Poetovian wasters from Spodnja Hajdina near Ptuj

Janka ISTENIČ and Marjana TOMANIČ JEVREMOV
with a contribution by Małgorzata DASZKIEWICZ and Ewa BOBRYK

Izvleček

Na Spodnji Hajdini pri Ptuju so pri gradbenih delih na površini približno enega kvadratnega metra našli petindvajset oljenk, pet gubank, šest čaš z ročajem, velik vrč in spodnji del posode. Po analogijah jih datiramo v 2. do 3. stoletje. Večina med njimi predstavlja očitno neuspele izdelke, poškodovane zaradi žganja na previsoki temperaturi. V neposredni bližini je bila izkopana lončarska peč, ki skupaj z v članku obravnavnimi ponesrečenimi izdelki kaže, da je tu delovala lončarska delavnica.

Ključne besede: Ptuj, Poetovio, rimska doba, neuspeli keramični izdelki, oljenke, keramične posode, lokalni izdelki, arheometrija

Abstract

During construction work at Spodnja Hajdina, near Ptuj, twenty-five oil lamps, five indented beakers, six cups with a handle, a large flagon and the bottom of a vessel, dating to the 2nd and 3rd centuries, were discovered within an area of approximately one square metre. The majority were clearly wasters, damaged due to over-firing. A pottery kiln was excavated in the immediate vicinity. This, together with the wasters discussed below, suggest a pottery workshop.

Keywords: Ptuj, Poetovio, Roman period, wasters, lamps, pottery, local production, archaeometry

1. INTRODUCTION

At Spodnja Hajdina, near Ptuj, 25 oil lamps, five indented beakers, six cups, a large flagon and the bottom of a vessel were found within an area of approximately one square metre, during the laying of water-pipes. The vast majority of these items were undoubtedly wasters, which makes this a particularly interesting find for the study of pottery production at Poetovio (present-day Ptuj and Hajdina). Several of these objects have been included as reference-material in archaeometric research (Daszkiewicz, Schneider 1999, 174-175, 188-189, tables 1 and 8). Because of the importance of the material, it seemed appropriate to publish it in its entirety in this paper.

Istenič

2. CIRCUMSTANCES OF THE FIND AND ITS FIND-SPOT

On the 24th April 1974, while overseeing the digging of a water-pipe trench at Spodnja Hajdina near Ptuj (at the boundary between plots no. 1151/1 and no. 1152/3, as recorded in the official land-survey register for Hajdina), Blagoj Jevremov of the Ptuj Regional Museum (Pokrajinski muzej Ptuj) discovered a number of wasters (*Fig. 1:* 1; *Fig. 2:* 5). They lay approximately 110 cm below ground level, concentrated within an area of one square metre, and included 25 oil lamps (Jevremov 1977, 266; Jevremov 1985, 421; unpublished sources[1]). The details of the discovery were never recorded on any field drawings or photographs, and the description of the find-spot of the vessels and lamps does not include any stratigraphic information.

[1] "Trial-excavations at Spodnja Hajdina near Ptuj" (five pages of typescript; the un-signed author is B. Jevremov); "Spodnja Hajdina near Ptuj" (one page of typescript, signed by Blagoj Jevremov); a copy of a land-survey map with the find-spot of the wasters and the location of the seven trenches drawn; a map (scale 1:500) with the water-pipe ditch and the location of the find-spot of the wasters drawn-in (date: 16. 4. 1974, copied by F. Luževič 8. 12. 1998); sections and ground plans of the trenches I-

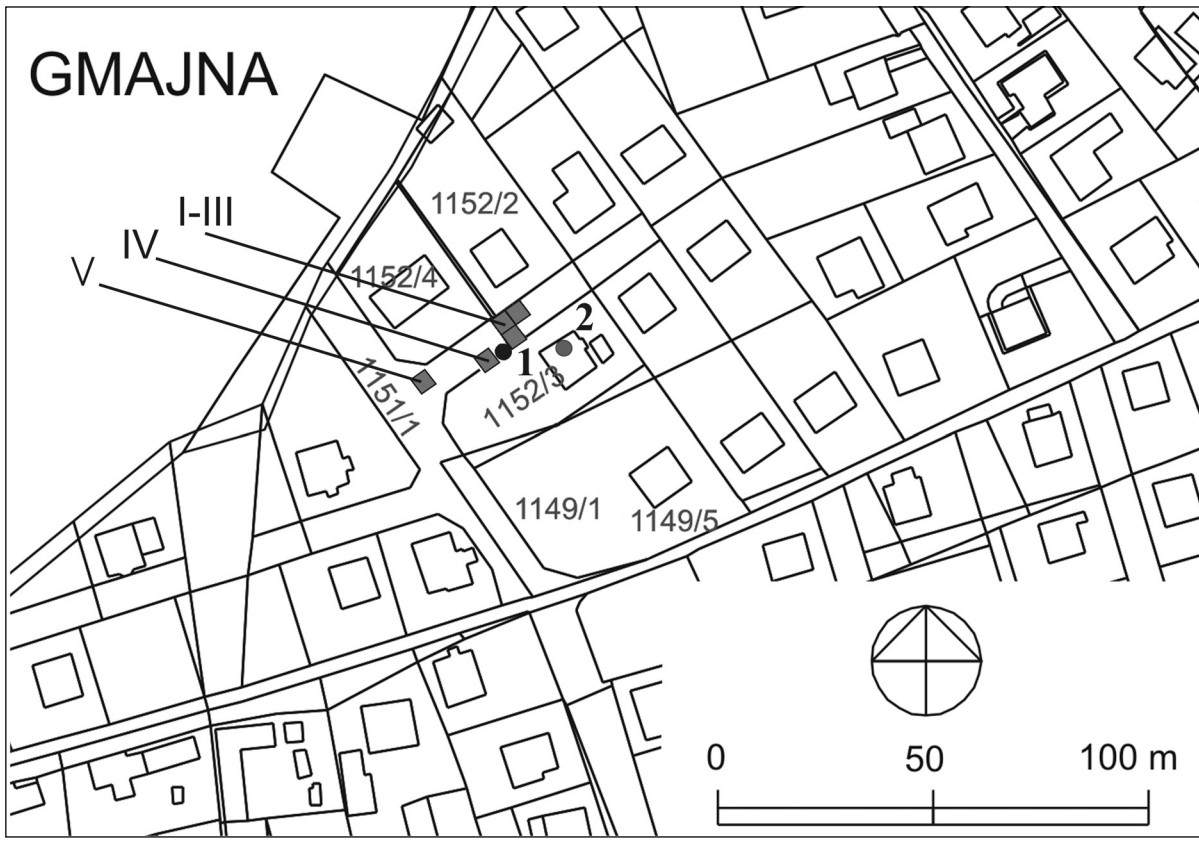


Fig. 1: Detail from the land-survey map of Hajdina, including: (1) the find-spot of the wasters (indicated by no. 5 in *Fig. 2*); (2) the adjacent pottery kiln excavated in 1974; (I-V) the position of the (4 x 4 m) trial-trenches.
Sl. 1: Izsek katastrskega načrta z označenim najdiščem zavrženih ponesrečenih lončarskih izdelkov (točka št. 5 na *sl. 2*)(1) in leta 1974 raziskane lončarske peči (2) ter lego poskusnih izkopov 4 x 4 m (I-V).

Because of the discovery of this material, several trial trenches (4 by 4 metres) were dug between May 20th and June 4th 1974. Three were sited to the NE (*Fig. 1:* I-III), and two west of the find-spot of the lamps and other vessels (*Fig. 1:* IV-V). No structures or finds were discovered relating directly to the wasters discussed here, and there were no distinctive wasters among a significant amount of pottery found in the trial trenches.

The finds and the documentation are stored at Ptuj Regional Museum.

Tomanič Jevremov, Istenič

3. DESCRIPTION, CLASSIFICATION AND CHRONOLOGY OF THE LAMPS

From the original context, 25 lamps were recorded. All but one were *Firmalampen* with an open nozzle-channel, and can be classified as Loeschcke Type X or Buchi Types Xa/b or Xb.[2] The eleven *Firmalampen* stamped CASSI form a homogeneous group.

3.1 *Firmalampen* without a discus: Type Loeschcke X variant

Lamps 1-11 (*Pls. 1-3; Fig. 3a,b*) represent a variant of Loeschcke Type X or Buchi Type Xb. The upper part (discus and shoulder) is not typical of *Firmalampen.* It is decorated with two symmetrically placed birds in relief, most likely swans, positioned with their heads stretching up to the handle, and with their tails encircling the filling hole.[3] Rising from the centre of the upper side of the lamp is a vertical handle, placed longitudinally, with a hole in

VI, drawn by F. Luževič in December 1998 (copied from the original drawings made during the trial-excavations in 1974). All sources (without identification numbers) are stored in Ptuj Regional Museum.
[2] For an outline of the typology of *Firmalampen* see: Istenič 1999, 149-150, 153.

