964. *Islam and Hygiene*. Leiden: E. J. Brill.

Fisher, Carol Garrett, and Alan Fisher. 1982. *Islamic Art from Michigan Collections.* East Lansing, MI: Kresge Art Gallery, Michigan State University.

Flood, Finbarr Barry. 2002. "Between Cult and Culture: Bamiyan, Iconoclasm, and the Museum," *Art Bulletin* 84/4 (December): 641–659.

Galavaris, George. 1970. *Bread and the Liturgy: The Symbolism of Early Christian and Byzantine Bread Stamps.* Madison, WI: University of Wisconsin Press.

Georges, Bénédite. 1911. *Objets de toilette*. Cairo: Institut Français d'Archéologie Orientale.

Ghouchani, 'Abdallah, and Chahryar Adle. 1992. "A Sphero-Conical Vessel as *Fuqqa'a,* or a Gourd for 'Beer'," *Muqarnas* 9: 72–92.

Gillow, John. 2013. *Textiles of the Islamic World.* London: Thames and Hudson.

Glidden, Harold. 1939. "Fatimid Carved-Wood Inscriptions in the Collections of the University of Michigan," *Ars Islamica* 6/1: 94–95.

Golombek, Lisa. 1988. "The Draped Universe of Islam," in *Content and Context of the Visual Arts in the Islamic World: Papers from a Colloquium in Memory of Richard Ettinghausen, Institute of Fine Arts, New York University, 2–4 April, 1980,* ed. Priscilla Soucek, 25–50. University Park, PA, and London: Pennsylvania State University Press.

Gompertz, Godfrey. 1958. *Chinese Celadon Wares*. London: Faber.

Gonzalez, Valérie. 2001. *Beauty and Islam: Aesthetics in Islamic Art and Architecture.* London and New York: I. B. Tauris.

Gordon, Stewart (ed.). 2001. *Robes and Honor: The Medieval World of Investiture.* New York: Palgrave.

Grabar, Oleg. 1961. "Two Pieces of Islamic Metalwork at the University of Michigan," *Ars Orientalis* 4: 360–368.

———. 1992. "Cities and Citizens: The Growth and Culture of Urban Islam," in *The World of Islam: Faith, People, Culture,* ed. Bernard Lewis, 89–116. London: Thames and Hudson.

Grube, Ernst. 1976. *Islamic Pottery of the Eighth to the Fifteenth Century in the Keir Collection*. London: Faber and Faber.

Gruber, Christiane. 2009. "Between Logos (*Kalima)* and Light (*Nur*): Representations of the Prophet Muhammad in Islamic Painting," *Muqarnas* 26: 1–34.

———. 2010. "A Pious Cure-All: The Ottoman Illustrated Prayer Manual in the Lilly Library," in *The Islamic Manuscript Tradition: Ten Centuries of Book Arts in Indiana University Collections*, ed. idem, 117–153. Bloomington and Indianapolis: Indiana University Press.

———. 2012. "Power and Protection: Late Ottoman Seal Designs," *Hadeeth ad-Dar* 38: 2–6.

———. 2014. "Signs of the Hour: Eschatological Imagery in Islamic Book Arts," *Ars Orientalis* 44: 40–60.

Gyllensvard, Bo. 1973. "Recent Finds of Chinese Ceramics at Fustat: Part I," *Bulletin of the Museum of Far Eastern Antiquities (Ostasiatiska Museet) Stockholm* 45: 99–119.

Heidemann, Stefan. 2010. "Numismatics," in *The New Cambridge History of Islam*, ed. Chase Robinson, vol. 1, 648–779. Cambridge: Cambridge University Press.

Hinz, Walther. 1937. "Beiträge zur iranischen Kulturgeschichte II. Das iranische Löwen-Sonnen-Wappen," *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 91: 71–79.

Hirx, John, Marco Leona, and Pieter Meyers. 2002. "Glazed Press-Molded Tiles of Takht-i Sulaiman," in *The Legacy of Genghis Khan: Courtly Art and Culture in Western Asia, 1256–1353,* ed. Linda Komaroff and Stefano Carboni, 233–242. New York: Metropolitan Museum of Art.

