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# The glass finds from Rua da Judiaria, Almada, Portugal (12th-19th century)

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## A B S T R A C T

The glass assemblage found in the archaeological excavation at Almada, Rua da Judiaria, between 1992 and 1994, includes a variety of objects that span at least eight centuries of glassmaking. The typology of the glass is most typical of European production of their time, and most of them may be compared with finds from other Portuguese sites. However, the presence of some new items makes this assemblage particularly interesting, and the group of glasses attributed to 15th-century contexts allows us to predate the presence in Portugal of types hitherto known from 16th-century sites in Lisbon, Coimbra, Sintra, and Tomar. The assemblage as a whole shows either the early importation of objects from abroad (probably Italy or France) or the local reproduction of exotic models. Some objects, analysed from a formal point of view, may indicate local production.

## R E S U M O

As escavações arqueológicas levadas a cabo em Almada, na Rua da Judiaria, pelo Museu Municipal, nos anos 1992-1994, permitiram pôr a descoberto um conjunto de estruturas de ocupação associadas a materiais dos séculos XII a XX. Do espólio resgatado, salienta-se um grupo de objectos de vidro datáveis a partir do século XII. Trata-se em grande parte de copos e garrafas em vidro soprado, de forma e decoração variada, encontrando-se também frascos e peças de outro género. O estudo deste conjunto oferece a oportunidade de identificar tipos ainda não documentados em Portugal, assim como de antecipar a cronologia de formas já conhecidas em épocas posteriores, permitindo lançar hipóteses sobre as importações e a produção de vidro no País.

## 1. Introduction

The town of Almada is on the River Tagus, opposite Lisbon (Fig. 1).

Excavations at Almada have revealed continuous occupation from the late Neolithic, to the Bronze Age, Iron Age, Roman epoch and Islamic to Medieval periods.

The site in the Rua da Judiaria is located in the old part of the town (*Almada Velha*), and was excavated between 1992 and 1994 by a team from the *Museu Municipal de Almada* (MMA). The exca-

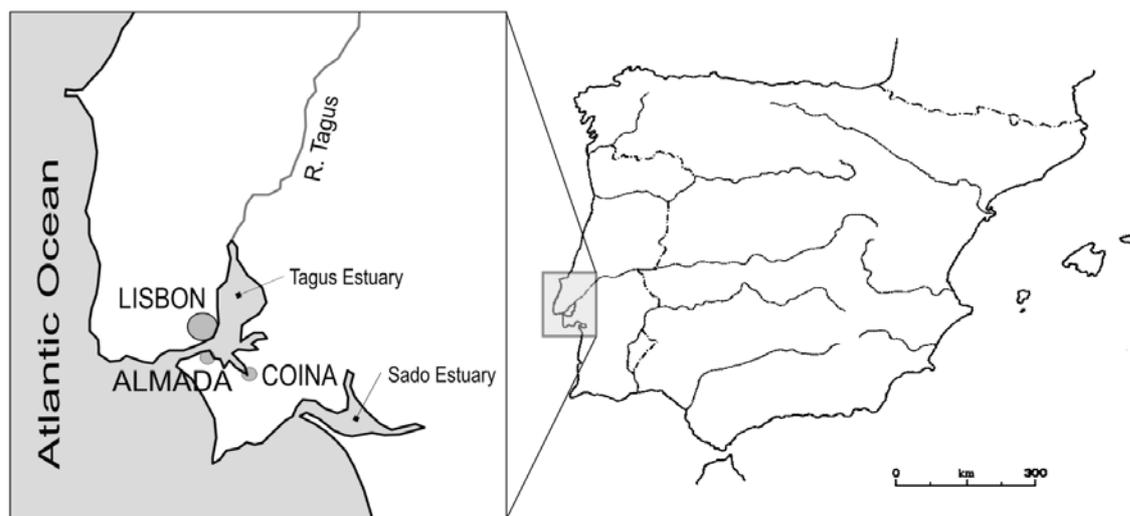


Fig. 1 Location of the town of Almada.

vation yielded an important medieval and post-medieval record. The site is now part of the museum and is open to the public.

The first phases of occupation at the site are represented by 26 pits which had been carved in the bedrock in Islamic times. They were probably used from the 12th to the 15th century, and then sealed in 15th century, when the area was restructured for the building of new dwellings. These were short-lived, as they were abandoned during 16th century, when the whole area began to function as a courtyard which was subsequently covered with a large deposit of 16th- to 20th-century rubbish.

A wide range of materials was recorded on the site: Chinese, Italian, Spanish and Portuguese pottery, glass objects, coins, etc. (Barros, 2000; Barros and Henriques, 2003).

## 2. The glass objects

More than 1200 fragments of glass were collected at Rua da Judiaria from pits and rubbish deposits. Among them, it was possible to recognise the shape of about 400 objects. Few of the estimated 800 wall fragments, however, could be assigned to any particular shape.

Most of the vessels are free-blown and some have mould-blown decoration and pontil marks.

The fragments are mainly made of colourless transparent glass, sometimes with a blue, green or yellow tinge. Another prevalent colour is green, in shades ranging from blue green, light green, dark green to olive green. A few fragments are light blue, yellow, purple or red. Opaque black or white glasses are also present.

In some cases, it is not possible to determine the colour and quality of the glass due to weathering and corrosion.

In describing the glass finds, a chronological series is adopted; since the complete results of the excavations are still unpublished, the chronological framework used here is based upon the report submitted by the field director, Luís Barros (*MMA*).

### 3. 12th to 14th-century contexts

The first evidence of glass on the site is related to the more ancient levels found in the pits n. 2, 3, 6 and 17, dating from the 12th to the 13th/14th century.

They comprise four small fragments of walls of undefined objects, one of them with mould-blown pattern of ribs (cat. no. 13, SL. 2 c.2; cat. no. 14, SL. 3 c.1; cat. no. 42, SL. 17 c.1; cat. no. 23a, SL. 6 c.5<sup>2</sup>). The original glass was probably colourless, but it is now completely affected by strong enamel-like weathering.

### 4. 14th/15th-century contexts

At the end of the 14th century, a beaker with applied pinched thread makes its first appearance. It is represented by three small fragments of walls (Fig. 2.1-2).

Threads are common on European beakers (see for ex. *A travers le verre*, 1989, p. 264-265, nos. 262, 263, 265; Liefkes, 2000<sup>2</sup>, p. 39-41) or goblets (see for ex. Tyson, 1996, p. 335-338, figs. 2.1, 4.1, 4.2) dating from 13th to 16th century and onward. Something very similar has been found in Mediterranean France at Rougiers, dated to the end of the 13th century (Démians D'Archimbaud, 1980, p. 535, fig. 493, nos. 4-5; *A travers le verre*, 1989, p. 392-393, no. 23). In Germany, beakers with similar threads are supposed to be part of the first local production during the 13th-14th centuries (Baumgartner and Krueger, 1988, p. 180).

Fig. 2.1, cat. no. 49, SL. 21, c.7: fragment of the wall of a beaker with applied pinched thread; colourless; strong weathering; d. 70 mm.

Fig. 2.2, cat. no. 39, SL. 12, c. 2: fragment of the wall of a beaker with applied pinched thread; light green, with rare small bubbles. Of the same type: cat. no. 38, SL. 12, c. 1, colourless; weathering.

### 5. 15th-century contexts<sup>3</sup>

The 15th-century contexts yielded a group of glass items that is most typical of European production of this period, such as the cylindrical beaker with mould-blown decoration, the goblets with pushed-in base, the bottles with kicked base, and the decoration with opaque white diagonal trails applied on the surface (Figs. 2 and 3). These types are known from other Portuguese sites dated to the 16th century onwards; however, the decoration with blue trails, appearing here on two goblets, has never been described before in Portugal, as well as the painted (gilded?) goblet (Fig. 2.12-14).

Glass was not used only for tableware: urinals and window glass are also present (Fig. 4).

#### 5.1 Beakers

##### 5.1.1 Beakers with applied pinched thread

Two different types of beakers with applied pinched thread are recorded at the site.

The fragment of Fig. 2.3 (cat. no. 15) is comparable to the type of beaker found in the previous period.

Five more fragments of bottom and walls show a flatter larger pinched thread (cat. nos. 28, 157, 158, 159, 160); no. 158 (Fig. 2.4) suggests a concave bottom and slightly concave wall.

All these fragments are made of a very similar kind of glass, and, apart from cat. no. 28, they came from the same context.

This type of thread seems similar to the German and the Bohemian production of the 15th/16th century (see for ex. Hejdová and Nechvátal, 1970, nos. 13 and 40, dated to the first half of 15th century; Vávra, 1954, nos. 99-100, dated to 16th century; Baumgartner and Krueger, 1988, p. 289, no. 328; nos. 402 and 436, p. 333-356; no. 472, p. 379; no. 483, p. 387).

In Portugal, the presence of this kind of threads is documented at Évora (Ferreira, 2000c, fig. 5.4).

Fig. 2.3, cat. no. 15, SL. 4, c.1: fragment of the base of a beaker with applied pinched thread; light green; many small bubbles; d. 60 mm.

Cf.: the glass is very similar to cat. no. 39 (see above, Fig. 2.2).

Fig. 2.4, cat. no. 158, SD 7/2, c. 3: fragment of the base of a beaker with large and flat applied pinched thread; colourless; heavy weathering, d. 60 mm. Of the same type, four fragments of wall (cat. nos. 157, 159, 160, SD 7/2, c. 3; cat. no. 28, SL. 8, c.1), colourless or colour impossible to determine, due to heavy weathering; d. 60 and 80 mm.

### 5.1.2 Cylindrical beakers

Some fragments of bottoms and walls belong to cylindrical beakers, two of them with mould-blown decoration of ribs in very low relief (Fig. 2.5-6).

This kind of beaker, with concave or pushed-in base, showing most of the time different patterns of mould-blown decoration, is one of the most common drinking vessels known from medieval and post-medieval excavations in Europe. It has been used from the end of the 13th century onward in Italy (Mendera, 1990, p. 308; Stiaffini, 1991, p. 232, 248-250) and France (*A travers le verre*, 1989, p. 222, 255-256; Barrera, 1990, type 4, fig. 3, nos. 8-11), but it appears also in Germany (Baumgartner and Krueger, 1988, p. 229, figs. 218-219), Holland (Isings and Wijnman, 1977, fig. 2.6-7) and Spain (Mesquida Garcia, 1996, fig. 64, p. 130, dated to the 16th century).

There is evidence for the production of these beakers in various Mediterranean factories during the 14th century, in France (La Seube, Rougiers, Cadrix: Démians D'Archimbaud, 1980, p. 537-538, figs. 496-498; *A travers le verre*, 1989, p. 222) and Italy (Murano, Bologna, Imola, Gambassi: Mendera, 1990, p. 308-309, with references; Monte Lecco: Fossati and Mannoni, 1975, p. 64-65, nos. 74-75).

In Portugal, its presence is documented at Coimbra, from contexts dated to the 17th century (undecorated from the excavation near the University: Ferreira, 1993, p. 422, fig. 1.3; with mould-blown pattern of ribs from S. Clara-a-Velha: Ferreira, 2004, fig. 2 d-e).

Fig. 2.5, cat. no. 16, SL. 4, c. 1: fragment of the bottom and part of the wall of a beaker, with mould blown pattern of ribs in very low relief; colourless; rare small bubbles, sometimes elongated; surface slightly opalescent, with yellow-green weathering; d. 60 mm. A fragment of rounded rim can belong to a similar beaker: cat. no. 487, SD 1, c.5, colourless.

Fig. 2.6, cat. no. 172, SD 7/2, c. 3: fragment of the pricked base and part of the wall of a beaker, with mould blown pattern of ribs in very low relief; colourless; many small and medium size bubbles; pontil mark; weathering; d. 50 mm.

Three more fragments of bases of beakers of the same type (cat. no. 27, SL. 8, c.1, colourless with yellow tinge, many small bubbles, d. 70 mm; cat. no. 173, SD 7/2, c. 3, colourless, pontil mark, strong weathering; cat. no. 559, SD 1. c. 5, yellow, many bubbles).

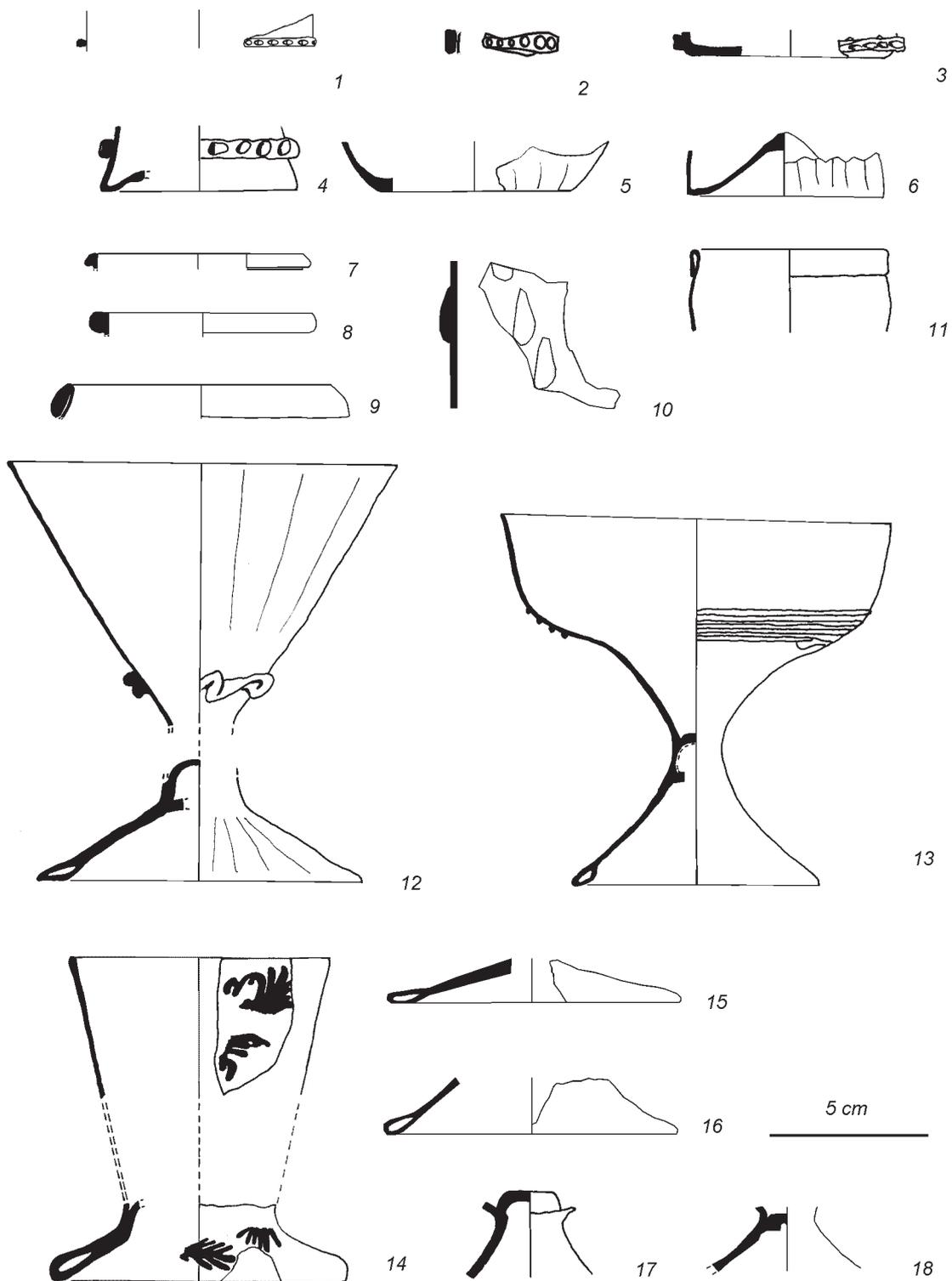


Fig. 2 1-2: Glass vessels from 14th/15th-century contexts. 3-18: Glass vessels from 15th-century contexts.