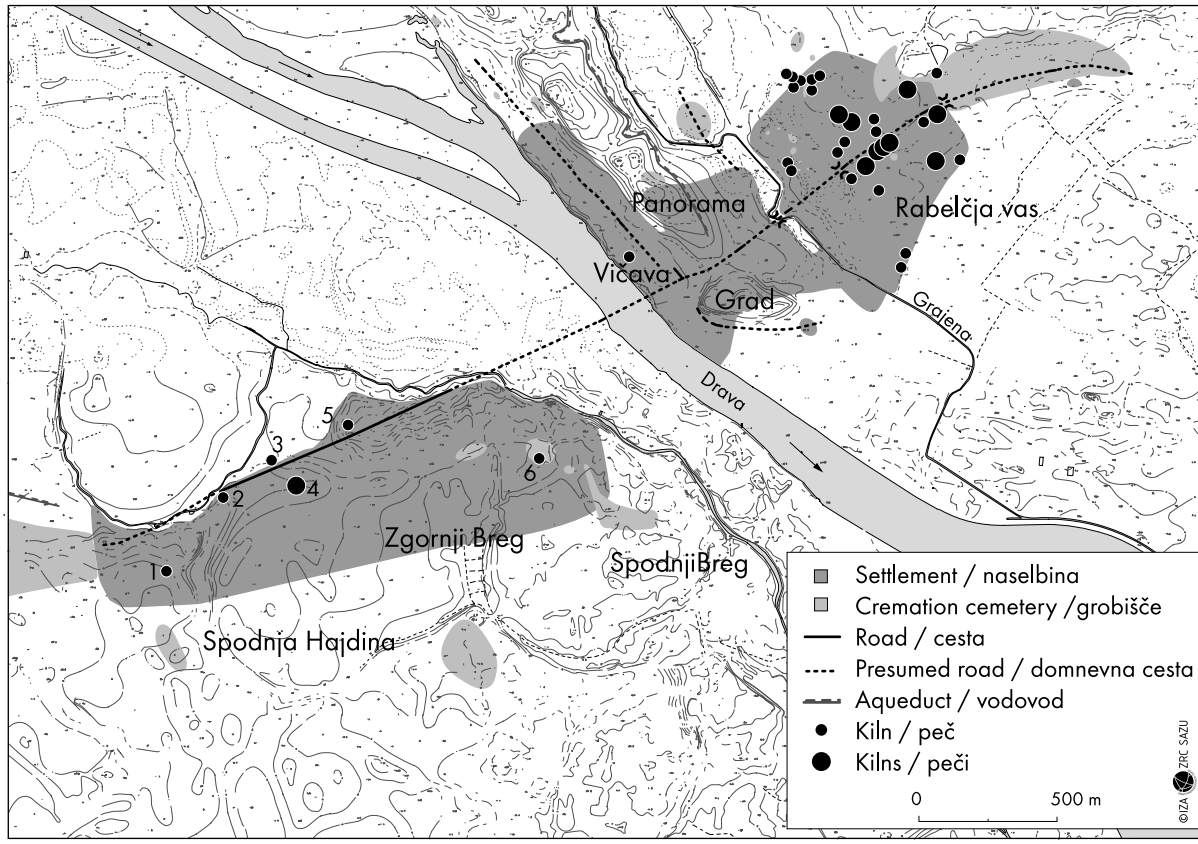


Fig. 2: Poetovio: the topographic situation (after Horvat et al. 2003, Figs. 3, 14 and 21, revised). The find-spot of the wasters and the near by pottery kiln are indicated by no. 5, the other pottery workshops on the right bank of the River Drava by nos. 2-6.
Sl. 2: Poetovio, pregledna topografska situacija; najdišče ponesrečenih lončarskih izdelkov in leta 1974 raziskane lončarske peči je označeno s št. 5, lega ostalih lončarskih delavnic na desnem bregu Drave pa s št. 2-6 (Horvat et al. 2003, sl. 3, 14 in 21; dopolnjeno).

the middle. The lamp hangs horizontally when suspended from the hole in the handle (*Fig. 4*).

The majority of the lamps show clear signs of distortion, particularly nos. 1, 4-6 and 8 (*Fig. 5a,b*).

The surface of the lamps is either dark grey (between 5Y 4/1 and GLEY 1 4/1[4]) or grey-brown (mixtures of 7.5 YR 5/1 and 5/2), often with red-brown (eg. 5 YR 5/4, 4/4), yellow-red (eg. 5 YR 5/8, 4/6), brown (eg. 7.5 YR 5/4) or grey-brown mottling (eg. 7.5 YR 4/1). The whole of the lower part of lamp no. 8 is red-brown. The surface is slightly rough to the touch and neither soapy nor dusty.

An examination of the surface using an X10 hand lens indicated a fine-grained fabric, with rare fine particles of mica and very rare fine to coarse quartzite grains. Coarse red-brown rounded porous inclusions were visible, particularly on the brown surface (probably indicative of a high iron content in the clay).[5] The hardness ranges from 4 (on the red-brown mottling) to 7 (on the grey areas). When any two of the lamps are banged together, they produce a metallic ring.

There are no visible fractures. On the damaged portions of the lamps, where the surface of the fabric had been removed, the exposed core appears fine-grained and bluish-grey (GLEY 2 5/1).

As described, composition of the lamps corresponds rather well with Fabric Groups F 8 and F 8/7 from Poetovio (Istenič 1999, 87-89). However, they are much harder (the normal hardness for this Fabric Group being 3), and there is little or no mica apparent. The reasons for these differences can be attributed to the over-firing of these lamps at temperatures above normal, which were so high that they had resulted in distortion and other damage.

On the walls and the lower part of the nozzle of several lamps, smoothing-facets are visible (eg.

[3] For the terminology of *Firmalampen* parts see Buchi 1975, XXII.
[4] Colours are defined according to the *Munsell Soil Color Charts* (2000, revised washable edition).
[5] For the criteria for defining the size and density of the particles, see Istenič 2000, 8.

Figs. 3a,b: Lamps nos 1-11: a) uppersides, b) undersides. Not to scale.
Sl. 3a,b: Oljenke št. 1-11, a) zgornja stran, b) spodnja stran. Brez merila.

no. 3). On the lower part of lamp no. 8, traces of a slip can be observed.

All eleven lamps were probably made from the same mould. The clearest proof of this is the evidence of the CASSI stamps on the base, which are identical in size, in the shape of the letters and in the irregularities of the impressed Ss. The stamped swans, for example, also exhibit the same characteristics. The differential length of the lamps, varying from 97 to 113 mm, is the result of their distortion.

The CASSI stamp is known only on *Firmalampen* of Loeschcke type X. Initially they were produced in northern Italy,[6] probably from the beginning of the 2nd century onwards (Buchi 1975, 19-20). For example North Italian lamps stamped CASSI are known from *Emona*/Ljubljana (Petru 1972, Pl. 37: 20;[7] 52: 6), Novo mesto (Knez 1969, Pl. 19: 2), Poetovio (Iványi 1935, 144, no. 1588, 1599, Pl. 81: 1,16)[8] and probably also from *Siscia*/Sisak, *Mursa*/Osijek and *Sirmium*/Sremska Mitrovica (Vikić-Belančić 1975, nos. 507-509).[9] Lamps of provincial production stamped CASSI are known, for example from *Emona* (Petru 1972, 38: 9),[10] *Carnuntum*/Bad Deutsch-Altenburg (Alram Stern 1989, 68-69, no. 166, Pl. 27) and probably also *Mursa* and *Siscia* (Vikić-Belančić 1975, nos. 501, 505).[11] Dora Iványi (1935, 143-145, nos. 1586-1609) mentioned several other *Firmalampen* stamped CASSI from Pannonian sites,[12] but the

[6] For the origins of the North Italian lamps, see Istenič 1999, 149 with bibliography, and Daszkiewicz, Schneider 1999, 184-190. An archaeometric approach has never been used previously on the CASSI stamped lamps (cf. Daszkiewicz, Schneider 1999, 190, Table 10).
[7] Confirmed by WD XRF analysis, performed by Dr. G. Schneider (Arbeitsgruppe Archäometrie, Freie Universität Berlin: sample E496), unpublished.
[8] Classified from an examination of the lamps.
[9] Classified from the publication.
[10] Classified from an examination of the lamp.
[11] Classified from the publications.
[12] At that time it was generally accepted that the lamps from *Emona* and its ager were also products of *Pannonia*.

Fig. 4: Lamp no. 9 suspended. Not to scale.
Sl. 4: Obešena oljenka št. 9. Brez merila.

nature of her publication does not allow one to distinguish North-Italian from provincial products.

In *Firmalampen*, an upper part without a discus is unusual. One of these extremely rare varieties of lamp from a North Italian workshop, for example, was found at *Aquileia*/Aquileia, and was classified by Buchi as Type Xa (Buchi 1975, 60, Pl. 21: 384). Such lamps are more frequent (but still rare) on Hungarian sites (Iványi 1935, 19, 263, nos. 3685-3690, Pl. 46: 15,17; Pl. 53: 4,6,9,11), which seems to imply Pannonian production. Iványi (l. c.) classified them as a variant[13] of *Firmalampen* with an open nozzle-channel (Type XVII, corresponding to Loeschcke Type X), characterized by the absence of the discus and by relief decoration. Judging from the published photograph, a relatively poorly preserved lamp from *Brigetio*/Komárom (Iványi 1935, 263, no. 3690, Pl. 53: 6) seems to form a perfect analogy to the lamps from Ptuj.[14] However, there is no mention of the stamp. Unfortunately, this lamp could not be located in Slovak or Hungarian museums,[15] so it proved impossible to verify whether its underside was still preserved, or to examine its fabric macroscopically, or take a sample for chemical analysis. Consequently, a Poetovian origin for this lamp must remain a hypothesis.

From their typological classification, these lamps are dated to the 2nd or 3rd (perhaps also 4th?) century (cf. Istenič 1999, 155-157).

Description

There are no noteworthy differences in the quality of the stamped swans, so they are not mentioned in the descriptions of individual lamps. The same applies to the CASSI stamps, which are shallowly impressed and have both the letters S stamped double and slightly off-centre. The main characteristics of the pottery fabrics have been described in the introduction and are not repeated in the catalogue. The terms left/right and front/back refer to lamps with their nozzles facing forwards and upwards. The inventory numbers are those of Ptuj Regional Museum.

Plate 1

1. Grey-brown and red-brown mottled surface. The nozzle is markedly warped, especially on its lower part, where a fragment of another vessel (a handle or rim in Fabric F 8/7[16]) is attached. On the underside, fingerprints made during the manufacture are visible. Length 111 mm. Inv. no. R 13553.

