

## Compositional observations for Islamic Glass from Sirāf, Iran, in the Corning Museum of Glass collection



Carolyn M. Swan<sup>a,\*</sup>, Thilo Rehren<sup>b,e</sup>, James Lankton<sup>a</sup>, Bernard Gratuze<sup>c</sup>, Robert H. Brill<sup>d</sup>

<sup>a</sup> UCL Qatar, Doha, Qatar

<sup>b</sup> College of Humanities and Social Sciences, Hamad bin Khalifa University, Doha, Qatar

<sup>c</sup> Institut de Recherche sur les ArchéoMATériaux (IRAMAT), Centre National de la Recherche Scientifique (CNRS), Université d'Orléans, Orléans, France

<sup>d</sup> Corning Museum of Glass, Corning, NY, United States

<sup>e</sup> UCL Institute of Archaeology, London, United Kingdom

### ARTICLE INFO

#### Keywords:

Sirāf, Siraf  
Iran  
Gulf  
Islamic glass  
Bangles  
Indian Ocean trade  
LA-ICPMS  
Zirconium  
Chromium  
Manganese  
High alumina

### ABSTRACT

The medieval port city of Sirāf (ca. 800–1050 CE) on the north coast of the Persian/Arabian Gulf linked the core lands of the ‘Abbāsid caliphate with India, China, Africa, and beyond. 101 glass fragments recovered from the 1966–1973 excavations at Sirāf and now at the Corning Museum of Glass were analysed using LA-ICPMS in order to explore the glassmaking raw materials and technology of the objects found within the city, as well as to address issues of the production and trade of glass during the Islamic period. The results indicate that the main groups of glass at Sirāf likely date to the 9th–early 11th centuries and can be subdivided by the trace elements zirconium and chromium. Chemical matches with some likely Indian glass, and with glass finds from South and Southeast Asia, underline the pivotal role of the Gulf in the eastward movement of Islamic glass via the Indian Ocean trade network, as well as the influx of Indian glass into the Islamic world. Glass bangles and a small number of vessel fragments likely date to the late 11th century or later, and their chemical compositions indicate different production origins.

### 1. Introduction

Sirāf is one of the largest archaeological sites on the coast of Iran. Archaeological and literary sources agree that the city was a very wealthy port during the early medieval era, ca. 800–1050 CE. It served as an active commercial hub involved in the movement of goods between the ‘Abbāsid lands of Iraq and Iran and the wider world of the Indian Ocean trading network: India, Southeast Asia, China, East Africa, and the Red Sea. Sirāf occupied a strategic position on the northeastern coast of the Persian/Arabian Gulf, being located approximately halfway between the rivers of Mesopotamia and the Strait of Hormuz leading to the Indian Ocean (Fig. 1). Medieval geographers comment that Sirāf was an extremely prosperous port during the 9th–10th centuries: according to the mid-10th century writer Iṣṭakhri, Sirāfi merchants amassed huge fortunes and lived in sumptuous multi-storeyed houses paid for by the trade of luxury goods including pearls, gems, ivory, ebony, and spices (Whitehouse, 1968: 3; Whitehouse, 1970b: 142).

Seven seasons of archaeological excavation took place at Sirāf from 1966 to 1973, conducted by the British Institute of Persian Studies under the direction of David Whitehouse. Research findings related to these excavations have been published in a series of interim reports

(Whitehouse, 1968, 1969, 1970a, 1971a, 1972, 1974), in monographs on the major areas of excavation (Whitehouse, 1980, 2009) and some of the material evidence (e.g. Lowick, 1985; Tampoe, 1989; Pashazanous et al., 2014; Wood and Priestman, 2016), as well as in a conference proceedings (Tabadar and Mashayekhi, 2005). The glass artefacts and other finds excavated at Sirāf are currently stored in the British Museum, and a study of this material has reportedly been underway since 2007 (Priestman, forthcoming).