Hoskins, Nancy. 2002. "Textiles," in *Fustat Finds: Beads, Coins, Medical Instruments, Textiles, and Other Artifacts from the Awad Collection*, ed. Jere Bacharach, 206–233. Cairo: American University in Cairo Press.

Irwin, John. 1973. *The Kashmir Shawl*. London: H. M. Stationery Off.

Ittig, Annette. 1982. "A Talismanic Bowl," *Annales Islamologiques* 18: 79–94.

Jenkins, Marilyn. 1983. "Islamic Pottery: A Brief History," *The Metropolitan Museum of Art Bulletin* 40/4: 14–52.

———. 1986. *Islamic Glass: A Brief History*. New York: Metropolitan Museum of Art.

Karamustafa, Ahmet. 1992. "Cosmographical Diagrams," in *Cartography in the Traditional Islamic and South Asian Societies*, *History of Cartography*, vol. 2, book 1, ed. John Brian Harley and David Woodward, 71–89. Chicago: University of Chicago Press.

Karateke, Hakan, and Helga Anetshofer. 2001. *Traktat über die Derwischmützen (Risale-i taciyye) des Müstaqim-zade Süleyman Sa'deddin (st. 1788)*. Leiden: E. J. Brill.

Keall, Edward. 1993. "One Man's Mede Is Another Man's Persian: One Man's Coconut Is Another Man's Grenade," *Muqarnas* 10: 275–285.

Khan, Qaisra. 2013. "Souvenirs and Gifts: Collecting Modern Hajj," in *The Hajj: Collected Essays,* ed. Venetia Porter and Liana Saif, 228–240. London: British Museum.

Klat, Michel G. 2002. *Catalogue of the Post-Reform Dirhams: The Umayyad Dynasty*. London: Spink.

Kriss, Rudolf, and Hubert Kriss-Heinrich. 1962. *Amulette, Zauberformeln und Beschwörungen*, *Volksglaube in Bereich des Islam,* vol. 2. Wiesbaden: Harrassowitz.

Kröger, Jens. 2007. "Islamic Rock Crystal Objects," in *A Collector's Fortune: Islamic Art from the Collection of Edmund de Unger*, ed. Clause-Peter Haase, 64–69. Berlin: Museum für Islamische Kunst.

Kubiak, Wladyslaw. 1970. "Medieval Ceramic Oil Lamps from Fustat," *Ars Orientalis* 8: 1–18.

Kühnel, Ernst. 1939. "Islamische Brotstempel aus Ägypten," *Berichte aus den Preussischen Kunstsammlungen* 60: 50–56.

Lamm, Carl Johan. 1937. "Some Mamluk Embroideries," *Ars Islamica* 4: 64–77.

Lange, Christian. 2008. *Justice, Punishment and the Medieval Muslim Imagination*. Cambridge: Cambridge University Press.

Leaman, Oliver. 2004. *Islamic Aesthetics: An Introduction.* Notre Dame, IN: University of Notre Dame Press.

Lévi-Strauss, Monique, and Massimo Listri. 1987. *The Cashmere Shawl*. London: Dryad.

Mackie, Louise. 1984. "Toward an Understanding of Mamluk Silks: National and International Considerations," *Muqarnas* 2: 127–146.

Mansel, Philip. 1988. "Travelling Palaces," *Hali* 39: 30–35.

Marzouk, Mohammad Abdil Aziz. 1943. "The Evolution of Inscriptions on Fatimid Textiles," *Ars Islamica* 10: 164–166.

Masuya, Tomoko. 2002. "Ilkhanid Courtly Life," in *The Legacy of Genghis Khan: Courtly Art and Culture in Western Asia, 1256–1353,* ed. Linda Komaroff and Stefano Carboni, 75–103. New Haven and London: Yale University Press.

Mayer, L. A. 1933. *Saracenic Heraldry: A Survey.* Oxford: Clarendon Press.

———. 1952. *Mamluk Costume: A Survey.* Geneva: A. Kundig.

———. 1958. *Islamic Woodcarvers and Their Works.* Geneva: A. Kundig.