2. Grey-brown surface lacking well-marked mottling. Significant distortion on the upper side (the handle, the dent in the middle). Length 98 mm. Inv. no. R 13554.

3. Dark grey surface with well-marked red-brown mottling on the left side of the wall. On the damaged lower part of the nozzle, the blue-grey core is exposed and the nozzle is warped. The stamp is less well preserved than on the other lamps of this group. The lamp has been reconstructed and also slightly restored. Length 100 mm. Inv. no. R 13555.

4. Dark grey to grey-red surface with small brown-red and light brown-grey mottling. Marked distortion, comprising a deep crack at the beginning of the nozzle, shallow cracks on the swans, a well-marked "blister", and end of the nozzle warped. A blue-grey fragment of another vessel or lamp is attached to the "blister". Length 106 mm. Inv. no. R 13556; HTM and chemical analysis M509 (see Appendix); *Figs. 5a,b*.

Plate 2

5. Dark grey to grey-brown mottled surface; in two places (where the surface is damaged) a blue-grey core is visible. Marked distortion is apparent where the lamp side is squashed at the point where it becomes the nozzle. Length 97 mm. Inv. no. R 13557; *Figs. 5a,b*.

6. Dark grey surface without clearly marked mottling. There is significant distortion, especially on the lower part where fragments of other vessels or lamps (Fabric F 7/F 8) are attached in three places. Length 98 mm. Inv. no. 13558.

7. Dark grey surface with no clear-marked mottling. No marked warping, but perhaps a crack on the base. The lamp has been reconstructed and slightly restored. Length 111 mm. Inv. no. R 13559.

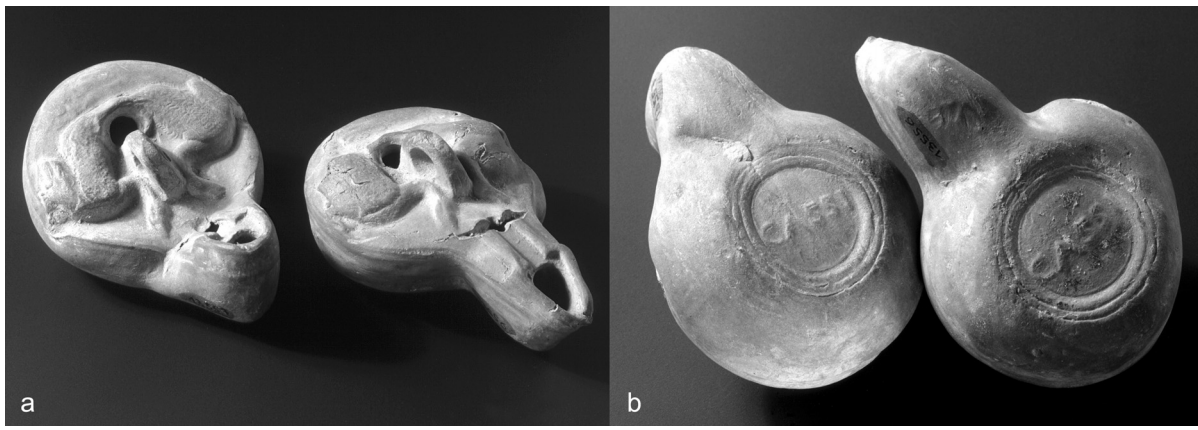
8. The surface is mottled: dark grey on the upper side, red-brown on the base; on the lower part, the remains of a thin brown-red slip are visible. There is a well-marked indented distortion at the side of the lamp (front right) and the bottom is warped. Length 97 mm. Inv. no. R 13560.

Plate 3

9. Grey-brown surface with brown-grey mottling. Slightly warped (particularly on the nozzle). Length 99 mm. Inv. no. R 13561; *Fig. 4*.

10. Dark grey surface with no clear-marked mottling, and on the damaged portion, a blue-grey core is visible. Clear dis-

[13] In the catalogue, Iványi classified such lamps under variant 3, and under variant 4 in the introduction (cf. Iványi 1935, 19, 263).
[14] Iványi (l. c.) described the poorly preserved decoration as a "stylised frog". The handle of the lamp is broken off.
[15] J.I. would like to thank Dr. Jan Rájtar (Slovenská Akadémia vied, Nitra) and Dr. Lászlo Kócsis (Magyar Nemzeti Múzeum, Budapest) for their efforts to trace the lamp.
[16] Classification from Istenič 1999, 87-89.



Figs. 5a,b: Lamps nos. 4 and 5; a) uppersides, b) undersides. Not to scale.
Sl. 5a,b: Oljenki št. 4 in 5, a) zgornja stran, b) spodnja stran. Brez merila.

tortion on the lower part, where the underside is indented. Length 99 mm. Inv. no. R 13562.

11. Dark grey surface with a small brown-red mottling. Slightly warped (asymmetric at the bottom). Reconstructed and restored (cca. 15%). Length 113 mm. Inv. no. R 13563; chemical analysis E606* (cf. fn. 24).

3.2 **Regular *Firmalampen* (Loeschcke Type X and variant Xk)** (*Pls. 3-5:*12-23; *Figs. 6-8*)

Thirteen of the *Firmalampen* belong to the standard, very common type of *Firmalampen* with an open nozzle-channel, i.e. Loeschcke Type X; the two lamps with a short nozzle (nos. 14 and 15) are classified as the variant Loeschcke Type Xk.[17] In view of the quality of their manufacture, they seem to correspond to Buchi Types Xa/b and Xb respectively.[18] Lamps 12 and 13, 14 and 15 as well as 16 and 17 were probably all made from the same moulds.

The stamps are as follows: APRIO/F (no. 20), CERIALIS (no. 23), FORTIS (nos. 16-19, 22; *Fig. 8b*) and OCTAVI (nos. 12-13, 21; *Fig. 8b*). Two of the stamps are illegible (nos. 14-15), and one has not survived (no. 24). All the legible stamps are known from the lamps of North-Italian manufacture (Istenič 1999, 150-155; CERIALIS: Buchi 1975, 22-25; Gualandi Genito 1986, 271-272), as well as from lamps from provincial production-sources (Alram Stern 1989, 67, 69, 71-72, 78; Istenič 1999, 155-157, Fig. 146).

The majority of these lamps show clear signs of warping or/and cracks, which are most evident in lamps nos. 12, 18-19 and 22 (*Figs. 8a,b*). There are also some lamps without damage attributable to production processes (nos. 15, 17).

From their colour, structure and surface texture, as well as from the core of the fabric, which is visible only in some, these lamps correspond perfectly to the group of eleven lamps with the CASSI stamp (cf. 3.1).

On typological grounds these lamps seem likely to belong to the 2nd-3rd (less likely to the 4th) centuries (cf. Istenič 1999, 155-157).

Description

The fabric is described in the main text and is not repeated in the catalogue. The terms left/right and front/back refer to lamps with their nozzles facing forwards and upwards.

Plate 3

12. Buchi Type Xb. Dark grey surface with a brown-red mottling. Significant distortion on the underside comprises a well-marked blister with a hole. There is a relief depiction of a theatre mask on the discus. The stamp, OCTAVI has been double-stamped, slightly off-set. Probably from the same mould as no. 13. The nozzle had been slightly restored. Length 91 mm. Inv. no. R 13564; *Figs. 8a,b*.

13. Buchi Type Xb. Dark grey surface with brown-red mottles. No warping. A relief depiction of a theatre mask on the discus. OCTAVI stamp, double-stamped, slightly off-set. Probably from the same mould as no. 12. Reconstructed and slightly restored. Length 88 mm. Inv. no. R 13565.

Plate 4

14. Buchi Type Xb, a variant with a short nozzle.[19] Grey-brown to red-brown mottled surface. Slightly warped on the

[17] Loeschcke 1919, 257, 278, Pl. 1: Xk; Buchi 1975, XXVIII.
[18] Cf. Istenič 1999, 153.
[19] Buchi's (1975, XXIV, XXVIII, Cat. nos. 16, 17, 30, 31, 124, 313, 314, 325, 350 etc.) classification of the short-nozzle-lamps is inconsistent, because he classifies them only on the basis of form ("tipo X-forma corta"), whereas the quality of the manufacture, which is taken into consideration in the classification of other Type-X lamps, is not defined. I would suggest, therefore, that the short-nozzle lamps should also be divided according to the quality of their manufacture, like the other Type X (a-c) lamps; the use of the term "short-nozzle" should draw attention to its particular form.

Fig. 6: Firmalampen nos. 12-22 and relief lamp no. 25, undersides. Not to scale.
Sl. 6: Pečatne oljenke št. 12-22 in reliefna oljenka št. 25, zgornja stran. Brez merila.

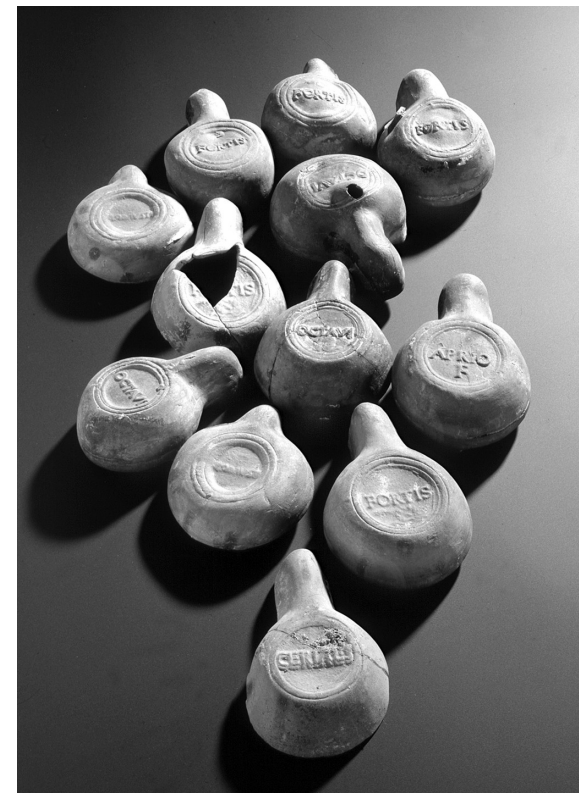


Fig. 7: Firmalampen nos. 12-22 and relief lamp no. 25, undersides. Not to scale.
Sl. 7: Pečatne oljenke št. 12-22 in reliefna oljenka št. 25, spodnja stran. Brez merila.

base. Traces of a thin slip? The stamp is illegible. Fingerprints on the underside. Probably from the same mould as no. 15. Length 73 mm. Inv. no. R 13573.

