

Aquatic Glass Floors in Early Islam and a Unique Bottle in Tehran

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In contrast, the base-glass composition of sample MIR 051 is broadly compatible with that of comparable objects. The earlier examples of Islamic stained glasses, dating to the eighth and ninth centuries in Fustat, Tebtunis, and Raya, are also natron glasses of the primary glass group Egypt 2.<sup>21</sup> For the time being, silver staining in combination with base glasses originating from the Levant is less abundant, with exceptions from Raya (group N1)<sup>22</sup> and Apamea.<sup>23</sup> Later examples were typically made of plant-ash glass in line with the spread of the soda-rich plant-ash glassmaking technology in the 9th and 10th centuries.<sup>24</sup> The appearance of this remarkable object of Egyptian origin with Arab epigraphy in Córdoba demonstrates the exchange of objects of high economic and symbolic value between the social elites of the Umayyad emirate in Iberia and those of the Abbasid caliphate in the eastern Mediterranean.

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21. Foy [note 12], p. 17 and fig. 4; D[anièle] Foy, M[aurice] Picon, and M[ichele] Vichy, “Verres Omeyyades et Abbasides d’origine Egyptienne: Les Témoignages de l’archéologie et de l’archéométrie,” in *Annales de l’Association Internationale pour l’Histoire du Verre*, v. 15, New York and Corning, 2001 (Nottingham, U.K., 2003), pp. 138–143; N[orihiro] Kato, I[zumi] Nakai, and Yoko Shindo, “Change in Chemical Composition of Early Islamic Glass Excavated in Raya, Sinai Peninsula, Egypt: On-Site Analyses Using a Portable X-Ray Fluorescence Spectrometer,” *Journal of Archaeological Science*, v. 36, no. 8, August 2009, pp. 1698–1707.

22. Kato, Nakai, and Shindo [note 21], pp. 1703–1704 and table 1.

23. Foy [note 12].

24. Norihiro Kato, Izumi Nakai, and Yoko Shindo, “Transitions in Islamic Plant-Ash Glass Vessels: On-Site Chemical Analyses Conducted at the Raya/al-Tur Area on the Sinai Peninsula in Egypt,” *Journal of Archaeological Science*, v. 37, no. 7, July 2010, pp. 1381–1395, tables 1 and 5; Shindo [note 5], p. 176.

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### *Aquatic Glass Floors in Early Islam and a Unique Bottle in Tehran*

The use of glass floors in early Islamic architecture is scarcely known. Excavations have revealed proof in at least one of the Abbasid palaces at Raqqa in Syria, and a hint in the Caliphal Palace at Samarrā’ in Iraq. Datable to about 800 and

840 at these sites, such floors made of transparent aqua-colored glass tiles would have been an early Abbasid invention, unknown in previous Islamic, Umayyad (661–750), and Roman and Byzantine architecture. This note reports on a comparative

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colleagues who facilitated research on it: at the Glassware and Ceramics Museum of Iran, curator Zohreh Moḥammadiyān; at the National Museum of Iran, director Jebra’el Nokandeh; and Moḥammad-Rezā Kārgar, director general of museum affairs, Iranian Cultural Heritage Organization.



FIG. 1. *Bottle with decoration of nubs. Tehran, Glassware and Ceramics Museum of Iran (inv. no. A-623). The photo (after 7000 Jahre persische Kunst [note 3], p. 264) shows sides 1 and 2 and the top of the body.*

study of the archaeological evidence and on the discovery of the largest known assemblage of Abbasid glass tile fragments in an unexpected place: turned into a vessel attributed to ancient Iran.<sup>1</sup>

The glass bottle was acquired from the art market in 1978 for the newly founded Glassware and Ceramics Museum of Iran in Tehran and was shown in a prominent place in the permanent exhibition (inv. no. A-623).<sup>2</sup> A dense relief of nubs covers the body, the bottom, and the handle (Fig. 1). The bottle (H. 18 cm; weight 1014 g) has a square body (sides: H. 14 cm, W. 9.1–9.5 cm) with a bulging top, a cylindrical neck, a circular spout (H. 5 cm; Diam. [rim] 4.3 cm, [opening] 1.8 cm), and an angular flat handle (W. 3.7 cm) attached to the spout and top. It was published in the catalog of the exhibition “7000 Years of Persian Art,” which was first shown in Vienna in 2000. Maria Maddalena Negro Ponzi related it to Parthian–Sasanian art of the second to third centuries in northwestern Iran and Azerbaijan. She compared the shape to that of four-sided Roman bottles and

described the nub relief as an “overlay” and as “inlays of glass paste,” remarking that the bottle was unique among known objects. Axel von Saldern followed suit, but noted a likeness to glass finds at Raqqa, while mistaking them as a sort of “mosaic.”<sup>3</sup>