McWilliams, Mary, and David Roxburgh. 2007. *Traces of the Calligrapher: Islamic Calligraphy in Practice, c. 1600–1900.* New Haven and London: Yale University Press.

Meinecke, Michael. 1976. *Fayencedekorationen seldschukischer Sakralbauten in Kleinasien*. Tübingen: Wasmuth.

Meller, Susan. 2013. *Silk and Cotton: Textiles from the Central Asia That Was.* New York: Abrams.

Micklewright, Nancy. 1991. "Tiraz Fragments: Unanswered Questions about Medieval Islamic Textiles," in *Brocade of the Pen: The Art of Islamic Writing,* ed. Carol Garrett Fisher, 31–45. East Lansing, MI: Kresge Art Museum, Michigan State University.

Miles, George. 1950. *The Coinage of the Umayyads of Spain*. New York: American Numismatic Society.

———. 1951a. *Early Arabic Glass Weights and Stamps: A Supplement.* New York: American Numismatic Society.

———. 1951b. *Fatimid Coins in the Collections of the University Museum, Philadelphia and the American Numismatic Society.* New York: American Numismatic Society.

Milstein, Rachel. 1990. *Miniature Painting in Ottoman Baghdad.* Costa Mesa, CA: Mazda Publishers.

Morton, A. H. 1985. *A Catalogue of Early Islamic Glass Stamps in the British Museum.* London: British Museum Publications.

Nadir, Ayşegül. 1986. *Osmanlı Padişah Fermanları: Imperial Ottoman Fermans.* London: A. Nadir.

Naef, Silvia. 2003. "Reexploring Islamic Art: Modern and Contemporary Creation in the Arab World and Its Relation to the Artistic Past," *Res: Anthropology and Aesthetics* 43: 164–174.

Nicol, Norman. 2006. *A Corpus of Fatimid Coins*. Trieste: G. Bernardi.

Nicol, Norman, Raafat al-Nabarawy, and Jere Bacharach. 1982. *Catalog of the Islamic Coins, Glass Weights, Dies and Medals in the Egyptian National Library, Cairo.* Malibu, CA: Undena Publications.

O'Kane, Bernard. 1993. "From Tents to Pavilions: Royal Mobility and Persian Palace Design," *Ars Orientalis* 23: 249–268.

———. 2006. *The Treasures of Islamic Art in the Museums of Cairo.* Cairo: American University in Cairo Press.

Oliver, Prudence. 1961. "Islamic Relief Cut Glass: A Suggested Chronology," *Journal of Glass Studies* 3: 9–29.

Olmer, Pierre. 1932. *Les filtres de gargoulettes / Catalogue général du Musée Arabe du Caire.* Cairo: Imprimerie de l'Institut Français d'Archéologie Orientale.

Pancaroğlu, Oya. 2007. *Perpetual Glory: Medieval Islamic Ceramics from the Harvey B. Plotnick Collection.* Chicago: Art Institute of Chicago.

Pauty, M. Edmond. 1931. *Les bois sculptés jusqu'à l'époque ayyoubide / Catalogue général du Musée Arabe du Caire*. Cairo: Imprimerie de l'Institut Français d'Archéologie Orientale.

Pearson, John, and A. G. Ellis. 1907. *Guide to Happiness: A Manual of Prayer*. Oxford: Printed for private circulation.

Perk, Halûk, and Ismaïl Günay Paksoy. 2011. *Duanın Sudaki Gizemi Şifa Tasları*. Istanbul: Zeytinburnu Belediyesi, Halûk Perk Müzesi.

Piemontese, Angelo. 1969. "The Statues of the Qajar Orders of Knighthood," *East and West* 19/3–4 (September–December): 431–473.

Pinder-Wilson, Ralph, and George Scanlon. 1973. "Glass Finds from Fustat, 1964–1971," *Journal of Glass Studies* 15: 12–30.

Pope, Arthur Upham. 1964. "Architectural Ornament," in *A Survey of Persian Art from Prehistoric Times to the Present*, ed. idem and Phyllis Ackerman, vol. 3, 1258–1364. London: Oxford University Press.