15. Buchi Type Xb - a short nozzle. Grey-brown to red-brown mottled surface. No distortion. Traces of a thin slip? The stamp is illegible. Probably from the same mould as no. 14. Fingerprints on the shoulder. Length 73 mm. Inv. no. R 13574.

16. Buchi Type Xa/b. Dark grey to red-brown mottled surface. No warping. Two relief images of a theatre mask on the discus. A well-made FORTIS stamp, and a more shallowly impressed stamp of a small garland underneath. Possibly from the same mould as no. 17. Length 88 mm. Inv. no. R 13566; chemical analysis E609* (cf. fn. 24).

17. Buchi Type Xb. Yellow-red surface with partly preserved thin darker yellow-red slip with small dark grey mottling. Stamped F(OR)TIS, with a small garland underneath. No distortion and no other manufacture-related damage are visible. The major part of the discus is missing, and also part of the underside. Fingerprints are visible on the inside surface of the lower part. Possibly from the same mould as no. 16. Length 92 mm. Inv. no. R 13578.

18. Buchi Type Xb. Dark grey surface with brown-grey and red-brown mottling. A crack on the bottom reveals a blue-grey core. Stamped FORTIS. A clearly-marked distortion on the bottom and the nozzle, as well as a 28-mm crack at the back of the reservoir, where the upper and lower parts of the lamp (which had been pressed separately into two moulds) were joined together; also a 33-mm crack on the underside. A portion of another vessel or lamp is attached to the right side. Part of the nozzle terminal is missing. Length 87 mm. Inv. no. R 13571; *Figs. 8a,b*.

19. Buchi Type Xb. Dark grey surface with brown-grey and red-brown mottling. Stamped FORTIS, in well-shaped letters, but uneven. Distorted on the bottom, with blisters on the nozzle and sides. A 35-mm crack at the right side of the reservoir, where the upper and lower parts of the lamp (which had been pressed separately into two moulds) were joined together. Length 86 mm. Inv. no. R 13570.

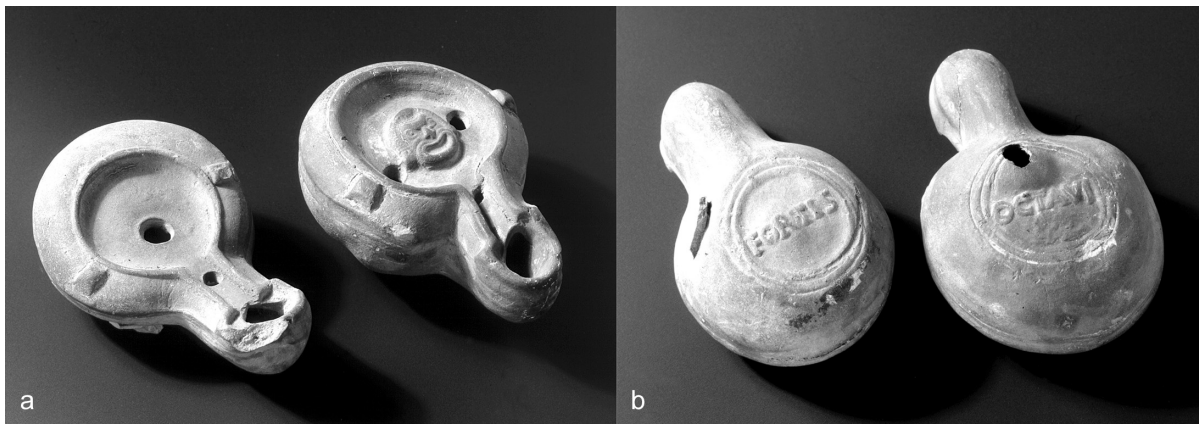
Plate 5

20. Buchi Type Xb. Dark grey surface with brown-grey and red-brown mottling. A cleanly impressed stamp APRIO/F, in well-shaped letters. No distortion, but a 37-mm crack on the left side of the reservoir, where the upper and lower parts of the lamp, (originally pressed separately into two moulds) had been joined. Length 93 mm. Inv. no. R 13568.

21. Buchi Type Xa/b. Dark grey surface. Slight warping. Finger-prints on the lower part. Clearly stamped OCTAVI in well-shaped letters. Small parts of other ceramic vessels or lamps (blue-grey in colour) are attached to the lower part in two places. Length 82 mm. Inv. no. R 13569.

22. Buchi Type Xb. Dark grey surface with grey and brown-red mottling. Blue-grey fabric on the nozzle fracture. Well-marked distortion. Stamped FORTIS twice, slightly misaligned, in well-shaped letters. The front part of the nozzle is missing. Two fragments of other ceramic vessels or lamps are attached to the body in two places. Surviving length 68 mm. Inv. no. R 13572; chemical analyses E601*, E602* (cf. fn. 24).

23. Buchi Type Xb. Grey surface. Blue-grey fabric visible in the fracture. Double-stamped CERIALIS with the stamps misaligned. No warping. Only the lower part of the lamp survived reconstructed from two pieces. Finger-prints on the in-



Figs. 8a,b: Lamps nos.12 and 17, a) uppersides, b) undersides. Not to scale.
Sl. 8a,b: Oljenki št. 12 in 17, a) zgornja stran, b) spodnja stran. Brez merila.

side surface. Length 88 mm. Inv. no. R 13575; chemical analysis E600* (cf. fn. 24).

24. Buchi Type Xb. Grey surface and grey-brown mottling. Blue-grey fabric visible in the fractures. Only approximately a third of the lamp survived and excludes the stamp. Length 50 mm. Inv. nos. R 13576 and R 13577; chemical analysis E607* (cf. fn. 24).

3.3 **Relief lamp**
(*Pl. 5:* 25; *Fig. 6*)

Only one lamp (no. 25) from this context does not belong to the *Firmalampen* class, but rather to the Loeschcke Type VIII, characterized by a circular reservoir and a rounded nozzle lacking volutes (Loeschcke 1919, 31, Fig. 7). The type originated in Italy, where it was made from the beginning of the 1st century onwards and was still popular in the 3rd century.

Italian made lamps of this type are rare in the regions north of the Alps (Leibundgut 1977, 36), and also in our area.[20] Pannonian provincial products are also uncommon. In general, they are dated to the 2nd and 3rd centuries (Iványi 1935, 14; Leibundgut 1977, 36, fn. 2). Iványi classified them under her Type X (Iványi 1935, 13-14, Pls. 34, 35: 3-8).[21] Compared with the Italian prototypes, they have a more massive and slightly oblong body. Another characteristic is a flat handle, sometimes with a hole. Lamp no. 25 is of higher quality than most of the lamps listed by Iványi.

From its colour, structure and surface texture, lamp no. 25 corresponds exactly to the group of eleven lamps stamped CASSI (see 3.1). In some examples, there are also similarities in the fractures, which exhibit small oblong holes that are not present in the few other broken lamps from this context (see the description) and are the result of firing at excessive temperatures. Warping is absent.

Description

Plate 5

25. A row of ovolos impressed on the shoulders, within the circle in the middle is a rosette with tiny leaves. Dark grey surface with a brown-grey mottling. Part of the base is missing. In its thickest part (5 mm), which is approximately 1.2 mm in length, the fracture is blue-grey near the outer surface; elsewhere it is dark red-grey (10R 4/1) and distinctly porous; small oblong holes are visible. Where the walls are thinner, the fracture is homogeneous and blue-grey with no cavities. Inv. no. R 13567; chemical analysis E608* (cf. fn. 24).

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4. **THE DESCRIPTION AND CLASSIFICATION OF THE VESSELS**

In addition to the lamps, there were also several other vessels among the finds discussed here: five indented beakers (*Pl. 6:* 26-30; *Fig. 9*), six beakers with a strap handle, three of them conjoined (*Pl. 6:* 31-33; *Figs. 10, 11*), a large jug and a bottom of an enclosed vessel (perhaps a small flagon). The clear majority exhibit significant distortion that had occurred during the firing. In colour, structure, surface texture and in the core of the fabric (visible in only a few vessels), the vessels correspond to the lamps described above (section 3.1). The only exceptions are the indented beaker (no.

[20] Among the many lamps from the western cemeteries of Poetovio, for example, there is only one such lamp (Istenič 1999, 165; Istenič 2000, 155, Pl. 99: 6).
[21] Iványi's Type X includes rather diverse forms of lamps.

Fig. 9: Indented beaker no. 27. Not to scale.
Sl. 9: Čaša gubanka št. 27. Brez merila.

Fig. 10: Cups nos. 31 (rear), 32 (middle) and 33 (foreground). Not to scale.
Sl. 10: Skodelice št. 31 (zadaj), 32 (v sredini) in 33 (spredaj). Brez merila.

26), the flagon and the base of the possible flagon (nos. 37-38). The fabric of these corresponds to Poetovian groups F 7 and F 15 respectively (Istenič 1999, 87-89) and shows no clear-marked production damage (nos. 37-38) or no more than only moderate damage (no. 26).