1. See Markus Ritter, “Die Glasböden und ihre Ikonographie,” in *Raqqa*, ed. Claudia Bührig and Stefan Heidemann, v. 5, Berlin: Deutsches Archäologisches Institut and De Gruyter (in press); and *idem*, “A Glass Room in Abbasid Palaces, Reference to Solomon, and a ‘Unique’ Bottle in Tehran,” *Zeitschrift für Orient-Archäologie* Bd. 12, 2019, pp. 226–255. Another sort of glass tiles with polychrome opaque *millefiori* glass was found in the Caliphal Palace at Sāmarrā’ and probably used on walls. See C[arl] J[ohan] Lamm, *Das Glas von Samarra*, Berlin: Reimer, 1928, pp. 109–110, pls. VIII, IX. A much thicker glass slab with a thin coating of *millefiori* glass, acquired by the Museum of Islamic Art, Doha, from the art market (inv. no. GL. 513.2009), must have been a floor tile; see Mounia Chekhab-Abudaya, “«Un palais dallé de cristal»? À propos d’un carreau en verre du Musée d’art islamique de Doha,” *Sèvres*, v. 28, 2019, pp. 10–23.

2. Glassware and Ceramics Museum of Iran, “Acquisition Book of the Year 1978 (Daftar-e kharid-hā-ye sāl-e 1357),” Tehran: the museum, 1978. The bottle was shown in the so-called “Crystal Room (Tālār-e Bolur),” when entering, immediately to the left of the door. It was moved into storage in 2018. The museum was founded in 1976 by Farah Dībā (b. 1938), the wife of Moḥammad Rezā Shāh (r. 1941–1979). Fitted with an interior and display design by the Austrian architect Hans Hollein (1934–2014), it opened after the revolution, in 1980. See Hans Hollein, “Case Study: Tehran Museum of Glass and Ceramics,” in *Places of Public Gathering in Islam*, ed. Linda Safran, [Philadelphia]: Aga Khan Award for Architecture, 1980, pp. 93–99; and “Glass Museum, Tehran, Iran,” *The Architectural Review*, v. 1006, December 1980, pp. 374–377.

3. The dimensions provided in this note differ from those given in earlier publications. See *7000 Jahre persische Kunst: Meisterwerke aus dem Iranischen Nationalmuseum in Teheran; Kunsthistorisches Museum, 22. November 2000 bis 25. März 2001*, ed. Wilfried Seipel, Milan: Skira; and Vienna: Kunsthistorisches Museum Wien, 2000. Subsequently, the exhibition was shown in several other European cities. Maria Maddalena Negro Ponzi, “Flasche mit Henkel und Glaseinlagen,” in *ibid.*, pp. 260–261, no. 150, phrased “mit quadratischen, nach außen zu gerundeten Glaseinlagen bedeckt,” “Überzug,” and “Einlagen aus Glaspaste.” The Italian scholar Negro Ponzi (1940–2012) was a specialist in Roman and late antique art, and in Parthian and Sasanian glass from Iran; see, for example, her “Mesopotamian Glassware of the Parthian and Sasanian Period: Some Notes,” *Annales de l’Association Internationale pour l’Histoire du Verre*, v. 16, London, 2003 (Nottingham, U.K., 2005), pp. 141–145. Axel von Saldern, *Antikes Glas*, Munich: Beck, 2004, p. 497: “eine Henkelflasche, die völlig mit einem «Panzer» von quadratischen, oben abgerundeten und in regelmäßigen Reihen angelegten Glassteinen bedeckt ist. Mir sind gesteinelte Flächen nur aus frühislamischen Boden-«Mosaiken» wie etwa in Raqqa bekannt.”

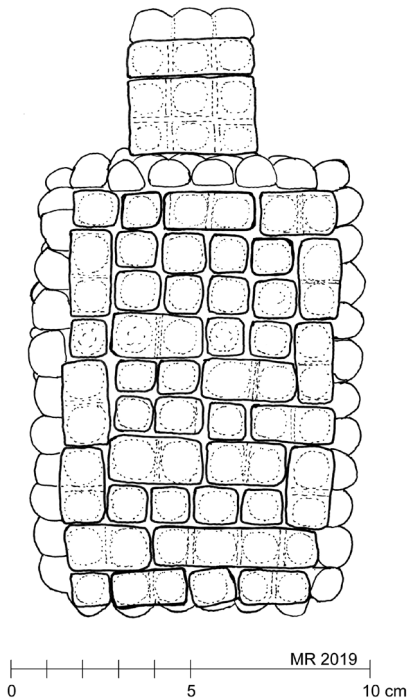


FIG. 2. Analytical sketch of side 1 with handle, showing the individual glass tile fragments that were glued together. (Drawing: Courtesy of the author, 2019)

When I examined the bottle at the museum in Tehran,<sup>4</sup> it became clear that, contrary to earlier descriptions, it does not have plain sides with applied decoration, but is glued together from many small glass pieces with nubs, and one neck-spout piece (Figs. 2–5). It comprises 268 pieces of various sizes and shapes, with semiglobular nubs in a regular square grid of incisions. Their back sides are flat and smooth, as can be seen in the handle and inside the bottle when peering through the spout. Most of the pieces have just one nub, but some have two to six nubs, in one row, in square, oblong, and angular shapes. Their irregularly broken edges indicate that they are fragments of larger pieces (see Fig. 4). The glass is usually transparent aqua colored with various tinges, mostly light bluish, sometimes turquoise or greenish. The nub surfaces are generally smooth and glossy, some are

