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VII  
(Özel Sayı)



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## GLASS FINDS FROM OLBA SURVEY - 2001

(LEV. 20-26)

Emel ERTEN\*

### ÖZET

Bu çalışma, Mersin, Silifke, Olba (Uğuralanı) 2001 yüzey araştırması sırasında saptanan cam buluntuları ele almaktadır. Olba camları, antik kentin yerleşim tarihini ve yaşantısını aydınlatıcı nitelikte arkeolojik veri özelliği taşımaktadırlar. Ayrıca, ele geçtikleri merkez kesin olarak bilindiği için Olba buluntuları, Dağlık Kilikia'daki camcılığı, cam kullanım biçimlerini yansıtmaları bakımından cam çalışmalarılarında önemlidirler.

Olba camları içinde ilk gurubu Hellenistik ve Erken Roma Dönemine özgü kâse parçaları oluşturmaktadırlar. Bunlar aynı zamanda bazı seramik parçaları, sikkeler ve mimari kalıntılarla birlikte Olba'da saptanan en erken arkeolojik bulgulardır. Geç Antik Dönemi simgeleyen kadeh ve kandillere ait parçalar da Olba'da saptanmaktadır. Kentte mimaride cam kullanımını yansıtan çok sayıda pencere camı parçası da belirlenmektedir.

Olba'da cam kullanımının buluntularla kesinleşmesine karşın, kentte cam üretimini gösteren herhangi bir veriye bugün sahip değiliz. Ancak, Kilikia genelinde cam yapımına ilişkin bulguların varlığı, Olba'da da belli bir üretimin gerçekleşmiş olabileceğini düşündürmektedir.

The ancient site of Olba (Ura-Uğuralanı in Mersin, Silifke) is located 4 km. east of Olba Diocaesarea (Uzuncaburç) in Rough Cilicia. An archaeological survey at the site in 2001 season produced fragments of ancient glass along with other surface finds such as pottery, metal and stone<sup>1</sup>.

The glass finds from Olba come mainly from the acropolis of the town (Kale Tepe) which is approximately 1000 m. above sea level. The acropolis must have been fortified since the Hellenistic period and continued to be inhabited during the Roman, Late Antique and Byzantine periods.

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<sup>1</sup> For the results of 2001 survey at the site see: Erten 2003.

The glass from Olba survey can be studied under the following typologies:

1. Moulded bowl fragments
2. Goblet Fragments
3. Lamp Fragments
4. Window Glass Fragments

### **1. Moulded Bowl Fragments**

During the formation of a common Greek culture in the ancient world after the conquests of Alexander the Great, a certain change took place in the production techniques and appearances of glass vessels. Notable was the re-introduction of moulded glass vessels as a branch of a purely Hellenistic style. In addition to the moulded bowls, traditional core formed glass vessels continued to be produced in the same period.

Archaeological finds revealed a lively glass industry in the Syro-Palestinian region during this same time. Hellenistic moulded vessels are mainly bowls; the main center of production in the east is Tel Anafa in the Upper Galilee in Palestine<sup>2</sup>. However, a number of examples of moulded bowls are recorded in many regions and sites both in the east and west including Asia Minor and Cilicia<sup>3</sup>.

According to the classification done by D.F. Grose, based on the finds from Tel Anafa four main groups of moulded bowls were established. They were named: “grooved” (group A), “fluted” (group B), “ribbed” (group C) and “linear-cut” (group D) bowls<sup>4</sup>. The finds from Olba can be placed in the groups of “grooved” and “ribbed” bowls.

The grooved type was begun to be produced in the mid 2<sup>nd</sup> century B.C. and continued to be seen in the contexts of the 2<sup>nd</sup> and 1<sup>st</sup> centuries B.C. They are either golden brown (amber) or olive green in colour and usually

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<sup>2</sup> Weinberg 1970, p.17-27.

<sup>3</sup> For the geographical distribution of moulded bowls see: Stern 1994, p.284-285, 294-295, Erten 2002, p. 98, n.5.