All five of the indented beakers have six indentations each and are similar in shape; two and two (nos. 27 and 28, and nos. 29 and 30) have rims of the same shape. But are of different sizes. The handled beakers (nos. 31-36) are of the same shape and similar in their sizes. Before their distortion, they were probably of approximately the same size, suggesting that they had been manufactured according to uniform dimensions.

The indented beakers and handled beakers have excellent analogies among the pottery from the pottery kiln discovered in the immediate vicinity of these finds (*Fig. 1:* 2). Certain fragments also show clear damage which had occurred during the firing process (Strmčnik-Gulič 1993, Pl. 1: 3, 6, 13, Pl. 6: 1-16).

Indented beakers are not rare among the Poetovian pottery (for some of the published comparisons see: Kujundžić 1982, Pl. 3: 17, Pl. 8: 11-13, Pl. 11: 5; Istenič 1999, 117-118), and in general, are dated to the 1st-3rd centuries (Istenič, l. c.). With the exception of the finds from the pottery kiln, the handled beakers have no parallels among finds published so far. A flagon of similar shape to no. 37 was found, for example, in a Poetovian grave (Kujundžić 1982, Pl. 18: 17).

Description

Plate 6

26. Indented beaker. Fabric F 7 (cf. Istenič 1999, 87-88), uneven thin dark red-grey slip on the surface (2.5 YR 5/6- 5YR 4/2), with rough-casting made of particles of clay. Reconstructed from several fragments and restored. Slightly warped. Height 202-206 mm. Inv. no. R 13541.

27. Indented beaker. Dark grey to brown-grey surface. A fresh fracture is blue-grey. Well-marked distortion. Reconstructed from many fragments and restored in part; approximately a fifth of the vessel is missing; sherds attached to the base. Height 128 mm. Inv. no. R 13545; chemical and HTM analysis E610* (cf. fn. 24 and Appendix); *Fig. 9*.

28. Indented beaker. Dark grey to light-brown-grey, slightly mottled surface. Slightly warped (squashed on the side, and an elliptical rim). Reconstructed from many fragments and restored. Height 120 mm. Inv. no. R 13542.

29. Indented beaker. Dark grey to light-brown-grey, slightly mottled surface. No warping or any other signs of manufacturing-damage. Reconstructed from many fragments and restored. Part of a melted ceramic object is attached to the base. Height 88 mm. Inv. no. R 13544.

30. Indented beaker. Dark grey to brown-grey, slightly mottled surface. No warping or any other signs of damage in manufacture. Reconstructed from many fragments and restored. Height 80 mm. Inv. no. R 13543.

Fig. 11: Conjoined cups nos. 34-36. Not to scale.
Sl. 11: Sprijete skodelice št. 34-36. Brez merila.

31. A beaker with a strap handle, narrow base and globular body. The relatively narrow rim is gently everted, with a shallow groove on its edge. There are seven slanting lines approximately 50 mm long impressed onto the body, which make this part of the beaker folded. The inner surface shows clear potter's wheel-ribbing. Dark grey to brown-grey, slightly mottled surface. In several places, the damaged surface reveals a blue-grey core. The beaker has been reconstructed from many fragments and slightly restored. Height 95 mm. Inv. no. R 13548; *Fig. 10*.

32. A beaker of the same shape as no. 31. Red-brown fabric with a thin dark brown-grey mottled layer on the surface. The vessel has been reconstructed from many fragments, and approximately one third has been restored. Height 100 mm; Inv. no. R 13546; *Fig. 10*.

33. A beaker of the same shape as no. 31. Dark grey surface with a brown-grey mottle. Well-marked distortion in one place, due to its contact with part of another ceramic object (its fabric does not correspond to F 7/F 8), which has become fused to it. The beaker is reconstructed from several fragments, and approximately one sixth of it is restored; MGR analysis of the material fused to the cup: M511 (see Appendix). Height 95 mm. Inv. no. R 13547; *Fig. 10*).

34-36. Three beakers of the same shape as no. 31. Dark-grey and brown-grey surface, no visible fractures. There is clear-marked distortion on two of the cups; the bodies of all three are conjoined. Also, a large and a small fragment of another vessel (dark grey surface, same fabric as the beakers) are attached to the beaker Inv. no. R 13552. One beaker is intact (Inv. no. R 13550), two have been reconstructed from many fragments and restored. The height of the least distorted beaker (Inv. no. R 13550) is 101 mm; the heights of the other two are 93 and 90 mm respectively. Inv. nos. R 13550, R 13551, R 13552; *Fig. 11*.

Plate 7

37. Large single-handled flagon. Grey surface (2.5 Y 7/1), rough due to a number of fine quartzite inclusions. The fabric corresponds to Fabric Group F 15 (Istenič 1999, 88-89). Reconstructed from many fragments and restored. Height 369 mm. Inv. no. R 13540.

38. A base of a vessel, probably a flagon. Light brown pottery (surface and fracture), dusty surface, hardness 3. Corresponds to Poetovian Fabric Group F 7 (cf. Istenič 1999, 87-88). Reconstructed from several fragments and partly restored. Surviving height 63 mm. Inv. no. R 13549.

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5. THE DISCUSSION AND INTERPRETATION OF THE FIND

An overwhelming majority of the objects presented in this paper show clear signs of failed firing. These signs involve distortion, blisters and cracking, which were not caused during the drying of the pottery, for example, but usually occur as a result of firing at excessive temperatures. Two samples, one of lamp no. 4 (sample M509) and one of indented beaker no. 27 (sample E610) were analysed under a high-temperature microscope.[22] These analyses showed that the damage had indeed occurred because the temperature at the time of firing was too high for the raw material (clay) used. One over-fired sample (lamp no. 4) had reached at least 1100°C, the second one (beaker 27) had reached at least 1250°C. Poetovian Fabric Group F 7/F 8 was normally fired at 800 to 1000°C (cf. Daszkiewicz, Schneider 1999, 183).

Sample M511 was taken from the clay item attached to beaker no. 33. Macroscopically it differs clearly from fabric F 7/8. MGR analysis[23] showed that it had been exposed to 1050-1100°C and was not over-fired (see Appendix). Perhaps it had constituted part of oven furniture which had supported or separated vessels in the kiln during firing. It can be assumed that the beaker, softened because of the high temperature in the kiln, had come into touch with this object and had fused to it.

The unevenly fired, only partly undamaged lamps, or the lamps with a different amount of damage, as well as the HTM analyses of two samples (see above and Appendix) all imply that the temperature in the kiln had been unevenly diffused. Only a fraction of the lamps and vessels (or their parts) had not been exposed to damagingly high temperatures; these match the characteristics of the most common group of Poetovian fabrics, i.e. F 7 (cf. Istenič 1999, 87-89). Had they been fired at normal temperatures, we may assume that the damaged lamps and vessels would have corresponded perfectly to the macroscopic appearance of the Fabric Group F 7/F 8. This was confirmed by the chemical analyses of all of the nine analysed samples (lamps 11,

[22] The basis of the method is explained in Daszkiewicz, Schneider 1999, 183.
[23] The basis of the method is explained in Daszkiewicz, Schneider 1999, 181 (here the method, which was still under development, was called "colour analysis").

16, 22-25, beaker no. 27 and the fragment attached to lamp no. 22[24]; lamp no. 4[25]). They all belong to the chemical groups A and B, which correspond to the Fabric Group F 7/F 8, defined from macroscopic observation. Group F7/F8 is the most common local fabric at Poetovio (Istenič 1999, 87-89; Daszkiewicz, Schneider 1999).

The discarded ceramic wasters indicate the presence of a pottery workshop nearby. Part of it comprised a pottery kiln, discovered 15 metres away (*Fig. 1:* 2), which was excavated in 1974 (Strmčnik-Gulič 1993; Strmčnik-Gulič 1988; Strmčnik-Gulič 1977). Inside it were a number of ceramic vessels, among them beakers with a handle identical in shape to beakers nos. 31-33 (o. c., Pl. 1: 3,6 - a distinctive waster, 13) and indented beakers similar to beakers nos. 26-30 (o. c. Pl. 2). It is not clear whether these belong to the last batch of vessels fired in this kiln (Strmčnik-Gulič 1993, 484) or whether they had been dumped there from one or more possible kilns nearby.[26] The wasters discussed in this paper were most likely all made at the same time. They date to the 2nd or 3rd century on the basis of the lamps and indented beakers.

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6. CONCLUSION

The items discussed here were made at Poetovio in the 2nd-3rd centuries. The majority of them are wasters from a pottery kiln. They are cracked, distorted and even fused with other items. The damage was due to firing at excessive temperatures, which were unevenly diffused within the kiln and which reached to at least 1250°C.

Inadequate archaeological documentation makes it impossible to determine whether the items had been deposited into a pit or maybe dumped on a waster heap. The relatively homogenous composition of the wasters seems to imply a deposit of failed products from a single batch.

The wasters discussed here and the pottery kiln found in their immediate vicinity suggest a pottery workshop. It represents one of the few pottery workshops recorded at Poetovio on the right bank of the River Drava. They are indicated from pottery (tile?) kilns. A group of four kilns was found at lot no. 1087/1 in 1087/3 l.s.r.[27] Hajdina (*Fig. 2:* 4; Mikl Curk, Lubšina Tušek 2002). Single kilns were found at lot no. 1082/1-2 l.s.r. Hajdina (*Fig. 2:* 2; Smodič 1958-1959, 39-40), at Gubec street, lot. no. 1086/2 l.s.r. Hajdina (*Fig. 2:* 3; Vomer Gojkovič 1998, 18-22), at the eastern border of plot no. 504 l.s.r. Hajdina[28] (*Fig. 2:* 1), as well as at the boundary between plots nos. 1998/1 and 2004/2 l.s.r. Ptuj (*Fig. 2:* 6; Tušek 1985, 241-242).

