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Window Glass from the Excavations in the Seljuk Palace at Alanya

ÖMÜR BAKIRER*

Abstract

This article concerns a small group of crown glass fragments recovered in the excavations of the Palace built inside the inner citadel of Alanya, Turkey. It was constructed during the reign of the Seljuk Sultan 'Alā'-al-Dīn Kay-Qubād I around 1221-1223 and used until 1246. This makes the dates for the utilization of the glass known, if not the date of their production. The studied glass was recovered during the first period of the excavations conducted by Prof. Dr. Oluş Arık and his team between 1985-1992.** Fragments of glass for everyday use, glass with prunts, and a few fragments from the so-called luxury glass enameled beakers, all recovered in the same context, were published by the author in two earlier papers.*** This group of glass was possibly used for the windows of the private chambers of the elite. Reference is also made to three archaeometry studies that helped in establishing the material properties of the glass finds.

Keywords: Seljuk Palace, Citadel of Alanya, window glass, Alā'-al-Dīn Kay-Qubād I

Öz

Makalede Alanya İç Kalesi'nde Selçuklu Sultanı I. Alaaddin Keykubat'ın inşa ettirdiği Saray'ın kazıları kapsamında bulunan pencere camları değerlendirilmektedir. Saray, yaklaşık 1221-1223 tarihleri arasında inşa edilmiş, 1246 yılına kadar kullanılmıştır. Bu iki tarih sözü edilen camların kullanıldıkları zaman dilimini belirtirken, üretim tarihlerini açıklamamaktadır. Camlar, kazıların 1985-1992 yılları arasında, Prof. Dr. Oluş Arık ve ekibi tarafından gerçekleştirilen ilk dönemi sırasında çıkarılmıştır. Kazıda, aynı mekânlarda bulunan düğümlü camlar ve lüks cam olarak tanınan mineli camlardan oluşan günlük kullanım grubu, iki ayrı makalede yazar tarafından yayımlanmıştır. Bu yazıda ele alınan pencere camları, büyük olasılıkla, seçkinlerin kişisel odalarının pencereleğinde yer alıyordu. Yazıda, camları arkeometrik yöntemlerle çalışan ve değerlendiren iki yüksek lisans tezine ve bilimsel bir rapora da atıf yapılmaktadır.

Anahtar Kelimeler: Selçuklu Sarayı, Alanya Kalesi, pencere camı, I. Alaaddin Keykubat

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** The glass mentioned in this article covers those studied between 2002-2005 when I participated in the excavations of the Alanya Seljuk Palace. During the period between 1985-1992, this group of glass, *in situ* or fragmentary, together with wall tiles, frescoes, ceramics and metal were also recovered from different spaces which were documented and studied by other members of the excavation. Some restitution practises of the original plan and the preserved state of the Palace were also made. The excavations by Arık continued until 2009 in other spaces around the Palace grounds, and new glass fragments were recovered. But these were not studied either by the author or anyone else. I am indebted to Prof. Dr. O. Arık for giving me the opportunity and consent to study the glass finds and publish my reports. My special thanks are to Prof. Dr. Kenan Bilici, Asst. Prof. Dr. Leyla Yılmaz, and Asst. Prof. Dr. Sema Bilici for their hospitality during my several study visits to Alanya and the excavation.

*** Bakırer 2009, 2014.

Introduction

Alanya was a small fortified port town on the Mediterranean coast of Turkey situated at the edge of the gradually descending southern slopes of the Taurus Mountains. It is east of Antalya, the larger and better known port of this region since early times. Before its conquest by the Seljuks, Alanya changed hands several times over the centuries, and this is reflected in the changes made to its name. It was first known in Latin as *Coracesium* or in Greek as *Korakesion* (“point/protruding city”). Sailors called this mountaneous port *Kalonoros* (“beautiful mountain”), which was also used under Byzantine rule. This name continued in a variety of formats like Candelor, Scandelore and Galanorum among the Venetians, Genoese and Cypriot sailors.¹ When the town was conquered by the Seljuks during the reign of Sultan ‘Alā’-al-Dīn Kay-Qubād (1219-1237) in 1220, the sultan renamed it as *Alā’iyya* after his own name, in commemoration of his first conquest after becoming the Seljuk Sultan.²

The history of Alanya is sometimes obscure but at other times lively and exciting. The earliest narratives concerning its history go back to Hellenistic times. In the 2nd century BC when the city suffered from attacks coming from different directions, a defensive city wall was constructed in the middle sector.³ In the years that followed until the Middle Ages, this wall was restored several times and/or additions were made. According to Redford, “remains of Hellenistic fortifications are evident on the crest of the castle rock and they survive along the eastern, northern and western sides enough to indicate that the entire top of the castle rock was fortified then, with a land-ward citadel erected at the site of the present day Ehmedek. The date of these fortifications could be between the late 4th and the beginning of the 2nd century B.C.”⁴ During the excavations of 1985 and 1986, Hellenistic and Roman occupation levels were confirmed on the citadel area by the discovery of coins and ceramics from these periods.⁵

Like many Mediterranean towns during the 2nd and 3rd centuries A.D., Roman rule brought prosperity to Alanya. During this period the city must have been embellished with monumental buildings built with local limestone, which were used for religious and official functions. Few examples of these constructions have survived, but there are fragmental remains both in the museum and inserted on buildings of later centuries where they are reused as spolia.⁶

The Byzantine era that followed was not as productive as the previous one. Excavations have revealed that there was a larger, three-aisled basilica inside the inner citadel, possibly dated to the 5th-6th centuries. However, after the shrinking of the settlement because of the Arab and Persian wars in the post-Justinianic period and the decline in trade, the earlier large

¹ Korakesion is first mentioned in the 4th century BC by the ancient geographer Scylax. In this period the region was under the rule of the Persian Empire, which occupied a large portion of Anatolia. Later, writers as Strabo, Piri Reis, Seyyep, Ibn-i Battuta and Evliya Çelebi visited the region and wrote brief descriptions. See Anık 1986, esp. 335-36.

² During the antique period, it was named *Korakesion* (*Coracesium*), a settlement on the rock bed with a strong natural defense. The early history and foundation of Alanya is obscure. Byzantine *Kalonoros* is also largely unknown. According to Bilici, the inner citadel was used as an acropolis from the Hellenistic period onward. However, the area which now houses the small chapel, the so-called Church of Saint George, was the most notable locality during the Byzantine period (6th-10th cent.). Bilici unpublished report, 6-7. See also Lloyd and Rice 1958, 1-3; Anık 1986; Konyalı 1946, 16; Baykara 1988; Redford 2000.

³ Excavation finds have shown that this wall was constructed with large blocks of stone without mortar; see Lloyd and Rice 1958, 3-4; Anık 1986, 336-37.

⁴ Redford 2000, 7.

⁵ Anık 1987, 368-70; 1988a; Bilici unpublished report, 6-7.

⁶ Marble capitals, sarcophagi, granite column shafts in the museum, carved stones reused on later buildings, and the remains of irrigation systems are cited as evidence of Roman rule; see Redford 2000, 8-11.

basilica was replaced by the small domed chapel, the so-called Church of Saint George, in the 11th century. The area was the most notable locality during the Byzantine period, between the 6th and the 10th centuries. It is assumed that the walls with the circular towers, which extend in an east-west direction and divide the settlement into two sections, were possibly constructed during the Byzantine period to defend the town which had lost its population during the Arab and Persian raids.⁷

In the early 13th century, when 'Alā'-al-Dīn Kay-Qubād I (1220-1237) became sultan of the Seljuks, the aim of his military campaign was to extend Seljuk dominion to the south along the Mediterranean coast. Around 1199 Alanya was ruled by Kir Varte, a Greek or Armenian local ruler, mentioned as the prince of Kalonoros, the grandson of the greatest Armenian Lord of the kingdom, Sire Adam.⁸ Over two decades later, after several attempts and negotiations, in 1221 Kir Varte surrendered to Seljuk Sultan Alā'-al-Dīn Kay-Qubād, married his daughter to him, and joined the Seljuk hierarchy by accepting an appanage at Akşehir near Konya.⁹ Kay-Qubād renamed the city as *Alā'iyya* after himself in honor of his first conquest as Sultan. His vision was "to remake Alanya a fortified port by linking the fortresses on the top of the castle rock to the harbour below, by means of walls extending to or very near to the sea, along the entire eastern slope of the castle rock".¹⁰ Kay-Qubād gave orders to his emirs for the reconstruction of the town and to construct a palace on the southeast corner of the inner citadel.

Construction History of the Palace (figs. 1, 2)

As the construction of the Palace was ordered immediately after the conquest, the initial date for the start of building activities is accepted as 1221.¹¹ For the location, the southeastern side of the inner citadel was chosen, an area which contained debris left from earlier buildings constructed on the same spot but that had collapsed over time.¹² Excavations have revealed that, perhaps to complete the construction in a short time, building materials were taken from this debris and reused. The date of the palace is supported by an inscription written on a wall tile recovered in small fragments during the 1986 excavation campaign.¹³ The fragments were collected from the foundations of a room identified as the throne room, once located on the XI, XJ, XII, XIJ excavation grids, together with fragments of luster painted and plain blue wall tiles. The shards were restored as an eight-pointed star with an inscription within a circle at the center. The excavators assumed that this star-shaped tile was inserted on the southeast

⁷ Ank 1986, 335-37 and Redford 2000, 13-15, mention the shrinking of the settlement, its causes, and the replacement of the earlier large basilica with the small domed church in the 11th century; see Bilici unpublished report, 6-7.

