THE PRODUCTION of glass in the Islamic lands reached its technical and artistic excellence in the early medieval period and maintained it for several centuries. A whole range of decorative techniques, among them in particular relief-cut patterning (1) and enamelled and gilded painting (2), guaranteed its status as the leading artistic glass industry in the known world. During this period, roughly from the 9th through at least the mid-14th century, Islamic glass was celebrated, sought after, prized, and admired perhaps even more in faraway places such as Europe and China than in the Islamic caliphates and sultanates. Among the Chinese sources, for example, the traveller Chau Ju-kua (13th century) reported that “the glass of Ta Shih (Arabia) was far superior to that of the Chinese because it was less brittle”.1 In the Islamic world, the Persian Hafiz-i Abru, writing in the 15th century but mentioning earlier medieval authors, referred to the glass made in Aleppo as follows: “Nowhere in the entire world one can see more beautiful glass objects. When one enters the bazaar where these items are sold, he cannot bring himself to leave, so enthralled is he by the beauty of these vessels decorated with elegant and wonderful taste. Glass from Aleppo is transported to all countries to be offered as a gift.”2

But Islamic glass was not the earliest production that found its way to the easternmost areas of the Asian continent, following in a reverse fashion the traditional Silk Routes. An early appreciation for glass works originating in Roman Europe and Syria and in Sassanian Iraq and Iran had already established a solid pattern of transmission from West to East in the first centuries of the Common Era, evidence for which can still be seen today, just to quote a few examples, in the Treasury of the Shōsō-in Temple in Nara, Japan (3), as well as from excavations in the Liaoning and Hebei provinces of China and various tombs in Korea (4).3 The myriad new shapes that flourished in the Islamic lands soon became standards that were taken up by Islamic glassmakers and copied, adapted, or reinterpreted in their workshops. The style and technique that emerged was to become a key feature in the development of Islamic glassmaking in the centuries that followed. The glass of the Islamic East was to influence and be influenced by that of Asia, Europe, and the Middle East. The mutual exchange of ideas and techniques that resulted from this process is an essential element in the history of Islamic glass.
Hemispherical Cup
Iran or Iraq, 6th–7th century
Height circa 10 cm, diameter circa 11 cm
Blown and facet-cut glass
Treasury of the Shoso-in Temple, Nara, Japan

Bottle
Iran or Iraq, 6th–7th century
Height 20.3 cm
Blown and facet-cut glass
The Corning Museum of Glass

Glass Bottle with Gold Case
Bottle: Western Asia, 8th–9th century
Height circa 8 cm
Blown and cut glass
Excavated from a tomb in Korea

ished following the invention of blown glass in the Roman Empire in the 1st century CE—suddenly allowing incredible creative freedom to the glassmakers—and the mirror-like faceted surfaces of Sassanian wheel-cut bowls and bottles (5) must have enthralled those who had the privilege of owning some of these items as well as those who merely happened to come across them in the regions of Eastern Asia. This area sustained splendid artistic traditions in all mediums, except glass; therefore, this material was looked upon as a sort of mysterious, magic, translucent stone-like substance that could be shaped, coloured, and decorated with endless possibilities.

The study of glass is a particularly difficult, and sometimes frustrating, discipline in the field of Islamic art. Being part of a largely “calligraphic” artistic tradition, in which lettering often takes pride of place in the decorative scheme of an object and is occasionally revealing about its date, origin, artist, and patron, glass works instead hardly include any inscriptions—with the remarkable exception of 13th–14th century enamelled and gilded objects—let alone information that can be useful toward an art-historical understanding of the development of this medium. In addition, one of the important properties of glass—once it is created out of a mixture of sand (which provides silica), natron or plant ashes (supplying soda), lime, and oxides as colourants—is its transportability for long distances to other glassmaking centres where sources of silica and soda are not readily available and where it can be melted at a relatively low temperature in order to be reblown and refashioned in different shapes and colours. In other words, it is the simple and familiar concept of recycling, which was of course a great technological expedition in the medieval period as it is nowadays, but which also perplexes the modern scholar who tries to understand patterns of origin and distribution based on the chemical composition and on the colour of glass that emerges from archeological sites.

In addition to the lack of inscriptions and the use of recycling, the third distinctive characteristic of Islamic glass
Fragmentary Bottle
Syria or Iraq, 9th century
Height 32.3 cm, maximum diameter 13.5 cm
Blown glass with incised decoration
Al-Sabah Collection, National Museum, Kuwait, LNS 375 G
is the above mentioned trade to faraway countries East and West. Considering these problematic characteristics, the task that the student faces toward a proper understanding of the artistic development of Islamic glass can be frustrating and exciting, difficult and stimulating, challenging and inspiring at once.