<sup>4</sup> Grose 1979, p.54-67.



hemi-spherical or conical shaped. The horizontal groove on the inside below the rim is characteristic decoration for Group A bowls.

Along with Type A (grooved) bowls, some fragments of Group C (ribbed) bowls were recorded during the survey in Olba (fig. 1-2, 11 a-e). Ribbed bowls are known as the “most common form of cast tableware made by the later Hellenistic and Early Roman glass factories”. They also show the widest geographical distribution compared with the other types of moulded bowls. Grooved bowls had previously been recorded among Cilician finds<sup>5</sup> and therefore it was not surprising to discover them in Olba.

Ribbed bowls have a larger variety of colours than grooved bowls: natural light green, bluish green or even dark blue and purple<sup>6</sup>. Olba fragments of ribbed bowls are bluish green, white opaque and purple in colour.

The Hellenistic-Early Roman glass bowl fragments recorded during the survey of Olba in 2001 are important for providing direct evidence for the early residential history of the site going back to the Hellenistic period. Before the survey, the only material evidence for early settlement at Olba were coins or architectural remains. The dating evidence provided by these glass finds seems to be confirmed by the pottery fragments found in Olba during the 2001 working season.

## 2. Goblet Fragments

Glass goblets of various body, stem and base forms were produced throughout the Roman world from A.D. 4<sup>th</sup> century onwards<sup>7</sup>. They may have hemispherical, conical, bell-shaped or cylindrical bodies. The stems are either cylindrical or knobbed; massive or hollow. The stems provide the connection between the body and disc-shaped base of the goblet.

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<sup>5</sup> Stern 1984, p.134; Stern 1989, p.597-598; Erten Yağcı 1999, p. 174, pl.36, fig. 7,8,9; Erten 2002, p.97-104.

<sup>6</sup> For the colouring of grooved bowls see: Grose 1989, p.194.

<sup>7</sup> Stern suggests a later date for the glass goblets from the eastern findspots: from A.D. mid 5<sup>th</sup> century to A.D. 7<sup>th</sup> century. For the geographical distribution of glass goblets see: Isings 1957, Form 111; Whitehouse 1997, p.103; Stern 2001, p.310-311, cat. nos.173-174; Glass goblets from Anatolia: von Saldern 1980, p. 53-60, nos.300-373, pl.12,24; Stern 1985, p.44-46; Stern 1989, p.604, fig.18; Acara-Olcay 1998, p.255, fig.3; Olcay 2001, p.86-87.

Like the glass lamps of the same time, stemmed goblets are typical finds for the Late Antique and Byzantine residential areas, including churches, synagogues, and houses. As they were not grave gifts but the vessels of common use, the intact examples are rather rare. It is usually accepted that the goblets were used not only as drinking vessels but also as lamps<sup>8</sup>. It was suggested that the lamps were lit by means of oil floating on water<sup>9</sup>. In the site of the Necropolis Church at Anemurium at least seven wick bronze wick holders were recovered<sup>10</sup>. Corks, metal wick holders in the shape of a strip of bronze bent were used for the setting of cotton wicks<sup>11</sup>.

The goblets discovered in Olba during our 2001-survey confirm the presence and use of glass goblets in Cilicia (fig.3-4, 12 e-i). Most of the fragments belong to the disc-shaped feet and were made of bluish-green glass. The feet were folded to form a hollow tube at the edges, similar to the Anemurium Necropolis Church examples<sup>12</sup>. In the region, many findspots yielded glass goblets. For example, in Alahan, the glass goblets found were dated to A.D. 5<sup>th</sup> century<sup>13</sup>. Anemurium Necropolis Church excavations produced many glass goblets dated to A.D. 400-660 according to the archaeological evidence at the site<sup>14</sup>. In addition to this, in the collections of the Adana and Hatay Museums there are many glass goblets probably discovered at Cilician findspots<sup>15</sup>.