⁸ Cahen 1968, 133; Baykara 1988, 10.

⁹ Ank 1986, 336; Lloyd and Rice 1958, 4-6; Konyalı 1946, 65; Cahen 1968, 133; Redford 2000, 22-23.

¹⁰ Redford 2000, 26. Although 'Alā'-al-Dīn Kay-Qubād I is said to have actively taken part in the development and renewal of nineteen cities during his reign, this is the only one that carries his name. It is assumed that the reason is because Alanya is the first city conquered after he became the Rum Seljuk Sultan. The city walls were built as part of a conscious design to go through Ehmedek, İnce Kale, Adam Atacağı, Cilvarda Cape, Arap Evliyası Bastion, and East Bastion, down to Tophane and Tersane, and ending in Kızılkuş. The inner citadel has 83 towers and 140 bastions. To provide water for the city, which was contained within the city walls during the Middle Ages, about 400 cisterns were built. The Arsenal, and Red Tower made Alanya an important seaport for western Mediterranean trade, particularly with Ayyubid Egypt and the Italian city-states. Seljuk rule saw the golden age of the city Alanya as a winter capital; see Şahbaz 2018, 81-92; Baykara, 1988, 10; Lloyd and Rice 1958, 4-6, fig. 15.

¹¹ Turan 1960, 298; Ank 1986, 337; 1993; Bilici 1997.

¹² Ank 1987.

¹³ Bilici 1997.

wall of the rectangular room identified as the throne room and used in a composition together with the luster painted and blue tiles.¹⁴ The titles of the sultan mentioned in this inscription read as follows: “Burhanu’s-sultan’l muazzam Şahenşâhu’l âzam Ala’ud-dunyâ ve’d-dîn ebûl-feth Keykubad bin Keyhüsrev”. According to Bilici, these attributes point to a certain time - 1219-1220 - during the reign of ‘Alâ’-al-Dîn Kay-Qubâd I when he used these titles.¹⁵ It is well known that the Anatolian Seljuk Sultans used certain honorary and glorifying titles like “Burhan” or “Kasım” at certain instances during their reign. These titles are found both on dated and undated building inscriptions, and the dated ones help in dating the undated ones. Strong evidence for this assumption are the inscriptions on the north wall of the Alaaddin Mosque in Konya where Kay-Qubâd is praised with the same titles as Burhan es-Sultan. The date given is 1219-1220.¹⁶ Thus, depending on the inscription on the tile, Bilici dates the initial phase of the palace construction, Rooms X-XV in Section A, and all the archaeological finds like wall tiles, ceramics, glass and others recovered in these rooms between 1221 as the starting date and 1223 as the terminus.¹⁷

According to the 13th-century Seljuk historian Ibn Bibi, ‘Alâ’-al-Dîn Kay-Qubâd I used the Alanya Palace as a winter residence and stayed there for short periods during the winter months.¹⁸ He mentions several instances when the Sultan travelled from the Keykubadiye Palace near Kayseri to Antalya where he stayed for a month and then continued to the Alanya Palace, where he stayed for another month or more. The same writer remarks on the visit of a foreign envoy of Khwarizm emirs in 1229 and comments on how astonished they were at the grandeur and richness of the palace and “the sultan receiving them, seated on a throne, studded with precious jewels, they then bowed with respect”.¹⁹ After the construction of his better known Kubadabad Palace near the southwest shores of Lake Beyşehir, the routine was slightly altered, and Kay-Qubâd I left Alanya in the spring and travelled to Kubadabad for the summer months.²⁰ The palace at Kubadabad is also undated, but depending on an inscription and on dendrochronological investigations, it is assigned between 1231-1235.²¹ Evaluating and comparing the style of the wall tiles, Öney gives the same succession for the construction of Kay-Qubâd’s several palaces and claims that the small pavilion in front of the Alaaddin Mosque in Konya (Konya Köşkü) was the first one. The palace at Akşehir, which is close to the Konya palace, was built as a hunting lodge. Following this, the winter palaces in Antalya and Alanya were constructed and finally the Kubadabad Palace, the summer palace in Beyşehir with all its grandeur, glorifying the power of the Sultan with the magnificent tiles on the walls.²²

After the sudden death of Kay Qubâd I in 1237, Ghiyâth ad-Din Khūsraw II, his eldest son in line but not the one chosen first in succession, ascended the Seljuk throne. He did this

¹⁴ Arık 1987, gives detailed information for the wall tiles recovered during the 1986 and 1987 seasons. Also see Yılmaz 2000, 2001; Öney 1978, 102; Arık 2000.

¹⁵ Bilici 1997.

¹⁶ For the inscription on the north wall of the Alaaddin Mosque in Konya, see Duran 2006; 2001, 22, 43, no. 13.

¹⁷ Bilici 1997.

¹⁸ Ibn Bibi, *Evamirü’l-Ala’iye*, 81; Ibn Bibi, *Anadolu Selçukî Devleti*, 194-95.

¹⁹ Ibn Bibi, *Evamirü’l-Ala’iye*, 81.

²⁰ Otto-Dorn and Önder 1966; Otto-Dorn 1969, figs. 1-3.

²¹ The inscription inserted on the mosque located in nearby Pınarbaşı village gives the date H. 633/AD 1235-1236. This date is supported by dendrochronological investigations; see Kuniholm 2000, 127, no. 43. Dating depends on thirteen juniper pilings that came from the north end of the building.

²² Arık 2000; Öney 2005.

instead of his brother Kılıç Aslan with the help of the local emirs and the Khwarizm emirs.²³ Khūsraw ruled between 1237 and 1246 and, like his father, made use of both the Alanya and Kubadabad palaces. He is considered responsible for the additions or renewals on the north side of the palace complex, identified in this study as Section B (fig. 2). The open courtyard and the rooms lined on its sides - Rooms III to V on the west wing and Rooms VI to VIII on the east wing - are attributed to the refurbishment of his time between 1237-1247.²⁴ Mention is made that especially after the Mongol invasion of 1243, Kay Khūsraw II spent most of his time until his death in this palace. The Alanya Palace was abandoned, perhaps not immediately after the Mongol attacks, but definitely after his death in 1246. Thus the glass finds unearthed in the rooms on the east wing of Section B must have been in use during the reign of Kay Khūsraw II.

The Seljuk Empire suffered from the first Mongol attack in 1243, which was followed by a second one that ended with invasion in 1271.²⁵ Small principalities were established, and in 1293 Alanya fell under the control of the Karamanid principality. About 200 years later, the Karamanids sold Alanya to the Mamlūk sultan for 5000 gold pieces. Until the Ottoman conquest it was ruled by the local Alaiyye princes in the name of the Mamlūk Sultans. The Ottoman sultan Mehmed II conquered Alanya in 1471. Bilici, referring to 15th-17th century sources and Portolan maps as evidence, claims that in later centuries certain sections of the palace were perhaps still in use. However, the inner citadel and the palace no longer exhibited their enchanting 13th-century splendor and had started to fall into ruins.²⁶

Excavations and Glass Finds at Alanya Palace: 1985-1992

As mentioned above, the first excavation activities at the Alanya Palace were conducted by Oluş Arık and his team between 1985 and 1992. During the 2002-2005 summer campaigns, I participated in the excavation and studied the limited number of selected glass fragments that were documented earlier, with brief catalogue entries and drawings done by the members of the excavation team.²⁷ These were close to a hundred fragments comprising a group from vessels, like bottles, drinking glass and beakers, a group from window panes, and a few bracelets and beads for personal adornment.²⁸ The rest of the fragments, those not documented, were only photographed in groups. Therefore an in-depth statistical study on number, type and other attributes was not made.

At the beginning of the excavations in 1985, the palace was found to be in a bad state of preservation, making it hard to define the stratigraphic layers. During the Mongol attacks starting in 1243, the palace began to fall into ruins. The upper levels of the living spaces had collapsed. Small finds were broken into minute pieces, scattered, mixed or covered with debris. What was excavated, after the removal of the debris, brought to light the original remains of the 13th-century context. The original bricks, wall paintings, wall tiles, glazed ceramic ware, and glass were all dispersed in diverse rooms and levels. During the 1985 season, the present

²³ Turan 1955, 620; Cahen 1968, 130; Kaymaz 2009, 25-38.

²⁴ Bilici unpublished report, 6-7.

²⁵ Eser 1998, mentions of this date as 1245.

²⁶ Arık, 1986, 335-37; Konyalı 1946, 65; Bilici unpublished report, 6-7.

²⁷ This preliminary documentation was made by the then three young members of the Department of Art History in Ankara University, Dr. Z. Kenan Bilici, Dr. Rüstem Bozer and Dr. Bozkurt Ersoy.

²⁸ Bakırer 2009, 2014. Only the few beads and bracelets were not studied.

state of preservation with the foundations and remaining walls were interpreted and original plan was restituted (figs. 1-2).²⁹ In the 1986, 1987 and 1988 campaigns the recovery of the architectural remains and the discovery of more finds helped in the recognition of the possible functions of the rooms.