4. On February 23–24, briefly on April 7, and on May 25, 2019, including archival research in the museum.



FIG. 3. Frontal view of side 2. Note outlines of glass tile fragments in various shapes and joints with glue. (Photo: Courtesy of the author, 2019)



FIG. 4. Side 2, detail. Note differences in shape and look of glass tile fragments. (Photo: Courtesy of the author, 2019)

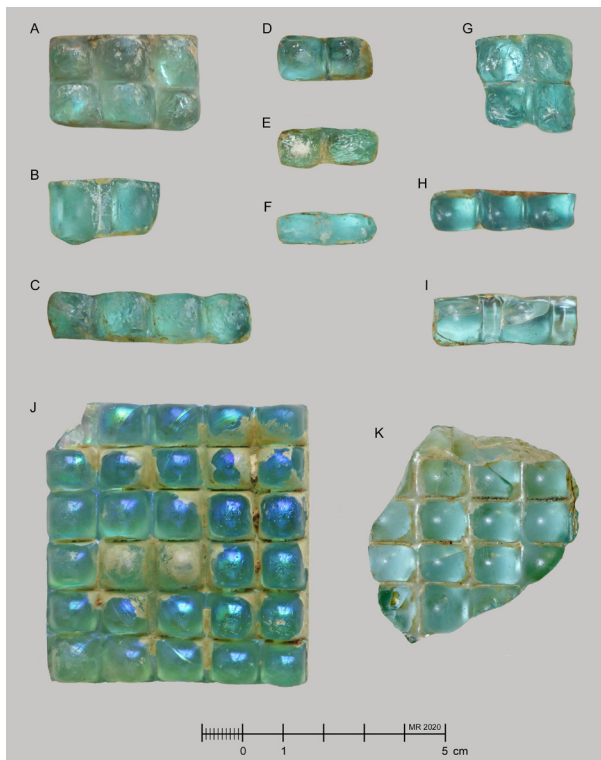


FIG. 5. Glass tile fragments, shown individually with the nub sides, which originally were the underside of tiles. A–I: different sorts in the Tehran bottle. J, K: pieces in Berlin [Fig. 8] and Doha [Fig. 10]. (Photos and montage: Courtesy of the author, 2019–2020)

matte and jagged or wrinkled. The nubs are roughly square at the base (11–13 x 12–13.5 mm); a few are oblong (8–10 x 12 mm). The incisions vary in width (1–5 mm) and depth (5–8 mm). The pieces in the handle are 10–11 mm thick. The nub pieces seem to be cast glass, while the neck piece is blown: the glass has more bubbles, the surface is less glossy, and the bluish aqua color is lighter. Differences in the glass and the shape and size of nubs and incisions allow us to visually distinguish about nine sorts of nub pieces (Fig. 5A–I).

These many pieces, flat on one side and with nubs on the other, are not from vessels. They are closely comparable to fragments of glass tiles, of which less than two dozen have been recorded, from excavations at Abbasid Raqqa in Syria (Figs. 6 and 7). The palace area, north of the twin cities of al-Raqqa and al-Rāfiqa on the Euphrates River, was built by the caliph Hārūn al-Rashīd (r. 786–809) as his new residence.<sup>5</sup> In one room of Palace

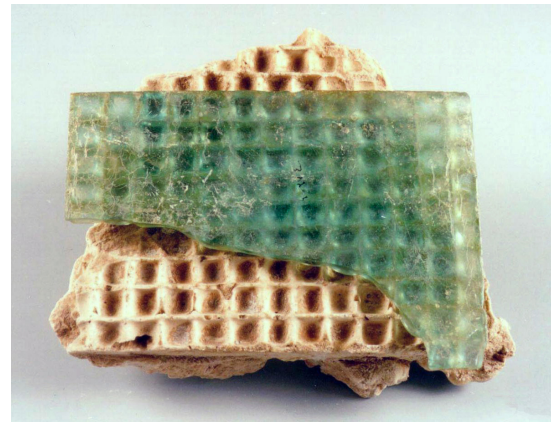


FIG. 6. Glass tile, fragment with four edges, top side, shown on plaster bedding from floor in Room 9 of Palace B in Raqqa. Damascus, National Museum. (Photo: © Museum with No Frontiers)



FIG. 7. Small fragments of glass tiles, top sides, shown on plaster bedding from floor in Room 9 of Palace B in Raqqa. Damascus, National Museum. (Photo: after Becker [note 9], fig. 7; DAI/A Abdel Ghafour, 1992)

5. On the archaeology of Raqqa, see volumes 1–5 of the Raqqa series published by the Deutsches Archäologisches Institut; for volume 5, on architectural decoration, see Ritter, “Glasböden” [note 1]. On the architecture of the palaces, see volume 4: Ulrike Siegel, *Die Residenz des Kalifen Hārūn ar-Rašīd in ar-Raqqalar-Rāfiqa (Syrien)*, Berlin: De Gruyter, 2017. Cf. K. A. C. Creswell and James W. Allan, *A Short Account of Early Muslim Architecture*, Aldershot: Scolar Press; and Cairo: The American University in Cairo Press, 1989, pp. 270–275.