Numerous remains of Poetovian pottery and brick workshops have been excavated on the left bank of Drava, at Rabelčja vas (Horvat et al. 2003, 167, 170, 181, Fig. 14, with further bibliography; Tomanič Jevremov 2004, 97-99). They indicate vast pottery and brick workshops and are consistent with the picture of Poetovio as an important centre for pottery and brick production and distribution, an impression evident from previous research on local pottery products and their distribution (Istenič 1999, 15-16, 167-172, 191-202).

Istenič, Tomanič Jevremov

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[24] The overview of the analysed samples and results (after Daszkiewicz, Schneider 1999, 174-175, 188-189, Tables 1 in 8).

sample no.	inv. no.	chem. group	no.
E600*	PMP R 13575	A	23
E601*	PMP R 13572	B	22
E602*	PMP R 13572	A	22, attached part
E606*	PMP R 13563	B	11
E607*	PMP R 13577	B	24
E609	PMP R 13578	B	16
E608*	PMP R 13567	B	25
E610*	PMP R 13545	A	27

[25] See Appendix, *Table 1.*

[26] It was common practice to dump wasters from nearby kilns into abandoned kilns (Dr. Vivien Swan, verbal information).

[27] L.s.r. = land-survey register for Hajdina.

[28] Found in march 2002 (verbal information Marija Lubšina Tušek, Zavod za varstvo kulturne dediščine Slovenije, Območna enota Ptuj).

All of the photographs are work of Tomaž Lauko. Drawings on Plates 1-7 were made by Uroš Stiškovski and Ida Murgelj (Narodni muzej Slovenije), except nos. 26 and 37 which were made by Nejka Uršič Jesenik (Pokrajinski muzej Ptuj).

Figure 1 was made by Ivo Bizjak and figure 2 by Mateja Belak (Inštitut za arheologijo ZRC SAZU). Roman Hribar (Narodni muzej Slovenije) prepared the computer lay-out of all the pictorial material.

APPENDIX

Wasters from Spodnja Hajdina - determination of "firing" temperatures

Małgorzata DASZKIEWICZ and Ewa BOBRYK

The aim of this laboratory study was to determine the temperatures reached by three ceramic items: an over-fired fragment of lamp no. 4 (M509), an over-fired fragment of indented beaker no. 27 (E610) and a probable ware support for use in the firing chamber[29] (M511) which had been fused to beaker no. 33 (see Istenič, Jevremov above).

Two analytical procedures were employed: MGR-analysis to determine the temperature reached in sample M511, and high-temperature microscopy (HTM) for identifying the temperatures to which the lamp (M509) and the indented beaker (M610) had been exposed.

MGR-analysis enables the range of original firing temperatures to be estimated. The temperature at which the first changes in the re-fired fragments become apparent indicates the original firing temperature. This, however, does not apply to grey/black sherds. The temperature at which these change to a reddish colour depends on the nature of the grey colour, which can be the result of the reduction of iron-oxide or to the presence of organic material, or both. After this, further changes indicate the original firing temperature, as described.

The examination of pottery under a high-temperature microscope is a tool for estimating the four characteristic temperatures of ceramic material: the beginning and end of sintering (end of sintering is the last temperature at which a reduction in size without a change in shape occurs), the softening point (first changes in shape), the melting point (when the sample becomes spherical or almost spherical in shape) and the flowing point (when the melted sample creates a one-millimetre layer on the support). From the thermal behaviour observed during examination of a sample it is possible to determine the original firing temperature.

MGR-analysis

Eight thin slices were cut from the sample. One of these sections was left as an indicator of the sample's original appearance, whilst the remaining seven were fired in a laboratory chamber furnace, each one at a different temperature. Firing was carried out at 900, 950, 1000, 1050, 1100, 1150 and 1200°C in air, static, with a heating rate of 200°C/h and a soaking time of 1h at the peak temperature (i.e. holding the kiln at the same temperature).

High-temperature microscopy

The size of a cube of, e.g. 3 by 3 mm, cut from each sherd, changed with the temperature and was measured from a series of photographs. Heating was carried out in air, static, with a heating rate of 300°C.

Results

1. Lamp no. 4 (sample M509), fabric F8, chemical group B (*Table 1*).

Figure 12 shows the thermal behaviour up to 1350°C. Up to 1100°C no changes were observed. Expansion started when the sample reached 1100°C. This was the temperature to which the sample was originally fired. The relative linear expansion[30] was 2.47% at this temperature and continued up to melting point.[31] Melting of the sample occurred after heating at 1350°C; this is shown in the curve as a decrease in the relative linear expansion. An absence of sintering[32] shows that this lamp had originally reached a temperature

[29] Ware supports could be of many types and belong to the so-called kiln furniture. They were used (and are still used in modern pottery workshops) e.g. to hold the vessels clear of each other, or clear of the kiln walls, to aid stacking and balance vessels during the firing and to prevent pots from sticking together. Ware supports are made from the same or similar raw materials like the vessels or are made from refractory materials (cf. Rada 1989, 78-180).

[30] Relative linear changes (expansion or sintering) are calculated from the ratio S = (ln – lo) / lo x 100% with ln = linear dimension of a sample after heating at a given temperature, lo = linear dimension of a sample before heating

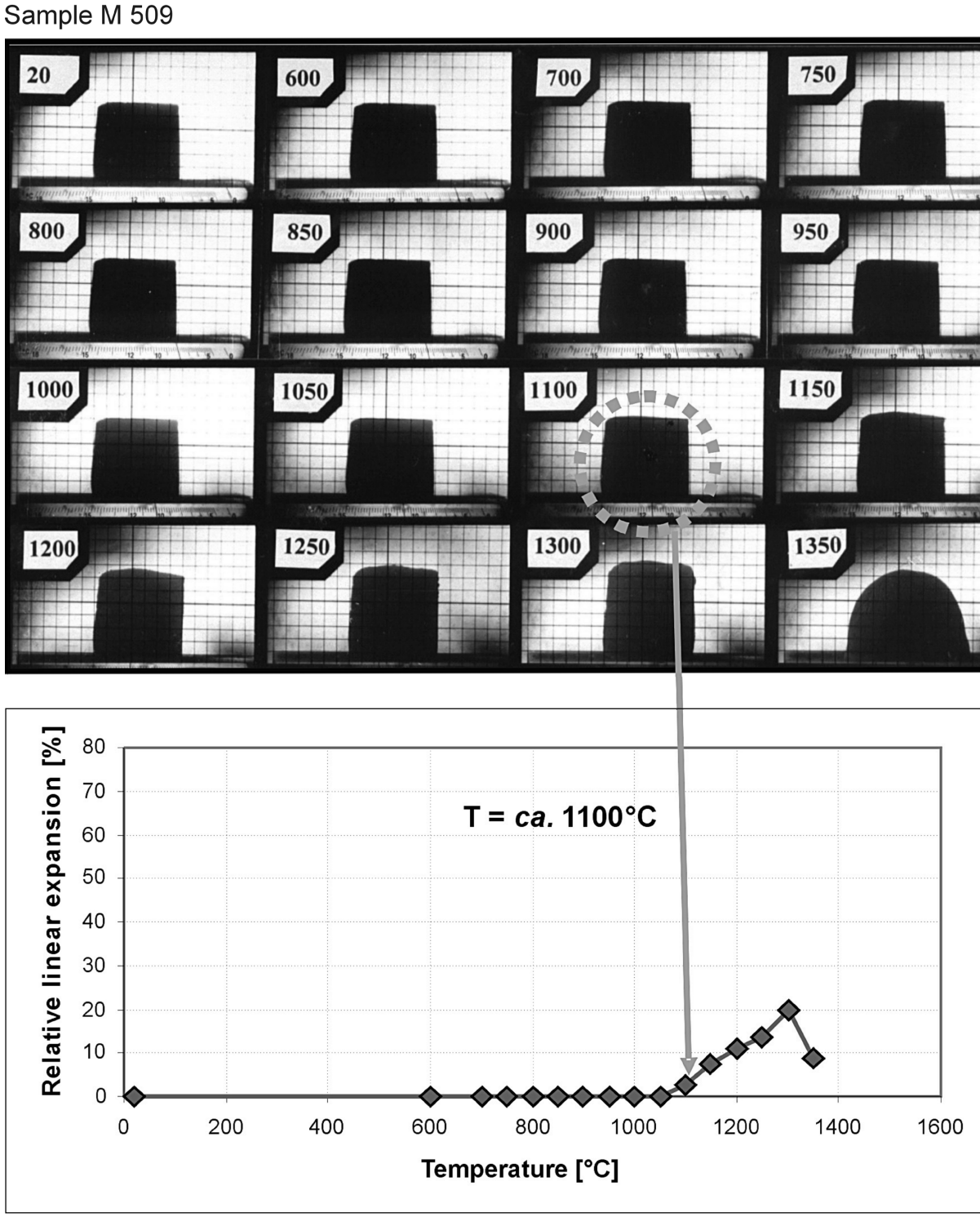

Fig. 12: High-temperature microscopy: lamp no. 4 (sample M509), Fabric F8, Chemical Group B. Expansion starts when the sample reached 1100°C, that is the temperature to which the sample was originally exposed.
Sl. 12: Vzorec M509 (oljenka št. 4, keramika F 8, kemijska skupina B), analiziran v talilnem mikroskopu. Oblika in velikost se začneta spreminjati pri 1100 °C, tj. pri temperaturi, ki ji je bil vzorec izpostavljen pri prvem žganju.

higher than the temperature of the end of sintering and that it was already within range of the softening.[33] This induced the effect of over-firing.