According to the plan, the palace is located behind the main entrance of the Inner Citadel, with a north-south orientation on a rectangular layout. The entrance was placed on the short, north side. It measures around 50 meters in length; 20 meters in width on the north end, 30 meters on the south end. This irregularity is because the building is composed of two sections built in two different construction phases. To follow the descriptions easier in this study, these two sections are marked as A and B on the plan and will be referred to in the same manner below (fig. 2).

Section A on the south end measures around 40x30 meters and appears more destroyed from the collapse. There are only a few identified spaces on the east and south wings, and only vague remains of the foundations on the west wing. The excavation team suggested some hypothetical restorations for Section A: an open courtyard, surrounding arcade on three sides, and rooms opening to the arcade. The space jutting out from the center of the east wall, Room X, has been identified as a tower that was part of the earlier, Byzantine-period citadel wall that surrounds the palace on the south (fig. 1).

Arık and Bilici claimed that the tower, Room X, was remodeled by Kay-Qubād I, but they could not estimate its new function after the remodeling. Rooms XI and XII are claimed to be for water storage, as there was a scarcity of water on top of the hill. After these three spaces, namely X, XI, XII, the east wall meets another tower, now Room XIII, at the southeast corner of the citadel wall. Bilici assigns the date of these renewals to the first building period, 1221-1223, using as evidence the inscribed wall tile found in one of the palace rooms.³⁰ Adjacent to Room XIII on the north wall are two more small spaces, Rooms XIV and XV.³¹

Room XIII (fig. 2) is identified as a tower of the Byzantine fortifications. It is claimed that this room was refunctioned for the personal use of Kay-Qubād I. The window opening on the joint wall with the adjacent Room XIV was enlarged as a door, which made it possible to refunction Room XIV as a service space attached to the private chamber of the Sultan. The excavators have assumed that there was also an elevated kiosk - an upper level on Room XIII - perhaps constructed with lighter materials like timber and top windows with colored glass insets. During the collapse, this elevated room fell over Rooms XIII and XIV below. All the contents were turned upside down, therefore fragments from window panes were recovered in both rooms, even though Room XIV, as a service space, may not have had glazed windows. The renovation date, 1221-1223, can be taken as evidence for the date when the finds like wall tiles, pottery, window glass and functional glass began to be used, following the completion of the construction. The fragments from the window panes recovered in Room XIII consist of both rim and center pieces with their estimated diameters as follows:

²⁹ Arık 1986, plans 3-4; 1987, fig. 1; 1993, plan 1. The glass mentioned in this article comes from this first period of the excavations; see Arık 1993.

³⁰ Bilici 1997, 87.

³¹ Bilici unpublished report, 6, mentions the necessity for further excavation and research in order to determine the relation of the rooms to the small finds.

Rim fragments:

Cat. no. R8, 87-XIII-362: dark honey yellow, est. dia. 17.9 cm.

Cat. no. R9, 87-XIII-409a: dark honey yellow, est. dia. 17 cm.

Below two joining rim fragments:

Cat. no. R10a, 87-XIII-407a: dark purple, est. dia. 12-13 cm.

Cat. no. R10b, 87-XIII-407b: dark purple, est. dia. 12-13 cm.

Center fragments:

Cat. no. C4, 87-XIII-475: light purple, est. dia.?

Cat. no. C5, 87-XIII-433: honey yellow, est. dia.?

Cat. no. C6, 87-XIII-408: honey yellow, est. dia.?

Cat. no. C7, 87-XIII-387: dark turquoise blue, est. dia.?

In Room XIV rim fragments, center fragments, both rim and center fragments:

Rim fragments:

Cat. no. R11, 87-XIV-42: light purple, est. dia. 17.9 cm.

Cat. no. R12, 87-XIV-42b: dark green? est. dia. 15.9 cm.

Cat. no. R13, 87-XIV-165: light honey yellow, est. dia. 23-24 cm.

Center fragment:

Cat. no. C8, 87-XIV-129: dark honey yellow, est. dia.?

Rim & Center fragment: below three joining fragments, same pane:

Cat. no. R & C1a, 87-XIV-121: light green? est. dia. 20-21cm.

Cat. no. R & C1b, 87-XIV-124: light green? est. dia. 20-21cm.

Cat. no. R & C1c, 87-XIV-164: light green? est. dia. 20-21cm.

Below two joining fragments, same pane:

Cat. no. R & C2a, 87-XIV-125a: dark honey yellow, est. dia. 23-24 cm.

Cat. no. R & C2b, 87-XIV-125b: dark honey yellow, est. dia. 23-24 cm.

Section B, on the north wing, is a smaller rectangle than Section A, measuring around 15x20 m. (fig. 2). It is entered from the north wall where, in the original, there may have been an elaborate portal arrangement. Yet nothing is left today. This entrance gives access to a centrally placed open courtyard which is identified as a ceremonial hall with rooms lining both its west and east sides. The remaining foundations of these rooms have been named by the excavators as Rooms III to V on the west and Rooms VI to VIII on the east. Bilici, depending on the construction seam noticed on the exterior face of the east wall, dates these spaces to the addition and renovation project made for Ghiyāth-al-Dīn Kay Khūsraw II (1237-1246), after his ascension to the throne. Rooms VII and VIII were remodeled and refurnished for his private use, which he used until his death.³² Arık believes that Room VIII - with the remains of frescoes on its walls, the finely laid bricks on the floor, and the remains of a small pond at the center - may

³² Bilici unpublished report, 10-12.

have been designed as a private chamber for Kay Khūsraw II. This was again topped by an elevated kiosk constructed with lighter materials.³³ The adjacent Room VI has been identified as a service space and Room VII as a storage area. Rooms VII and VIII have yielded the largest number of fragments from functional glass and window panes. Thus it is possible to make a similar assumption and claim that, like in Section A during the collapse, the kiosk fell over the lower rooms and dislocated the glass finds.

The rim and center fragments recovered in Room VIII are as follows:

Rim fragments:

Cat. no. R1, 87-VIII-51: dark honey yellow, est. dia. 14.5 cm.

Cat. no. R2, 89-VIII-1: dark honey yellow, est. dia. 16-17 cm.

Cat. no. R3, 89-VIII-2: dark honey yellow, est. dia. 16-17 cm.

Cat. no. R4, 89-VIII-3: dark honey yellow, est. dia. 16-17 cm.

Cat. no. R5, 95-VIII-1: dark purple, est. dia. 16-17 cm.

Cat. no. R6, 95-VIII-2: light honey yellow, est. dia. 19-20 cm.

Cat. no. R7, 95-VIII-3: light purple, est. dia. 19 cm.

Center fragments: 7 joining fragments from one pane and with honeycomb-patterned surface

Cat. no. C2a, 88-VIII-a: dark honey yellow, est. dia.?

Cat. no. C2b, 88-VIII-b: dark honey yellow, est. dia.?

Cat. no. C2c, 88-VIII-c: dark honey yellow, est. dia.?

Cat. no. C2d, 88-VIII-d: dark honey yellow, est. dia.?

Cat. no. C2e, 88-VIII-e: dark honey yellow, est. dia.?

Cat. no. C2f, 88-VIII-f: dark honey yellow, est. dia.?

Cat. no. C2g, 88-VIII-g: dark honey yellow, est. dia.?

2 joining fragments from a second pane with honeycomb-patterned surface

Cat. no. C3a, 92-VIII-a: dark turquoise blue, est. dia.?

Cat. no. C3b, 92-VIII-b: dark turquoise blue, est. dia.?

From the adjacent Room VII two joining fragments were recovered. These are perhaps remains from a single top window, or the rest were broken into such small pieces that they could not be recovered from the debris.

Center fragments:

Cat. no. C1a, 89-VII-213a: light honey yellow, est. dia.?

Cat. no. C1b, 89-VII-213b: light honey yellow, est. dia.?

One last location where fragments of crown glass were recovered is not associated with a living space. This is Grid XI-J in the courtyard in front Room XV, which is the space identified as the throne room. It is possible that the fragments recovered in this location were carried out from one of the living spaces during the collapse. The fragments are as follows:

³³ Anik 1988b, 137-38; 1993, 17.

Cat. no. R15, 87-XI-J-257a: dark honey yellow, est. dia. 13-14 cm.

Cat. no. R16, 87-XI-J-257b: dark honey yellow, est. dia. 13-14 cm.

Cat. no. R17, 87-XI-J-86: dark honey yellow, est. dia. 17-18 cm.

Cat. no. R16, 87-XI-J-87: dark turquoise blue, est. dia. 13-14 cm.

Glass: Form and Size

The physical handicaps, like the dilapidated state of the palace grounds and rooms, do not give an accurate picture of the embellished medieval construction with its windows decorated by colored glass panes and the functional glass utilized in the same spaces. In addition, the physical condition of the glass fragments are also not so helpful to make attributions for the type, color and quality of the material. Misuse, neglect and weathering have affected the material properties and surface condition of the glass, which was at times damaged and at other times almost completely vanished due to standing in a humid atmosphere for centuries.