Porter, Venetia. 1995. *Islamic Tiles*. New York: Interlink Books.

———. 2004. "Islamic Seals: Magical or Practical?," in *Magic and Divination in Early Islam,* ed. Emilie Savage-Smith, 179–200. Aldershots, UK and Burlington, VT: Ashgate/Variorum.

———. 2006. *Word into Art: Artists of the Modern Middle East.* London: British Museum Press.

———. 2007. "Amulets Inscribed with the Names of the 'Seven Sleepers' of Ephesus in the British Museum," in *Word of God, Art of Man: The Qur'an and Its Creative Expressions; Selected Proceedings from the International Colloquium, London, 18–21 October 2003*, ed. Fahmida Suleman, 123–134. Oxford: Oxford University Press in association with the Institute of Ismaili Studies.

———. 2009. "Stones to Bring Rain?: Magical Inscriptions in Linear Kufic on Rock Crystal Amulet-Seals," in *Rivers of Paradise: Water in Islamic Art and Culture*, ed. Sheila Blair and Jonathan Bloom, 131–159. New Haven and London: Yale University Press.

Porter, Venetia, et al. 2011. *Arabic and Persian Seals and Amulets in the British Museum*. London: British Museum Press.

Porter, Venetia, and Jürgen Wasim Frembgen. 2010. "Silver Amulets with Inscriptions from Iran and Afghanistan," in *The Aura of Alif: The Art of Writing in Islam*, ed. Jürgen Wasim Frembgen, 127–147. Munich: Prestel.

Porter, Yves. 2000. "From the 'Theory of the Two *Qalams*' to the 'Seven Principles of Painting': Theory, Terminology, and Practice in Persian Classical Painting," *Muqarnas* 17: 109–118.

Raziq, Ahmad 'Abd ar-. 1972. "Les peignes égyptiens dans l'art de l'Islam," *Syria* 49/3–4: 399–412.

Redford, Scott. 2005. "A Grammar of Rum Seljuk Ornament," *Mesogeios* 25–26: 283–310.

Rodziewicz, Elzbieta. 2012. *Bone Carvings from Fustat—Istabl 'Antar.* Cairo: Institut Français d'Archéologie Orientale.

Rogers, J. M. 2000. "Further Thoughts on Mamluk Enameled Glass," in *The Cairo Heritage: Essays in Honor of Laila Ali Ibrahim*, ed. Doris Behrens-Abouseif, 275–290. Cairo and New York: The American University in Cairo Press.

Rosenthal, Franz. 1948. "Abu Ḥaiyan Al-Tawhidi on Penmanship," *Ars Islamica* 13: 1–30.

———. 1961. "Significant Uses of Arabic Writing," *Ars Orientalis* 4: 15–23.

Rubin, Uri. 1975. "Pre-Existence and Light: Aspects of the Concept of Nur Muhammad," *Israel Oriental Studies* 5: 62–119.

Rustomji, Nerina. 2009. *The Garden and the Fire: Heaven and Hell in Islamic Culture*. New York: Columbia University Press.

Al-Saa'd, Ziad. 1999. "Chemical Analysis of Some Umayyad Dirhems Minted at Wasit," *Journal of the Economic and Social History of the Orient* 42/3: 351–363.

Safwat, Nabil. 1996. *The Art of the Pen: Calligraphy of the 14th to 20th Centuries (The Nasser D. Khalili Collection of Islamic Art)*. London: Nour Foundation in association with Azimuth Editions and Oxford University Press.

Savage-Smith, Emilie, et al. 1997. *Science, Tools & Magic (The Nasser D. Khalili Collection of Islamic Art),* 2 vols. London: Nour Foundation in association with Azimuth Editions and Oxford University Press.

Scanlon, George. 1964. "The Pits of Fustat: Problems of Chronology," *The Journal of Egyptian Archaeology* 60: 60–78.

———. 1968. "Ancillary Dating Materials from Fustat," *Ars Orientalis* 7: 1–17.

———. 1970a. *Fatimid Filters: Archaeology and Olmer's Typology*. N.p.