### 5.1.3 Beakers with rim underlined by applied trail

We can define two types of beakers with this characteristic.

In the first one, the applied trail is D-shaped (Fig. 2.7-8). The small size of the fragments prevents us from understanding the shape of the entire object. Both of the fragments are made of dark coloured glass, which is very rare among the Rua da Judiaria finds, but already known in Portugal (Ferreira, 2004, p. 545, with references).

In the other type, the applied trail is larger and flat, sometimes melted with the rim itself (Fig. 2.9). The mouth seems to be narrower than the maximum diameter of the vessel, that could also be a bowl.

Fig. 2.7, cat. no. 29, SL. 8, c.1: fragment of rim underlined by a D-shaped applied trail; opaque black; d. 65 mm.

Fig. 2.8, cat. no. 137, SD 6/2, c. 5: fragment of rim underlined by a D-shaped applied trail; transparent dark red; very strong weathering: the surface is dark grey, and in the core the glass is dark and flaked (the red colour appears only when looking through the fragment with a light behind it); d. 70 mm.

Fig. 2.9, cat. no. 384, SD 7/2, c. 3: fragment of rim and part of the wall, applied flat trail; colour impossible to determine, due to weathering and discoloration; surface flaked and corroded; d. 70 mm.

### 5.1.4 Beaker with mould-blown decoration of knobs

This mould-blown beaker is known in Italy, Belgium and Holland from the end of the 15th to the 17th century (*Corpus Pavia*, 2004, p. 100; Blanquart et al., 2001, p. 162-163, 232).

Fig. 2.10, cat. no. 501, SD 1, c. 5: fragment of thick wall with mould-blown pattern of pointed knobs; green; weathering.

Cf.: Italy: *Corpus Pavia*, 2004, p. 110, no. 88; *Mille anni*, 1982, p. 70 nos. 54-55, 15th-16th century; Belgium: Blanquart et al., 2001, p. 159, fig. 120, nos. 18-19; p. 228, fig. 181, no. 12, first half of 17th century; p. 357, fig. 311, no. 5.

### 5.1.5 Beaker (or bowl?) with outfolded tubular rim

Only one fragment of this type, with mould-blown pattern of vertical ribs, was found in the 15th century contexts. The body is ovoid. It could also be a bowl.

Fig. 2.11, cat. no. 139, SD 6/2, c. 5: fragment of the rim and part of the wall, with mould blown pattern of large vertical ribs in low relief on the wall; colourless; weathering; d. 50 mm

## 5.2 Goblets

The goblets with pushed-in base and tubular base ring are represented by three almost entire objects, and by several fragments of feet.

They differ in the shape of the bowl and the foot, and they are decorated with different techniques. It is worth noting that the decoration with blue trails, as well as the painted (gilded?) goblet, has never been described before in Portugal for glass of this period (preliminary report in Medici, 2005).

### 5.2.2 Goblets with blue applied decoration

The goblet cat. no. 99 (Fig. 2.12) has a large truncated-conical bowl and a low pushed-in base, while cat. no. 452, Fig. 2.13) has a shallow hemispherical bowl and a higher pushed-in base. The first one is decorated with a mould-blown pattern of ribs in very low relief and a blue frill, the second with applied spiralling blue trails. Both are made of a very similar thin glass, colourless with yellow tinge.

This kind of drinking vessel, the goblet with truncated-conical pushed-in base and tubular base ring, is very common in countries such as France and Belgium, from the end of the 15th century and during the 16th century, and it is often decorated with white trails or with a mould-blown pattern of ribs (see for ex. *A travers le verre*, 1989, p. 257). It appears also in Spain, in the Catalan production (Gudiol Ricard, 1936, photo no. 6, 15th century) and in Italy (see for example *Corpus Pavia*, 2004, nos. 100-116). In Portugal, this type of goblet is represented, in the archaeological record, by fragments of feet found at Coimbra and Tomar, dated from the 17th century onward (Ferreira, 1993, fig. 3,18; Ferreira, 1994, p. 122 no. 11, p. 124 no. 37).

The result of analysis made on similar goblets found in Paris during the excavation of the *cour Napoléon* of the Louvre, dating to the end of the 15th - beginning of 16th century, can indicate their importation (J. Barrera in *A travers le verre*, 1989, no. 268, p. 266-267, with references); a venetian origin of the type is indeed emphasised by various authors (besides J. Barrera quoted above, see Cini, 1985, p. 540-542; Pettenati et al., 1987, p. 409; H. Cabart in *A travers le verre*, 1989, p. 401).

The blue decoration is common in southern France, in the production of the ateliers of La Seube, Rougiers and Cadrix, from the end of the 13th century onward, on beakers, goblets, cups, flasks and bottles (Foy, 1985, p. 46-52; *A travers le verre*, 1989, p. 394-397); a peculiar type of decoration appearing on goblets, very rich in trails and frills making festoons, is supposed to have come from Italian glassmakers, from Altare, working in southern France during the 15th-middle of the 16th century (*A travers le verre*, 1989, p. 399-400).

The production of colourless glass with blue applied decoration is also known in Italy, at the Monte Lecco factory, dated between the end of the 14th and the beginning of the 15th century (Fossati and Mannoni, 1975, p. 62). In Italy, blue frills are more frequent on bottles and flasks, but they appear also on goblets, between 13th and 16th century (Whitehouse, 1981, p. 168-169; Medici, 2005, p. 234; see also Nepoti, 1978, p. 229, fig. 59,44, chronology uncertain between around 1500 or late 16th century).

In Portugal, no blue frills have hitherto been recorded: a colourless frill appears on a fragment of bottle found in Santarém (Ferreira, 2000b, no. 5), while red frills and blue trails were found at Coimbra (Ferreira, 2004, p. 544, Est.1.a, and p. 567, Fig. 10.e).

Although the provenience of the two goblets from Rua da Judiaria indicates a probable 15th century date, most of the comparisons refer to the end of the 15th - beginning of the 16th century.

Fig. 2.12, cat. no. 99 (MAH 2708 = RJ 323), SD 8/2 "caixa de esgoto": goblet with large truncated-conical bowl and a low pushed-in base, decorated with mould-blown pattern of ribs and an applied frill in opaque dark blue glass; colourless with yellow tinge; restored from various fragments; d. rim 120 mm; d. base 100 mm.

Cf.: France: *A travers le verre*, 1989, no. 295 p. 279-280, with mould-blown decoration and white trail on the rim (end of the 15th - beginning of the 16th century); North-west Italy: Pettenati et al., 1987, p. 414, no. 5, fig. 8; Ventura, 2001, p. 420, pl. 187 no. 1471.

Fig. 2.13, cat. no. 452 (MAH 2820 = RJ 324; MAH 9415 = RJ 1342), SD 8/2 “caixa de esgoto”: goblet with hemispherical bowl and pushed-in base, decorated with mould-blown pattern of ribs and applied spiralling blue trails; colourless with yellow tinge; restored from various fragments; d. rim 120 mm; d. base 76 mm.

Cf.: France: *A travers le verre*, 1989, no. 293 p. 278 for the rounded shape of the bowl, decorated with applied white trails (prob. 16th century); *A travers le verre*, 1989, no. 301, p. 282, for the rounded shape of the bowl, but with much richer decoration (end of the 15th century, supposed to come from an atelier of glassmakers from Altare who settled in Provence).

### 5.2.3 Goblet with enamelled decoration

The goblet cat. no. 453 (Fig. 2.14), with truncated-conical bowl and a larger pushed-in base, carries on the bowl and on the foot a badly preserved enamelled or painted decoration, perhaps gilded and representing vegetal patterns. The glass is dark green.

The enamelled decoration, derived from the Islamic tradition, characterises the Venetian production of the 13th to the beginning of the 16th century (*A travers le verre*, 1989, p. 190; Verità, 1995; Liefkes, 2000<sup>2</sup>, p. 43-44; Dorigato, 2002, p. 22). Venetian glassmakers are supposed to have been responsible for the spread of the technique out of Italy, as in France, Belgium and Germany<sup>4</sup>, during the 15th and the 16th century (Gaynor, 1991, p. 73-74; Liefkes, 2000<sup>2</sup>, p. 60), as well as Catalan enamelled glass develops due to the influence of Syrian and Venetian production (Carreras i Barreda, 2001, p. 145). In Portugal, the production of enamelled glass became common only during the first half of the 18th century, at the *Real Fábrica de Vidros de Coima*, where it was developed following the German manner (Custódio, 2002, p. 184-185).

The shape of the goblet from Rua da Judiaria seems to be common among goblets, enamelled or not, of the end of the 15th - beginning of the 16th century in France and Spain, while the poor preservation of the decoration prevents us from finding iconographic references.

Regarding the chronology, the provenience of this goblet indicates a 15th century date, whereas most of the comparisons refer to the end of the 15th-beginning of the 16th century.

Fig. 2.14, cat. no. 453 = MAH 9324 / RJ 1256, SL 8, c.3: goblet with truncated-conical bowl and a pushed-in base; badly preserved enamelled or painted decoration – perhaps gilded – on the bowl and on the foot; dark green.; rare big bubbles; h. 100 mm, d. rim 80 mm, d. base 90 mm.

Cf. for the shape: France: *A travers le verre*, 1989, no. 266 p. 265, first half of the 16th century; no. 267 p. 266, end of the 15th century; no. 268 p. 266-267, end of the 15th - beginning of the 16th century; no. 312, p. 295-296, enamelled, 16th century, supposed to be made by an “Italian artist”; no. 322 p. 299, enamelled, 16th century?; Spain: Carreras i Barreda, 2001, p. 144, fig. 1, Catalan production, ca 1500; Mesquida Garcia, 1996, lám. X, first photo on the left, first half of 16th century. Small enamelled glass fragments are recorded at Coimbra, dated to the end of 16th/17th century (Ferreira, 2004, p. 544, Est.1.f-g).

### 5.2.4 Bases and bowls of goblets

In addition to the better preserved goblets, several fragment of feet, most of them with pushed-in bases and tubular base ring, free-blown or with a mould-blown pattern of ribs, are recorded (Fig. 2.15-18), together with two fragments of disk-shaped foot.

Four more pieces are probably parts of bowls of goblets. One of them shows a typical venetian decoration, with white trails fused into the colourless surface (Fig. 3.20); common in France and Spain during the end of 15th-16th century (Barrera, 1990, fig. 4, 13 and 16, fig. 5, 17-18; Mesquida Garcia, 1996, lám. X), this type of decoration characterise the *façon de Venise* production, for exam-

ple at Amsterdam, starting around 1600, and in Catalonia (Bart, 1991, p. 424-425; Carreras i Barreda, 2001, p. 148). It is known in Portugal at Coimbra, Lisbon and Sintra from 16th-17th-century contexts (Ferreira, 1993, fig. 3, 15, 2003, nos. 18-19, 1997, pl. I., n. I.2, 2004, p. 562-563).

Fig. 2.15, cat. no. 32, SL 8, c.3: fragment of pushed-in base, with tubular base ring; colourless, surface dark grey with blue tinge because of weathering; d. 90 mm. Five more fragments of the same type, colourless, green or with colour impossible to determine due to strong weathering; recorded d.: min 60 mm, max 100 mm (cat. nos. 437, 76, 80, 174, 31; SD 1 c. 5, SD 6/4 c.4, SD 7/2 c.3, SL 8 c.3).

Fig. 2.16, cat. no. 138, SD 6/2, c. 5: fragment of truncated-conical, pushed-in base, with tubular base ring; colourless with yellow tinge; d. 90 mm; restored from two fragments.

Fig. 2.17, cat. no. 77, SD 6/4, c. 4: fragment of pushed-in base; colourless.

Fig. 2.18, cat. no. 22, SL 6, c. 3: fragment of base, with mould-blown pattern of ribs; yellow, with elongated bubbles; d. 70 mm; pontil mark;

Cat. no. 304, SD 1, c.5: fragment of disk-shaped foot, with thickened rim; colourless; weathering and flaking; d. 70 mm.

Cat. no. 311, SD 1, c.5: small fragment of disk-shaped foot, with thickened rim; colourless; weathering.

Fig. 3.19, cat. no. 176, SD 7/2, c.3: fragment of a bowl of goblet with mould-blown pattern of diagonal ribs; colourless with small elongated bubbles; d. 110 mm.

Fig. 3.20, cat. no. 388 = MAH 9416/RJ 1344, SD 10 and SD 1, c. 5: fragment of the rim and wall of a beaker or bowl of goblet, with opaque white diagonal trails; colourless with blue tinge; small rare elongated bubbles; weathering; d. 70 mm. More small fragments of walls supporting a decoration with opaque trails: cat. no. 177, SD 7/2, c. 3, with mould blown pattern of ribs and blue trails; cat. no. 167, SD 7/2, "cx. de esgoto".

Cat. no. 156, SD 7/2, c. 3: fragment of the bottom and part of the wall of a beaker or bowl of goblet; light blue; many small and medium-size bubbles; opalescent, corroded; d. 60 mm.

Cat. no. 50, SL 22: fragment of the thickened rim and the vertical wall of a beaker or bowl of goblet; colourless with yellow tinge; rare very small bubbles; wheel-polishing; weathering; d. 140 mm.

### 5.3 Bowls or plates

Only a few fragments of rims of bowls or plates have been identified, one of them made of opaque white glass (Fig. 3.23). Similar rims are recorded on bowls or plates both in Portugal and Italy during the 16th-17th centuries. Vessels in opaque white glass were blown at Murano starting from the second half of the 15th century (Moretti, 2002, p. 49).

Fig. 3.21, cat. no. 252, SD 1, c. 5 and SD 5, c. 3: fragment of the turned-over splayed rim of a bowl or plate; green, iridescence; d. 110 mm; restored from 5 fragments. Of the same type: cat. no. 438, SD 1, c. 5: prob. colourless; strong weathering; d. 110 mm; cat. no. 253, SD 1, c.5 e SD 5, c. 3: with mould-blown pattern of ribs; light green; weathering; d. 180 mm.

Cf.: Tomar (Ferreira, 1994, p. 122 no. 15 and p. 125 no. 43, 17th-18th century).

Fig. 3.22, cat. no. 441, SD 1, c. 5: fragment of the turned-over rim, folded to form a tubular ring, of a bowl or plate; colourless; weathering; d. 140 mm.

Fig. 3.23, cat. no. 171, SD 7/2, c. 3: fragment of the infolded rim of a bowl; opaque white; weathering; d. 110 mm.

Cf.: Genova, S. Silvestro monastery (Andrews, 1977, tav. XXXV, nos. 1550-1589); a cup in opaque white glass at Coimbra (Ferreira, 2004, p. 551, fig. 3.g).

Fig. 3.24, cat. no. 51, SL 22: plate with rounded rim and short truncated-conical wall, concave base; colourless, with white and brown weathering; d. 200 mm; restored from 2 fragments.