### 3. Glass Lamp Fragments

Another typical form of the Late Antique Period is the glass lamp. It appears in many forms and varieties and had been classified based on the examples of several findspots<sup>16</sup>. Glass lamps could have conical,

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<sup>8</sup> Stern 1985, p.44. For the use of goblet lamps for lighting see: Olcay 2001, p.86-87.

<sup>9</sup> Crowfoot-Harden 1931, p.207.

<sup>10</sup> Stern 1885, p.44, n.44.

<sup>11</sup> Russell 1982, p.149-150.

<sup>12</sup> Stern 1985, p.46.

<sup>13</sup> Williams 1985, p.52-53, fig.10.

<sup>14</sup> Stern 1985, p.36.

<sup>15</sup> Adana Museum: Stern 1989, p.604-605, fig. 18; Hatay Museum: Erten Yağcı 1990, p.34, 108.

<sup>16</sup> Crowfoot-Harden 1931, p.196-208, pl.xxviii-xxx.; Olcay 2001, p.77-87.

semi-spherical, bell-shaped bodies with a stem. Lamps in the form of a bowl with a concave base and handles are also traceable in the contexts.

During the Olba survey, some glass fragments which could safely be identified as “lamps” were found. The majority of these pieces were hollow stems used for placing into the holes of bronze polycandela (fig. 5, 12 a-d). Along with the stemmed type, some fragments confirm the presence in Olba of the lamp type with handles (fig.6, 12 j). The use of metal polycandela and glass lamps together has been attested by the excavation finds from Sardis, Myra (Demre) St. Nicholas Church<sup>17</sup> and Anemurium.

In addition to the material finds, there is literary evidence for the use of glass lamps and polycandela<sup>18</sup>. Paulus Silentarius describes the opening ceremony of Hagia Sophia by Iustinianus in A.D. 563 in his account called “*Descriptio Sanctae Sophiae*”. Silentarius gives information about the illumination of the church by glass lamps placed inside the silver discs suspended by chains<sup>19</sup>.

Apart from the glass fragments which could easily be identified as lamps or goblets, many glass vessel pieces were found on the surface during the archaeological survey in Olba. Some of them have decorations that can form evidence for dating such as the fragments with snake-thread decoration or blue dots (fig.7-8, 12 k). These pieces, especially the one with blue dot decoration either belong to a glass lamp<sup>20</sup> or demonstrate contemporary use (or even production) glass goblets and lamps in the Late Antique and Early Byzantine period.

#### 4. Window Glass Fragments

The use of glass window panes was not uncommon in the Roman world especially in public baths.. The earliest recorded examples come from the western centers such as Pompeii or Wales<sup>21</sup>.

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<sup>17</sup> Acara-Olcay 1998, p.29-31.

<sup>18</sup> Olcay 2001, p.77-78.

<sup>19</sup> Crowfoot-Harden 1931, p.200.

<sup>20</sup> For glass lamps with blue dot decoration see: Stern 2001, p.293, 294, 296, cat. nos. 157-159. These three examples are in a private collection and without recorded findspots. They have been attributed to the Eastern Mediterranean, Syro-Palestinian region or Egypt and dated to the A.D. 4<sup>th</sup>- 5<sup>th</sup> century.

<sup>21</sup> Kisa 1908, p.262-265; Boon 1966, p.41-45; Calvi 1968, p. 174-175.

In the context of baths the term “thermal window” was used for a common window type of semicircular shape, for illuminating the large vaulted halls of Roman baths<sup>22</sup>. In the Forum Baths in Pompeii, Taurine Baths in Civitavecchia, and Hadrianic Baths in Lepcis Magna a number of glass panes were found. Further to the east, in the Hadrianic Baths at Isthmia, in the baths at Samos, Pergamon and Arycanda there is material evidence for the presence of glass window panes<sup>23</sup>. With the exception of Pompeii, most of these finds belong to the A.D. 2<sup>nd</sup> and 3<sup>rd</sup> century baths. Likewise, excavations in Sagalassos yielded some fragments of window glass dated to the first three centuries A.D.<sup>24</sup>

Diocletian’s edict on the maximum prices issued in November/December 301 is an important document recording the prices of glass in the Roman Empire<sup>25</sup>. In the edict, two different prices, one for the best quality and another for the second quality window glass were given. This reveals the wide use of architectural window glass, i.e. spec (u) laris throughout the Roman world<sup>26</sup>.