2. Indented beaker no. 27 (sample E610), fabric F7/8, chemical group A (cf. fn. 24 and *Table 1*). *Figure 13* shows the thermal behaviour up to

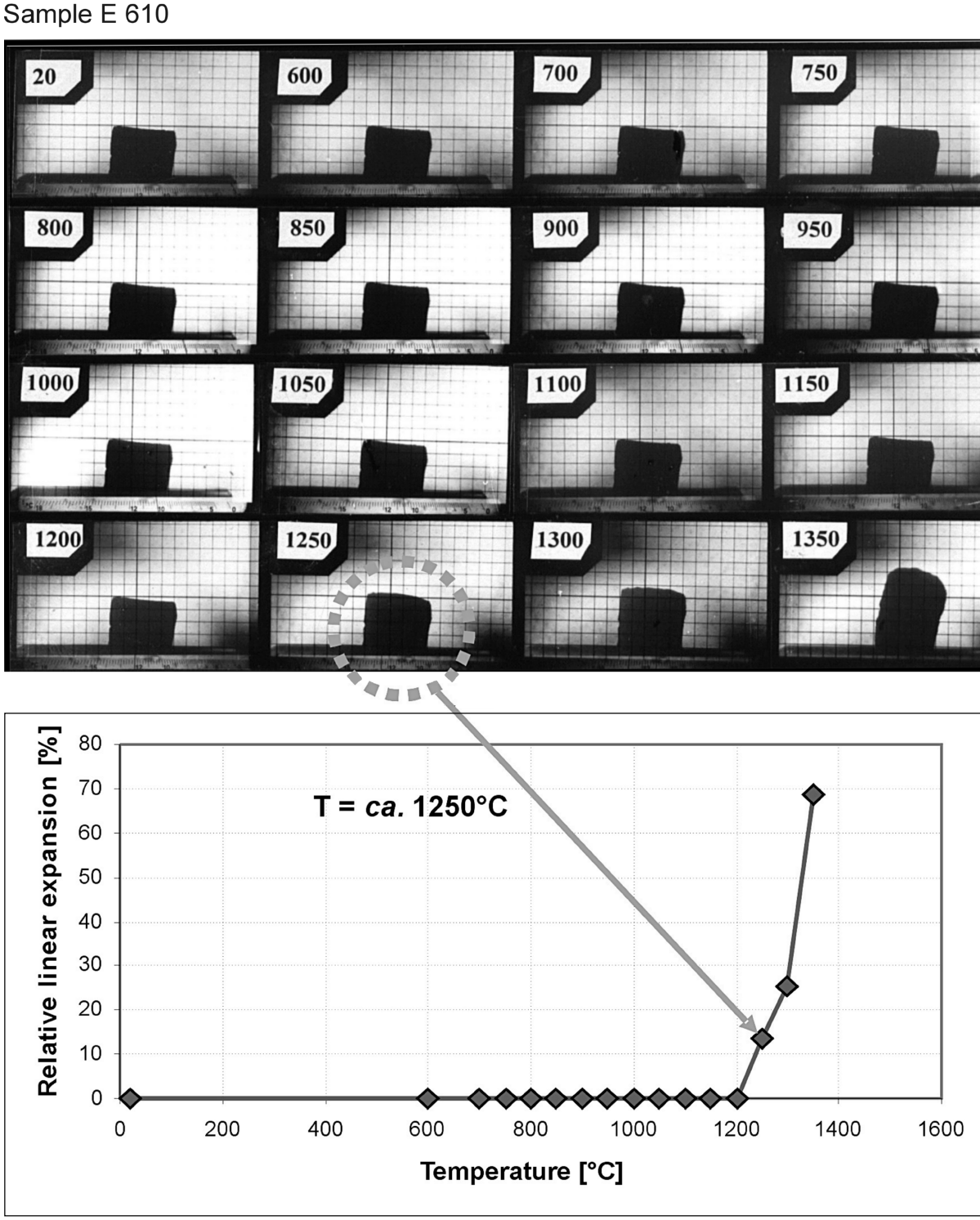

Fig. 13: High-temperature microscopy: indented beaker no. 27 (Sample E610), Fabric F7/8 Chemical Group A. The first expansion is recorded at 1250°C, which corresponds to the original firing temperature.
Sl. 13: Vzorec M510 (gubanka št. 27, keramika F 7/8, kemijska skupina B), analiziran v talilnem mikroskopu. Oblika in velikost se začneta spreminjati pri 1250 °C, tj. pri temperaturi, ki ji je bil vzorec izpostavljen pri prvem žganju.

[31] Melting point = the sample becomes spherical or almost spherical in shape.
[32] Sintering = the sherd is well compacted, it becomes smaller in size in comparison to the original sample, whilst its edges remain sharp.

1350°C. No melting, but only bloating (i.e. blisters) appeared. The first expansion registered at 1250°C (corresponding to the original firing temperature), the relative linear expansion at this temperature was 13.7%. The expansion was recorded up to 1350°C. An absence of sintering, as in sample M509, showed that this sample had already reached the temperature range of softening during its "ancient" firing, resulting in the distortion of the vessel.

3. The ware support (sample M511), fused with beaker no. 33 (see *Fig. 10*), clearly differs from fabric group F 7/F 8 and from chemical groups A and B (Table 1). In MGR analysis the first changes in colour could be seen after re-firing in air at 900°C (*Fig. 14*), due to the changes in the firing atmosphere. A clear second change was observed after re-firing at 1100°C. This means that the temperature to which this material in the kiln had been subjected was within the range of 1050-1100°C. At 1200°C the surface of the re-fired fragment (M511) was slightly over-melted.[34] Above this temperature, this material would have been over-fired and so it would not have been stable and would not have functioned satisfactorily as a vessel support in the kiln chamber.

The temperature to which sample M511 was subjected during its original firing had been higher than the normal firing-temperature of pottery made in Poetovio (800-1000°C), and was so high that samples with a thermal behaviour similar to sample M509 (the handled beaker) would have fused to it. As is shown on *Figure 10* the beaker no. 33 collapsed. This is because the beaker had reached its softening point and therefore fused to the ware support, which had still not been over-fired.

4. The different thermal behaviour of the three analysed samples is due to differences in their chemical compositions (*Table 1*). The indented beaker no. 27 (sample E610) belongs to chemical group A and is characterised by its softening point at c. 1250°C. Thermal behaviour of the lamp no. 4

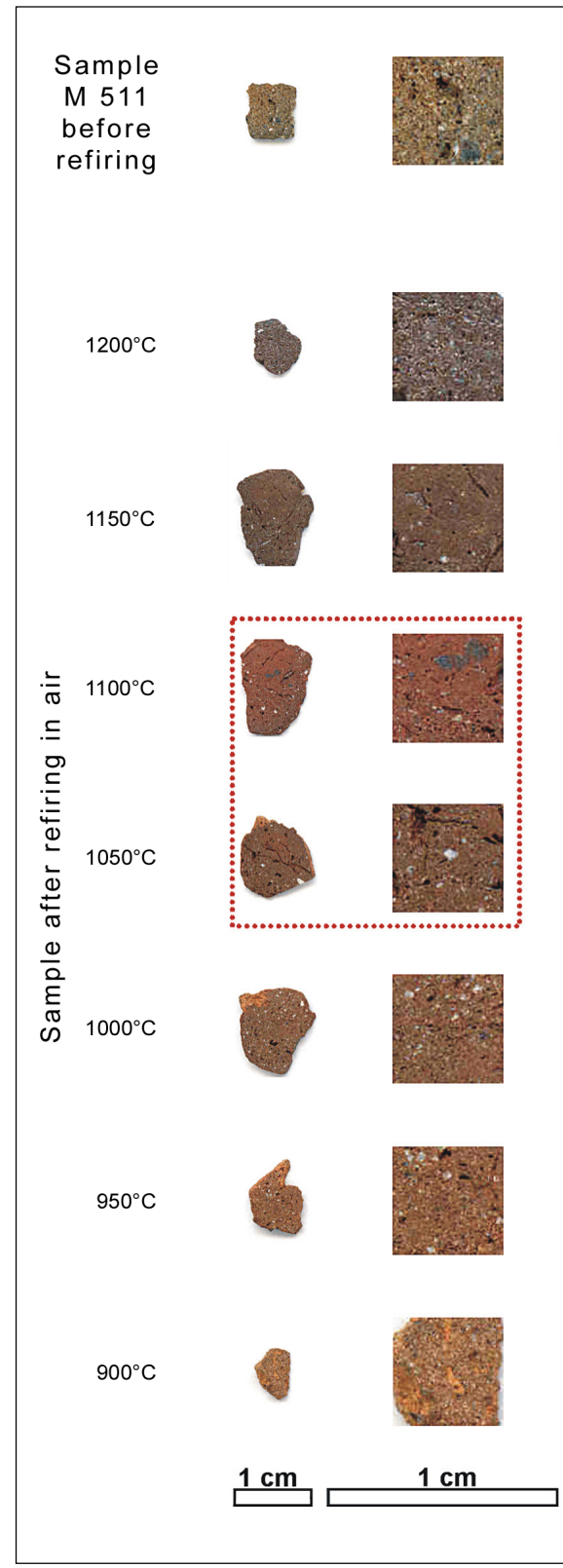

Fig. 14: MGR-analysis: the vessel stacking-support (sample M511) before and after re-firing. The temperature to which this material was subjected in the kiln was within the range 1050-1100°C .
Sl. 14: MGR-analiza vzorca M511 (del keramičnega podstavka ali distančnika, na katerega je prilepljena skodelica št. 33) pred ponovnim žganjem in po njem. Vzorec je bil izvorno žgan na temperaturi 1050-1100 °C.

[33] Softening = the sample changes in shape.
[34] Slightly over-melted (sovM) = over-melting of the sample surface is observed, no change in shape, edges remain sharp (standardised classification of matrix types by MGR-analysis; Cf. Daszkiewicz, Bobryk 2003, 77-80.

(sample M509) which belongs to chemical group B is characterised by a lower softening point (c. 1100°C). The difference in softening points is due to a much higher silica modul (ratio Al_2O_3 to SiO_2) and to a much lower content of flux (here: iron, magnesium and potassium) in sample E610 (*Table 1*). The ware support (sample M511) not belonging to chemical groups A nor B has a similar amount of flux as sample M509 but much less aluminium oxide.