Its trade to China, however, can also be illuminating and provide a breakthrough toward a proper classification of some typologies of Islamic glass. A good point in case is offered by a distinctive group of glass, usually coloured in dark tones of blue, purple, and amber-brown but with notable exceptions in pale blue and yellow, which is decorated with finely incised patterns including vegetal motifs (also birds and inscriptions in rare cases), either highly stylised or naturalistic, within simple geometric compositions (6). Commonly known as “scratch-decorated” glass, its engraved patterns stand out in white against the dark surface without any additional artistic or technical tricks, and the finished works range widely from naive and rather unrefined to complex and highly sophisticated. Fragmentary objects as well as a large number of individual fragments, in the majority from circular plates but also from a variety of bowls and bottles, have surfaced from well-known archaeological sites—such as Fustat in Egypt, Samarra in Iraq, and Nishapur in Iran—as well as from a
whole range of uncontrolled excavations in the Islamic regions. About half of a dark blue plate found in Nishapur in the 1930s and now in the Metropolitan Museum was sufficient to attribute the whole group to this glassmaking centre in northeastern Iran (7).

The discovery about twenty years ago of six of these plates with a similar decoration, some of them also gilded, and all of them intact, in the crypt of a stupa in the Famen Temple (Famensi) in the Shaanxi province in northeastern China provided evidence that is virtually impossible to find on Islamic soil, where the dead are buried without objects for their afterlife and mosques do not house treasures nor caches of relics (8–11). The Famensi stupa was sealed in the year CE 874 under the rule of the Tang dynasty and its treasury included as many as nineteen Islamic glass objects decorated with various techniques in addition to Chinese gold and silver objects, porcelain, and silks, but significantly no other Islamic imports (12–13). Such a large number of works, still today the largest group of intact Islamic glass objects from an archeological site, is of paramount importance not only to establish a firm date ante quem for their production in the third quarter of the 9th century but also to emphasize their status as luxury export items to Tang China. The discovery also confirms that the range of distribution of “scratch-decorated” glass reached as far east as northeastern China; consequently Nishapur, a glassmaking centre but also an established trading city along the Silk Route, may have represented merely a stop along the way for these works, whereas the original place of production should perhaps be sought in more western Islamic areas, such as those of Syria or Iraq.

The presence of Islamic glass objects in the Famen Temple is the most compelling but it does not represent an isolated example. Several other burial sites and stupas, among which the most important are the tomb of Princess Ch’eng-kuo dated 1018 (Inner Mongolia, Liao dynasty; 14) and the Northern Pagoda of Chaoyang (datable between 1032 and 1051, during the Chongxi reign of the Liao dynasty; 15), have also revealed important works of medieval Islamic glass.4 At the current fast pace of archeological discoveries in China, most likely new exciting objects of Islamic glass will be unearthed in the near future.

Another area of Eastern Asia that was at the receiving end of the West-East glass trade was the Korean peninsula, where today one can still admire a few works of early Islamic glass—in addition to many others from Roman Late Antiquity as well as Sassanian Iran—such as a bottle

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Bowl
Probably Iran, 9th century
Height circa 8 cm, diameter circa 20 cm
Blown glass with cut decoration
Found in the tomb of Princess Cheng-kuo, Inner Mongolia, China

Bottle within Bottle
Probably Iran, 9th–10th century
Height circa 22 cm
Blown glass with applied decoration
Found in the Northern Pagoda of Chaoyang, China

from the Songlim Temple (Ch’ilgok, North Kyŏnsan) and a similar one from the Stone Pagoda in Iksan.5

Indirect evidence for a constant flow of glass from the Islamic world toward China exists also for the later period of production of the renowned enamelled and gilded vessels in the 13th and 14th centuries. Some Arab sources, one of them the 14th century Syrian polymath Shihab al-Din al-Dimashqi, reported that glass made in Aleppo was exported to the courts of the Mongols of Central Asia (presumably the Il-khanids of Greater Iran, the Khans of the Golden Horde of Russia, and the Chagadai Khans of Central Asia) and probably also to the Far East.6 Most likely, al-Dimashqi refers to enamelled and gilded glass, which was made also in Damascus and Cairo, the latter being the capital of the Mamluk Sultanate (1250–1517). At least eighteen such works were recently identified as having arrived in Europe from China in the late 19th and early 20th centuries; none of the celebrated Mamluk mosque lamps were among them, but several objects of secular uses, such as a bowl presently in the David Collection in Copenhagen (found in Beijing in 1901) and a stemmed bowl and a bottle with identical decoration, therefore part of a set, now in the Royal Ontario Museum, Toronto (taken from the mosque of Jiang Xian in the Shaanxi Province in 1922).7 Intriguingly, some of the extant works of Mamluk enamelled and gilded glass incorporate unmistakable Chinese elements in their decoration, such as the crouching lion chasing a ball with floating ribbons on a bottle in the Calouste Gulbenkian Museum, Lisbon (16).8 This bottle is among the eighteen objects that Hardie includes in his list of Mamluk works with a Chinese provenance (see note 7), though in this case it is merely hearsay evidence. Nonetheless, “it is intriguing...to think of this object as a symbolic courier that traveled westward to the shores of the Mediterranean, later to return full circle to China.”9