The use of glass window panes in secular and religious buildings such as churches and synagogues must have expanded in the course of time, from Roman through the Late Antique and Byzantine periods. As well as in Greece<sup>27</sup>, in Anatolia, it was reported that great quantities of window glass were found in Sardis in the Byzantine Shops and in the areas near the synagogue and gymnasium<sup>28</sup>. The window glass fragments recorded in Sardis were dated to the period between the early 5<sup>th</sup> and early 7<sup>th</sup> century. From the Necropolis Church at Anemurium some fragments of window glass were discovered. They belong to the time when the church was in use in between A.D. 400 and 660<sup>29</sup>. This dating suggests a contemporary use

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<sup>22</sup> Yegül 1992, p.494.

<sup>23</sup> Yegül 1992, p.469, n.85.

<sup>24</sup> Lightfoot 1993, p.185.

<sup>25</sup> Erim 1971, p.171-177; Erim-Reynolds 1974, p.99-110.

<sup>26</sup> Stern 1999, p.460.

<sup>27</sup> Kourkoutidou 1984, p.277-296.

<sup>28</sup> von Saldern 1980, p.91-92, nos.682-699, pl.16.

<sup>29</sup> Stern 1985, p.48-50.

of window glass in Sardis and Anemurium. In addition to these, excavations at the Saint Nicholas Church in Myra (Demre) yielded window glass fragments<sup>30</sup>.

There are many methods suggested for the production of glass window panes such as casting, blowing into a cylinder (muff technique) or the crown method. The muff technique seems one of the most common for Roman glass and is based on the process of blowing into a cylinder, cutting it open and placing on a flat surface. It is not clear when or where this process was invented but there are recorded examples from Italy, Greece (Corinth) and Britain<sup>31</sup>.

About the 4<sup>th</sup> century A.D. , the crown method was introduced to glass technology, probably in the east. The earliest crown glass specimens were discovered in Jerash and Samaria<sup>32</sup>. From Asia Minor, there are window glass fragments produced in the crown technique recorded in the excavations at St. Nicholas Church in Myra (Demre)<sup>33</sup>. It was also reported that examples of the same type were found in the Pammakaristos Church (Fethiye Camii) in İstanbul and Kubadabad Palace in Beyşehir<sup>34</sup>.

The Olba window glass panes appear to be produced in the muff technique (fig. 9-10). They have an average thickness of 2.5 - 3 mm. and were made of bluish-green glass with a number of oblong and pinprick bubbles. There are also some fragments of olive-green glass pane fragments.

The glass window pane fragments found during the Olba survey are important for providing additional evidence for the use of glass panes in Rough Cilicia which was known to us from the Anemurium finds<sup>35</sup>. Olba

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<sup>30</sup> Acara-Olcay 1998, p. 256-257.

<sup>31</sup> Harden 1961, p.43.

<sup>32</sup> Haarden 1936, p.91; Harden 1961, p.40; for a more recent publication on window glass from Jerash see: Meyer 1982-1985, p.218; for a survey of "windows" in the east see: Engle 1987, p.79-95 (it was suggested by Engle that the crown glass was produced in Palestine as early as A.D. 2<sup>nd</sup> century : Engle 1987, p.81).

<sup>33</sup> Acara-Olcay 1998, p.256-257, res.7 and res.9. It was reported that there were no examples of this type in the Early Byzantine contexts in Sardis but some fragments datable to the Middle Byzantine period were found: von Saldern 1980, p.91, n.116.

<sup>34</sup> Acara-Olcay 1998, p.257.