B, excavated in 1950–1952, fragments of glass tiles and their plaster beddings were found, the latter in situ on the floor, confirming the presence of a pavement of glass. Less clear is whether glass tiles also covered the lower part of the walls (see below, Fig. 11).<sup>6</sup> Very few fragments were found in other palaces at Raqqa.<sup>7</sup> The excavated finds, which are kept in the National Museum of Damascus,<sup>8</sup> have been briefly mentioned by various authors, but were studied only recently.<sup>9</sup>

The glass of the tiles excavated from Palace B is transparent and clear, aqua-colored with a variance of tinges from blue to green and turquoise. No complete tile was found, but fragments with edges and the pavement pattern in the beddings allow a

uniform rectangular format (16.4 x 11.6 cm) to be reconstructed. The upper, visible side of the tiles is smooth, while the underside is studded with 13 x 10 semiglobular nubs (12–13 x 11–12 mm) separated by sharp incisions. In the hard, almost white plaster bedding, they left a wafflelike grid with round impressions within small squares formed by sharp ridges. Few large tile fragments were found; most were small pieces broken along the lines of the grid on the underside into one to four nubs in one row, squares of 2 x 2 nubs, and angular pieces (see Figs. 6 and 7). A fragment with two preserved edges and 6 x 5 nubs (12–13 x 11.5–12 mm, Th. 12–15 mm; weight 78.5 g) was acquired on the art market in 1993 by the Museum of

6. The Syrian archaeologist Nasib Šalībī directed the excavations. For reports on Palace B, see S. ‘A. ‘Abd al-Ḥaqq [and Nasib Šalībī], “Ḥafrīyāt Mudīrīyat al-Āthār al-‘Āmma fī Madīnat al-Raqqa al-qadīma = Les Fouilles de la Direction Générale des Antiquités à Rakka,” *Annales Archéologiques Syriennes*, v. 1, no. 1, 1951, pp. 111–121 (French) and 156–162 (Arabic), esp. p. 115, fig. 4; Nasib Šalībī, “Ḥafrīyat al-Raqqa: Taqrīr awwalī ‘an al-maušim ath-thānī, kharīf 1952 = Rapport préliminaire sur la deuxième campagne de fouilles à Raqqa (Automne 1952),” *Annales Archéologiques Syriennes*, vv. 4/5, 1954, pp. 69–76 (Arabic) and 205–212 (French), esp. p. 72; and Nasib Šalībī, “Les Fouilles du Palais B, 1950–1952,” in *Baudenkmäler und Paläste*, ed. Verena Daiber and Andrea Becker, Raqqa, v. 3, Mainz: Zabern, 2004, pp. 77–104, esp. pp. 78–79, fig. 17, pls. 26c, d, 27a, and 55e, f.

7. One glass tile fragment in Palace D: see Ritter, “Glasböden” [note 1], catalog, no. 5; cf. Šalībī, “Les Fouilles” [note 6], pp. 121–130, esp. p. 125 and p. 129, fig. 12.3. At the so-called Main Palace, dislodged fragments of plaster beddings were collected during work directed by the German scholar Michael Meinecke in 1987. Two of these were given by Syrian authorities to the Museum of Islamic Art, Berlin (inv. nos. Ra I. 63.1 and 63.2). See Ritter, “Glasböden” [note 1], catalog, no. 1; cf. Jens Kröger in *Ex Oriente: Isaak und der weiße Elefant; Bagdad – Jerusalem – Aachen: Eine Reise durch drei Kulturen um 800 und heute*, ed. Wolfgang Dreßen, Georg Minkenber, and Adam C. Oellers, Mainz: Zabern, 2003, p. 161, fig. 589; and Andrea Becker, “Vom Finden des Glases: Ein Feldbericht,” in *Vorsicht Glas! Zerbrechliche Kunst 700–2010*, ed. Miriam Kühn, Munich: Edition Minerva, 2010, fig. 7.

8. Some were shown in the Raqqa room, showcase 6; one was depicted in museum catalogs. See M. A. al-Ush, *Catalogue du Musée National de Damas, publié à l’occasion de son cinquantième (1919–1969)*, Damascus: Direction Générale des Antiquités et des Musées, 1969 (repr. 1976), p. 175, fig. 79; M. A. al-Ush, A. Joundi, and B. Zouhdi, *A Concise Guide to the National Museum of Damascus*, Damascus: General Directorate of Antiquities and Museums, 1980, p. 161, fig. 32; cf. *Exposition des découvertes archéologiques de l’année 1952*, Damascus: Direction Générale des Antiquités et des Musées, 1952, p. 24; and *Exposition des verres syriens à travers l’histoire*, Damascus: Direction Générale des Antiquités et des Musées, [1964], p. 22, no. 187.