———. 1970b. "Egypt and China: Trade and Imitation," in *Islam and the Trade of Asia: A Colloquium,* ed. D. S. Richards, 82–95. Oxford, UK and Philadelphia, PA: Bruno Cassirer and University of Pennsylvania Press.

———. 1980. "Some Mamluk Ceramic Shapes from Fustat: 'Sgraff' and 'Slip'," *Islamic Archaeological Studies* 2: 59–145.

———. 1984. "Mamluk Pottery: More Evidence from Fustat," *Muqarnas* 2: 115–126.

———. 1986. *Catalogue of Filters*. Winona Lake, IN: Eisenbrauns.

———. 1997. "Medieval Egyptian Wooden Combs: The Evidence from Fustat," in *Arab and Islamic Studies in Honor of Marsden Jones*, ed. Thabit Abdullah et al., 13–38. Cairo: American University in Cairo Press.

———. 1999. "Fustat Fatimid Sgraffiato: Less Than Lustre," in *L'Egypte fatimide, son art et son histoire: Actes du colloque organisé a Paris les 28, 29, et 30 mai 1998,* ed. Marianne Barrucand, 265–293. Paris: Presses de l'Université de Paris–Sorbonne.

———. 2002. "Islamic Glass Bracelets: Some Hints from Fustat," in *Cairo to Kabul: Afghan and Islamic Studies Presented to Ralph Pinder-Wilson*, ed. Warwick Ball and Leonard Harrow, 176–180. London: Melisende.

Scanlon, George, and Ralph Pinder-Wilson. 2001. *Fustat Glass of the Early Islamic Period: Finds Excavated by the American Research Center in Egypt, 1964–1980.* London: Altajir World of Islam Trust.

Schick, İrvin Cemil. 2000. "Taczade Risalesi'ne Göre Sülüs Hattına Dair Bazı Istılahat," in *M. Uğur Derman Festschrift: Papers Presented on the Occasion of His Sixty-fifth Birthday*, ed. idem, 457–482. Istanbul: Sabancı Üniversitesi.

———. 2008. "The Iconicity of Islamic Calligraphy," *Res: Anthropology and Aesthetics* 53–54: 211–224.

Schimmel, Annemarie. 1987. "The Primordial Dot: Some Thoughts about Sufi Letter Mysticism," *Jerusalem Studies in Arabic and Islam* 9: 350–356.

Schimmel, Annemarie, and Barbara Rivolta. 1992. "Islamic Calligraphy," *The Metropolitan Museum of Art Bulletin* 50/1: 13–56.

Sertoğlu, Midhat. 1975. *Osmanlı Türklerinde Tuğra: Başlangıcı ve Gelişmesi*. Istanbul: Doğan Kardeş Matbaacılık Sanayii A.Ş.

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

———. 2010. "If Objects Could Speak," in *The Aura of the Alif: The Art of Writing in Islam,* ed. Jürgen Wasim Frembgen, 127–143. Munich, London, and New York: Prestel.

Sijpesteijn, Petra. 2013. *Shaping a Muslim State: The World of a Mid-Eighth Century Egyptian Official.* Oxford: Oxford University Press.

Silverman, Raymond. 1991. "Arabic Writing and the Occult," in *Brocade of the Pen: The Art of Islamic Writing,* ed. Carrol Garrett Fisher, 19–30. East Lansing, MI: Kresge Art Museum, Michigan State University.

———. 2007. "Drinking the Word of God," in *Inscribing Meaning: Writing and Graphic Systems in African Art,* ed. Christine Mullen Kreamer and Sarah Adams, 11–17. Washington, DC: Smithsonian, National Museum of African Art.

Sokoly, Jochen. 1997a. "Between Life and Death: The Funerary Context of Tiraz Textiles," in *Islamische Textilkunst des Mittelalters: Aktuelle Probleme*, ed. Muhammad 'Abbas Muhammad Salim, 71–78. Riggisberg, Switzerland: Abegg-Stiftung.

———. 1997b. "Towards a Model of Early Islamic Textile Institutions in Egypt," in *Islamische Textilkunst des Mittelalters: Aktuelle Probleme*, ed. Muhammad 'Abbas Muhammad Salim, 115–122. Riggisberg, Switzerland: Abegg-Stiftung.