<sup>35</sup> Stern 1985, p.48-50, fig.5

window glass fragments were found in the residential areas on the acropolis and its slopes, as well as down on the plain outside the fortifications. Judging from the lamp and stemmed goblet fragments found at the site, their production technique and parallels recorded in the above-mentioned sites, it can be possible to suggest the use of glass window panes at the site from Roman to the Late Antique and Early Byzantine periods.

### Conclusion

An overall chronological study of the Olba 2001 glass finds reveals that there is a concentration of material in the Hellenistic-Early Roman and the Late Antique-Byzantine periods. Surprisingly, there is a gap during the Roman Imperial period although that was the time when wide and important building activities took place at the region. We can offer an explanation to this unusual condition: Even though the technique of glassblowing was invented in the east, somewhere along the Syro-Palestinian coast, the superiority of glass production soon passed to Italy and the west. Sidonian glassworkers who migrated to Rome, Campania and Aquileia perfected the art of glassblowing in Italy<sup>36</sup>. It was only after the A.D. 3<sup>rd</sup> and 4<sup>th</sup> centuries that the art of glass was re-established and flourished again in the eastern Mediterranean.

Glass finds attested by our first year of survey at Olba are fragmentary and not in large quantities. Yet, they are still important for illuminating the living standards and daily life of a Cilician town. Our survey leaves no doubt that the inhabitants of Olba were not unaware of fashions in glass from the earliest years of their settlement during the Hellenistic period. They were probably importing moulded glass bowls from the Syro-Palestinian region and elsewhere in Cilicia and were either giving them as grave gifts or using them in their daily life. Later in the Late Antique and Byzantine period they were living in houses with glass windows, lit by the glass lamps in the evenings, enjoying their drinks in glass goblets or beakers.

We have as yet no concrete evidence for the production of glass at Olba except for a few miserable amorphous pieces of glass discovered during the survey. However, there are clear archaeological and epigraphical indications that glass was manufactured in the larger Cilician region.

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<sup>36</sup> Stern 1999, p.443-444.

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Fig.1 Bowl Fragments from Olba