9. They were briefly discussed by Becker [note 7], p. 41; and *idem*, “Das Glas von Samarra unter Berücksichtigung neuerer Glasfunde aus Syrien,” in *Beiträge zur Islamischen Kunst und Archäologie*, v. 4, ed. Julia Gonnella and others, Wiesbaden: Reichert, 2014, pp. 143–155, esp. p. 147; Matthew D. Saba, “Impermanent Monument, Lasting Impression: The Abbasid Dar al-Khilafa Palace of Samarra,” Ph.D. diss., University of Chicago, 2014, pp. 229–230; and David Whitehouse, *Islamic Glass in The Corning Museum of Glass*, v. 2, Corning: the museum, 2014, pp. 229–230, cat. nos. 1012 and 1013. They were also mentioned in Sélim Abdul-Hak, “Contribution à l’étude de la verrerie musulmane du VIII<sup>e</sup> au XV<sup>e</sup> siècle,” in *Les Journées internationales du verre ont été fondées à Liège (Belgique), le 23 août 1958, à l’occasion de leur premier congrès et à l’intervention de la Ville de Liège*, Liège: [Journées internationales du verre], 1958, pp. 79–95, esp. p. 89; Michael Meinecke in *Land des Baal: Syrien, Forum der Völker und Kulturen: [Ausstellung], Museum für Vor- und Frühgeschichte, Berlin*, ed. Kay Kohlmeyer and Eva Strommenger, Mainz: Zabern, 1982, p. 276; Kröger [note 7], pp. 161 and 162; Stefano Carboni, “The Use of Glass as Architectural Decoration in the Islamic World,” *Annales de l’Association Internationale pour l’Histoire du Verre*, v. 15, New York and Corning, 2001 (Nottingham, U.K., 2003), pp. 127–132, esp. p. 128; Patricia L. Baker, “Glass in Early Islamic Palaces: The New Age of Solomon,” *Annales de l’Association Internationale pour l’Histoire du Verre*, v. 16, London, 2003 (Nottingham, U.K., 2005), pp. 167–170, esp. p. 168, fig. 1; Fabio Barry, “Walking on Water: Cosmic Floors in Antiquity and the Middle Ages,” *Art Bulletin*, v. 89, no. 4, December 2007, pp. 627–656, esp. p. 639; and Bissera V. Pentcheva, “The Power of Glittering Materiality: Mirror Reflections Between Poetry and Architecture in Greek and Arabic Medieval Culture,” in *Istanbul and Water*, ed. Paul Magdalino and Nina Ergin, Leuven: Peeters, 2015, pp. 241–274, esp. pp. 258–260. In some, the size and shape of the glass tiles and the technique of the beddings were described incorrectly. Ritter, “Glasböden” [note 1] provides a full discussion and catalog, including drawings and photographs. They are based on the archaeological documentation, as at the time of writing the finds in the storage of the Damascus museum could not be accessed.



FIG. 8. Glass tile fragment with two edges, underside. Attributed to Raqqa. Berlin, Museum für Islamische Kunst (inv. no. I. 1994.1). (Photo: Courtesy of the author, 2018)

Islamic Art in Berlin (inv. no. I. 1994.1) and has been attributed to Raqqa (Figs. 8 and 5J).<sup>10</sup> A complete tile of the size reconstructed at Raqqa would weigh 346 g.

Comparable glass fragments were found at a few other sites.<sup>11</sup> One single piece, with 2 x 2 nubs, similar to the fragments at Raqqa, was excavated in one phase of the peristyle building at Qaṣr al-Ḥayr al-Sharqī in Syria.<sup>12</sup> In the residence city Sāmarrāʾ in Iraq, founded by the Abbasid caliph al-Muʿtaṣim on the Tigris River in 836, one piece (4.2 x 2.9 cm) was excavated in the Caliphal Palace in 1913, although it was not then identified as part of a glass floor. It was “turquoise green,” with 3 x 3 nubs that are slightly oblong (11–12 x

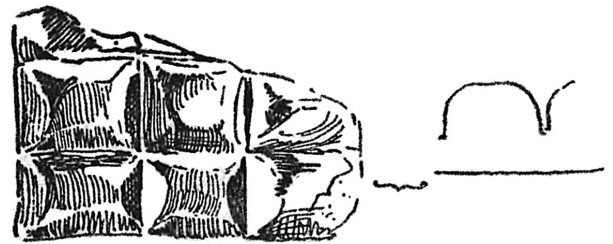


FIG. 9. Glass tile fragment, underside and section, from the excavation of Ernst Herzfeld at the Caliphal Palace of Sāmarrāʾ. Present whereabouts unknown. (Drawing: E. Herzfeld, after Lamm [note 1], fig. 66)

13–15 mm, Th. 11 mm; Fig. 9). The present whereabouts are unknown.<sup>13</sup> Another fragment, said to have come from Sāmarrāʾ but without archaeological context, was acquired in 2002 by the Museum of Islamic Art in Doha (inv. no. GL. 135.2003). It is broken on all sides (max. 5.9 x 4.5 cm) and has 4 x 4 oblong nubs (10–12.5 x 13 mm, Th. 11 mm; weight 36.8 g) and transparent glass with a turquoise tinge (Figs. 10 and 5K).<sup>14</sup> The nubs with flat incisions differ somewhat from the fragment with globular nubs, attributed to Raqqa, in the Berlin museum.