Soucek, Priscilla. 1978. *Islamic Art from the University of Michigan Collections: Exhibition at the Kelsey Museum of Archaeology, University of Michigan, Ann Arbor, February 4–April 16, 1978*. Ann Arbor, MI: Kelsey Museum of Archaeology, University of Michigan.

———. 2001. "Coinage of the Qajars: A System in Continual Transition," *Iranian Studies* 34/1–4: 51–87.

———. 2006. "The Visual Language of Qajar Medals," in *Islamic Art in the 19th Century: Tradition, Innovation, and Eclecticism*, ed. Doris Behrens-Abouseif and StephenVernoit, 305–331. Leiden: E. J. Brill.

Spaer, Maud. 1992. "The Islamic Glass Bracelets of Palestine: Preliminary Findings," *Journal of Glass Studies* 34: 44–62.

Spoer, H. Henry. 1935. "Arabic Magic Medicinal Bowls," *Journal of the American Oriental Society* 55: 237–256.

Stern, E. M. 1997. "Glass and Rock Crystal: A Multifaceted Relationship," *Journal of Roman Archaeology* 10: 192–206.

Stevenson, William. 1920. "Some Specimens of Moslem Charms," in *Studia Semitica et Orientalia,* 84–114. Glasgow: MacLehose, Jackson and Co.

Suriano, Carlo Maria. 1998. "Mamluk Blazon Carpets," *Hali* 97: 72–81 and 107–108.

Tabbaa, Yasser. 1985. "The Muqarnas Dome: Its Origin and Meaning," *Muqarnas* 3: 61–74.

Tabrizi, Ja'far. 2001. "*Arzadasht* (Report)," in *Album Prefaces and Other Documents on the History of Calligraphers and Painters*, *Studies and Sources in Islamic Art and Architecture,* ed. Wheeler Thackston, *Supplements to Muqarnas* 10, 43–46. Leiden; E. J. Brill.

Taşkale, Faruk, and Hüseyin Gündüz. 2006. *Hat Sanatında Hilye-i Şerife: Hz. Muhammed'in Özellikleri* (*Characteristics of the Prophet Muhammed in Calligraphic Art*). Istanbul: Antik A.Ş. Kültür Yayınları.

Titley, Norah. 1981. *Miniatures from Turkish Manuscripts: A Catalogue and Subject Index of Paintings in the British Library and British Museum.* London: British Library.

Umur, Suha. 2011. *Osmanlı Padişah Tuğraları.* Istanbul: Cem Yayınevi.

Waley, Muhammad Isa. 1991. "Illumination and Its Function in Islamic Manuscripts," in *Brocade of the Pen: The Art of Islamic Writing,* ed. Carrol Garrett Fisher, 87–112. East Lansing, MI: Kresge Art Museum, Michigan State University.

Walker, Bethany. 2000. "Rethinking Mamluk Textiles," *Mamluk Studies Review* 4: 167–217.

Ward, Rachel. 1993. *Islamic Metalwork*. New York: Thames and Hudson.

——— (ed.). 1998. *Gilded and Enamelled Glass from the Middle East*. London: British Museum Press.

Wasserstein, David. 1993. "Coins as Agents of Cultural Definition in Islam," *Poetics Today* 14/2: 303–322.

Watson, Oliver. 1985. "The Artistry of the Islamic Tile: Tiles from the Collection of the Victoria and Albert Museum," *Orientations* 16/1 (January): 14–31.

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

Whelan, Estelle. 1988. "Representations of the *Khassakiyah* and the Origins of Mamluk Emblems," in *Content and Context of Visual Arts in the Islamic World: Papers from a Colloquium in Memory of Richard Ettinghausen, Institute of Fine Arts, New York University, 2–4 April 1980*, ed. Priscilla Soucek, 219–243. University Park, PA: Pennsylvania State University Press.

Whitehouse, David. 1973. "Chinese Stoneware from Siraf: The Earliest Finds," in *South Asian Archaeology: Papers from the First International Conference of South Asian Archaeologists Held in the University of Cambridge*, ed. Norman Hammond, 241–255. London: Duckworth.