#### 5.4 Bottles

In view of the small size of the fragments recovered, the shapes of the bottles can only be tentatively reconstructed. The fragments of kicked bases and necks (Fig. 3.25-29) should belong to a type of blown bottle very common in Europe from the Middle Ages onwards, with narrow cylindrical neck and globular body, plane or with mould-blown decoration of ribs (see, for example, for France: Barrera, 1993, p. 366-369, from 13th to 17th century; for evidence of production and diffusion in Italy: Mendera, 1990, p. 309, fig. 7.17, 14th century; Fossati and Mannoni, 1975, p. 58, no. 11, and p. 64-65, no. 76; Stiaffini, 1996, p. 347-348; for Spain: Mesquida Garcia, 1996, lám. 68-70, p. 134-136, 16th century; for Germany: Baumgartner and Krueger, 1988, p. 419-420).

Two types of rim are recorded: splayed, or cut and underlined by an applied trail.

Several parallels are offered by Portuguese sites, dating from the 16th century onwards.

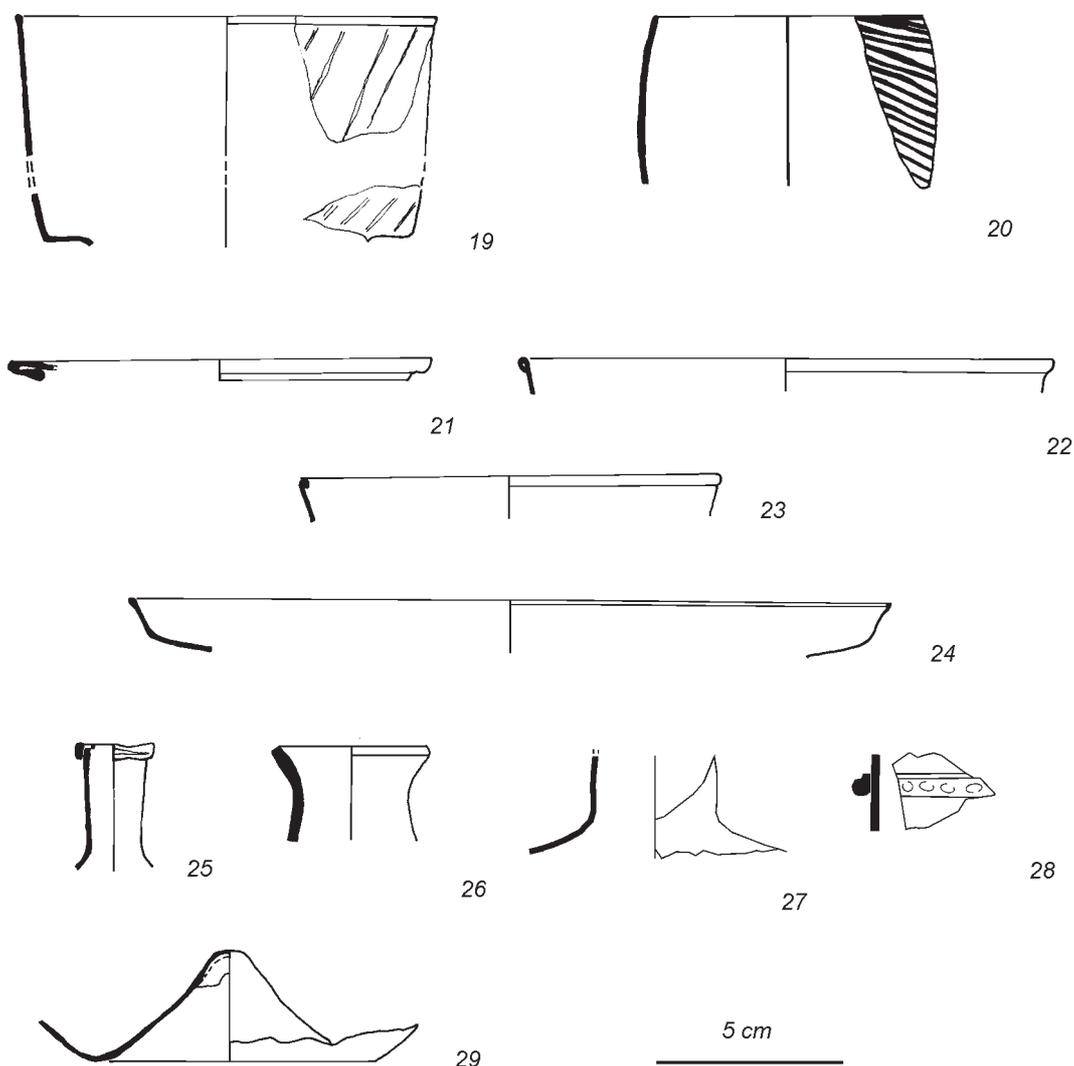


Fig. 3 Glass vessels from 15th-century contexts.

Fig. 3.25, cat. no. 395, SD 1, c. 5: fragment of the neck of a bottle, with cut rim underlined by an applied trail; colourless; many elongated vertical bubbles; iridescence; d. rim (internal) 13 mm. Of the same type: cat. no. 400, SD 1, c. 5, gray, iridescence and flaking, d. 18 mm.

Cf.: Coimbra and Santarém (Ferreira, 1993, fig. 4.24, 17th century; Ferreira, 2000b, n. 8).

Fig. 3.26, cat. no. 410 = MAH 9430/ RJ 1351, SD 10 and SD 1, c. 5: fragment of the neck of a bottle, with polished splayed rim; blue green, with many small rounded bubbles; iridescence; d. 40 mm; restored from two fragments.

Cf.: Pombal (Ferreira, 1989, fig. 4,10).

Fig. 3.27, cat. no. 1, SL 1, c. 1: fragment of the neck of a bottle, colourless with blue-green tinge, many small bubbles; weathering and flaking. Two more fragments of necks: cat. no. 4, SL. 1, c.2, colourless; weathering; cat. no. 89, SD 3 (N), c. 5, colourless.

Fig. 3.28, cat. no. 513, SD 1, c. 5: fragment of the neck of a bottle with applied pinched thread; green; flaking.

Fig. 3.29, cat. no. 52 = MAH 9432 / RJ 1353, SL. 22: fragment of the kicked base of a bottle, colourless; pontil mark; weathering and flaking; restored from 3 fragments; d. 75 mm. Six more fragments of the same type: cat. no. 338, SD 1, c. 5, light green, rare small bubbles, pontil mark, weathering, d. 60 mm; cat. no. 136, SD 6/2, c. 5, light blue, pontil mark, weathering and flaking, d. 90 mm; cat. no. 2, SL. 1, c.1, colourless with yellow-green tinge, mould-blown pattern of ribs, iridescence; cat. no. 24, SL. 8, c. 3, olive green with many small bubbles, mould-blown pattern of ribs, glass very well preserved, d. 60 mm; cat. nos. 507 and 548, SD 1, c.5, colourless and olive green.

Cf.: Santarém (Ferreira, 2000b, no. 11), Tomar (Ferreira, 1994, p. 124, nos. 31-33, 17th-18th century), Pombal (Ferreira, 1989, fig. 4,29), Sintra (Ferreira, 2003, nos. 45-59, 16th-18th century); Lisbon (Ferreira, 1997, plate 2, no. I,5, 17th century).

### 5.5 Handled vessels

A vessel with two handles, mould-blown pattern of vertical ribs on the body, and applied trail at the base of the cylindrical neck (Fig. 4.30), may be compared to a very similar object from Coimbra, S. Clara-a-Velha, dating from the end of the 16th century onwards (Ferreira, 2004, p. 547, fig. 2a).

Fig. 4.30, cat. no. 391 = MAH 9329/ RJ 1261, SD 5, c. 3 and SD 1, c. 5: vessel with two handles (preserved one), outfolded rim, vertical neck, globular body; mould-blown pattern of vertical ribs on the body, applied trail at the base of the neck; light yellow; d. rim 85 mm.

Fig. 4.31, cat. no. 451, SD 1, c. 5: vertical handle; colourless with yellow tinge; light white and brown weathering.

Fig. 4.32, cat. no. 450, SD 1, c. 5: vertical handle, made up of two glass trails placed one on top of the other, with more applied trails at the base; light green; light weathering.

Fig. 4.33, cat. no. 3, SL. 1, c.5: vertical handle, made up of a refolded glass trail; colourless with yellow-green tinge; light iridescence.

### 5.5 Other forms

Glass urinals (Fig. 4.34) are very common in Europe from the Middle Ages onward, due to the practice of examining urine for medical diagnosis. Their shape did not change much between 14th and 18th centuries (Barrera, 1993, p. 367-370; Tyson, 1996, p. 336; Stiaffini, 2004, p. 25). Nevertheless, we have to bear in mind that, without the entire object, rims similar to cat. no. 249 can also belong to other forms, like cups or jars.

A small fragment of window glass (cat. no. 5) lends support to the idea that in Portugal this kind of equipment was used from the 15th century onward (Custódio, 2002, p. 201); finally, a

number of small wall fragments, most of them with mould-blown pattern of ribs, cannot be assigned to any particular shape of object (cat. nos. 467 and 471).

Fig. 4.34, cat. no. 249 = MAH 9414/RJ 1342, SD 3, c. 4: fragment of the turned-over splayed rim and of the cylindrical neck of a urinal; colourless with yellow tinge; very few small bubbles; restored from 8 fragments; d. rim 115 mm. Of the same type: cat. no. 276, SD 1, c. 5: fragment of outsplayed thickened rim and cylindrical neck, colourless, weathering, d. 90 mm; cat. no. 560, SD 1 c.5: fragment of concave base, green, small bubbles.

Fig. 4.35, cat. no. 433, SD 1, c. 5: fragment of the truncated-conical neck of a small jar (may be a lamp?); yellow; rare bubbles; weathering, d. 90 mm. The reconstruction is based on the examples found at Coimbra.

Cf.: Many specimens found at Coimbra, S. Clara-a-Velha (M. Ferreira, pers. com.); Paris, excavation of the cour Napoléon of the Louvre (*A travers le verre*, 1989, p. 386, fig. 3.53, dated to 13th - beginning of the 15th century).

Cat. no. 5, SL. 1, c.5: fr. of window glass, colourless, weathering.

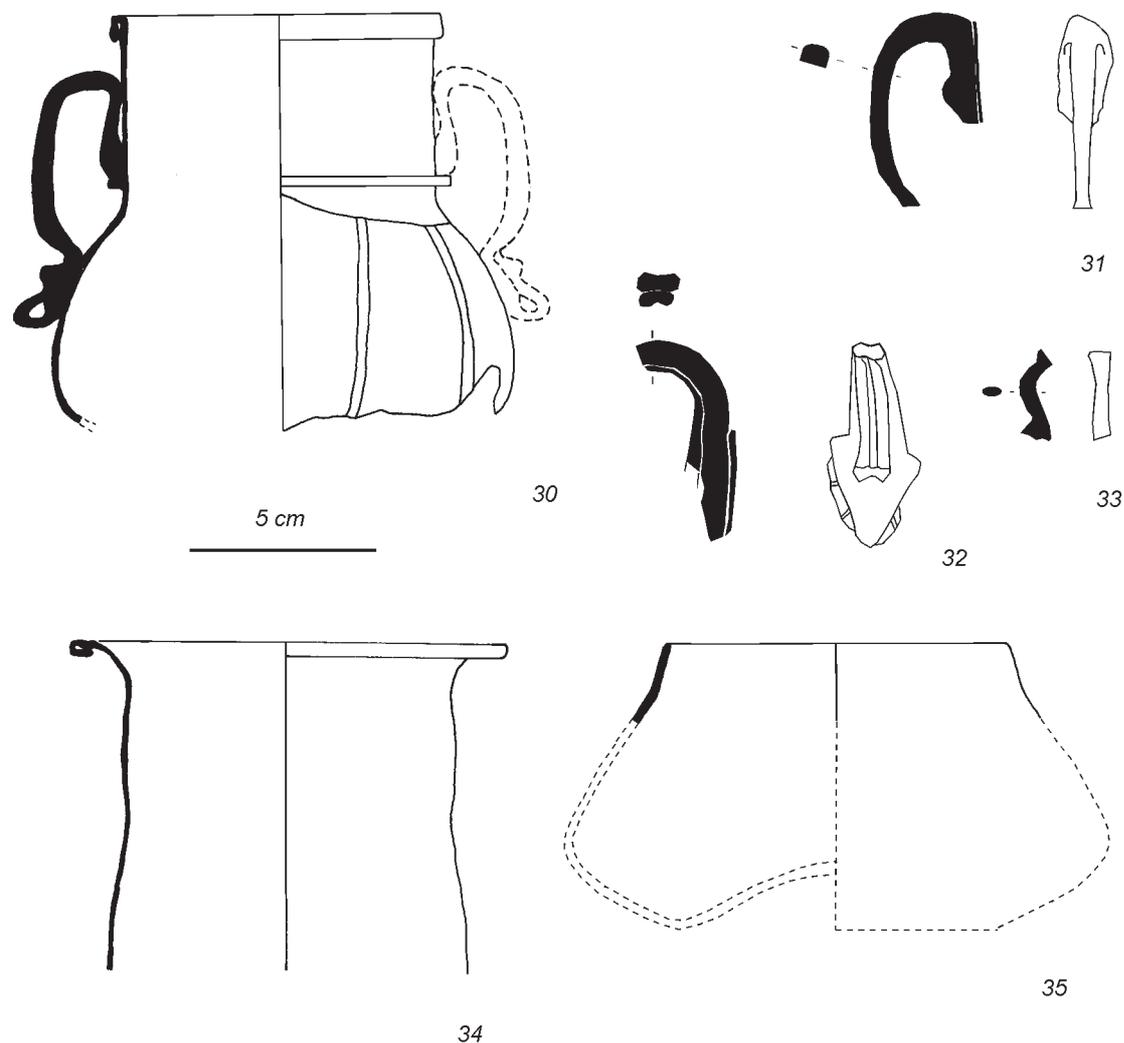


Fig. 4 Glass vessels from 15th-century contexts.

Cat. no. 467, SD 7/2, c. 3: 30 small fragments may all belong to an object with a rounded rim, mould-blown pattern of ribs on the body, kicked base (perhaps a bottle?); probably colourless: the glass is now opaque grey, due to severe weathering.

Cat. no. 471, SD 1, c. 5: 12 small fragments of walls, with mould-blown pattern of ribs, in one case with pattern of small knobs; 10 of them are colourless, one is light green, the one with the knobs is opaque grey.

## 6. 15th/16th century contexts

These contexts yielded fewer glass fragments, mainly cylindrical beakers and bottles with kicked bases; however, it is worth noting the presence of two objects that will characterise the following periods: the wine-glass and the bottle with pushed-in base and tubular base ring.

### 6.1 Beakers

Fig. 5.36, cat. no. 58, SD 6/3, c. 3: fragment of the rim and the wall of a cylindrical beaker, with large trail applied under the rim; colourless, with small rare bubbles; grinding marks on the trail; strong weathering and flaking; d. 80 mm. Of the same type: cat. no. 60, SD 6/3, c. 4: fragment of rim and wall; colourless with blue tinge, grinding marks on the trail; weathering and flaking, d. 70 mm.

Cf.: see above, cat. no. 384, Fig. 2.9.