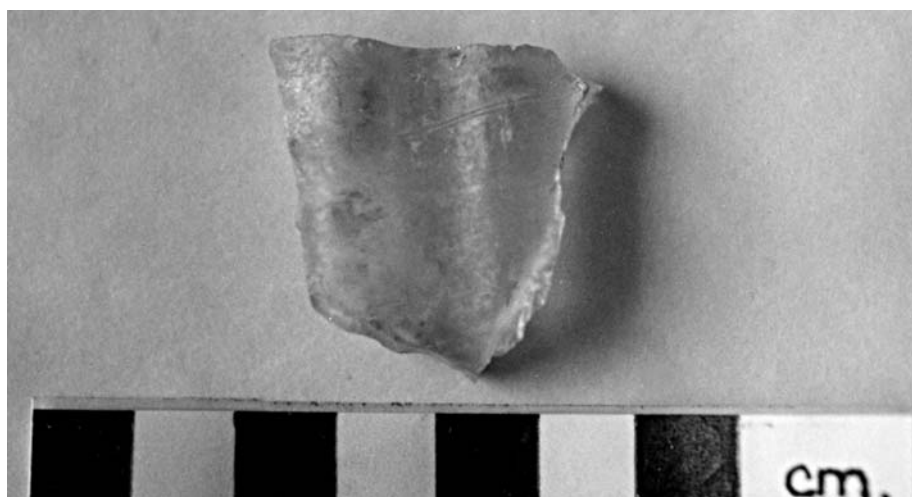


Fig.2 Ribbed Bowl Fragment from Olba



Fig.3 Goblet Bases from Olba

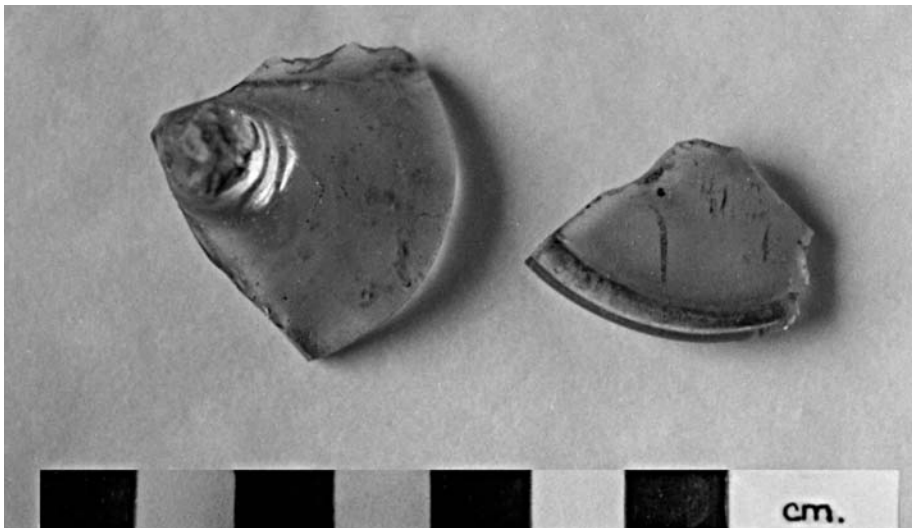


Fig.4 Goblet Bases from Olba

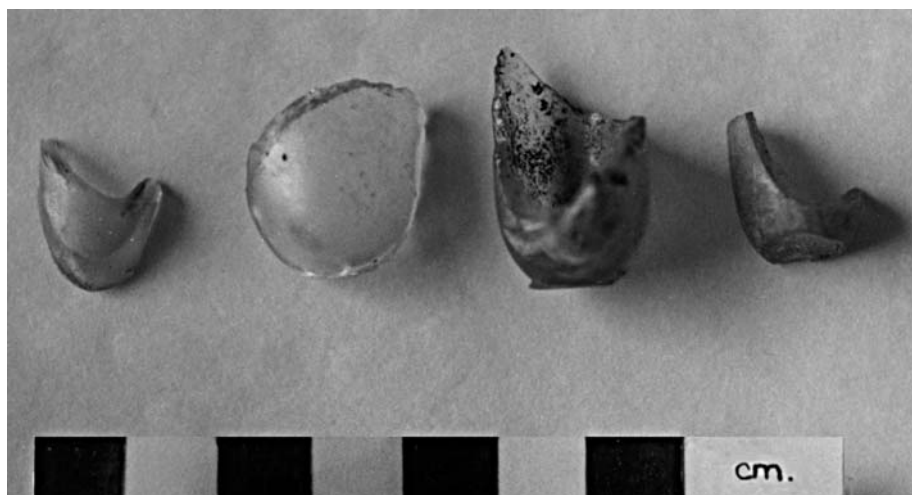


Fig. 5 Lamp Stems from Olba



Fig. 6 Lamp Handle from Olba



Fig. 7 Vessel Fragments with thread decoration from Olba

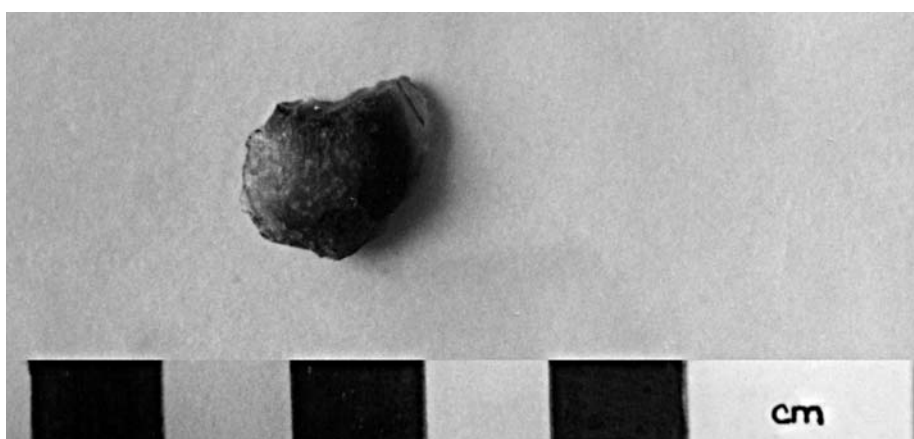