In the above-mentioned rooms, altogether only 33 small glass fragments were documented from window panes. Although as mentioned earlier, many more must have been retrieved from the debris that covered the floors but were not documented. This was perhaps because their size and shape did not give enough data to record. A considerable number of those recovered are single fragments, while a few are two adjoining fragments like: Cat. nos. R10a, R10b; Cat. nos. R&C2a, R&C2b; Cat. no. C1a, 1b; Cat. no. C3a, 3b; Cat. nos. RXI J-257a, RXI J-257b. There is one example with three adjoining fragments like: Cat. nos. R&C1a, R&C1b, R&C1c, and one example with seven fragments from the same pane like: Cat. nos. C2a-C2g. All fragments are from circular panes produced in the crown technique.³⁴ Crown glass was common during the Medieval period, and it was also recovered in other Byzantine and Seljuk-period excavations in Anatolia. As will be discussed below, the closest parallels to those from Alanya are from the Kubadabad Palace, and contemporaneous examples are from the middle Byzantine settlements like Sardis, Amorium, Demre and Kuşadası/Anaia.

In this study, the window glass fragments are classified in three groups: 1) Rim fragments, small shards from the flat or turned-over edge; 2) Center fragments, larger and thicker ones close to the center around the bull's eye; and 3) Rim & Center fragments which contain data both for the shape of the rim and the center.

Rim fragments are usually very small pieces from the edge of the crown but still make it possible to determine their diameters and to distinguish differences in the fold of the edge (figs. 4-7) (Cat. nos. R1-R15). Two different types are distinguished:

- 1) Rims with folded edge, the fold is tubular and hollow, the edge has a rounded profile. The edge of the fold is lightly pressed with a tool, to close its end. The width of the fold is mostly 0.6-0.7 cm., rarely narrower 0.5 cm (fig. 5).
- 2) Rims with folded edge, the fold is tightly pressed with a tool, edge has flat profile. The width is around 0.5-0.6 cm.

³⁴ Crown glass was an early type of window glass. In this process, glass was first blown into a hollow globe; the globe was then revolved in the same direction and reheated. By reheating and spinning, the diameter was enlarged. The hollow globe was then transferred from the blowpipe to a noble and spun to form a large, nearly flat circular disc. If not spun too much, a thick area was left at the center where the pontil left a mark - the bull's eye. The thinnest glass was the rim at the edge of the disk, with the glass becoming thicker and more opaque toward the center. See Harden 1939, 91; 1971, 82-83.

Although small, the rim fragments may give some indication for the diameters of the crown glass units. Accordingly, the estimated average diameters vary between 12-17 cm., with 23-24 cm. the largest.

Center fragments are only 14 (Cat. nos. C1-C7). Cat. no. C1 comprises 7 adjoining small fragments, and C2 has two adjoining fragments, the rest are single. These are usually larger sized shards in comparison to the rim fragments and vary in their sizes like: 8.2 x 8.7; 5.4 x 3.2; 4.6 x 4.7; 3.5 x 5.2; 2.5-3.0 cm. Their thicknesses vary between 0.1-0.4 cm close to the rim and between 0.3-0.6-0.8 cm. close to the center, where the bull's eye is seldom left in place. This difference in thickness might be one of the reasons why the crown glass units are broken into separate rim and center pieces, and only rarely a fragment might still contain both. Even though in some fragments the spinning lines are deep since the rim is missing, it is still not possible to estimate the diameter of the original crown (figs. 3, 8-11).

The Rim & Center group has only 5 fragments, from two crown units where both part of the rim and the center are attached: Cat. no. R&C1 and Cat. no. R&C2. Cat. no. R&C1 has three adjoining fragments, one close to the center and two from the rim which altogether give the estimated diameter as 20-21 cm. This also makes it possible to estimate the form of the crown unit. R&C 2 has two adjoining fragments, and therefore here too the diameter of the crown can be estimated as 23-24 cm.

A comparative study can be made with other medieval sites in Anatolia where window glass was excavated to see the place of the Alanya finds. The forms and sizes can be compared, first with those recovered in the Kubadabad Palace, the second palace of 'Alā'-al-Dīn Kay-Qubād, constructed a decade later and the closest example to the Alanya finds. In Kubadabad among the collection of window glass fragments, the largest number are shards from crown glass units. The diameters of these fragments are estimated by Uysal between 17.7-24.2 cm., with the most common between 20-22 cm. They are classified in four groups according to the forms of their rims, as folded hollow, rounded, upturned and straight.³⁵ From among the medieval Byzantine sites in Anatolia, the first excavation where medieval window glass was reported was Sardis. There they were recovered in the Byzantine shops, confirming that they were regular objects purchased in the market. A. von Saldern has considered these as local productions and assigned their date to the middle Byzantine period, the 13th century.³⁶

Several parallels can be pointed out from other Byzantine excavations, most of which were recovered close to the foundations of churches. This suggests that glazing was perhaps a customary practice in religious buildings, not only in Istanbul (Constantinople) but also in the provinces.³⁷ The finds at Amorium, dated between the 9th-13th centuries, show a variety at their rims. They are classified by Gill as: folded hollow, folded tubular, folded and compressed, broad compressed fold, narrow fold and return.³⁸ Their estimated diameters are between 10-24 cm, more commonly 18-20 cm. At another Byzantine site - the Basilica of St. Nicholas at Demre dated between the 9th and 13th centuries - a large collection of window glass fragments produced in different techniques were recovered.³⁹ Among them, crown glass predominates in

³⁵ Uysal 2013, 127-28.

³⁶ von Saldern 1962. No data is recorded for the shape and sizes of the crown glass recovered in the Byzantine shops.

³⁷ Meyer 1989.

³⁸ Gill 2002, 101-3, 225-28, figs. 1/32, 2/41, 2/42, 2/43.

³⁹ Olcay 1997, 359-485; 2000; Acara and Olcay 1997; Çömezoğlu 2007, 145-54, 225-85; Olcay Uçkan and Çömezoğlu Uzbek 2018.

two varieties, both with folded rims. Some are almost flat cylindrical paraisons; others are not flat and the bullion at the center is not completely opened by spinning. Therefore the crown unit is thicker and has a bowl shape. The diameters of both types vary between 15-22 cm. The crown glass fragments recovered at another Byzantine site - Kadıkalesi/Anaia near Kuşadası, İzmir - have a larger diameter. Their estimated sizes are between 17-27 cm., and the most common is 22-26 cm.⁴⁰

These above-mentioned sites, although few, may be evaluated as evidence that in medieval Anatolia there is a relationship in the sizes of the crown glass units recovered at different sites.

Considering the sizes of the Alanya fragments, two questions are involved. One is the wide range of their diameters estimated according to rim finds: small ones 12-13 cm. and two largest ones 23-24 cm. Although the diameters show a variety, these fragments were recovered only in four spaces. Therefore one wonders where and how they were used. I assume that they were used for the windows, but Bilici supports a different hypothesis that depends on the moulded stucco fragments recovered in Rooms XIII and XIV, which he classified in three groups. However, only one group of the stucco fragments concern us here. According to Bilici:

“In the first group, stucco fragments are narrow bands that make 90° turns at the corners, suggesting that they may belong to a square panel, measuring 23x23 cm. and 2.7 cm. in thickness. There is a circular openings at the center. The inner boundary of this circle has a groove which could hold a crown glass unit, perhaps one with a diameter of 14 cm. With the repetition of this process several panels with glass insets were produced. The remains of mortar at the rear face of the stucco bands indicates that they were once attached on the wall. Perhaps the wall surface was covered with tiles in the star and cross composition and the panels with the glass were used on the top register as a border”.⁴¹

This assumption concerns only the units with a 14 cm. diameter, in which case they were set in a stucco frame placed as a dado over the tile revetment. To the best of my knowledge, this description does not correspond to any known example in Seljuk architecture. Therefore, I believe this assumption is pending for the moment, awaiting more examples to come, if any.

The variety in the diameters of the crowns brings to mind a second question: In what type of windows were they installed? We do not know the forms of the windows, but the upper windows in Seljuk architecture had an arched form which is proposed by Uysal for the windows in the palace of Kubadabad. In later examples, especially in Ottoman architecture, the top windows with arched profiles had round crown glass units installed.⁴² However, in these there is no variety in the sizes; all are uniform. Therefore the variety in the sizes, which is also noticed in Kubadabad, Amorium and Demre, cannot be explained.

Another question is: How were they installed inside the windows? Did they use stone, metal or stucco frames? In previous years it was not possible to conjecture, but excavations in medieval sites, both Byzantine and Seljuk, have revealed that they were inserted in stone or stucco frames with square or circular openings. In the Kubadabad Palace, there is evidence coming from both the Great and the Small Palaces where broken fragments of stucco frames were recovered. These carried small rim fragments still attached to the grooved channels

⁴⁰ Coşkun 2013, esp. 201-2.

⁴¹ Bilici 2010.

⁴² Uysal 2013, 119, figs. 108-9; Bakırer 1990.

inside the circumference of the circular openings (fig. 2, XII).⁴³ We can now assume that in the Alanya Palace a similar technique was used, and crown glass units were organized in stucco frames with arched tops and installed inside the windows.⁴⁴

In relation to the use of moulded stucco frames with glass insets, there is one example – the small masjid of Hoca Hasan in Konya, an early 13th century building. Fragments of a stucco frame were recovered during restorations in 1991 and restored as a top window with glass insets. This is an elaborate, arched window in moulded stucco. Its surface is arranged in an hexagonal network, and the centers of each hexagon have circular openings with carved channels inside the circumference for placing glass. Only a small piece of glass has survived *in situ* inside the channel of one of these openings, but it is enough as an evidence for their use.⁴⁵

Glass: Colors and Material Properties

No applied decoration or painting can be noticed on the surfaces of the crown glass units except the honeycomb texture observed on a few Center fragments (Cat. nos. C1-C3). The production of these must have been in two steps: first, mould-blown into a mould with honeycomb patterns in reverse and then free-blown (figs. 10-11). Comparative examples could not be recorded in other sites mentioned earlier.