Cat. no. 56, SD 6/3, c. 3: fragment of the pricked base of a cylindrical beaker; colourless with yellow green tinge; many very small bubbles; pontil mark; weathering and flaking; d. 60 mm.

Cat. no. 61, SD 6/3, c. 4: fragment of the pricked base of a cylindrical beaker, with mould-blown pattern of ribs; light green with many very small bubbles; pontil mark; weathering and flaking; d. 40 mm.

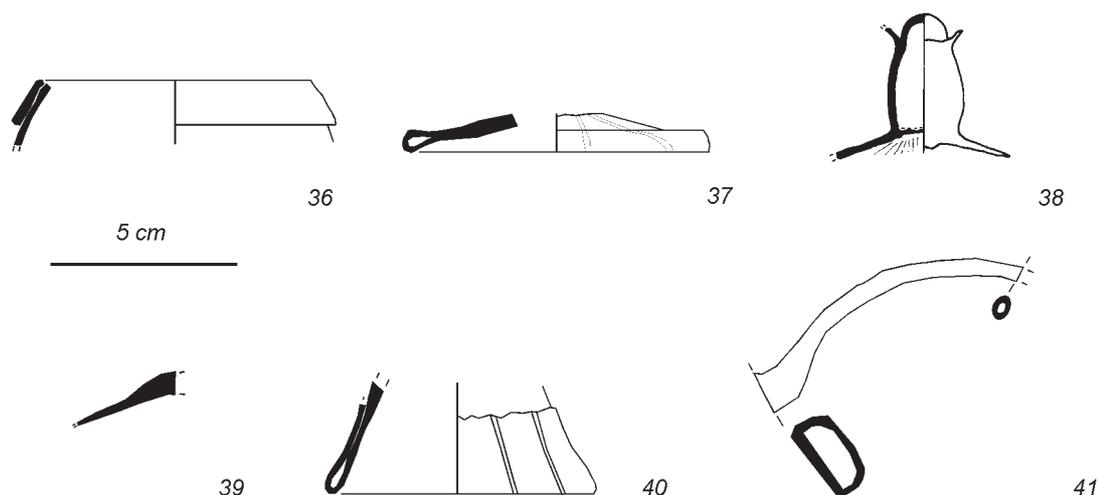


Fig. 5 Glass vessels from 15th/16th-century contexts.

## 6.2 Goblets and wine-glasses

Fig. 5.37, cat. no. 62, SD 6/3, c. 4: fragment of pushed-in base, with tubular base ring and mould-blown pattern of ribs; colourless with rare bubbles; iridescence; d. 80 mm. Of the same type: cat. no. 134, SD 6/2, c. 3, with mould-blown pattern of ribs, colourless, strong weathering, d. 120 mm.

Fig. 5.38, cat. no. 133, SD 6/2, c. 3: fragment of the hollow stem and a part of the base of a wine-glass; mould-blown pattern of ribs on the base; pontil mark; colourless; strong weathering.

## 6.3 Bottles

Fig. 5.39, cat. no. 55, SD 6/3, c. 3: fragment of the kicked base of a bottle; yellow; many very small bubbles; the glass is very well preserved. Of the same type: cat. no. 135, SD 6/2, c. 3, with mould-blown pattern of ribs, colourless, many small bubbles, weathering and flaking.

Cf.: see above, cat. no. 52, Fig. 3,29.

Fig. 5.40, cat. no. 57, SD 6/3, c. 3: fragment of a high (almost vertical) pushed-in base with tubular base ring of a bottle; mould-blown pattern of ribs; colourless; strong weathering and flaking; d. 70 mm.

Cat. no. 131 e 132, SD 6/2, c. 3: two fragments of wall or base of a thin square bottle; olive green; yellow weathering.

Cf.: small square bottles are recorded in Paris from the end of the 16th century (Barrera, 1993, p. 367).

## 6.4 Other forms

A fragment of spout may belong to a ewer or a jug, a kind of container often found both in houses and churches from the Middle Ages onward.

Fig. 5.41, cat. no. 54, SD 6/3, c. 3: a spout with oval section; colourless; rare elongated bubbles, striations on the surface; light weathering.

Cf.: see for example Ferreira, 1989, fig. 4, 15-16; *A travers le verre*, 1989, p. 252-253, nos. 244 -246, dating from 12th to 14th century; Guarnieri, 1999, p. 108, tav. 27, 59-60; Stiaffini, 2004, p. 18.

Cat. no. 63, SD 6/3, c. 4: a fragment of wall with mould-blown pattern of ribs, colourless, weathering.

## 7. 16th-century contexts

The glass assemblage does not change very considerably during the 16th century. It comprise mainly beakers and bottles, but a wider range of type of wine-glass is present than in the earlier group.

All these vessels are commonly found in contemporaneous archaeological sites in Europe; more of them are also known in Portugal, in deposits dated from 17th century onward.

### 7.1 Beakers

Little difference can be noted in the 16th-century beakers.

The cylindrical beaker with pricked base (Fig. 6.42-43), made with light green glass, is still quite common; other forms coming from the 15th-century contexts are the beaker with flat large

pinched thread (cat. no. 75) and the outfolded tubular rim appearing on the beaker (or bowl) cat. no. 440 (Fig. 6.44).

Not recorded before is the mould blown decoration with “rice grains” pattern (Fig. 6.46) and the beaker or bowl with applied horizontal trail (Fig. 6.47).

Fig. 6.42, cat. no. 331, SD 5, c. 5: fragment of the base of a cylindrical beaker; light green; rare bubbles; weathering; d. 30 mm. Cf.: Pombal (Ferreira, 1989, fig. 4,30).

Fig. 6.43, cat. no. 334, SD 5, c. 5: fragment of the base of a cylindrical beaker; light green; pontil mark; weathering; d. 30 mm. Two more fragments of bases of the same type: cat. no. 341, SD 4, c. 5, light green, pontil mark, many bubbles of different size, iridescence, d. 40 mm, restored from 3 fragments; cat. no. 355, SD 5, c. 5, light green, rare bubbles of different size, light weathering, d. 30 mm.

Cat. no. 75, SD 6/4, c. 3: fragment of the wall of a beaker with flat large pinched thread; colour impossible to determine, due to weathering and discoloration; flaking.

Cf.: see above, cat. no. 158, Fig. 2.4: according to the similar severe weathering, they are probably made with the same type of glass.

Fig. 6.44, cat. no. 440, SD 4, c. 6: fragment of the rim and the wall of a beaker (or bowls) with outfolded tubular rim and truncated-conical body; olive green; rare small rounded bubbles; light weathering; d. 100 mm.

Cf.: Tomar (Ferreira, 1994, p. 122, n. 7, 17th -18th century), Pombal (Ferreira, 1989, fig. 4,20), Sintra (Ferreira, 2003, nos. 28-29, 16th-18th century). For the shape of the rim, see above, cat. no. 139, Fig. 2.11.

Fig. 6.45, cat. no. 413, SD 4 c. 3, SD 5 c. 5, SD 1c. 5: fragment of the rim and the wall of a cylindrical beaker; yellow; rare bubbles; weathering and flaking; restored from 3 fragments. d. 65 mm.

Fig. 6.46, cat. nos. 463, SD 5, c. 5: fragment of the rim and the wall of a cylindrical beaker, with mould-blown pattern of “rice grains”; yellow<sup>5</sup>.

Cf.: for the decoration: Coimbra (Ferreira, 1993, fig. 2.23, 17th century; Ferreira, 2004, pp. 558-559, fig. 6, b-d); Lisbon, Casa dos Bicos (unpublished).

Fig. 6.47, cat. no. 439, SD 4, c. 5: fragment of the rim and the wall of a beaker or bowl with applied horizontal trail; dark yellow; light iridescence; d. 90 mm.

## 7.2 Goblets and wine-glasses

Starting from the 16th century onward, goblets and wine-glasses became more numerous, under the influence of the *façon de Venise* production. They are identified mainly on the evidence of stems and feet fragments, and of some thin fragment of rims and walls (Fig. 6.48-53).

The stems consist of solid or hollow knobs, both spherical or ring-shaped, located between the bowl and the foot. The foot is pushed-in or disk-shaped, as in most of the wine glasses of Venetian and *façon de Venise* production starting from the 16th century (*Corpus Pavia*, 2004, p. 145). For cat. no. 382 (Fig. 6.51) it seems that the bowl, the stem and the foot have been blown using the same parison, while in cat. no. 377 (Fig. 6.50) the foot is attached. Also cat. no. 417 (Fig. 6.52) seems to have been made from two pieces.

Largely common in Europe, they are also documented in Portugal.

Fig. 6.48, cat. no. 265 = MAH 9431/ RJ 1352, SD 4, c. 4 and SD 5, c. 5: fragment of pushed-in base of goblet or wine glass, with tubular base ring; colourless with green tinge; pontil mark; d. 63 mm; restored from 3 fragments.

Cf.: Lisbon (Ferreira, 1997, plate 1, n. I,4; 17th century).

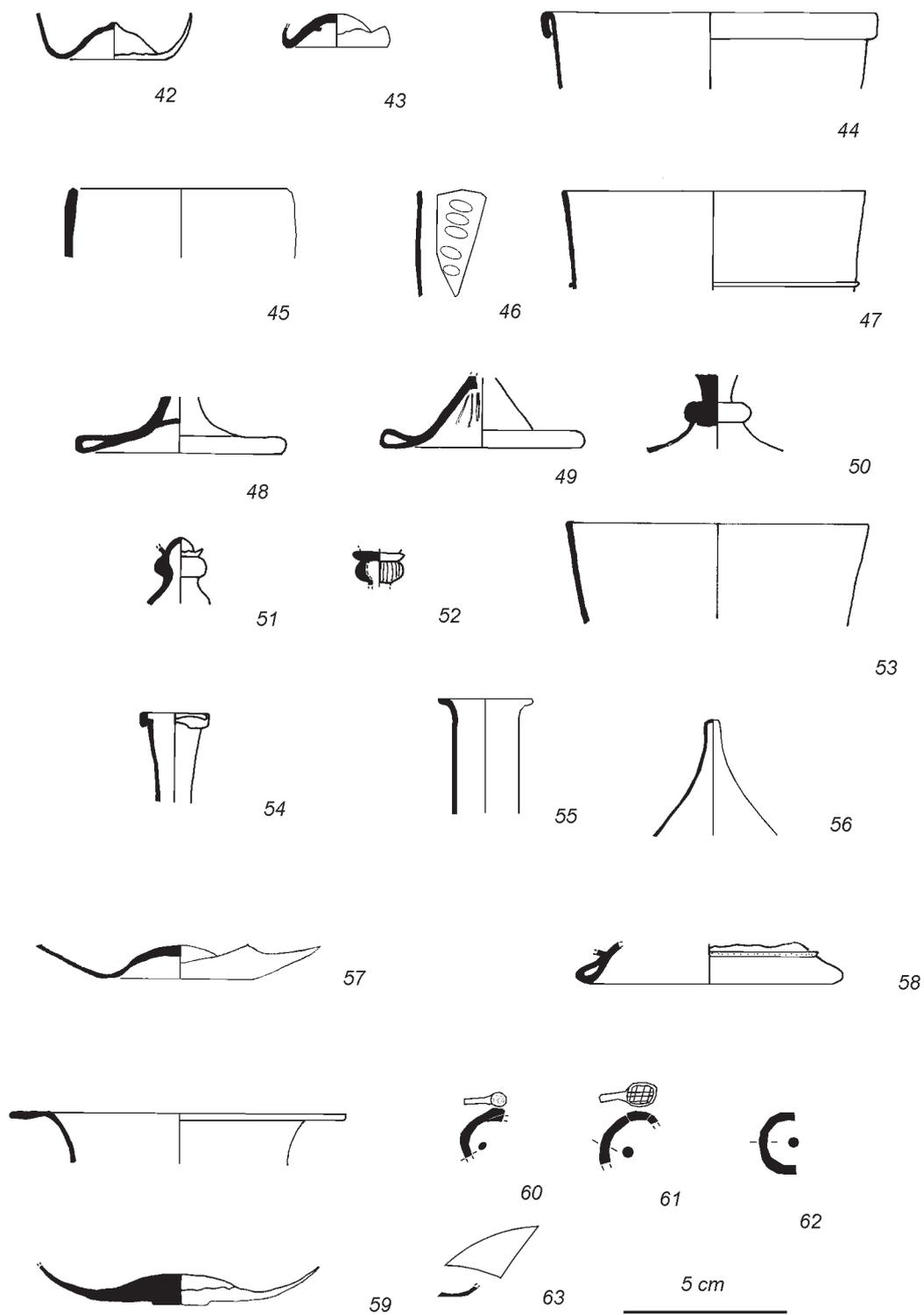


Fig. 6 Glass finds from 16th-century contexts.

Fig. 6.49, cat. no. 259, SD 4, c. 6 and SD 5, c. 3: fragment of pushed-in base of goblet or wine glass, with tubular base ring and mould-blown pattern of ribs; green; rare small bubbles; weathering with strong blue tinge; d. 60 mm; restored from 2 fragments.

Cat. no. 305, SD 4, c. 5: fragment of disk-shaped foot, with little thickened rim; light blue; weathering; d. 110 mm.

Cat. no. 307, SD 4, c. 5: fragment of disk-shaped foot, with little thickened rim; light green.

Fig. 6.50, cat. no. 377, SD 4, c. 5: fragment of the stem and the base of a wine-glass; the stem is composed of a solid ring shaped knob; light green; many bubbles of different size; pontil mark; weathering.

Cf.: Lisbon (Ferreira, 1997, plate 1, n. I,3; 17th century); Pombal (Ferreira, 1989, figs. 2,a and 4,31); Évora (Ferreira, 2000c, fig. 5,7).

Fig. 6.51, cat. no. 382, SD 4, c. 5: fragment of a stem of a wine-glass; the stem is made of a hollow ring-shaped knob; dark green; the glass seems well preserved.

Cf.: Évora (Ferreira, 2000c, fig. 5,8).

Fig. 6.52, cat. no. 417, SD 4, c. 5: fragment of a stem of a wine-glass, consisting of a hollow spherical knob, with moulded pattern of ribs; colourless; peculiar white iridescence.

Cf.: Lisbon (Ferreira, 1997, plate 1, n. I,5; 17th century).

Fig. 6.53, cat. no. 431, SD 4, c. 5: fragment of the rounded rim and the wall of a beaker or bowl of wine-glass; yellow; rare bubbles; light weathering; d. 90 mm.

Cf.: Coimbra (Ferreira, 1993, fig. 3.9).

### 7.3 Bottles

The 16th century contexts produced a range of bottle types which are no different from those found in the previous periods. These include the bottles with cut rim underlined by an applied trail (Fig. 6.54) and with kicked base, sometime very deep (Fig. 6.56-57). The bottle with pushed-in base and tubular base ring (Fig. 6.58) appears in Italy during the 14th century (Stiaffini, 1991, p. 240); popular during the 15th and the 16th century both in Italy and France (see for example *A travers le verre*, 1989, nos. 339-340, p. 309-311; Stiaffini, 1991, p. 240; Barrera, 1993, p. 367-368), it is still used during the 17th century (Lamarque, 1973, fig. 34.29-30-33), when it is noted also in Portugal (Ferreira, 1997, plate 2, n. I,2).

A type not documented before is the bottle with rounded splayed rim and cylindrical neck, plain or with mould-blown pattern of ribs (Fig. 6.55 and cat. no. 418).