The “Glass Room” in Palace B at Raqqa was situated in the official wing, as the culmination of a long enfilade, just before the main hall. The visual impression of the floor with green to bluish tinges must have been awesome (Figs. 11 and 12).

10. Some light yellowish substance in the incisions may be remains of plaster bedding. See *Archéologie . . . Collection du château de L. . . . Verrerie Romaine*, sale catalog, Paris: Hôtel Drouot, November 21, 1993, p. 43, lot 210, ill. on p. 31. Cf. Kröger [note 7], p. 162, no. 605; and Becker [note 7], pp. 36–41, esp. p. 41, fig. 7, and pp. 68–69. See Ritter, “Glasböden” [note 1], catalog, no. 6. I examined this piece on December 19, 2018.

11. Several fragments that look similar must be distinguished and set apart as another type of decoration. They are in different museum collections, and the provenance in some cases points to Egypt. The glass is opaque dark green; the nubs are cushion-shaped but even flatter than in the pieces found at Sāmarrāʾ, and they are gilded. This must have been the side intended for viewing, so these fragments may belong to glass slabs with gilded relief. See Ritter, “Glass Room” [note 1], pp. 231–232, fig. 7, and Whitehouse [note 9], cat. no. 1012.

12. Hayat Salam-Liebich, “Glass: Types and Distribution of Glass Finds,” in Oleg Grabar and others, *City in the Desert: Qaṣr al-Ḥayr East*, Harvard Middle Eastern Monographs, vv. 23/24, Cambridge, Massachusetts: Harvard University Press for the Center for Middle Eastern Studies of Harvard University,

1978, pp. 138–147, esp. pp. 139–140. The fragment is illustrated in Ritter, “Glass Room” [note 1], fig. 4. The building is interpreted as a residence or a *khān*, constructed in the Umayyad period and attributed to about 720–743. The glass piece came from a level dated to 720 to 859. Cf. Carboni [note 9], p. 128; and Baker [note 9], p. 168.

13. It was found in the excavation of Ernst Herzfeld, who provided a sketch that is reproduced, with description and discussion, by Lamm [note 1], pp. 116 and 118, no. 338, fig. 66. Cf. Kröger [note 7], p. 162, no. 605; and Saba [note 9], p. 115. According to Lamm (*ibid.*, p. 5), the fragment was given to The British Museum, London. However, Rosalind Haddon kindly informed me (e-mail to author, August 17, 2018) that it is not inventoried among the Sāmarrāʾ finds in that museum or in the Victoria and Albert Museum, London.

14. I am grateful to Mounia Chekhab Aboudaya, Museum of Islamic Art, Doha, for making me aware of the piece and for sharing information in the inventory (e-mails to author, August 30 and September 2, 2018). Some whitish substance in the incisions may be the remains of a plaster bedding. I examined this piece on December 12, 2019.



FIG. 10. Glass tile fragment, underside. Said to come from Sāmarrā'. Doha, Museum of Islamic Art (inv. no. MIA GL 135.2003). (Photo: © The Museum of Islamic Art, Doha; C. A. Lamprianidis)

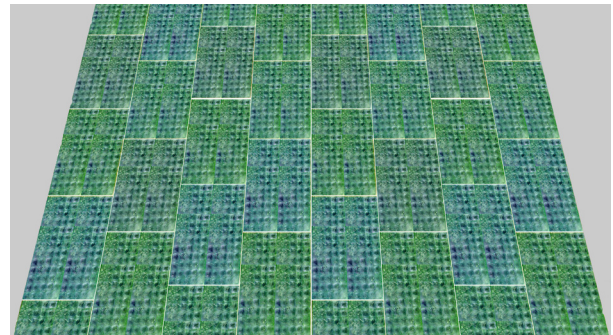
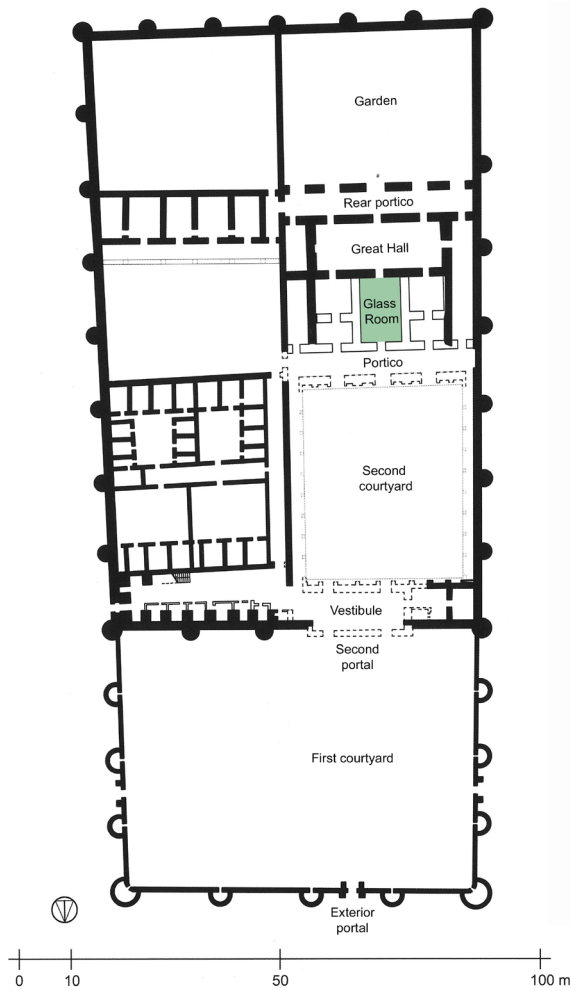