The surfaces of the fragments are covered with a thick layer of iridescence, which makes it difficult to distinguish the colors as well as the spinning lines. The colors could be identified from areas where there was less iridescence on the glass. The colors of the crown glass panes have a limited range. The most common color is honey yellow with a greenish tinge. It has both light and dark hues, and altogether there are 24 fragments in this color: dark green (Munsell, 2.5Y 8/4-8.5/2; light green: Munsell, 10Y 8/2-8.5/2). It is interesting to note that in Rooms XIII and XIV from the 1221-1223 construction of 'Alā'-al-Dīn Kay-Qubād, this color predominates. In Room XIII, there are 11 fragments in honey yellow; 5 are dark honey yellow (Cat. nos. R8, R9, C8); 2 are medium honey yellow (Cat. nos. C5 and C6); the rest light. In Room XIV there are three fragments in dark honey yellow (Cat. nos. C8 and R&C 2a and 2b), and one in light honey yellow (R13). The rest of the 13 honey yellow fragments are from Rooms VIII and VII, the two spaces renovated in 1237 for Ghiyāth-al-Dīn Khūsraw II. There are 11 dark honey fragments (Cat. nos. R1-R5, C2a-C2g), and two light honey (Cat. nos. C1a, C1b) fragments in Room VII. The increase in the number of honey yellow fragments in Khūsraw II's room could be only a coincidence. But it is also possible that it points to a preference or availability of materials. Another group of the honey yellow shards that have a greenish tinge show a difference in their material properties. The surfaces reveal black spots and air bubbles, which suggest that inside the batch there were impurities that caused the black spots and the glass batch was not mixed thoroughly to discharge the air bubbles. The surfaces of the fragments in honey yellow have a thick layer of iridescence, but the same is not noticed so severely with

⁴³ The 1965 Kubadabad Palace excavation reports merely mention that fragments of stucco frames were recovered with small pieces of colored glass insets. Üysal and Açıoğlu have studied these fragments and have associated them with the glass finds recovered during the excavations after 1980. Both writers were able to propose that, in the original stucco frames with crown glass, insets were used in the windows of the palace. See Üysal 2013, 119; Açıoğlu 2014, fig. 8. Two shards from stucco window frames with remains of glass pieces were still inserted inside the circular openings. I am indebted to Açıoğlu for allowing me to publish his figure.

⁴⁴ Bilici 2010, gives detailed descriptions of the stucco fragments. However, he assigns these fragments to wall panels and cupboards and compares them with those found at Kubadabad Palace.

⁴⁵ Önge 1992; Bakırer 1999, figs. 1-4.

the turquoise blue and purple-colored fragments. This peculiarity might be related to the main compositional materials used for the batch or to the coloring agents.

The next color is purple for which there is one light purple and two dark purple fragments (Munsell, 2.5 RP 2/8). Dark purple fragments come from Room XIII; light purple from Room VIII. In Room XIII there are two; in Room VIII one turquoise blue; and in the square XI-J there is one turquoise blue fragment (Munsell, 10B 4/10-5/10). All 4 of the green fragments come from Room XIV. The three light green ones (Cat. nos. C1a-C1c) all belong to a single crown pane while one is dark green (Cat. no. R12). Purple, turquoise blue and green are colors that were popular also in Seljuk pottery and wall tiles, where they were used for painted decoration in underglaze colors or in glazes.

A wider and more varied color scheme is reported for the Kubadabad fragments. Different hues of purple, dark and light rose petal pink, blue, turquoise blue and navy blue, along with different hues of green, honey yellow and brown were recorded.⁴⁶ This variety has an association with the variety of colors used on the wall tiles that were recovered. Could we assume that the artisans who produced the tiles and those who produced the window glass were in contact and perhaps exchanged raw materials, especially the coloring oxides? At Kadikalesi/Anaia, the recorded color range of the window glass is also varied with light and dark green, olive green, yellow-green, light blue, dark pinkish-purple, dark brown and red-brown.⁴⁷ However, at Amorium the color palette is not so varied; only yellowish green, bluish green and colorless fragments predominate.⁴⁸

The material properties of the Alanya Palace glass finds were studied by two archaeometry students, U.B. Aksoy⁴⁹ and E. Beşer,⁵⁰ as their MSc Thesis at Middle East Technical University, Department of Archaeometry. A third study is the report presented to the Archaeometry seminar and published by Demirci and Bakırer in 2009.⁵¹ These studies are comprised of analytical research conducted on a select number of fragments to identify the material properties of the glass. The results of these analytical studies are especially valuable in two respects. First, the glass studied turned out to be soda-lime-silica glass (Na₂O: CaO: SiO₂) of the type made with plant-ash as the source of alkali. Soda-lime-silica glass is mentioned as a common glass type in medieval Anatolia. Second, several of the analyzed fragments contained elevated levels of boron, another fingerprint in Anatolian glass. These properties were repeated with slight variations on the fragments studied, which point to common sources for the materials. In the other medieval Byzantine and Selçuk sites mentioned above, analytical studies on the materials have not been reported, thus comparisons could not be made.

⁴⁶ Uysal 2013, 122-26, figs. 115-27.

⁴⁷ Coşkun 2013, 202.

⁴⁸ Gill 2002, 101-3, 225-28.

⁴⁹ Aksoy 2006: "The XRF and ICP-OES data reflect the typical composition of a soda-lime-silica glass with the average values of: 12.9% (Na₂O); 7.7% (CaO); and 65.5% (SiO₂). Samples were grouped by color as green, blue and purple. Color producing elements are Fe, Mn, Cu and Co". Elemental analysis of the samples were made using two methods: X-Ray Fluorescence Spectroscopy (XRF) and Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) to determine major, minor and some trace elements.

⁵⁰ Beşer 2009.

⁵¹ Demirci and Bakırer 2009. The composition of the silica-lime sofa glass is as follows: 63.0-65.3% SiO₂; 8.5-13.2% Na₂O; 1.3-2.2% K₂O; and 5.6-8.8% CaO; 2% K₂O and 1% MgO determine the use of plant ash. Coloring agents are the metallic oxides like Fe, Mn, Cu, Co, Ni and Cr. For general information, see Brill 2001, 35.

Evaluation and Conclusion

This article has focused on the small collection of window glass fragments recovered during the excavations between 1985-1992 in the Seljuk Palace at Alanya. This 13th-century palace was constructed and then renovated within a short period of time. However, there is no stylistic or material difference in the vessel and the window glass recovered in the rooms of the elite. The study introduced the distinctive features of the crown glass fragments and discussed possible associations with similar glass recovered in other Byzantine and Seljuk sites of the same period. This assessment has revealed that the fragments have certain parallels in size and color to the crown glass fragments recovered in all these medieval sites. This was more so at Kubadabad, the second and slightly later palace of 'Alā'-al-Dīn Kay-Qubād I. Especially the color assortment noticed in the window glass from Kubadabad is repeated here only in a modest range. The comparative study has made me assume that the Alanya fragments are not only few in number but also second best besides the Kubadabad ones.

However, the existence of the Alanya fragments is significant as they indicate an interest in window glass in the early 13th-century Seljuk palace architecture. To the best of my knowledge, in Seljuk Anatolia glazing the windows of official or domestic buildings, whether for need or for decorative reasons, was not a customary practice. The two palaces - first Alanya, then Kubadabad - present rare opportunities as the earliest royal examples. Is it possible to associate this trend with a special interest of the owners, Kay Qubād I and Khūsraw II? I am assuming this possibility because glass fragments were recovered in spaces identified as the private chambers of father and son (in chronological order: Rooms XIII, XIV, VIII, VII), and the service spaces adjacent to them. These rooms used by the two Sultans are also the spaces where fragments from special glass for everyday use like pruned and enameled beakers were recovered.⁵² Therefore, the long discussion mentioning the findspots of the glass fragments may be taken as evidence for the interest of the owners in glasswork. We could mention a similar interest and preference for the Kubadabad palace, constructed by 'Alā'-al-Dīn Kay-Qubād I and also used by Ghiyāth-al-Dīn Kay Khūsraw II, where all the rooms were glazed.⁵³

In the Alanya Palace, the fragments from pruned and enamelled beakers recovered in the same rooms, and definitely utilized by the Sultans are in line with the luxury glass used for special occasions. These could be gifts presented to them. There is not much evidence whether the father received any glass objects as presents. However, for the son some indications make me assume that he was interested in enameled luxury glass. Perhaps on special occasions he received glass, especially enameled glass objects from neighboring countries. One of these special presents was the well-known "Kubadabad plate" already discussed elsewhere.⁵⁴

The only other issue, not discussed above, is provenance. For the manufacture of the window glass, a workshop and furnace at one corner of the inner citadel might be a possibility. At Kubadabad, the discovery of some remains from foundations, along with a few tools associated with glass working, glass waste and scraps, have made the excavators consider "a glass workshop with a furnace, located close to the Little Palace".⁵⁵ At Alanya none of these were recovered, and the limited number of the finds, both window and vessel fragments, make me consider a place of manufacture outside the palace grounds, but where?