Fig. 6.54, cat. no. 396, SD 4, c. 5: fragment of the neck of a bottle, with cut rim underlined by an applied trail; colourless with yellow tinge; rare elongated vertical bubbles; d. 15 mm. Of the same type: cat. no. 397, SD 4, c. 5, colourless with yellow tinge, d. 15 mm.

Cf.: Coimbra (Ferreira, 1993, fig. 4.24, 17th century); Santarém (Ferreira, 2000b, no. 8, p. 37).

Fig. 6.55, cat. no. 402, SD 4, c. 5: fragment of the rounded splayed rim and cylindrical neck of a bottle; light yellow; weathering and flaking; d. 30 mm. Of the same type: cat. no. 406, SD 4, c. 5, light yellow, weathering, d. 30 mm; cat. no. 403, SD 5, c. 5, light yellow, weathering and flaking, d. 35 mm. Two more fragments of neck: cat. no. 544, SD 5, c. 5, colourless, weathering; cat. no. 546, SD 4, c. 5, yellow, weathering.

Cat. no. 418, SD 10, SD 5, c. 4 and 5: fragments of a rounded splayed rim and cylindrical neck of a bottle; light yellow; mould-blown pattern of ribs; rare small bubbles; weathering; d. 40 mm. A fragment of neck shows the same mould-blown decoration: cat. no. 542, SD 5, c. 5, colourless.

Fig. 6.56, cat. no. 73, SD 6/4, c.3: fragment of the deeply kicked base of a bottle; colourless; many bubbles; weathering.

Fig. 6.57, cat. no. 372, SD 4, c.5: fragment of the kicked base of a bottle; light green; many small bubbles; pontil mark; weathering and corrosion; d. 44 mm. Seven more fragments of the same type: cat. no. 74, SD 6/4, c. 3, colourless, pontil mark, rare small bubbles, weathering; cat. no. 43, SL 19, c.1, light green, many small bubbles, pontil mark, well preserved glass, d. 50 mm; cat. no. 46, SL 19, c.1, colourless, rare bubbles of different size, light weathering; cat. no. 356, SD 4, c.5, dark green, many bubbles, d. 80 mm; cat. no. 454, SD 4, c. 6, light green, weathering; cat. no. 455, SD 4, c. 5, olive green, pontil mark; cat. no. 510, SD 4, c. 5, colourless.

Fig. 6.58, cat. no. 313, SD 4, c. 5: fragment of a pushed-in base with tubular base ring of a bottle; olive green; well preserved glass; d. 80 mm. Two more fragments of the same type: cat. no. 317, SD 4, c. 5, olive green, light iridescence, d. 80 mm; cat. no. 320, SD 5, c. 5, light green, weathering, d. 130 mm.

Cf.: Lisbon (Ferreira, 1997, plate 2, n. I,2; 17th century).

#### 7.4 Other forms

Beside some fragments of urinal (Fig. 6.59), three finger rings were found, all of them made with a hoop with circular cross-section (Fig. 6.60-62). Nos. 540-550 (Fig. 6.60-61) show a flattened upper part decorated with impressions.

A small fragment of rounded rim is related to a disk-shaped window glass (Fig. 6.63). The use of circular panes as window glass, already known during Roman times, became common in Europe in medieval times; made with different techniques (starting from a blown glass cylinder, or using crown-glass panes), it survives until the 19th century (Allen, 1998, p. 56-57; Cepiela Kubalska, 1987, p. 457-463; Dell'Acqua, 2004, p. 111; Stiaffini, 2004, p. 28).

Fig. 6.59, cat. nos. 251, 273 and 373, SD 4, c. 5: fragments of the thickened outplayed rim, of the cylindrical neck and of the concave base of a urinal; green; many small bubbles; pontil mark; weathering; restored from 3 fragments; d. rim 110 mm; d. base 70 mm. Of the same type: cat. no. 278, SD 4, c. 5: fragment of rim, colourless, strong weathering, d. 105 mm; cat. no. 374, SD 5, c.5: fragment of base, light green, pontil mark, many bubbles, weathering and corrosion, d. 40 mm.

Fig. 6.60, cat. no. 549 = MAH 3401/ RJ 204, SD 4, c. 5: fragment of ring with overlapping ends; opaque blue; weathering; d. 20 mm.

Fig. 6.61, cat. no. 550 = MAH 3394/ RJ 203, SD 4, c. 5: fragment of ring; opaque blue; weathering; d. 25 mm.

Fig. 6.62, cat. no. 552 = MAH1335/ RJ 152, SD 4, c. 5: fragment of ring; colour impossible to determine; strong weathering; d. 19 mm.

Fig. 6.63, cat. no. 532, SD 4, c. 5: fragment of window pane; green; bubbles; well preserved glass; d. 100 mm.

Cat. no. 457, SD 4, c. 5: fragment of a strap handle.

Cat. no. 470, SD 5, c. 5: fragment of wall with mould blown pattern of ribs; colourless.

## 8. 17th-century contexts

Few glass fragments were recorded from the only context dated to the 17th century. They are fragments of goblets or wine-glasses and bottles with kicked base.

Fig. 7.64, cat. no. 260, SD 1, c. 4: fragment of pushed-in base of goblet or wine-glass; colourless; weathering; d. 60 mm.

Fig. 7.65, cat. no. 263, SD 1, c. 4: fragment of disk-shaped foot, with thickened rim; light green; d. 90 mm.

Cat. no. 421, SD 1, c. 4: fragment of the rounded rim and the wall of a bowl of wine-glass; colourless; weathering.

Cat. no. 519, SD 1, c. 4: fragment of the wall of a cylindrical beaker; light yellow; weathering.

Fig. 7.66, cat. no. 364, SD 1, c. 4: fragment of the kicked base of a bottle, with mould-blown pattern of ribs; yellow; weathering; d. 70 mm.

Cf.: Coimbra (Ferreira, 1993, fig. 4.36, 17th century); Santarém (Ferreira, 2000b, no. 9, p. 37); Sintra (Ferreira, 2003, no. 50, 16th - 18th century).

Cat. no. 508, SD 1, c. 4: fragment of the kicked base of a bottle; green; well preserved glass.

Cat. nos. 480 and 538, SD 1, c. 4: two fragments of bottle necks, with mould-blown pattern of ribs; colourless; weathering.

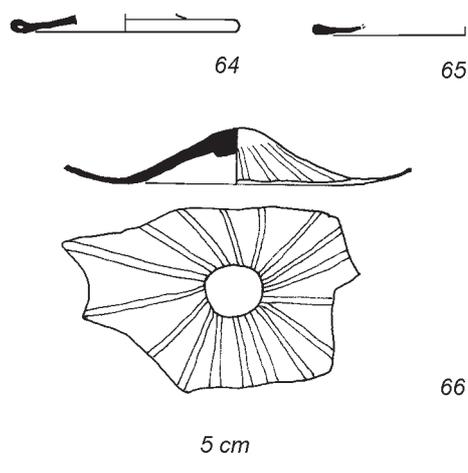


Fig. 7 Glass vessels from 17th-century contexts.

### 9. 17th/18th-century contexts

Most of the glass fragments came to light in contexts dated to the seventeenth/eighteenth century (Fig. 8). They are mainly bottles and drinking glasses (Fig. 9).

The wine glasses show a wider variety of stems, some of them typical of the *façon de Venise* production of the 17th century, as the one with a lion mask (Fig. 10.71). It is worth noting the increased quantity of bowls, determined mainly on the evidence of turned-over splayed rims.

The presence of some peculiar types of beakers, bowls and bottles, suggests a local production.

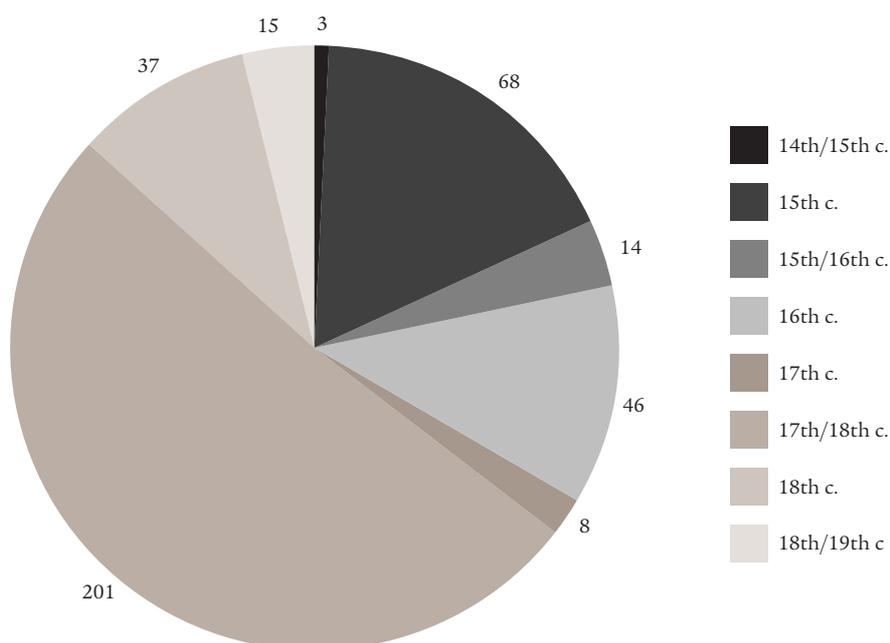


Fig. 8 Quantity of glass objects collected, according to the chronology.

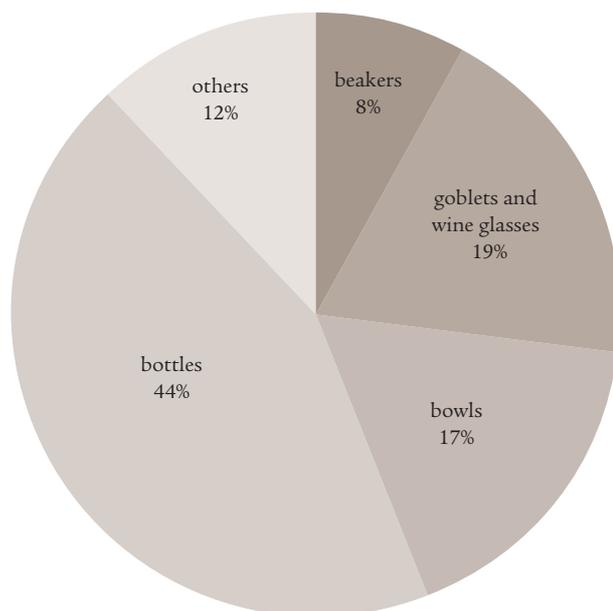


Fig. 9 Glass from 17th/18th-century contexts.

### 9.1 Beakers

Most of the fragments are pricked bases or rounded rims belonging to plain cylindrical beakers (Fig. 10.67-68); the beaker decorated with pincer-work (Fig. 10.69) finds its best comparisons in Portugal.

The beaker cat. no. 565 (Fig. 10.70) belongs to a completely different production, shifting to the industrial glassmaking, starting in Portugal during the 18th century.

Fig. 10.67, cat. no. 333, SD 10: fragment of the pricked base of a small cylindrical beaker; light green; pontil mark; strong weathering; d. 22 mm.

Fig. 10.68, cat. no. 335, SD 10: fragment of the pricked base of a cylindrical beaker; colourless; many bubbles; pontil mark; weathering; d. 45 mm. More 13 fragments of bases and rims of beakers of the same type; colourless, in two cases with green and yellow tinge, or green; recorded d. of the base: from 30 to 70 mm; recorded d. of the rim: 70 mm; some bases show the pontil mark (cat. nos. 112, 347, 349, 361, 414, 443, 466, 485, 486, 488-490, 561; SD 4, c. 3; SD 5, c. 3; SD 8/2, c. 4; SD 10).

Fig. 10.69, cat. no. 415 = MAH 9429/RJ 1350, SD 4, c. 4: fragment of the base and the wall of a cylindrical beaker decorated with pincer-work; colourless; rounded bubbles; iridescence; restored from 3 fragments; d. 60 mm.

Cf.: Coimbra, end of the 16th-17th century; Lisbon, 18th century (Ferreira, 2004, p. 559, fig. 6, k-m). Rather similar pincer-work is on a small fragment of an opaque green bowl found in France and dated to the 18th century (Motteau, 1992, fig. 5.42).

Fig. 10.70, cat. no. 565, SD 4, c. 4: fragment of beaker decorated with mould pattern of diagonal ribs, lacking the base; colourless; d. base 80 mm.

Cf.: moulded beakers with vertical ribs were produced at Coima (1719-1747: Custódio, 2002, p. 319); they are frequently found in archaeological excavations at Lisbon, Tomar, and Coimbra (Ferreira, 2004, p. 568, with references).

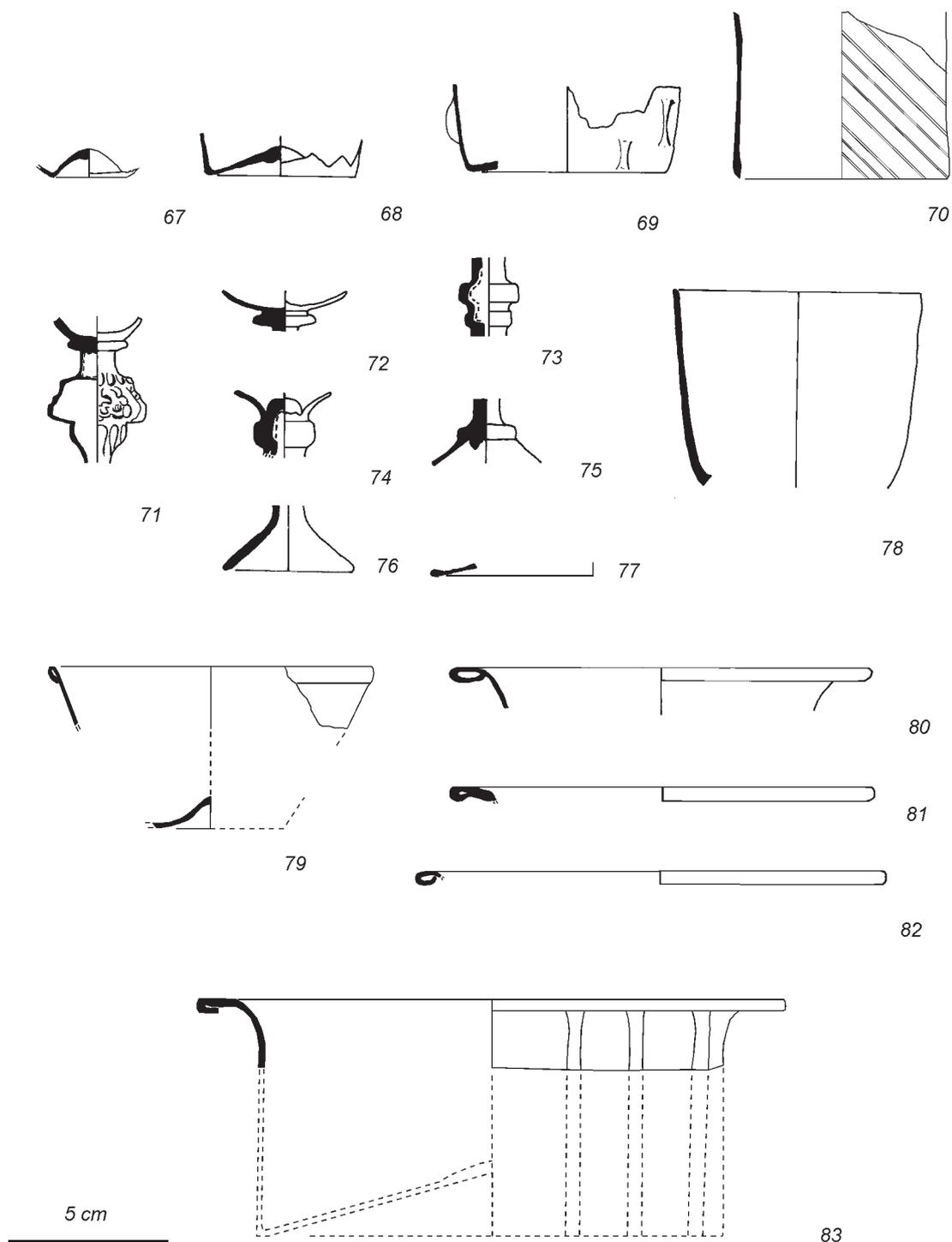


Fig. 10 Glass vessels from 17th/18th-century contexts.