If the flow of Islamic glass toward China and Eastern Asia is now an established pattern—though still tenuous
Bottle
Probably Syria, late 13th century
Height 40 cm, maximum diameter 27 cm
Free blown, enamelled and gilded glass
Calouste Gulbenkian Museum, Lisbon, inv. 2370

Bowl
Probably Iran, 8th–9th century
Height 9 cm, maximum diameter 40 cm
Blown and cut glass
Treasury of the Cathedral of Genoa, Italy

turquoise, emerald, and ruby. Indeed, the so-called Emerald Bowl in the treasury of the Cathedral in Genoa was believed to be made of this precious stone for many centuries until it was discovered relatively recently that it was instead a 9th or 10th century Islamic wheel-cut glass object (17).

and understudied—based on archeological findings and on reported provenance, the links between the Near East and Europe at the opposite end of the Silk Routes are much stronger and compelling because they also include the transmission of technological know-how in addition to an artistic appreciation of Islamic glass. This is one of the many subjects that are dealt with in the current exhibition entitled *Venice and the Islamic World, 828–1797*, which opens at The Metropolitan Museum of Art in late March 2007 after its first venue at the Institut du Monde Arabe in Paris during the winter 2006–2007. Naturally Venice, as an emergent glassmaking centre in medieval Europe and as the principal entrepôt of commercial dealings with the Near Eastern Islamic regions, was among all European cities the most open to this particular aspect of the trade. Similar to the appreciation of high-quality Islamic glass in China mentioned above, Venice, as well as several other cities in Italy and Europe, looked at such objects with admiration and wonder.

It seems that a fascination for relief-cut glass works originated not only from their artistically accomplished decoration but also from their colour, which resembled precious and semi-precious stones, such as rock-crystal,
Venetian glassmakers, however, were the only ones who took upon themselves the challenge to grasp the mysteries of the high quality, faultless properties, technical skills, and artistic creativity of Islamic glass and its craftsmen. It began with the extension westward of the Silk Route trade in regards to the transport and commerce of raw and broken glass (or cullet), which was important to the Venetian industry not only because it could save costs on fuel but also because the glass already included all the fine ingredients that made it chemically stable (18). Famous is the treaty signed between the doge of Venice and the Frankish ruler of Antioch, Bohemond VII, in 1277 whereby the traders of the city on the lagoon, from then on, had to pay taxes on glass cullet, thus proving that such commerce had long been established. The trade in glass cullet continued, though to a lesser degree, when the Venetians understood that the most important ingredient to attain the best glass was the ash, or soda, obtained from burning desert plants that were common along the interior of the Eastern Mediterranean coasts, which was known as lume cotina. The trade in plant-ash became a vital element for the fortunes of the Venetian glassmaking industry for many centuries to come.13

The Venetian ships journeying from the Eastern Mediterranean and mooring on the Riva degli Schiavoni were loaded with all sorts of spices, the most profitable source of revenue once redistributed on European soil; there is no question, however, that all kinds of artefacts, especially textiles but also ceramics, metalwork, and glass were brought back by the merchants for their own homes, as presents for family and friends, and probably also for trade (19, 20). Islamic works were a familiar and an appreciated sight in Venice more than in any other European city. The exhibition Venice and the Islamic World and its catalogue prove that Venetian craftsmen of all categories became inspired and imitated the Ottoman and Persian Islamic decorative language, in particular in the late 15th and the course of the entire 16th century [21, 22].
With glass, however, this appreciation began much earlier, as mentioned above (23). In the second half of the 13th century, enameled and gilded glass from Syria and Egypt was not only well-known, admired, and cherished, but also closely examined, to the point that local painters saw a business opportunity in trying to imitate the colours and textures of the bright enamels and adapt them to the taste of Venetian glass traders and their European clients (24, 25). As a result, we know today from archival sources as well as from extant objects and archaeological excavations that a number of glassmakers and glass painters in Venice became actively involved in creating hundreds of enameled beakers that resembled the original Islamic works in their technology, shape, and colours.14 These objects were subsequently decorated with subjects that appealed to a broad clientele, such as Christian subjects, fantastic animals, courtly scenes, and heraldic coats of arms (26–28). Magister Aldrevandin, Petrus pictor, Doninus, Bartolomeus, and a few other names of these “entrepreneur” craftsmen have been transmitted to us through their actual signatures in white-enamel lettering around the opening

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12 Édouard Gerspach (L’Art de la vererie, Bibliothèque de l’enseignement de beaux-arts, Paris, 1885, p. 140) was the first author to mention the treaty.


of some of these surviving beakers, and are corroborated by the documents of the Murano archives.