⁵² I have discussed these beakers and their associations in my earlier publications; see Bakırer 2009, 2014.

⁵³ Uysal 2013, 152-53.

⁵⁴ Bakırer and Redford 2017. This plate may have been presented to Ghiyāth-al-Dīn Kay Khūsraw II as a wedding present in 1236.

⁵⁵ Uysal 2013, 152-53.

Catalogue of the Window Glass

Abbreviations

pre: preservation

est: estimated

L: length

W: width

Th: thickness

dia: diameter

Rim Fragments

Cat. No. R1

Inv. No.: Alanya Palace, 89-VIII-51

Sector: Palace, Rm: VIII

Dimensions: pre: Th: 0.1-0.3 cm., fold: 0.6 cm., pre: dia: 14.5 cm.

Description: four adjoining rim fragments, from the edge of the crown, they complete the circular folded rim, with the exception of a small section missing, ca. 1/5th of the rim. Folded hollow rim, dark honey yellow (Munsell: 5 Y 7/6). Free blown, turned, edge of rim pressed by tool.

Preservation: black spots, bubbles, shiny.

Date: medieval

Cat. No. R2

Inv. No.: Alanya Palace, 89-VIII-1

Sector: Palace, Rm: VIII

Dimensions: pre: L: 4 cm., W: 2.4 cm., Th: 0.1 cm., fold: 0.6 cm., est dia: 17 cm.

Description: rim fragment, hollow folded rim, dark honey yellow (Munsell: 2.5Y 7/12). Free blown, turned, edge of folded rim pressed by tool.

Preservation: bubbles, black spots, weathering, dull.

Date: medieval

Cat. No. R3

Inv. No.: Alanya Palace, 89-VIII-2

Sector: Palace, Rm: VIII

Dimensions: pre: L: 2.3 cm., W: 1.2 cm., Th: 0.1-0.3 cm., fold: 0.6 cm., est dia: 16.5 cm.

Description: rim fragment, hollow folded rim, edge of fold pressed by tool, rounded, dark green (Munsell: B5 6/3). Free blown, turned, tool worked.

Preservation: spinning lines, bubbles, black spots.

Date: medieval

Cat. No. R4

Inv. No.: Alanya Palace, 89-VIII-3

Sector: Palace, Rm: VIII

Dimensions: pre: L: 2.8 cm., W: 0.9 cm., Th: 0.1 cm., fold: 0.7 cm., est dia: 16.5 cm.

Description: rim fragment, hollow folded rim, rounded, edge of fold pressed by tool, dark turquoise blue (Munsell: 5B 6/3). Free blown, turned, tool worked.

Preservation: spinning lines, bubbles, black spots.

Date: medieval

Cat. No. R5

Inv. No.: Alanya Palace, 95-VIII-1

Sector: Palace, Rm: VIII

Dimensions: pre: L: 4 cm., W: 2.4 cm., Th: 0.1-0.3 cm., fold: 0.6 cm., est dia: 17.3 cm.

Description: rim fragment, hollow folded rim, edge of fold pressed by tool, dark purple (Munsell: 5P 8/2). Free blown, turned and tooled.

Preservation: spinning lines, bubbles, black spots, weathering, dull.

Date: medieval

Cat. No. R6

Inv. No.: Alanya Palace, 95-VIII-2

Sector: Palace, Rm: VIII

Dimensions: pre: L: 2.3 cm., W: 1.4 cm., Th: 0.1-0.3 cm., fold: 0.5 cm., est dia: 19-20 cm.

Description: rim fragment, folded rim, edge of folded rim pressed by tool, pale honey yellow, green tinted (Munsell: 7.5Y 7/10, 5Y 7/6). Free blown, turned, tooled.

Preservation: spinning lines, bubbles, black spots, iridescence.

Date: medieval

Cat. No. R7

Inv. No.: Alanya Palace, 95-VIII-3

Sector: Palace, Rm: VIII

Dimensions: pre: L: 5.7 cm., W: 2.2 cm., Th: 0.1-0.3 cm., fold: 0.6 cm., est dia: 19 cm.

Description: rim fragment, hollow folded, edge of fold pressed by tool, light purple (Munsell: 2.5RP 2/8). Free blown, turned, tooled.

Preservation: spinning lines, bubbles, black spots, light iridescence.

Date: medieval

Cat. No. R8

Inv. No.: Alanya Palace, 87-XIII-362

Sector: Palace, Rm: XIII

Dimensions: pre: L: 4.8 cm., W: 1.5 cm., Th: 0.1-0.3 cm., fold: 0.6 cm., est dia: 17.3 cm.

Description: Rim fragment, hollow folded rim, edge of fold pressed by tool, dark honey yellow (Munsell: 5Y 7/10). Free blown, turned, tooled.

Preservation: spinning lines, bubbles, black spots, light iridescence.

Date: medieval

Cat. No. R9

Inv. No.: Alanya Palace, 87-XIII-409

Sector: Palace, Rm: XIII

Dimensions: pre: L: 3 cm., W: 1.5 cm., Th: 0.1-0.2 cm., fold: 0.7 cm., est dia: 17 cm.

Description: rim fragment, hollow folded rim, edge of fold pressed by tool dark, honey yellow (Munsell: 5Y 5/10 5/6). Free blown, turned, tooled.

Preservation: deep spinning lines, bubbles, black spots, weathering.

Date: medieval

Cat. Nos. R10a and R10b

Inv. No.: Alanya Palace, 87-XIII-407a and 407b

Sector: Palace, Rm: XIII

Dimensions: 407a: pre: L: 4.5 cm., W: 2.3 cm., Th: 0.1-0.3 cm., fold: 0.7 cm., 407b: pre: L: 1.5 cm., W: 1.7 cm., Th: 0.1-0.3 cm., fold: 0.7 cm., est dia: 12-13 cm.

Description: two rim fragments, folded rim, pressed by tool, dark purple (Munsell: 5P 8/2). Free blown, turned, tooled.

Preservation: deep spinning lines, bubbles, black spots, thin layer of iridescence.

Date: medieval

Cat. No. R11

Inv. No.: Alanya Palace, 87-XIV-42

Sector: Palace, Rm: XIV

Dimensions: pre: L: 3.4 cm., W: 1.2 cm., Th: 0.1-0.3 cm., fold: 0.5 cm., est dia: 17.9 cm.

Description: rim fragment, hollow folded rim, light purple (Munsell: 2.5 RP 2/8). Free blown, edge of fold pressed by tool.

Preservation: heavy weathering, spinning lines and color barely identified.

Date: medieval

Cat. No. R12

Inv. No.: Alanya Palace, 87-XIV-42b

Sector: Rm: XIV

Dimensions: pre: L: 4.4 cm., W: 1.6 cm., Th: 0.1-0.3 cm., fold: 0.5 cm., est dia: 15.6 cm.

Description: rim fragment, hollow folded rim, dark green? hardly visible due to iridescence. Free blown, edge of fold pressed by tool.

Preservation: deep spinning lines? heavy weathering, color hardly identified.

Date: medieval

Cat. No. R13

Inv. No.: Alanya Palace, 87-XIV-165

Sector: Palace, Rm: XIV

Dimensions: pre: L: 4.6 cm., W: 1.3 cm., Th: 0.1-0.3 cm., fold: 0.9 cm., est dia: 23-24 cm.

Description: rim fragment, hollow folded rim, rounded, light honey yellow-greenish tint (Munsell: 7.5 Y 7/10, 5Y 7/6).

Preservation: spinning lines hardly visible, thick weathering, dull.

Date: medieval

Cat. Nos. R14a and 14b

Inv. No.: Alanya Palace, 87-XI J-257a and 257b

Sector: Courtyard, square XI J

Dimensions: 257a: pre: L: 4.6 cm., W: 2.3 cm., Th: 0.1-0.3 cm., fold: 0.7 cm., 257b: pre: L: 3.5cm., W: 1.3 cm., Th: 0.1 cm., fold: 0.7 cm., est dia: 13-14 cm.

Description: two adjoining rim fragments, hollow folded rim, edge of folded rim pressed by tool, dark navy blue (Munsell: 5PB 8/2 10/3). Free blown, turned, tooled.

Preservation: spinning lines, iridescence, dull.

Date: medieval

Cat. No. R15

Inv. No.: Alanya Palace, 87-XI J-86

Sector: Palace Courtyard, square XI J

Dimensions: pre: L: 2.4 cm., W: 1.3 cm., fold: 0.6 cm., est dia: 17-18 cm.

Description: rim fragment hollow folded rim, edge of folded rim pressed by tool, dark navy blue (Munsell: 5PB 8/2 10/3). Free blown, turned, tooled.

Preservation: spinning lines, iridescence, dull.

Date: medieval

Cat. No. R16

Inv. No.: Alanya Palace, 87-XI J-87

Sector: Palace: Courtyard, square XI J

Dimensions: pre: L: 4.8 cm., W: 1.6 cm., Th: 0.1-0.3 cm., fold: 0.7 cm., est dia: 14.5 cm.

Description: rim fragment, hollow folded rim, edge of folded rim pressed by tool, dark blue (Munsell: 5B 6/3). Free blown, turned, tooled.

Preservation: spinning lines, thin iridescence layer, dull.