## 9.2 Goblets and wine-glasses

The disk-shaped foot became more frequent than the pushed-in base, and a new truncated-conical base is recorded.

The lion mask stem, blown separately from the bowl, is really typical of the *façon de Venise* production of the 17th century (Stiaffini, 2004, p. 60, BaBr.14); apart from Italy, the production of this kind of stem is also recorded in many Venetian-style glasshouses that were operating in Europe, for example in Antwerp, in Prague, and in Catalunya, whose products can hardly be distinguished from those made in Murano (Mees, 1994, p. 12; Rodríguez García, 1987, p. 429; Hejlová, 1985, p. 251-252). It was previously unknown in Portugal.

The decoration with opaque white trails, appearing here on fragments of walls (cat. nos. 389 and 390) is also typical of the *façon de Venise* production.

Fig. 10.71, cat. no. 376, SD 4, c. 4: fragment of the bowl and the stem of a wine-glass; the stem is composed of a moulded hollow knop, decorated with two lion's masks; colourless with green tinge; many small bubbles; pontil mark; weathering. The stem and the bowl had been blown separately.

Cf.: The stem with lion mask was unknown in Portugal previously; nevertheless, a lion mask appears on a moulded prout found at Coimbra (Ferreira, 2004, p. 563-564, fig. 9, c-d).

Fig. 10.72, cat. no. 416, SD 10: fragment of a stem and part of the bowl of a wine-glass; the bowl is well curved; the stem consists of a solid ring-shaped knop; colourless; weathering and flaking. The stem and the bowl were probably formed from a single parison.

Cf.: Évora (Ferreira, 2000c, fig. 5.7).

Fig. 10.73, cat. no. n. 380, SD 5, c. 3: fragment of the stem of a wine-glass, decorated with two hollow ring-shaped knops; dark green, almost black. Formed from a single parison.

Cf.: Sintra (Ferreira, 2003, nos. 12-13, with solid knops).

Fig. 10.74, cat. no. 381, SD 5, c. 4: fragment of a stem and a part of the bowl of a wine-glass; the stem is composed of a hollow ring-shaped knop; colourless; weathering. The stem and the bowl are formed from a single parison; the base was probably pushed-in.

Cf.: Coimbra (Ferreira, 1993, fig. 1, 7 and 9, with not pushed-in base); Évora (Ferreira, 2000c, fig. 5.8).

Fig. 10.75, cat. no. 378, SD 4, c. 3: fragment of the stem and the base of a wine-glass; the stem is composed of a solid ring-shaped moulded knop; colourless; rare very small bubbles; pontil mark; iridescence. The stem and the foot had been blown separately. Of the same type: cat. no. 379, SD 10, colourless, rare very small bubbles, weathering and flaking.

Cf.: Lisbon (Ferreira, 1997, plate I, n. 1.4, 17th century).

Fig. 10.76, cat. no. 109, SD 8/2, c. 3: fragment of a truncated-conical base, with rounded rim; colourless; weathering and flaking; d. 40 mm. Of the same type: cat. no. 529, SD 5 c. 4, colourless, opaque weathering.

Fig. 10.77, cat. no. 262, SD 5, c.4: fragment of disk-shaped foot, with thickened rim; colourless; d. 110 mm. Nine more fragments of the same type: cat. nos.: 262, 264, 299-303, 306, 309; SD 10; SD 4, c. 4; SD 5, c. 3 and c. 4; light green or colourless; all of them with weathering; recorded d. 90 -120 mm.

Fig. 10.78, cat. no. 412, SD 4, c. 3: cylindrical beaker or bowl of wine-glass; colourless; bubbles; surface little opalescent; restored from 4 fragments; d. 75 mm. More 17 small fragments of rim can belong to bowls of wine glasses: cat. nos. 419, 420, 422-429, 432, 496-499, 514-515; SD 10; SD 4, c. 4; SD 5, c. 3 and c. 4; colourless, sometime with yellow or green tinge, light yellow, light green; recorded d. 75-120 mm. Nos. 514 and 515 have a mould-blown pattern of ribs.

Cat. no. 298, SD 5, c. 4: fragment of pushed-in base, with tubular base ring; light green; weathering; d. 96 mm.

Cat. no. 261, SD 5, c. 4: fragment of truncated-conical, pushed-in base, with tubular base ring; colourless; weathering; d. 70 mm.

Cat. no. 389, SD 8/2, c. 3 and cat. no. 390, SD 4, c. 4: fragment of the wall of a beaker (or bowl of goblet) with opaque white diagonal trails applied to the surface; colourless.

### 9.3 Bowls

Bowls are more abundant now than in the previous periods.

They are determined on the evidence of rim fragments; only in two cases was it possible to reconstruct the shape, because the base also was identified, or by resemblance to better preserved examples found elsewhere.

The more frequent is the turned-over splayed rim, whose diameter ranges from 100 to 200 mm (Fig. 10.80-83). The glass is light green, olive green, or colourless, sometimes with a green tinge.

Other rims are turned-over, forming a tubular ring; the shape of this bowl can be conical, as suggested by assembling a rim and a base made with the same purple glass (Fig. 10.79).

The reconstruction of the bowl with mould-blown pattern of ribs (Fig. 10.83) is based on the examples found at Coimbra, where it is quite common (Ferreira, 2004, p. 550-551, fig. 3, d-e).

Fig. 10.79, cat. no. 447, SD 5, c. 4, SD 4, c. 3 and SD 10: fragment of the turned-over rim, folded to form a tubular ring, and of the pricked base of a bowl; purple; light iridescence; restored from 3 fragments; d. 100 mm. Of the same type: Cat. no. 445, SD 5, c. 4: fragment of rim, olive green, light iridescence; d. 110 mm.

Fig. 10.80, cat. no. 266, SD 5, c. 3 and SD 10: fragment of the turned-over splayed rim of a bowl; olive-green; weathering; restored from 2 fragments; d. 120 mm.

Cf.: Tomar (Ferreira, 1994, p. 125 no. 43).

Fig. 10.81, cat. no. 254, SD 5, c. 3: fragment of the turned-over splayed rim of a bowl; olive-green, weathering; d. 130 mm.

Cf.: Tomar (Ferreira, 1994, p. 122 no. 15; p. 126 no. 55).

Fig. 10.82, cat. no. 258, SD 5, c. 3 and SD 10: fragment of the turned-over splayed rim of a bowl; olive-green; strong weathering; restored from 2 fragments; d. 150 mm. More 26 fragments of rim of bowls of the same type; colourless, colourless with green tinge, yellow, green; recorded d. min 100 mm, max 200 mm (SD 10; SD 4, c. 3 and c. 4; SD 5, c. 3 and c. 4).

Cf.: Tomar (Ferreira, 1994, p. 126 no. 56).

Fig. 10.83, cat. no. 250, SD 4, c. 4, SD 5, c. 3 and SD 10: fragment of the turned-over splayed rim and the body of a bowl; mould-blown pattern of ribs; green; rare bubbles; weathering; restored from various fragments; d. 180 mm. Two more fragments of the same type: cat. no. 270, SD 10, colourless, d. 150 mm; cat. no. 271, SD 4, c. 3, colourless, d. 170 mm.

Cat. no. 444, SD 5, c. 4: fragment of the folded inward rim of a bowl; yellow; light iridescence.

### 9.4 Bottles

Fragments of bottles are now more numerous than those of any other kind of vessel (Fig. 9).

They are determined mainly on the evidence of base fragments. Most of them can be assigned to types already found in the earlier periods, as the bottles with pricked base (Fig. 11.88-89), or with pushed-in base and tubular base ring (Fig. 11.90). The rims are usually cut and underlined by an applied trail, or rounded and splayed (Fig. 11.84-86); cat. no. 517 is vertical and thickened (Fig. 11.87).

No complete body profile is preserved; cat. no. 392 shows a globular shape (Fig. 11.88), while cat. no. 108 (Fig. 11.91) belongs to a moulded, flat-sided bottle, a type of container very popular in Europe during the 17th and 18th century, employed for liquors or to stock drugs in the phar-

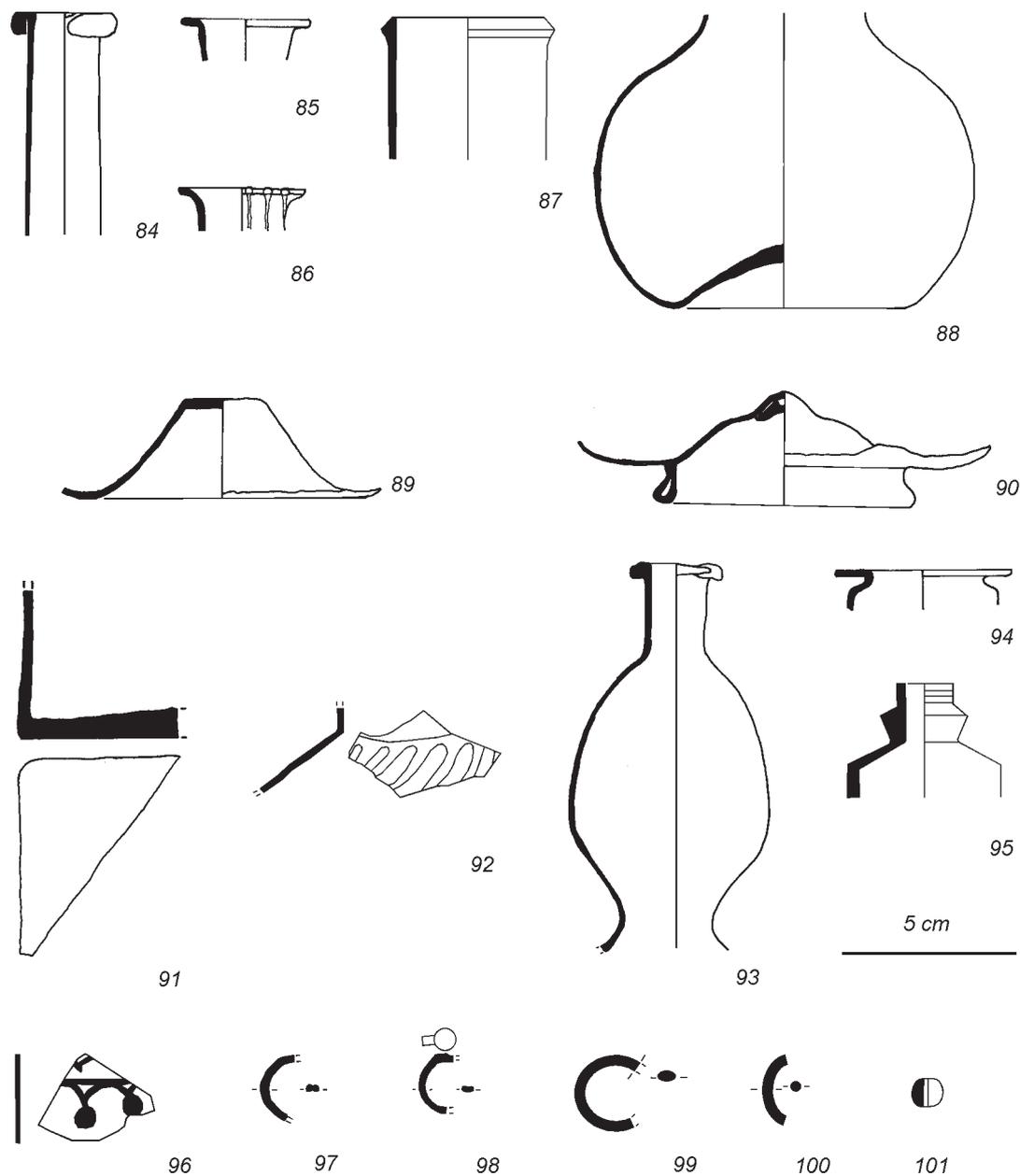


Fig. 11 Glass finds from 17th/18th-century contexts.

macies (McNulty, 1971, p. 107; Barrera, 1993, p. 367, 370, nos. 109-127); usually made with green to olive green, black or amber glass (McNulty, 1971, p. 107), it was probably produced also in Portugal, in the *Real Fábrica de Vidros* in Coima, during the first half of the 18th century (Custódio, 2002, p. 194).

Some fragments of walls and necks (Fig. 11.92) suggest the presence of mould-blown handled bottles (or jugs), decorated with ribs on the body, known in Portugal at Coimbra and Sintra; they are also documented in Czech Republic during the late 16th - early 17th century (Sedláčková, s.d., p. 45, no. 26).

More characteristic is cat. no. 557 (Fig. 11.93): this pear-shaped neck can be attributed to a *cabaça*, the bottle with globular body deriving from the Islamic tradition and still produced in the *Real Fábrica de Vidros* in Coima during the 18th century (Ferreira, 2000a, pl. I, fig.1, a-c; Custódio, 2002, p. 27-28, figs. 5, 6; Ferreira, 2004, p. 554-555, fig. 4, d-e-f).

A fragment of splayed rim should belong to a small bottle or jar, perhaps a container for drugs or perfumes (Fig. 11.94), as well as the small square bottle of Fig. 11.95, whose rim is adapted to receive a screw stopper.

Fig. 11.84, cat. no. 393 = MAH 9433/RJ 1354, SD 5, c. 3: fragment of the neck of a bottle, with cut rim underlined by an applied trail; light blue; many elongated bubbles; iridescence; restored from many fragments; d. 21 mm. Of the same type: cat. no. 394, SD 4, c. 3, colourless, d. 18 mm.

Fig. 11.85, cat. no. 408, SD 10: fragment of the rounded splayed rim and cylindrical neck of a bottle; light yellow; rare elongated bubbles; the glass is well preserved; d. 35 mm. Eight more fragments of rim of the same type from SD 10; SD 4, c. 3; SD 5, c. 3; recorded d.: min 25 mm, max 40 mm; colourless.

Fig. 11.86, cat. no. 409, SD 4, c. 3: fragment of the rounded splayed rim and cylindrical neck of a bottle; colourless with green tinge; mould-blown pattern of ribs; weathering and flaking; d. 35 mm.

Cf.: Coimbra (Ferreira, 1993, fig. 4, 36; 17th century)

Fig. 11.87, cat. no. 517, SD 10: fragment of the vertical and thickened rim, and of the cylindrical neck, of a bottle; green; many small bubbles; glass well preserved; d. 42 mm.