FIG. 11 (left). Raqqa, Palace B, ground plan and position of the “Glass Room” (Room 9 in excavation plan) in spatial sequence of official wing. (Drawing: after Siegel [note 5], fig. 7; amended and labeled by the author, 2020)

FIG. 12 (above). Glass floor in Room 9 of Palace B, detail. Digital visualization of about 66 x 92 cm, axial perspective view. One glass tile fragment has been reconstructed into an entire tile, which is repeated in a staggered pattern, with joints, following the pattern of plaster bedding that remained in situ. (Rendering: Courtesy of the author, 2018)



The surface pattern of drops and lines, created by the nubs and grid of the underside as seen through the glass against the white bedding, remind us of water. In the Quran and later Islamic writing, the palace of the prophet-king Sulaymān (Solomon) contains a room with such a water-like floor. It is described as furnished with “*qawārīr*,” a material understood as “glass,” “crystal,” or literally as “solidified,” “frozen.” Entering it, the queen of Sheba thinks it is a pool of water and gathers up her dress. Sulaymān makes her aware of the deception, and she submits to the religion of Islam (sura 27, verse 44). Hence a room with a glass floor in Abbasid palaces could connect the caliphal or princely owner with Sulaymān, the powerful, religiously legitimate, universal king, and famous builder.<sup>15</sup>

There can be no doubt that the Tehran bottle is a modern assemblage. The glass pieces with nubs are, in every respect, comparable to the fragments of glass tiles found in Abbasid palaces, while the neck-spout piece seems to be Roman. They constitute the body of the bottle, the undersides with nubs facing outward, and the smooth upper sides facing inward. Except for the handle, the pieces look sufficiently similar to one another to suggest that they came from tiles of one source and period, consisting of at least nine slightly different sorts (see Fig. 5). Future analysis needs to establish whether they resemble more closely the fragments found at Raqqa and Qaṣr al-Ḥayr al-Sharqī in Syria than those related to Sāmarrā’ in Iraq. Spread

on the floor, they would cover slightly less than three full tiles of the size reconstructed at Raqqa.

The bottle is a forgery rather than an “improved” fake because it was made to deceive as something it never was. It was modeled on a standard type of Roman bottle, with a square prismatic body, a broad angular handle, and a cylindrical neck with a circular spout. The relief decoration looked to Roman glass vessels decorated with various sorts of nubs, knobs, and blobs, although none of them comes really close to the appearance of the bottle.<sup>16</sup> The forger may have believed that the nub pieces were Roman. As late as 1993, the glass tile fragment acquired by the Berlin museum was advertised in an auction catalog as “Roman.”<sup>17</sup> The tile fragments in the bottle may very well have been collected at Raqqa, after excavations ended in 1970. Then Syria would seem to be the most probable place for the fabrication of the bottle, in Damascus or Aleppo.

When the bottle was acquired for the new museum in Tehran in 1978, it came to be perceived as a Persian artifact, taking the Roman type as indicative of the period, but underlining the non-Roman appearance of the body covered with nubs. It was attributed to a border region where Roman types could be imagined to have acquired an “exotic” form. The belief in an Iranian provenance was finally evidenced in the catalog entry of the exhibition “7000 Years of Persian Art.” Once thought to be a unique object of ancient Iran, the bottle is in fact unique as the largest

15. The thought of interpreting the glass floor in Palace B in Raqqa as a reference to the floor like water in Sulaymān’s palace was voiced by Oleg Grabar, *The Alhambra*, London: Allen Lane, 1978, p. 129. Carboni [note 9], p. 128, imagined walking on the floor “as if proceeding on a watery surface.” Cf. subsequently Valerie Gonzalez, *Beauty and Islam: Aesthetics in Islamic Art and Architecture*, London: I. B. Tauris, 2001, pp. 32–33; Baker [note 9], p. 6; Barry [note 9], p. 639; Becker [note 7], p. 41; Saba [note 9], pp. 229–230; and Pentcheva [note 9], pp. 258–260. For an extended argument and a discussion of textual sources, see Ritter, “Glass Room” [note 1], pp. 233–236; and *idem*, “Glasböden” [note 1].

16. On the Roman type, see C[lasina] Isings, *Roman Glass from Dated Finds*, *Archaeologica Traiectina*, v. 2, Groningen: Wolters, 1957, pp. 66–67: “form 50,” produced in both short and tall shapes from the first or second to fourth centuries. Cf.