The Corning Museum of Glass in Corning, New York, has just over 100 fragments of glass from Sirāf that were at one time in the personal research collections of Robert Brill and David Whitehouse. This paper presents an exploratory examination of the Sirāf glass in the Corning Museum of Glass by LA-ICPMS in order to expand the corpus of data available for Islamic glass in general, but more specifically to investigate and characterize the types of glass used at Sirāf in light of the city's economic and geographic significance during the early Islamic period (ca. 9th–11th centuries CE).

#### 1.1. The site of Sirāf

The archaeological remains of medieval Sirāf (modern Taheri)

\* Corresponding author.

E-mail address: [c.swan@ucl.ac.uk](mailto:c.swan@ucl.ac.uk) (C.M. Swan).

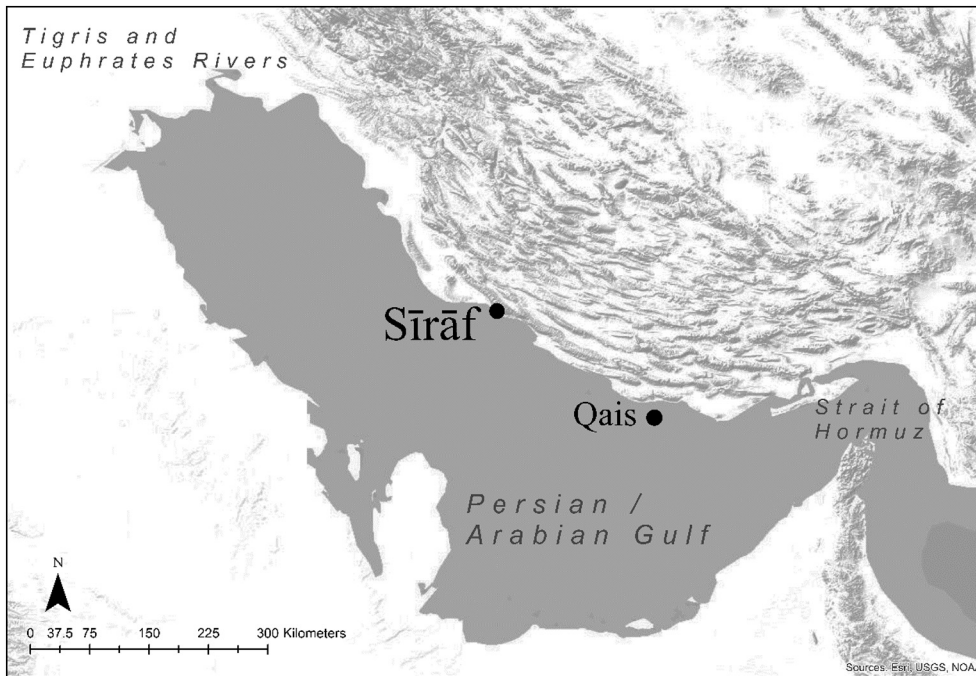


Fig. 1. Map of the Persian/Arabian Gulf indicating the location of Sirāf. (Map: C. Swan.)

stretch approximately 2.5 km along a shallow, south-facing bay bounded closely on the north by parallel sandstone ridges. The western half of the site received the most attention during excavation: domestic structures, mosques, warehouses, shops, aqueducts, city walls and gates, and an industrial quarter dating to the early Islamic period were identified; in addition to these discoveries, an earlier Sasanian fort (Whitehouse, 1971b) and later ca. 15th-century houses, mosques, and shrines were also identified (for a concise summary of the urban landscape and occupational chronology, see Mason and Keall, 1991: 55–57).