Fig. 11.88, cat. no. 392 = MAH 9328/ RJ 1260; SD 5, c. 5: fragment of the pricked base and the globular body of a bottle; light yellow; rounded bubbles; light iridescence; restored from various fragments: d. 66 mm. Another 42 fragments of base of bottle of the same type: cat. nos. 110-111, 327-330, 336-337, 340, 343-346, 348, 351-353, 357-360, 362-363, 365-370, 505-506, 509, 511, 520-528, from SD 10; SD 4, c. 3 and c. 4; SD 5, c. 3, c. 4 and c. 5; SD 8/2, c.4; recorded d.: min 40 mm, max 90 mm; yellow, green or colourless, sometimes with yellow or green tinge; eight of them with a mould-blown pattern of ribs. Cf.: for ex., Santarém (Ferreira, 2000b, p. 37, n. 11).

Fig. 11.89, cat. no. 371; SD 4, c. 3: fragment of the flattened pricked base of a bottle; olive green; pontil mark?; weathering; d. 80 mm. Of the same type: cat. no. 332, SD 4, c. 3, colourless, d. 40 mm.

Fig. 11.90, cat. no. 312, SD 5, c. 4: fragment of the pushed-in base with tubular base ring of a bottle; colourless; rare bubbles; pontil mark; strong weathering and flaking; d. 72 mm. Nine more fragments of bases of bottles of the same type from SD 10; SD 4, c. 3; SD 5, c. 3 and c. 4; recorded d.: min 70 mm, max 120 mm; colourless or green.

Fig. 11.91, cat. no. 108, SD 8/2, c. 3: fragment of the wall and base of a square bottle; dark green; yellow weathering.

Three more fragments of the bases of bottles of the same type from SD 8/2, c. 3 and c. 5.

Cf.: Lisbon (Ferreira, 1997, plate 2, group III, 18th century); Évora (Ferreira, 2000c, fig. 8,1). Square bottles and jars dating to the first half of the 18th century are displayed in the Museu da Farmácia, in Lisbon (Custódio, 2002, fig. 147-148).

Fig. 11.92, cat. no. 476, SD 5, c. 3: fragment of the cylindrical neck and the body of a bottle or jug, with mould-blown pattern of ribs on the body; colourless; weathering. Three more fragments of the same type: cat. no. 474, 475, 477; SD 10 and SD 4 c. 3; colourless or olive green.

Cf.: Coimbra (Ferreira, 1993, fig. 4, no. 40; 17th century); Sintra (Ferreira, 2003, fig. 9, no. 43; 16th-17th century).

Fig. 11.93, cat. no. 557 = MAH 2706/RJ 322, SD 5, c. 3: fragment of the pear-shaped neck of a *cabaça* (bottle with globular body), with rim underlined by an applied trail; colourless with yellow tinge; many small elongated bubbles; light weathering; d. rim 26 mm.

Cf.: see above.

Fig. 11.94, cat. no. 435, SD 5, c. 4: small bottle or jar with splayed rim and cylindrical body; light yellow; weathering; d. rim 50 mm.

Cfr: Évora (Ferreira, 2000c, fig. 10, 3-4); Pombal (Ferreira, 1989, fig. 4, 12); Paterna (Spain) (Mesquida Garcia, 1996, lám. 73, p. 139; 15th century); Paris, Court du Louvre (Barrera, 1993, p. 375, fig. 4; from the second half of the 16th century).

Fig. 11.95, cat. no. 563, SD 5, c. 4: fragment of a small moulded square bottle, with rim adapted to receive a screw stopper; maybe colourless: the glass is now opaque grey due to the strong weathering; d. rim 15 mm.

Cat. nos. 478, SD 4, c. 3, and cat. no. 479, SD 5, c. 3: small fragments of the neck and body of two bottles with a mould blown decoration of fine ribs on the body; colourless; weathering and flaking.

Cf.: Coimbra (Ferreira, 1993, fig. 4, no. 25; 17th century).

Cat. nos. 539-541, 543, 545, 547, SD 4 c. 3, SD 5 c. 3 and c. 4, SD 10: six fragments of vertical necks of bottles, four of them with a mould-blown decoration of ribs; colourless.

### 9.5 Other forms

A small fragment of wall of an undetermined vessel preserves a vestige of enamelled decoration, using yellow colour on colourless glass (Fig. 11.96); because of its reduced dimensions, it is impossible to reconstruct the decorative pattern, but we can suppose that it was not very different from the 18th century Portuguese enamelled production, often decorated with political imageries or religious scenes (Custódio, 2002, p. 161, fig. 79-80, and p. 184-186, fig. 124-125).

Turned-over or rounded splayed rims, colourless, suggest the presence of urinals, as well as fragments of handles can be related to handled vessels, such as cups or jars. Several fragments of wall with a mould blown pattern of ribs and a fragment of spout are also recorded.

Four finger rings and a small bead were found. The finger rings are made with a hoop with flattened, ovoid or circular cross-section (Fig. 11.97-100). No. 553 (Fig. 11.98) shows a plane flattened upper part. The bead is globular (Fig. 11.101).

Two small fragments of circular panes are present. One has a rounded rim, while the other was formed by a grozing iron, as typical for this kind of objects (see, for ex., Allen, 1998, p. 56; Vaghi et al., 2004).

Fig. 11.96, cat. no. 484, SD 10: small fragment of wall with yellow enamelled decoration; colourless; flaking.

Cat. nos. 267-269, 272, 274, 277, 375; SD 10 and SD 4, c.3: six fragments of rims and a fragment of a base of urinals; grey, colourless, colourless with green or yellow tinge, light yellow; recorded d. of the rim: 110 mm.

Cat. nos. 456, 458-462, 481-482; SD 10, SD 4, c.3, SD 5 c.4 : eight fragments of handles; colourless, blue, light green, olive green.

Cat. nos. 468, 469, 472, SD 10, SD 5 c. 3 and c. 4: 42 small fragments of walls with mould blown pattern of ribs; colourless, only 3 of them are yellow.

Cat. no. 562, SD 5, c. 3: fragment of a spout, with oval cross section; colourless; weathering.

Fig. 11.97, cat. no. 551 = MAH 3372/ RJ 198, SD 4, c. 3: fragment of finger ring; opaque blue ?; weathering; d. 17 mm.

Fig. 11.98, cat. no. 553 = MAH 1431/ RJ 194, SD 5, c. 4: fragment of finger ring; colourless ?; weathering; d. 15 mm.

Fig. 11.99, cat. no. 554 = MAH 1430/ RJ 193, SD 5, c. 4: fragment of finger ring; opaque blue; weathering; d. 21 mm.

Fig. 11.100, cat. no. 555 = MAH 1434/ RJ 175, SD 1, c. 4: fragment of finger ring; opaque blue; weathering; d. 20 mm.

Fig. 11.101, cat. no. 558 = MAH 3525/ RJ 245, SD 5, c. 3: globular bead; opaque light blue; weathering; h. 8 mm; d. 9 mm; d. of the hole 2,5 mm.

Cat. no. 533, SD 10: two fragments of the rim of a window pane; colourless; d. 100 mm; the glass is very well preserved.

Cat. no. 534, SD 5 c. 4: a fragment of the rim of a window pane, formed by a grozing iron; green; many bubbles; d. 40-50 mm.

## 10. 18th-century contexts

In addition to the glass derived from earlier tradition, drinking glasses and bottles related to the first modern Portuguese glass factory are now more abundant. In fact, it was during the reign of D. João V that the political economy of the Nation pressed for the creation of an alternative to this kind of imported ware.

The *Real Fábrica de Vidros Cristalinos* opened in 1719 at Coina, a town located more or less 25 km southeast of Almada, with the aid of foreign glass-makers (from Italy, but also from England and Germany); after 1747 the glass factory moved north, to Marinha Grande (Custódio, 2002, p. 20-21).

### 10.1 Beaker with wheel-engraved decoration

The most interesting glass found in the 18th century contexts is the fragment of mould blown beaker with wheel-engraved decoration (Fig. 12.102). The technique and the pattern are comparable to contemporary Bohemian production, and the trade of Bohemian glass to Portugal is known from the end of the 17th century (Drahotová, 1987, p. 499).

Nevertheless, a Portuguese production of bohemian – style wheel – engraved glassware, possibly made by Bohemian workers, during the 18th century, is documented by the archaeological excavations in Coina (Custódio, 2002, p. 162 and 247) and by the catalogues of the Royal Manufacture of Glass of Marinha Grande (Custódio, 2002, p. 356; Ferreira, in press). Several engraved specimens are in Portuguese museums, or they have been recovered from archaeological excavations; they are mainly provided with *chinoiserie* or with vegetable and geometrical patterns (Ferreira, 2000c, p. 372, fig. 6a; Custódio, 2002, p. 186, fig. 126, p. 188, fig. 131, p. 244, fig. 187-188; Ferreira, in press; more beakers in the *Museu dos Biscainhos*, in Braga – inv. n. 2052 (a) MB – and in the *Museu de Lamego* in Lamego – inv. n. 692: see [www.matriznet.ipmuseus.pt](http://www.matriznet.ipmuseus.pt)).

None of the patterns appearing on the archaeological finds so far recovered in Portugal, not even the one displayed on the fragments from Almada, is included in the Marinha Grande catalogues. The analysis of their composition, currently being undertaken by Prof. J. Coroado (*Instituto Politécnico*, Tomar and *Centro Tecnológico da Cerâmica e do Vidro*, Coimbra) and Prof. A. Pires de Matos (*Universidade Nova*, Lisbon and *Instituto Tecnológico e Nuclear*) will contribute toward defining their origin (a preliminary report in Ferreira, in press).

Fig. 12.102, cat. no. 179, SD 7/2, c. 2a: fragment of the rim and the wall of a truncated conical beaker; it had been first mould-blown, as demonstrated by the pattern of alternating round impressions located on the lower part of the wall, then the upper part was wheel-engraved, with a triangle infilled with cross-hatching and provided with a scroll, beside a stylised fruiting vine; small ovals and some lines complete the design; colourless; d. rim 100 mm.

Cf.: these patterns are quite typical of this kind of production: see for example a very similar stylised fruiting vine wheel-engraved on a mould-blown beaker from Marinha Grande: Custódio, 2002, p. 244, fig. 187.

### 10.2 Other beakers, wine-glasses and bowls

Two fragments of mould-blown beakers, one of them preserving the thick base (Fig. 12.103), may well belong to a type which was quite common in Portugal during the 18th cen-

tury and produced in the Royal Manufactures of Glass of Coima and Marinha Grande (Custódio, 2002, p. 164-165; Ferreira, 2004, p. 568-569). As noted for similar specimens found at Lisbon and Coima, the reduced dimensions suggest that it was used for drinking liquors (Ferreira, 1997, p. 189).

A small fragment of moulded polygonal stem (Fig. 12.104) is perhaps related to a type of wine glass that is included in the catalogues of the Marinha Grande glasshouse, and that has already been found in Lisbon (Ferreira, 1997, p. 186; Custódio, 2002, p. 197).

Most of the other fragments of beakers and bowls can be assigned to types already present in the previous periods, still connected to the pre-industrial styles and techniques; also the decorative techniques and pattern, as the mould blown ribs on the bowl of a wine beaker (cat. no. 99) or the opaque white trails (cat. no. 190), are representative of the earlier tastes; they tend to disappear from the archaeological record at the end of the 17th century (Ferreira, 1997, p. 185, pl. 1, group I).

Fig. 12.103, cat. no. 163, SD 7/2, c. 1/2: fragment of the slightly concave thick base and of the wall of a small cylindrical beaker, with mould-blown decoration of parallel vertical ribs; green; some big bubbles; weathering; d. base 40 mm. Of the same type: cat. no. 166, SD 7/2, c. 1/2, fragment of wall, colourless.

Cf.: Lisbon, 18th century (Ferreira, 1997, Pl. I, V, 2-3); Coima, 1719-1747 (Custódio, 2002, p. 319, nos. 57-58); Coimbra (Ferreira, 2004, p. 569, fig. 11,b).

Fig. 12.104, cat. no. 197, SD 7/1 e 2, c. 1 e 2: fragment of the moulded stem and foot of a dram glass; the stem is polygonal, while the disk-shaped foot shows a moulded decoration on the lower part; it is possible to recognise the junctions of the four parts of the mould; colourless; light weathering; d. foot 35 mm; d. stem 8 mm.

Cf.: Marinha Grande, around 1750 (Custódio, 2002, p. 180, fig. 117).

Cat. no. 155, 169, 170; SD 7/1 and 2, c. 1 and 2; SD 7/2, c. 2a: small fragments of rounded rims of cylindrical beakers; colourless, with green or light blue tinge; d. rim 60 mm; d. base 70 mm.

Cat. no. 165, SD. 7/2, c. 1/2: fragment of beaker with rim underlined by a flat applied trail and mouth narrower than the maximum diameter of the vase; colourless; d. rim 70 mm.

Cf.: see above, Fig. 2.9 and 5.36, 15th and 15th/16th century contexts.

Cat. no. 187, SD. 7/2, c. 2a: fragment of the outfolded tubular rim of a beaker; light green, d. rim 110 mm.

Cf.: see above, Fig. 2.11 and 6.44, 15th and 16th century contexts.

Cat. nos. 153 and 154, SD 7/2, c. 2a: small fragments of pushed-in or conical bases of goblets or wine-glasses; opaque white or colourless.

Cat. nos. 189 and 199, SD 7/2, c. 2a: fragments of the thickened rounded rim and the wall of two beakers or bowls of wine glass, no. 199 with mould blown pattern of ribs; colourless and colourless with yellow/green tinge; small bubbles; d. rims: 80 and 120 mm.

Cat. nos. 151 and 152, SD 7/2, c. 2a: two fragments of turned-over splayed rim of bowls; colourless, d. rim 120 mm.

Cf.: see above, Fig. 10.80-82, 17th/18th century contexts.

Cat. no. 180, SD 7/2, c. 2a: fragment of wall decorated with opaque white large trails; colourless; rare small bubbles; light weathering; width of the trails 3 mm.

Cat. no. 181, SD 7/2c. 2a: fragment of thick wall with mould-blown pattern of pointed knobs; light green; light weathering.

Cf.: see above, Fig. 2.10, 15th century contexts.