Fig.8 Vessel Fragment with blue-dot decoration from Olba



Fig. 9 Window Glass Fragments from Olba

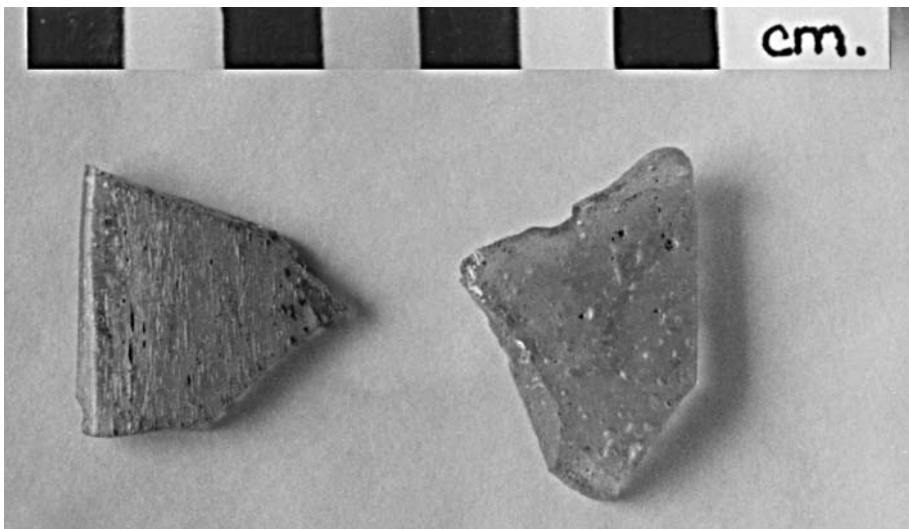


Fig. 10 Window Glass Fragments from Olba

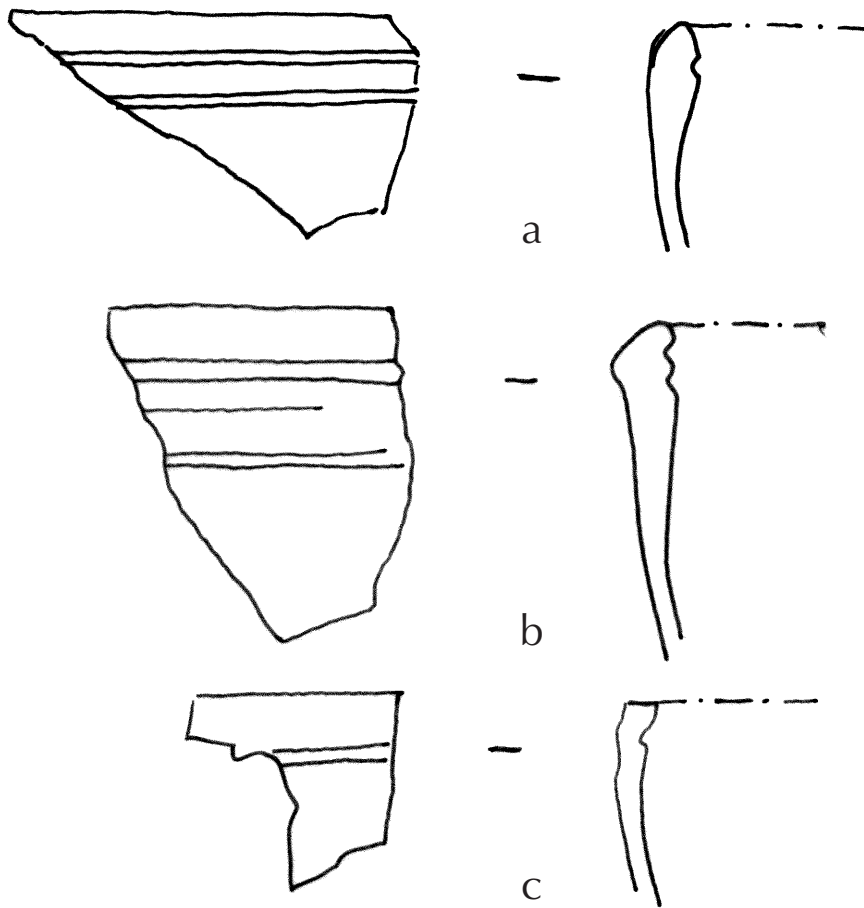


Fig.11 a-c Grooved Bowl Fragments from Olba

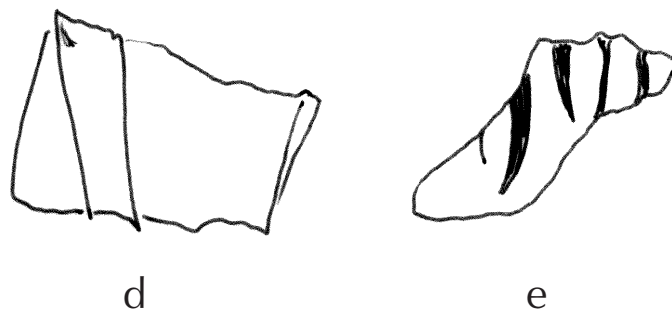


Fig.11 d-e Ribbed Bowl Fragments from Olba