———. 1993. "The Corning Ewer: A Masterpiece of Islamic Cameo Glass," *Journal of Glass Studies* 35: 48–56.

Wiet, Gaston. 1932. *Lampes et bouteilles en verre émaillé / Catalogue général du Musée Arabe du Caire.* Cairo: Organisation Egyptienne Générale du Livre.

———. 1958. *Inscriptions mobilières de l'Egypte musulmane*. Paris: Imprimerie Nationale.

Wilkinson, Charles. 1973. *Nishapur: Pottery of the Early Islamic Period*. New York: Metropolitan Museum of Art.

Willemsen, Marlous. 1993. "A Dish Full of Magic," in *Dreaming of Paradise: Islamic Art from the Collection of the Museum of Ethnology, Rotterdam*, 132–135. Rotterdam: Martial & Snoeck.

Witkam, Jan Just. 2007. "The Battle of the Images: Mekka vs. Medina in the Iconography of the Manuscripts of al-Jazuli's *Dala'il al-Khayrat*," in *Theoretical Approaches to the Transmission and Edition of Oriental Manuscripts, Proceedings of a Symposium Held in Istanbul March 28–30, 2001*, ed. Judith Pfeiffer and Manfred Kropp, 67–82. Beirut and Würzburg: Orient-Institut and Ergon Verlag.

Zakariya, Mohamed. 1991. "Islamic Calligraphy: A Technical Overview," in *Brocade of the Pen: The Art of Islamic Writing*, ed. Carol Garrett Fisher, 1–17. East Lansing, MI: Kresge Art Museum, Michigan State University.

———. 2003–2004. "The Hilye of the Prophet Muhammad," *Seasons* 1/2 (Autumn and Winter): 13–22.

Ziaee, Ali Akbar. 2010. *Islamic Cosmology and Astronomy: Ibrahim Hakki's Marifetname.* Saarbrücken: Lambert Academic Publishing.

Acknowledgments

This catalogue showcases objects that were displayed in the exhibition "Pearls of Wisdom: The Arts of Islam at the University of Michigan" (October 15–December 21, 2014). Artworks were drawn from various collections at the University of Michigan, Ann Arbor. These include the Kelsey Museum of Archaeology, the Special Collections of the Hatcher Graduate Library, the University of Michigan Museum of Anthropological Archaeology, and the University of Michigan Museum of Art.

Many colleagues at the Kelsey Museum of Archaeology made this exhibition possible. Special thanks go to Chris Ratté and Dawn Johnson for their enthusiastic support and facilitation of the project. Our thanks also go to Sebastián Encina for continuously enabling access to objects in storage and for his unwavering help with all other aspects of the project. In addition, we wish to extend our thanks to Scott Meier for his design expertise; to Peg Lourie for editing and designing the catalogue; to Michelle Fontenot for her assistance with loans; to Suzanne Davis for her conservation work; and to Cathy Person for organizing the exhibition's outreach programs.

We wish to thank Carla Sinopoli and Karen O'Brien at the University of Michigan Museum of Anthropological Archaeology for their help accessing and borrowing a number of objects. Many thanks also go to Julia Falkovitch-Khain for her creative eye and energy in designing the exhibition's permanent website, and to Randal Stegmeyer for his beautiful photography. We owe a debt of gratitude to Evyn Kropf at the Special Collections of the Hatcher Graduate Library for her endless encouragement, support, and expertise. For their assistance in the Visual Resources Center, special thanks are due to Cathy Pense and Rachel Bissonnette for their work on the Pope and Wilber photographic archives. And *alf shukr* to Josh Berer for having produced the title of the show in Arabic calligraphy.

Last but not least, this exhibition would not have been possible without the generous financial support of the Freer Fund in the History of Art Department at the University of Michigan. We thank members of the Freer Committee for their support of this exhibition and other projects that further the scholarly study and public presentation of Islamic art.