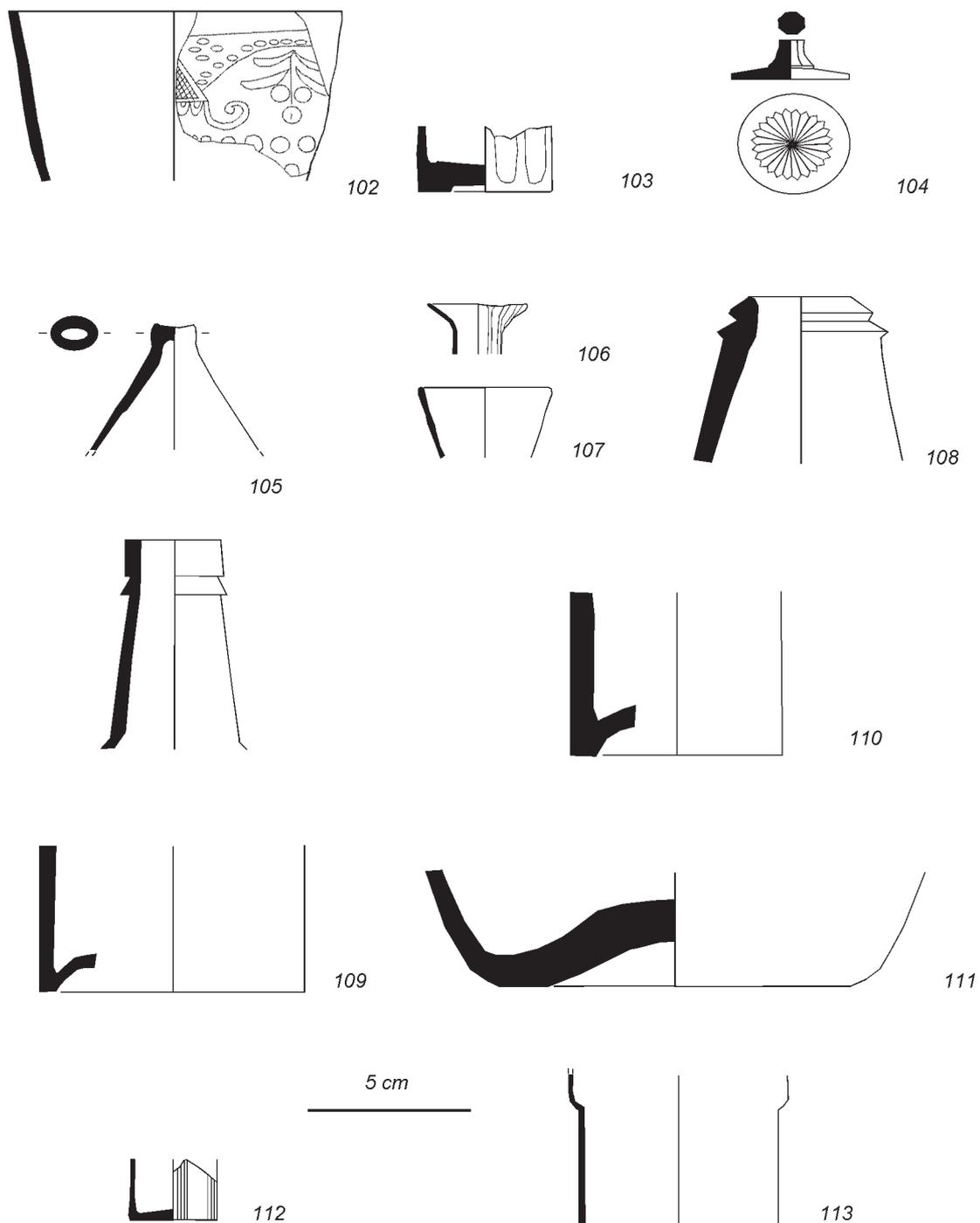


Fig. 12 Glass finds from 18th-century contexts.

### 10.3 Bottles

Few fragments of bottles are still linked to pre-industrial production, and were probably used mainly as tableware. Examples include the bottle with kicked base (Fig. 12.105), with rounded splayed rim, cylindrical neck and mould-blown pattern of ribs (Fig. 12.106), or with funnel mouth (Fig. 12.107).

Besides these, several fragments reflect the massive diffusion of the dark green wine bottles, very popular throughout Europe in the 18th century (McNulty, 1971, p. 107).

In the *Real Fábrica de Vidros* de Coima there was a sector specialised in the production of bottles, both for storage and transport of beverages; it produced bottles of square section, “onion” bottles, and cylindrical bottles, the last of these used mainly for Port wine (Ferreira, 1997, p. 186-187; Custódio, 2002, p. 213-219). Most of the remains from Almada are too small to be drawn and to reconstruct the original shape; nevertheless, the bottles of Fig. 12.109-110 are cylindrical, the rim of Fig. 12.108 can probably be assigned to an “onion” bottle due to the inclination of the neck, as well as the base of Fig. 12.111, while the presence of square bottles is suggested by two small fragments of walls (cat. no. 148).

Fig. 12.105, cat. no. 150, SD 7/2, c. 2a: fragment of the kick of a bottle; colourless with light green tinge; weathering and flaking. Of the same type: cat. no. 162, SD 7/2, c. 1/2: fragment of the kicked base; colourless; d. base 50 mm.

Fig. 12.106, cat. no. 186, SD 7/2, c. 2a: fragments of the rounded splayed rim and cylindrical neck of a bottle; light green; mould blown pattern of ribs; rare small bubbles; light weathering; d. 30 mm.

Fig. 12.107, cat. no. 188, SD 7/2, c. 2a: fragment of the funnel mouth of a bottle; colourless; rare very small bubbles; light weathering; d. rim 40 mm.

Fig. 12.108, cat. no. 164, SD 7/2, c. 1/2: fragment of a truncated conical neck with applied string rim, probably of an “onion” bottle; olive green; many elongated bubbles; weathering; d. 30 mm.

Cf.: rims of similar shape at Coima, 1719-1747 (Custódio, 2002, p. 333, figs. 140, 142-143).

Fig. 12.109, cat. nos. 191 and 195, SD 7/1 e 2, c.1 e 2: fragments of the neck and the base of a cylindrical wine bottle; green; rare elongated vertical bubbles in the neck; d. rim 26 mm, d. base 80 mm.

Fig. 12.110, cat. no. 194, SD 7/1 e 2, c.1 e 2: fragment of the base of a cylindrical wine bottle; green; small rare bubbles; d. base 65 mm.

Fig. 12.111, cat. nos. 192, SD 7/1 e 2, c.1 e 2: fragment of the base of an “onion” bottle; dark green, almost black and opaque; weathering; width of the base 90 mm; peculiar wear traces on the part supporting the weight.

Cat. no. 148, SD 7/2, c. 2a: two fragments of the wall of a square bottle; olive green.

Cat. nos. 193, 200, 201, 205; SD 7/1 e 2, c. 1 e 2: fragments of bases and walls of wine bottles, some of them with onion shape, others possibly cylindrical; dark green; weathering.

#### 10.4 Other forms

Fig. 12.112, cat. no. 196, SD 7/1 e 2, c.1 e 2: fragment of the base of a small cylindrical vessel, with moulded pattern of vertical ribs, perhaps a salt cellar; colourless; d. 26 mm.

Cf.: moulded salt cellars are included in the catalogues of the Marinha Grande glasshouse around 1750 (Custódio, 2002, p. 180, fig. 115).

Fig. 12.113, cat. no. 198, SD 7/1 e 2, c.1 e 2: 10 fragments of rims and walls of glasses for oil lamps; the upper rim is rounded and thickened, while the lower one is simply cut; colourless; recorded d. of the base 60 mm.

Cf.: glass objects with the same function at the Palácio Nacional at Mafra are supposed to have been produced at Coima, 1719-1747 (Custódio, 2002, p. 169, figs. 89-91).

Cat. no. 190, SD 7/2, c. 2a: fragment of the outsplayed rim of a urinal; colourless with green tinge; rare elongated bubbles; weathering; d. 100 mm.

Cat. no. 535, SD 7/2 c. 1 e 2, c. 2a: n. 61 fragments of window glass; colourless, some with light blue tinge.

Cat. no. 202, SD 7/1 e 2, c. 1 e 2: small fragment of wall; opaque black.

## 11. 18th/19th-century contexts

Only a few fragments, mainly of beakers and bottles, have been found in the latter contexts.

### 11.1 Beakers

Fig. 13.114, cat. no. 564, SD 1, c. 3: fragment of the base and the wall of a moulded cylindrical beaker, with wheel engraved pattern of stylised flowers on the wall; colourless; d. base 75 mm.

Cf.: Coimbra, S. Clara-a-Velha (Ferreira, 2004, p. 569, figs. 11h and 11.i).

Cat. no. 569, SD. 1, c. 3: fragment of the base and wall of a moulded cylindrical beaker, perhaps with moulded pattern of round impression; colourless; d. base 60 mm.

### 11.2 Bottles

The bottles with cut rim and applied trail of Fig. 13.115-116 derive from the 15th century tradition, while Fig. 13.118 and 120 are a rim and a base of wine bottles.

Fig. 13.115, cat. no. 92, SD 2, c. 2: fragment of the neck of a bottle, with cut rim underlined by an applied trail; blue-green; d. rim 29 mm.

Fig. 13.116, cat. no. 399, SD 1, c. 3: fragment of the neck of a bottle, with cut rim underlined by an applied trail; colourless; weathering and flaking; d. rim 20 mm. Of the same type: cat. no. 398, SD 1, c. 3, colourless with yellow tinge; weathering; d. rim 22 mm.

Fig. 13.117, cat. no. 434, SD 1, c.3: fragment of the funnel mouth of a bottle; green; many small rounded and elongated bubbles; light weathering; d. rim 50 mm.

Cat. no. 354 and 448, SD 1, c. 3: two fragments of the pricked bases of bottles; green, yellow; pontil mark.

Cat. no. 323, SD 1, c.3: fragment of a pushed-in base with tubular base ring of a bottle; light green; weathering and flaking; d. 90 mm.

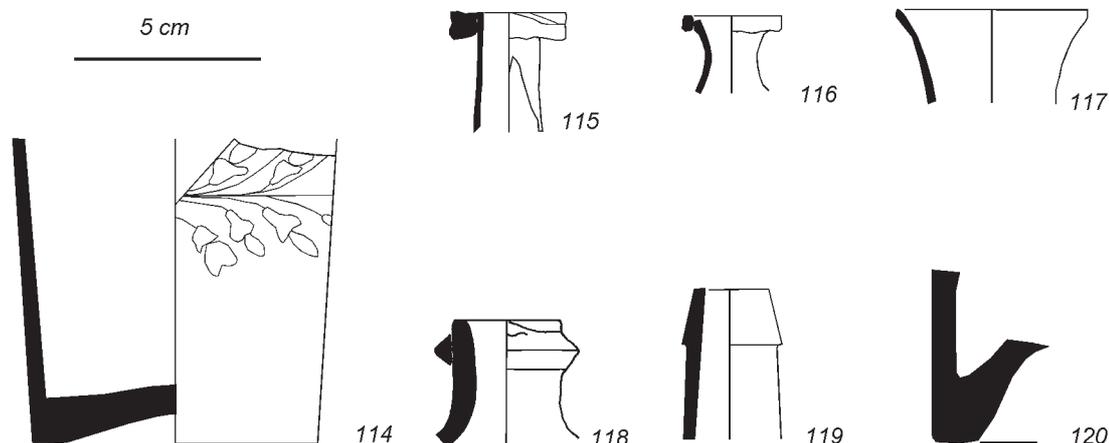


Fig. 13 Glass vessels from 18th/19th-century contexts.

Fig. 13.118, cat. no. 91, SD 2, c. 2: fragment of the neck of a bottle, with rim underlined by an applied trail; dark green; d. rim 29 mm. Because of the shape of the neck, it is probably from an “onion” bottle.

Fig. 13.119, cat. no. 567, SD 1, c. 3: fragment of the neck of a bottle, light blue: d. rim 20 mm.

Fig. 13.120, cat. no. 530, SD 1, c. 3: fragment of the base and the wall of a wine bottle, perhaps cylindrical; dark green; weathering. It shows a peculiar wear trace on the part supporting the weight.

Cat. no. 536, SD 1, c. 3: fragment of the wall of a wine bottle; dark green; weathering.

### 11.3 Other forms

Cat. no. 568, SD 1, c. 3: two fragments of plane window glass; colourless with light blue tinge.

## 12. Final remarks

The glass assemblage from Rua da Judiaria includes a variety of objects that span at least eight centuries of glassmaking. The typology of glasses is most typical of European production of this period, and most of them may be compared to finds from other Portuguese sites.

However, the presence of new specimens makes this assemblage particularly interesting.

As we have seen, the glass finds were collected from pits and rubbish deposits.

Since the complete results of the excavation are still unpublished, we do not have more information about the houses to which these structures belonged, and about their inhabitants; it is also difficult to better detail the chronology.

From the point of view of the glass objects, we can see a difference in their quality during the periods covered by the excavation.

In the group of glasses attributed to 15th century contexts, it is worth emphasising the presence of some luxury specimens, unknown previously in Portugal, such as the colourless goblets with blue frills and trails and the green goblet with enamelled decoration, all of them probably Italian or French in origin and better dated to the end of the century (Fig. 2). The use of white trails, appearing here on the bowl of a goblet, is also related to the Venetian *lattimo* glass, while the beaker with mould blown pattern of pointed knob is common (but not exclusive) in north European production (Figs. 2-3). Beside these probably imported vessels, it seems reasonable to assume that other objects were made in Portugal, according to the quality of the glass and to their peculiar shapes, even if we do not have archaeological data referring to glass factories prior to the 18th century (Custódio, 2002, p. 43-57). This is the case of the bottles, of the vessel with two handles, and of the small jar with truncated-conical neck (Figs. 3-4); for the last two objects, the proposal of a local production is supported by the quantity of identical specimens found in other Portuguese archaeological sites, such as the monastery of Sta. Clara-a-Velha in Coimbra.

Starting from the 16th century contexts onward, none of the finds is particularly luxurious.

The category of the drinking vessels is marked by the presence of the wine glasses. In the more elegant versions they are characterised by elaborated stems, and they were often used for display, as shown in paintings (see for ex. Stiaffini, 1999). Among the find from Rua da Judiaria more ordinary wine glasses are present, reflecting the adoption among the middle class of habits coming from the high society (Fig. 6).

In the assemblage coming from the 17th/18th-century contexts (Figs. 10-11), we can distinguish a group of object, as the wine glasses featuring various types of stems reflecting the Venetian

style (mainly the stem with lion masks, very common in the *façon de Venise* production), the globular bottles, and the cups, that are perhaps better dated to the 17th century. On the other hand, some others can be attributed to the first modern production of glass in Portugal, started in 1719 in Coima in the *Real Fábrica de Vidros* and continued in Marinha Grande, such as the square wine bottles and the *cabaça*. The beaker with pincer-work and the bowl with mould-blown decoration, finding their best comparison at Lisbon and Coimbra, can also derive from local production.

Comparatively poorer, also from the point of view of the quantity, are the more recent complexes (Figs. 12-13). However, we have to remember the beakers with wheel-engraved decoration, whose origin is premature to discuss, in the absence of the result of the analysis.

To summarise, we can argue that in Almada during the 15th and the 16th centuries the presence of social classes such as merchants, jewellers and nobles, closely linked to other European countries and Portugal's overseas colonies, were responsible for the import and use of expensive glass vessels. This is also indicated by other archaeological and historical data (Barros, 2000, p. 36-37). The absence of such glass from the more recent periods is possibly related to some social changes regarding the inhabitants of the area.

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## NOTAS

- 1 Rua Alegre - 10, 2.º Dto. 1495-002 Algés - Portugal  
medicit@hotmail.com
- 2 Key: SL (*silos*) = pit; SD (*sondagem*) = sondages; c. (*camada*) = layer; d. = diameter. When the diameter is not indicated, it means that it was impossible to determine. When the type is very common, only Portuguese comparisons are reported.
- 3 Some glasses from the 15th-to the 17th/18th centuries contexts have been object of a preliminary report: Medici, 2005.
- 4 An hypothesis about the existence of an earlier local production in central Europe in Baumgartner and Krueger, 1988, p. 126.
- 5 There is a fragment of the same beaker found in a more recent context (cat. no. 464, SD 5, c. 3, 17th/18th c.).

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