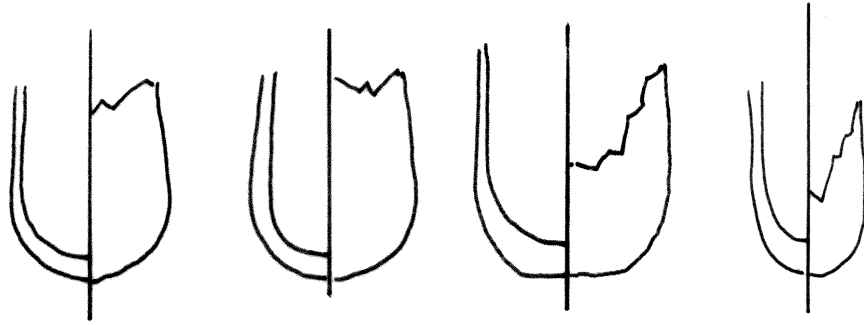


Fig.12 a-d Lamp Stems from Olba

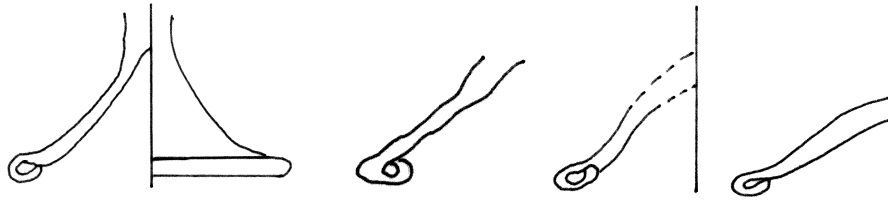


Fig.12 e-h Goblet Bases from Olba

Fig.12 i  
Goblet Stem  
from Olba



Fig.12 j  
Lamp Handle  
from Olba

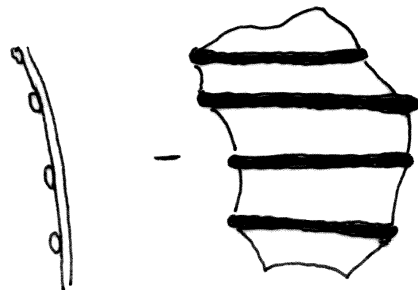
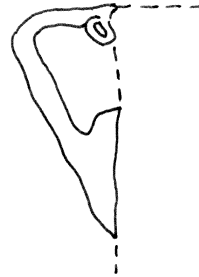


Fig.12 k Vessel Fragment with snake-thread decoration from Olba