Date: medieval

Center Fragments, with Honeycomb Surface Pattern

Cat. Nos. C1a and C1b

Inv. No.: Alanya Palace, 89-VII-213a, 213b

Sector: Palace, Rm: VII

Dimensions: 213a: pre: L: 3.5 cm., W: 5.2 cm., Th: 0.1-0.2 cm., 213b: pre: L: 3.7 cm., W: 2.3 cm., Th: 0.1-0.2 cm., dia: cannot be estimated.

Description: two adjoining fragments, close to center, bull's eye, pontil mark, front face has honeycomb pattern in low relief. Light honey yellow, greenish tint (Munsell: 7.5 Y 7/10). Mould blown into a mould with honeycomb pattern, then free blown into a bubble and turned.

Preservation: deep spinning lines, bubbles, weathering.

Date: medieval

Cat. Nos. C2a, C2b, C2c, C2d, C2e, C2f, C2g

Inv. No.: Alanya Palace, 88-VIII a-g

Sector: Palace, Rm: VIII

Dimensions: a : pre: L: 5.4 cm., W: 5.9 cm., Th: 0.3-0.6 cm.

b : pre: L: 5.7 cm., W: 2.8 cm., Th: 0.2-0.6 cm.

c : pre: L: 3.9 cm., W: 3.0 cm., Th: 0.3-0.6 cm.

d : pre: L: 3.1 cm., W: 2.5 cm., Th: 0.3-0.6 cm.

e : pre: L: 3.0 cm., W: 1.1 cm., Th: 0.3-0.6 cm.

f : pre: L: 5.5 cm., W: 3.8 cm., Th: 0.2-0.5 cm.

g : pre: L: 3.0 cm., W: 2.2 cm., Th: 0.3-0.6 cm.

dia: unknown?

Description: seven fragments close to center, none of them is close to edge, therefore diameter cannot be estimated. Surface has honeycomb pattern, bull's eye, pontil mark, light honey yellow (Munsell: 2.5 Y 7/8). Mould-blown into a mould with honeycomb pattern, then free blown into a bubble and turned.

Preservation: spinning lines hardly visible, weathering, dull.

Date: medieval

Cat. No. C3

Inv. No.: Alanya Palace, 87-XIII-475

Sector: Palace, Rm: XIII

Dimensions: pre: L: 7.4 cm., W: 8.3 cm., Th: 0.3-0.4 cm., dia: unknown.

Description: fragment from center with part of bull's eye, pontil mark, honey yellow (Munsell: 5 Y 4/6-6/10). Free blown.

Preservation: deep spinning lines, bubbles, light iridescence.

Date: medieval

Cat. No. C4

Inv. No.: Alanya Palace, 87-XIII-433

Sector: Palace, Rm: XIII

Dimensions: pre: L: 4.6 cm., W: 4.7 cm., Th: 0.2-0.5 cm., dia: unknown.

Description: fragment from center with part of bull's eye, pontil mark, honey yellow (Munsell: 2.5 Y 7/10). Free blown.

Preservation: deep spinning lines, bubbles, weathering.

Date: medieval

Cat. No. C5

Inv. No.: Alanya Palace, 87-XIII-408

Sector: Palace, Rm: XIII

Dimensions: pre: L: 3.5 cm., W: 5.2 cm., Th: 0.2-0.4 cm., dia: unknown.

Description: fragment from center with part of bull's eye, pontil mark, honey yellow (Munsell: 2.5 Y 7/10). Free blown.

Preservation: deep spinning lines, bubbles, weathering.

Date: medieval

Cat. No. C6

Inv. No.: Alanya Palace, 87-XIII-387

Sector: Palace, Rm: XIII

Dimensions: pre: L: 2.2 cm., W: 3.2 cm., Th: 0.3-0.6 cm., dia: unknown.

Description: fragment from center with part of bull's eye, pontil mark, dark turquoise blue opaque (Munsell: 5b 6/3). Free blown.

Preservation: deep spinning lines, bubbles, weathering.

Date: medieval

Cat. No. C7

Inv. No.: Alanya Palace, 87-XIV-129

Sector: Palace, Rm: XIV

Dimensions: pre: L: 2.6 cm., W: 4.8 cm., Th: 0.1-0.6 cm, dia: unknown.

Description: fragment from center with part of bull's eye, pontil mark, dark honey yellow (Munsell: 2.5 Y 7/8 6/10). Free blown.

Preservation: deep spinning lines, bubbles, light weathering, dull.

Date: medieval

Rim and Center Fragments

Cat. Nos. R & C1a, R & C1b and R & 1c

Inv. No.: Alanya Palace, 89-XIV-121, 124, 164

Sector: Palace, Rm: XIV

Dimensions: 121: pre: L: 5.4 cm., W: 3.2 cm., Th: 0.3-0.5 cm., fold: 0.4 cm.

124: pre: L: 7.1 cm., W: 3.8 cm., Th: 0.3-0.8 cm.

164: pre: L: 8.7 cm., W: 8.2 cm., Th: 0.3 cm., fold: 0.4 cm., est dia: 20-21 cm.

Description: three adjoining fragments, 124 close to center, bull's eye, pontil mark; 121 and 164 close to rim with folded rim, light green, hard to identify because of thick heavy weathering layer.

Preservation: deep spinning lines, bubbles, iridescence.

Date: medieval

Cat. Nos. R & C2a, R & C2b

Inv. No.: Alanya Palace, 87-XIV-125a and 125b

Sector: Palace, Rm: XIV

Dimensions: 125a pre: L: 5.1 cm., W: 2.1 cm., Th: 0.1-0.2 cm.

125b pre: L: 5.8 cm., W: 1.8 cm., Th: 0.1-0.6 cm., fold: 0.9 cm., est dia: 23-24 cm.

Description: 2 fragments from the same pane, 125a close to center with part of bull's eye, pontil mark, 125b has part of rim, edge pressed by tool, dark honey yellow (Munsell: 2.5 Y 7/8 6/10). Free blown and tooled.

Preservation: deep spinning lines, bubbles, light weathering, dull.

Date: medieval

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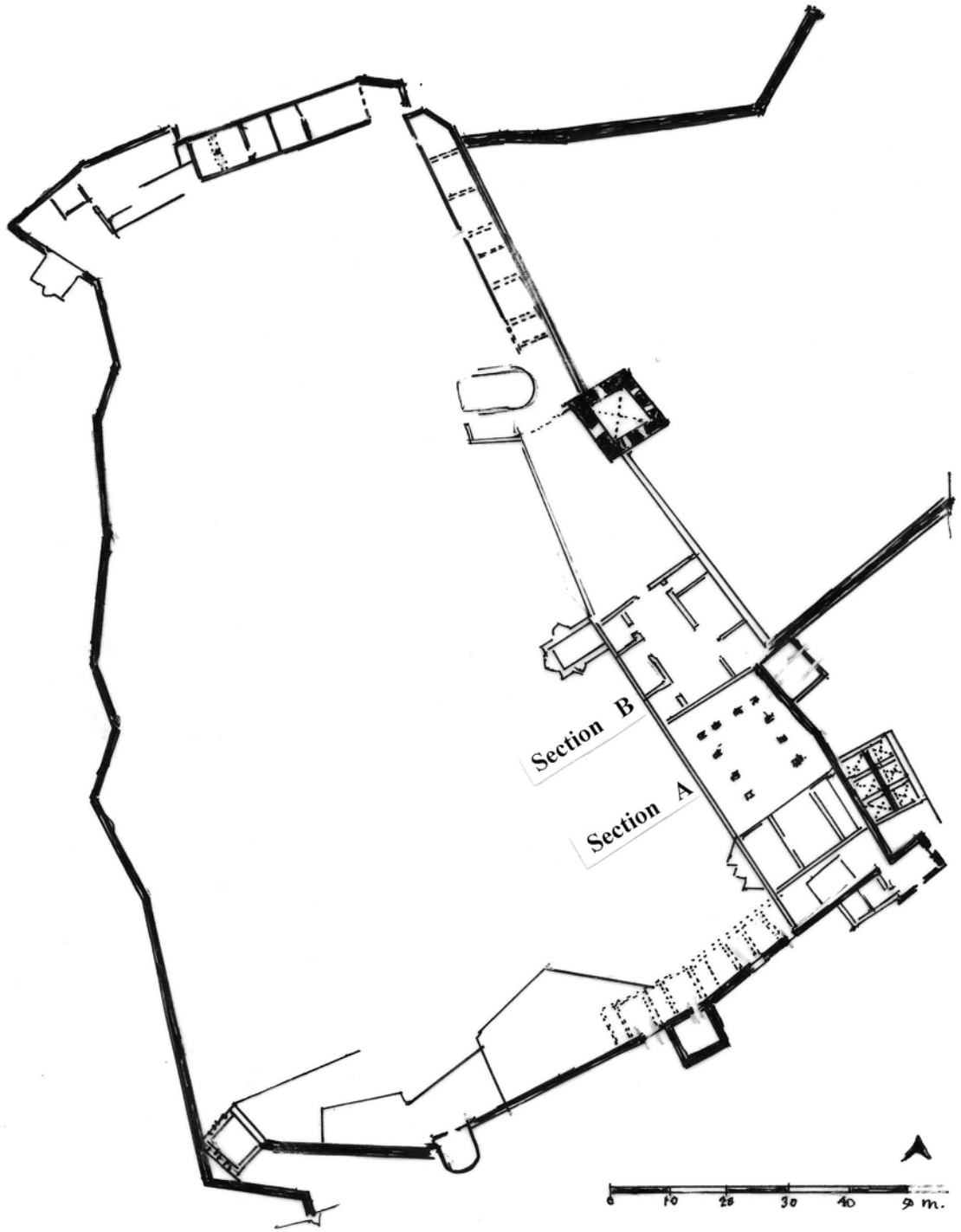


FIG. 1 Alanya, inner citadel, general plan
(Redrawn by Ö. Bakırer, from Arık 1986, plan 3).