Saldern [note 3], pp. 496–497, and two examples in the Museum August Kestner, Hanover (inv. nos. 1929,123 and 1935,68): Ursula Liepmann, *Glas der Antike*, Hanover: the museum, 1982, nos. 22 and 23. The closest parallel for the nub decoration on the bottle is the mold-blown so-called grape bottles, with a relief of semiglobular knobs that densely cover the whole surface; see Saldern [note 3], pp. 262–265, pls. 22 and 225; Liepmann, *ibid.*, no. 18; Donald B. Harden and others, *Glass of the Caesars*, Milan: Olivetti, 1987, p. 170, cat. no. 91; and E. M[arianne] Stern, *Römisches, byzantinisches und frühmittelalterliches Glas: Sammlung Ernesto Wolf*, Ostfildern-Ruit: Hatje Cantz, 2001, p. 175, cat. no. 70. Applied decoration of globular knobs seems to be rare; see an example in Helen A. Kordmahini, *Glass from the Bazargan Collection*, Tehran: Iran National Museum, 1988, p. 54.

17. See note 10.

known assemblage of Abbasid glass tile fragments in a museum, more than 10 times the number recorded in excavations. This history, as well as the physical and cognitive metamorphoses of the bottle and its elements—from revetment to vessel, from unseen underside to visible exterior, and from Abbasid Levant to Roman Syria and ancient Iran—seems to be worthy of telling and of being placed on display in the Tehran museum.

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### *Glassworking Demonstrations Gain Steam*

When will wonders cease, we may justly enquire,  
When we see a *Glass Engine*, complete and entire,  
In fine working order, from boiler to beam,  
And working away under full head of steam.<sup>1</sup>

So begins the second stanza of William Somers's poem about a glass steam engine. Such engines were a mainstay of itinerant glassworkers' demonstrations during the 19th century, dazzling audiences as they spun and whirred. This note seeks to expand the accepted history of these engines and their place within the wider array of models and trinkets made by itinerant glassworkers.

#### *A Brief Introduction*

Itinerant glassworkers were lampworkers who traveled the world demonstrating glassmaking to audiences. These artisans were both entertainers and educators, delighting spectators with lampworking displays, fabulous models, and tables crowded with glass trinkets (Fig. 1).<sup>2</sup> They toured towns and cities, advertising their exhibitions in newspapers, handbills, and broadsides.<sup>3</sup>

Each element of a glassworking exhibition was crafted to captivate audiences. Foremost was a

demonstration of lampworking, which often included glass spinning, working, and blowing. Glassworkers made figurines, ships, baskets, and any number of other ornaments. They displayed samples of these novelties in abundance, and each attendee often received one with the price of admission.<sup>4</sup> Others could be purchased, and many an onlooker went home with a delicate memento to treasure.

#### *Magnificent Models*

Another component of glassworking exhibitions was large or complex glass models. These were built to impress viewers, to show the possibilities of glass, and to demonstrate the maker's talent.<sup>5</sup> Some were copies of well-known structures, including the Wearmouth Bridge in Sunderland, England;<sup>6</sup> the Lord Mayor of London's State Coach;<sup>7</sup> the ship *Morning Star*;<sup>8</sup> and the Old South Church in Boston, Massachusetts.<sup>9</sup>

1. William R. Somers, "The Glass Steam Engine," [Bridgeport, Connecticut]: Pomeroy & Morse, steam printers, [between 1855 and 1870], no. 211406, Collection of the American Antiquarian Society, Worcester, Massachusetts.

2. Rebecca Hopman and Alexandra Ruggiero, "Gathering a Crowd: A Look at Glassmaking Demonstrations of the Past," *Glass Art Society Journal*, 2016 (2017), pp. 49–51, esp. p. 49.

3. Virginia L. Wright, "The Intrepid Troupers," *Glass Club Bulletin*, no. 174, Fall/Winter 1994, pp. 5–11, esp. p. 5.

4. Arlene Palmer, "Some Notes on Fancy Glass Artists," *Glass Club Bulletin*, no. 161, Spring 1990, pp. 11–13, esp. p. 12.

5. Bandhu Scott Dunham, *Contemporary Lampworking: A Practical Guide to Shaping Glass in the Flame*, 3rd edn., Prescott, Arizona: Salusa Glassworks, 2002, p. 24.

6. *Curiosity Highly Gratified. Mr. Hermann, Artist in Glass*, Hull, England: T. Topping, 1814, 112177, Collection of the Rakow Research Library, The Corning Museum of Glass, Corning, New York.

7. *Scott's Splendid Glass Working Exhibition in Miniature*, United Kingdom: s.n., 1830, 138463, Collection of the Rakow Research Library, The Corning Museum of Glass, Corning, New York.

8. *Last Night of the Glass Blowers!*, Taunton, Massachusetts: Gazette Press, about 1860, 112187, Collection of the Rakow Research Library, The Corning Museum of Glass, Corning, New York.

9. *The Original Bohemian Troupe of Fancy Glass Blowers*, Springfield, Massachusetts: s.n., 1877, 161859, Collection of the Rakow Research Library, The Corning Museum of Glass, Corning, New York.