There appear to be three general phases of occupation at the site: a fort during the Sasanian period (8th century or earlier), the wealthy urban port of Sirāf during the Islamic period (9th–11th/12th centuries), and a small, non-urban settlement called Shilau during the early modern period (15th–16th centuries). The era of greatest prosperity was decidedly the 9th–10th century, when the urban area expanded to its greatest extent and the port served as a hub for trade and economic activity, involving active production as well as the import of goods from distant lands. The city began to decline in the late 10th–11th centuries in part due to a severe earthquake in 977 CE, the fall of the Būyid dynasty ca. 1055 CE, and the subsequent rise of the island port of Qais as an alternate hub for trade. Decline seems to have accelerated in the 12th century, and by the early 13th century the writer Yāqūt comments on the poverty of the nearly-deserted city, but the archaeology indicates some limited settlement activity continuing into the early modern era.

Although ambiguous, there is some archaeological evidence for the possible production of glass or glass objects in or around Sirāf during the 9th–12th centuries. According to the excavator, a “group of kilns” was discovered in the western suburb near the shore, at Site D. This large industrial area dating to the 9th–10th centuries was certainly devoted to the production of ceramics, while one kiln and a small rubbish pit contained many fragmentary glass vessels as well as large quantities of glassworking debris including drops, trails, and glass slag (Whitehouse, 1968: 5, 12–14). Excavators at the time noted that this glass waste all belonged to the type of glass that was most common at Sirāf, which “suggests that glass, too, was manufactured here” (Whitehouse, 1968: 14). However, no conclusive evidence for the production of glass at Site D was ever identified, and it was later suggested that the glassy materials may instead represent material that was

brought to the site for the local glazing activities of the potters (Whitehouse, 1971a: 15; Mason and Keall, 1991). In a 1973 survey of the territory surrounding Sirāf, a joint venture made with the Iranian Centre for Archaeological Research, a ca. 9th–12th century glass factory was identified in the Jamm Valley 16 km to the north at Bid-i Kahr; just south of a large mound (called Tul-i Shisheh, “mound of glass”) was a 100m<sup>2</sup> area covered with glass slag and debris (Whitcomb, in Whitehouse, 2009: 83; see also Whitehouse, 1968: 19), but it does not appear that this site was ever explored through controlled excavation.

### 1.2. The glass of Sirāf

No typological study of the glass was evidently made by Whitehouse or his team, and the only published information about the glass artefacts from Sirāf is a general overview included in the first excavation season's interim report (Whitehouse, 1968: 18–20). During the 1966 excavations, glass was noted as being second only to pottery in terms of artefact abundance, with > 1000 glass fragments recovered in the first field season alone (Whitehouse, 1968: 18). The majority of the glass was said to come from securely stratified contexts dating to the 9th–10th centuries CE, the period of greatest prosperity for Sirāf (Whitehouse, 1968: 18).

Glass fragments were recovered from all areas of excavation, and according to visual examinations by Whitehouse the finds fell into three broad categories: “local glass,” “glass of east Persian type,” and “Egyptian glass” (Whitehouse, 1968: 18–19). Whitehouse described the local glass as blue and green glass vessels with thinly blown walls: “the green glass, which comprises 90 per cent of this material, has a bubbly metal, sometimes with a distinct yellowish tint,” and the remaining 10% was described as a blue glass that “is bubble-free with a uniform light cobalt tint” (Whitehouse, 1968: 18). Whitehouse noted that local glass was rare in Period 1 (ca. 800 to 825–850) but was the dominant type at the site during Period 2 (ca. 825–850 to 977–1055); he records that the local glass vessel types include blown bowls, beakers, goblets, bottles, lamps, sprinklers, and alembics, and that decoration was not common, with just a few fragments being cut or mould-blown. Whitehouse (1968: 19) described the “east Persian” type as a high-quality colourless glass, often adorned with cut or carved decoration; most of the vessels of this type are beakers, bottles, and flasks, and were thought by Whitehouse to bear

Download English Version:

<https://daneshyari.com/en/article/5112155>

Download Persian Version:

<https://daneshyari.com/article/5112155>

[Daneshyari.com](https://daneshyari.com)