Accession Number/Catalogue Number Concordance

Hatcher Graduate Library	
GL6	cat. no. 33
GL7	cat. no. 34
Isl. Ms. 167	cat. no. 80
Isl. Ms. 238	cat. no. 58
Isl. Ms. 249	cat. no. 32
Isl. Ms. 386	cat. no. 81
Isl. Ms. 397	cat. no. 73
Isl. Ms. 401	cat. no. 2

Kelsey Museum of Archaeology	
10201	cat. no. 60
22520	cat. no. 59
22621	cat. no. 3
22645	cat. no. 46
22709	cat. no. 61
28801	cat. no. 36
28802	cat. no. 79
29964	cat. no. 47
75784	cat. no. 68
75794	cat. no. 67
75938	cat. no. 66
80070	cat. no. 4
80681	cat. no. 31
80682	cat. no. 30
88026	cat. no. 53
88027	cat. no. 54
91244	cat. no. 71
91481	cat. no. 70
91604	cat. no. 62
91614	cat. no. 50
94075	cat. no. 16
94165	cat. no. 15
1962.1.52	cat. no. 25
1962.1.104	cat. no. 24
1964.2.13	cat. no. 69
1964.2.14	cat. no. 72
1965.3.223	cat. no. 43
1966.1.173	cat. no. 8
1968.2.13	cat. no. 19
1968.2.41	cat. no. 21
1968.2.43	cat. no. 22
1968.2.63	cat. no. 20
1968.2.100	cat. no. 42
1968.3.52	cat. no. 38
1969.2.6	cat. no. 55
1969.2.20	cat. no. 18
1969.2.21	cat. no. 48
1969.2.22	cat. no. 39
1969.2.24	cat. no. 9
1969.2.60	cat. no. 7
1969.2.61	cat. no. 7
1969.2.62	cat. no. 26
1969.2.93	cat. no. 28
1969.2.94	cat. no. 29
1969.2.96	cat. no. 23
1969.2.120	cat. no. 45
1969.2.162a	cat. no. 75
1970.3.60	cat. no. 5
1970.3.231	cat. no. 17
1970.3.321	cat. no. 17
1970.3.337	cat. no. 17
1970.3.514	cat. no. 56
1970.3.515	cat. no. 56
1970.3.652	cat. no. 78
1970.3.654	cat. no. 40
1970.3.669	cat. no. 78
1970.3.738	cat. no. 78
1970.3.933	cat. no. 49
1970.3.965	cat. no. 41
1970.3.1011	cat. no. 57
1970.3.1045	cat. no. 27
1970.4.423	cat. no. 76
1970.4.562	cat. no. 51
1971.1.3	cat. no. 10
1971.1.21	cat. no. 35
1971.1.22	cat. no. 11
1971.1.48	cat. no. 44
1972.1.19	cat. no. 74
1972.1.22	cat. no. 12
1972.1.32	cat. no. 6
1972.1.33	cat. no. 6
1985.1.194	cat. no. 65
1996.3.1	cat. no. 77
2009.1.174	cat. no. 63
2009.2.102	cat. no. 64
T2007.34	cat. no. 52

University of Michigan Museum of Archaeological Anthropology	
2010-16-2	cat. no. 13
17369	cat. no. 14
35226	cat. no. 37

University of Michigan Museum of Art	
2003.1.366	cat. no. 1
2003.1.367A–C	cat. no. 82

Subject Index

About the Authors

Christiane Gruber is Associate Professor of Islamic Art in the History of Art Department at the University of Michigan, Ann Arbor. Her research interests span medieval Islamic art to contemporary visual culture. She has authored two books on Islamic texts and images of the Prophet Muhammad's ascension and has edited several volumes on Islamic book arts, ascension texts and images, and visual and material culture.

Christiane Gruber (second from right) leads a session on metalwork with students at the Kelsey Museum of Archaeology.

Ashley Dimmig is a Ph.D. student in the History of Art Department at the University of Michigan, Ann Arbor. Her research interests include Persian and Turkish early modern and modern visual culture, with a special emphasis on textile arts and Ottoman imperial tents. She is the author of "Fabricating a New Image: Imperial Tents in the Late Ottoman Period," published in the *International Journal of Islamic Architecture* (2014).

Ashley Dimmig examines a luxurious nineteenth-century shawl, probably from Kashmir (cat. no. 14).