Islamic enamelled and gilded glass therefore represented an extraordinary artistic medium that spread East and West to the far corners of Asia and Europe and was able to affect glassmaking production within different artistic traditions. In the 13th and 14th centuries its popularity outside the Islamic world was largely limited to secular objects—often worthy of the admiration of kings and emperors—such as sets of bottles and beakers and large vases and basins. On the other hand, much of the local patronage and consumption of this type of glass focused on the furnishings of religious buildings; consequently, enamelled and gilded glass became identified in particular with the hundreds of mosque lamps (basically, large vases with a wide opening, a splayed foot, and glass loops attached to its shoulder for suspension to the ceiling by means of long metal chains) that sultans and emirs ordered as lighting devices and decoration for their mosques, madrasas (religious schools), hospices, and tombs. Painted in a wide range of vegetal patterns, Arabic calligraphy was however dominant on these objects, where the words of God and the name of the secular ruler were symbolically united through the light shining within (29, 30).15

When the glassmaking factories of Cairo entered a definitive phase of decline starting from the early 15th
century, Venice quickly rose to become the predominant centre, supplying the Mamluks and the Ottomans with mosque lamps on the reverse Silk Route throughout the 16th century and later (31). The most conspicuous proof is provided by an order of 900 lamps—including ink drawings of the two types of lamps that were demanded (32, 33)—requested by the Ottoman vizier Mehmet Sokollu Pasha in 1569 to the Murano factories through the intermediary of the Venetian bailo to Istanbul, Marcantonio Barbaro.16

The lure of Medieval Islamic enamelled and gilded glass would be “rediscovered” after the emergence of colonialism and Orientalism in the 19th century, when early collectors of what was called at the time “Mohammedan”, “Saracenic”, or “Moorish” art were struck by the beauty and the technical challenges offered by these works. This resulted into a sort of contest, both in Venice and in

15 The largest collection of enamelled and gilded mosque lamps is in the Museum of Islamic Art in Cairo (Gaston Wiet, Catalogue general du Musée Arabe du Caire: Lampes et bouteilles en verre émaillé, Cairo, 1929); a large number are dispersed in museums worldwide.

16 The drawings were recently published in S. Carboni (ed.), op. cit. (note 10), figs. 11–12, p. 270.
France, to revive the craft of enamelled glass through an understanding of its complex technology. These attempts, in particular by Antonio Salviati in Murano and Joseph-Philippe Brocard in Paris, led initially to mere imitations—to the point that the best attempts may today still confuse scholars—and only later became more artistically creative and independent (34, 35).17

Glass from the Islamic lands, therefore, more than any other artistic medium in the medieval period, embarked on a long, perilous, exciting journey for many centuries. It radiated from its main centres of production in all directions along and beyond the Silk Routes, East-West from China to Venice and North-South from the northern Caucasus to eastern Africa. Glass travelled carefully packed in straw aboard camel caravans and ocean vessels (36), sometimes to be delivered to kings and princes as a luxury article. More often, it travelled humbly in baskets, shattered or in large lumps (37) to be delivered to distant glassmaking centres and find new life in different shapes and colours.

The mystery and magic that was mirrored in the eyes of foreign travellers and witnesses, however, remained always the same. A revealing example, even though his report may be partly derived from his imagination, comes from the Spanish rabbi Benjamin of Tudela, who wrote in 1167 about a palace in Damascus: “Here is a wall of crystal glass of magic workmanship, with apertures according to the days of the year, and as the sun’s rays enter each of them in daily succession the hours of the day can
34  Salviati & Co.
Mosque lamp commissioned by the khedive of Egypt, Venice, 1867
Height circa 32 cm
Free blown, enamelled and gilded glass
Collection of the Salviati glass factory, Venice

35  Bottle
Attributed to Philippe-Joseph Brocard, Paris, circa 1870–1880
Height 50.9 cm, maximum diameter 22.7 cm
Free blown, enamelled and gilded glass
The Metropolitan Museum of Art, New York,

36  Animal Flask
Syria, 7th–8th century
Height 8.6 cm
Free blown and applied glass
The Metropolitan Museum of Art, New York,
Friends of Islamic Art Gift, 1999.145

37  Glass Lumps
from the Serçe Limani Shipwreck
Eastern Mediterranean coast,
early 11th century
Museum of Underwater Archaeology,
Bodrum, Turkey

be told by a graduated dial. In the palace are chambers built of gold and glass, and if people walk round the wall they are able to see one another, although the wall is between them.”

18 It is no wonder that Islamic glass found its way to Chinese tombs as well as European ecclesiastical treasures.