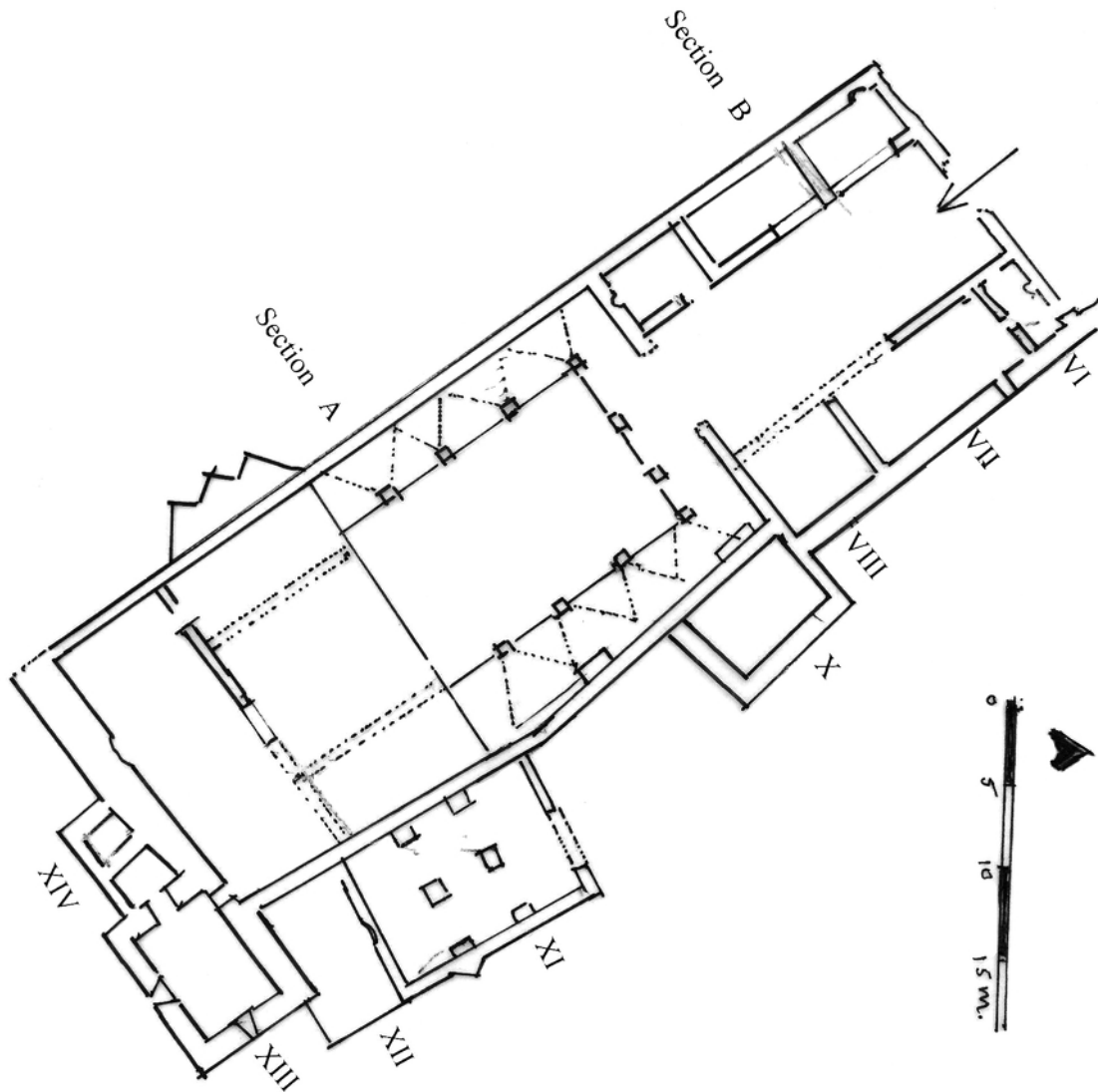


FIG. 2 Alanya, inner citadel, the Palace, plan (Redrawn Ö. Bakırer, from Arık 1986, plan 4).

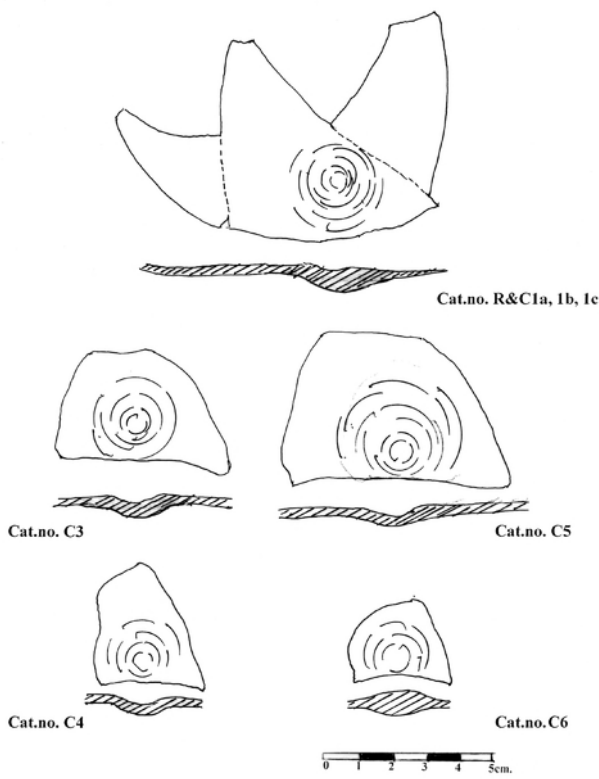


FIG. 3
Window glass, drawing
of some center fragments
(Cat. nos. R&C1 a, b, c; C3-C6).

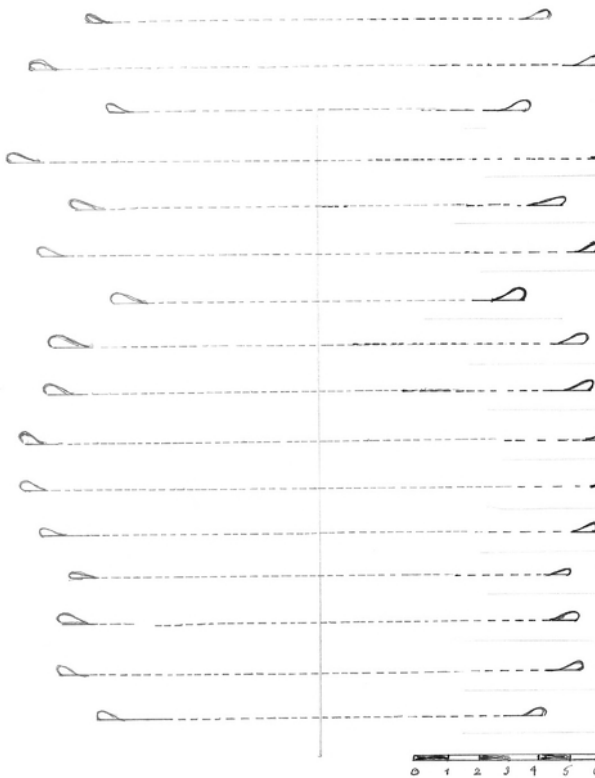


FIG. 4
Window glass, drawing of all
rim fragments (Cat. no. R2-17).



FIG. 5 Window glass, single rim restituted, dark honey yellow (Cat. no. R1).



FIG. 6 Window glass, single rim, dark purple (Cat. no. R10a).



FIG. 7 Window glass, group of rims (Cat. no. R1-16).

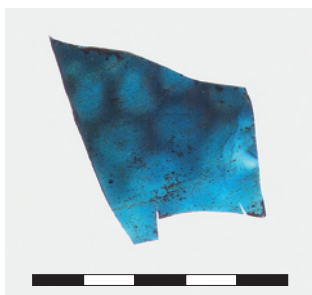


FIG. 8 Window glass two center fragments with honeycomb pattern, dark turquoise blue (Cat. no. C1a).

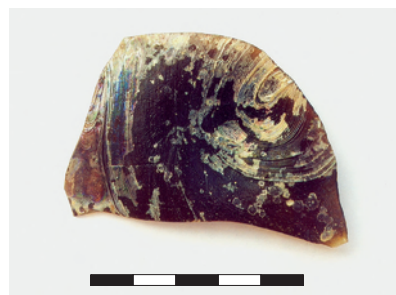


FIG. 9 Window glass single center fragment, dark honey yellow (Cat. no. C3).



FIG. 10 Window glass, single center fragment, dark honey yellow, surface has honeycomb pattern (Cat. no. C7).



FIG. 11 Window glass, group of center fragments (Cat. no. C2a-g).