Table 1: Chemical analysis data. Analysis were carried out in the laboratory of the Arbeitsgruppe Archäometrie FU Berlin by WD-XRF (G. Schneider and M. Daszkiewicz). Analysis of samples ignited at 880°C, LOI = losses of ignition, in sample M509 a gain of ignition is found caused by the oxidizing of Fe^{2+} to Fe^{3+}.
Tab. 1: Izsledki kemijskih analiz (metoda WD-XRF; izvedba Arbeitsgruppe Archäometrie FU Berlin, G. Schneider in M. Daszkiewicz). Vzorci so bili segreti na 880 °C. LOI = losses of ignition (izguba ob žarjenju); pri vzorcu M509 je nastal presežek zaradi oksidacije Fe^{2+} v Fe^{3+}.

Sample	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	Cr	Ni	Zn	Rb	Sr	Zr	Ba	LOI
No	Major elements [% by weight]										Trace elements [ppm]							%
Indented beaker no. 27, fabric F7/8, chemical group A (Daszkiewicz, Schneider 1999, 176, Table 2)																		
E610	65,55	1,39	22,73	4,55	0,03	1,31	0,69	1,10	2,41	0,21	117	37	64	109	109	334	642	0,71
Lamp no. 4, fabric F8, chemical group B																		
M509	63,99	1,09	20,57	6,90	0,04	2,22	0,79	1,11	3,13	0,18	140	68	142	184	125	269	650	-0,15
Ware support																		
M511		1,12	16,96	7,47	0,13	2,12	1,15	1,56	2,96	0,36	99	53	114	142	129	303	570	0,54

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Ponesrečeni poetovionski keramični izdelki s Spodnje Hajdine pri Ptuju

1. UVOD

Na Spodnji Hajdini pri Ptuju so pri kopanju vodovodnega jarka na površini približno enega kvadratnega metra našli petindvajset oljenk, pet gubank, šest čaš z ročajem, velik vrč in spodnji del posode. Velika večina teh predmetov so nedvomno ponesrečeni keramični izdelki, zato je ta najdba posebej zanimiva z vidika preučevanja izdelave lončenih izdelkov v Poetovioni. Nekateri predmeti so že bili kot primerjalno (referenčno) gradivo vključeni v arheometrične raziskave (Daszkiewicz, Schneider 1999, 174-175, 188-189, preglednici 1 in 8). Ker gre za pomembno gradivo, je smiselna njegova celostna objava, ki je namen tega članka.

Istenič

2. OPIS NAJDIŠČNIH OKOLIŠČIN

Na Sp. Hajdini pri Ptuju, na meji med parc. št. 1151/1 in 1152/3 k. o. Hajdina (*sl. 1:* 1*; sl. 2:* 5), je Blagoj Jevremov (Pokrajinski muzej Ptuj) ob nadzoru izkopa vodovodnega jarka 24. aprila 1974 v globini pribl. 110 cm in na površini 1 m^2 našel neuspele lončarske[1] izdelke, med njimi 25 oljenk (Jevremov 1977, 266; Jevremov 1985, 421; neobjavljeni viri[2]). Najdba oljenk in posod ni bila dokumentirana s terensko risbo ali fotografijami. V opisu najdišča tudi niso omenjeni stratigrafski podatki (npr. morebiten vkop).

Zaradi najdbe oljenk in posod so v okolici naredili več poskusnih izkopov v velikosti 4 x 4 m: tri severovzhodno od nje, dva pa zahodno (vse na parc. št. 1151/1 k. o. Hajdina; 20. maj do 4. junij 1974; *sl. 1:* I-V). Pri tem niso odkrili struktur ali najdb, ki bi bile ozko vsebinsko povezane s tu obravnavano najdbo ponesrečenih lončarskih izdelkov. Med številnimi keramičnimi najdbami iz poskusnih izkopov ni izrazitih ponesrečenih izdelkov.

Najdbe in dokumentacijo hrani Pokrajinski muzej Ptuj.

Tomanič Jevremov, Istenič

3. OPIS IN OPREDELITEV OLJENK

V kontekstu je bilo dokumentiranih 25 oljenk. Vse razen ene so pečatne in imajo odprt kanal. Pripadajo torej tipu Loeschcke X oziroma Buchi Xa/b ali Xb.[3] Enajst pečatnih oljenk s pečatom CASSI tvori homogeno skupino.

3.1 Pečatne oljenke brez diska - različica tipa Loeschcke X

(*t. 1-3; sl. 3-5*)

Oljenke št. 1-11 (*t. 1-3; sl. 3a,b*) predstavljajo različico tipa Loeschecke X oziroma Buchi Xb. Njihova zgornja stran (disk in rame) ni oblikovana, kot je za pečatne oljenke običajno, temveč je reliefno okrašena z dvema simetrično ležečima ptičama - verjetno labodoma. Postavljena sta tako, da njuni glavi segata do ročaja, repa pa oklepata luknjo za dolivanje olja.[4] Iz sredine zgornjega dela oljenk izhaja pokončen, podolžno orientiran ročaj z luknjo v sredini. Nameščen je tako, da oljenka leži vodoravno, če je obešena za luknjo v ročaju (*sl. 4*).

Večina oljenk kaže jasne znake deformacije. To je najbolj izrazito pri oljenkah št. 1, 4-6 in 8 (*sl. 5a,b*).

Površina oljenk je temnosive (med 5Y 4/1 in GLEY 1 4/1[5]) ali sivorjave (mešanica 7.5 YR 5/1 in 5/2) barve, pogosto z lisami rdečerjave (npr. 5 YR 5/4, 4/4), rumenordeče (npr. 5 YR 5/8, 4/6), rjave (npr. 7.5 YR 5/4) ali vmesne sivorjave barve (npr. 7.5 YR 4/1). Pri oljenki št. 8 je rdečerjav cel spodnji del. Površina je na otip rahlo hrapava in ni mazasta niti prašnata.

Pregled površine s pomočjo lupe z 10-kratno povečavo je pokazal finozrnato strukturo z redkimi drobnimi delci sljude in zelo redkimi drobnimi do zelo grobimi delci kremena. Predvsem na rjavih delih so vidni redki rdečerjavi delci (verjetno glinasti skupki).[6] Trdota sega od 4 (na rdečerjavih lisah) do 7 (na sivih delih). Trk dveh oljenk povzroči kovinski zvok.

Prelomi niso vidini. Na poškodovanih delih, ki razgaljajo keramiko pod površino, je vidno jedro finozrnate strukture in modrosive barve (GLEY 2 5/1).

Opisane značilnosti keramike obravnavanih oljenk precej dobro ustrezajo poetovionski skupini F 8 oziroma F 8/7 (Istenič 1999, 87-89), od katere pa odstopajo po večji trdoti, ki je pri tej skupini običajno 3, in odsotnosti ali le majhni vsebnosti sljude. Vzroke za opisana odstopanja pripisujemo žganju pri temperaturi, ki je bila višja od običajne in je bila previsoka, saj je povzročila spremembe oblike in druge poškodbe.

Na površini so vidni sledovi glajenja z orodjem (npr. navpični potegi na spodnjem delu nosu oljenke št. 3). Na spodnji strani oljenke št. 8 so opazni sledovi tenkega rjavordečega premaza.

Vseh 11 oljenk je bilo verjetno izdelanih v istem kalupu. Na to najbolj jasno kažejo na dnu odtisnjeni napisi CASSI, ki so enotni glede mer, oblike črk in nepravilnosti pri odtisu črk S. Poleg tega kažejo enake značilnosti npr. tudi odtisi labodov. Razpon dolžine od 97 do 113 mm je posledica deformacij oblike oljenk.

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[1] Pojem lončarski izdelek uporabljam kot sinonim za keramični izdelek in vključuje vse izdelke iz žgane gline.

[2] "Sondažno izkopavanje na Spodnji Hajdini pri Ptuju" (pet strani tipkopisa; nepodpisani avtor je B. Jevremov); "Spodnja Hajdina pri Ptuju" (ena stran tipkopisa, podpisan Blagoj Jevremov); preris katastrskega načrta z vrisanim najdiščem neuspelih keramičnih izdelkov in lego sedmih sond; načrt (merilo 1:500) z vrisanim izkopom za vodovod in lego najdišča neuspelih keramičnih izdelkov (datum: 16. 4. 1974, preris F. Lužević 8. 12. 1998); profili in tlorisi sond I-VI, risal F. Lužević decembra 1998 (preris originalnih risb, izdelanih med sondiranji leta 1974). Vse hrani PM Ptuj, identifikacijskih številk nimajo.

[3] Pregledno o tipologiji pečatnih oljenk: Istenič 1999, 149-150, 153.

[4] Za poimenovanje posameznih delov pečatnih oljenk glej Buchi 1975, XXII.

[5] Barve so določene po *Munsell Soil Color Charts* (2000 revised washable edition).

[6] Glede kriterijev pri določanju velikosti in gostote delcev glej Istenič 2000, 8.

Pečat CASSI je poznan le s pečatnih oljenk z odprtim kanalom. Izvorno so oljenke s tem pečatom izdelovali v severni Italiji, verjetno od začetka 2. stoletja dalje (Buchi 1975, 19-20).[7] Med severnoitalske oljenke s pečatom CASSI sodijo npr. primerki iz Emone (Petru 1972, t. 37: 20;[8] 52: 6 - R 6057), Novega mesta (objava Knez 1969, t. 19: 2) in Poetovione (Iványi 1935, 144, št. 1588, 1599, t. 81: 1,16)[9] ter verjetno tudi iz Siscije, Murse in Sirmiuma (Vikić-Belančić 1975, št. 507-509).[10] Oljenke provincialne izdelave s takim pečatom so poznane npr. iz Emone (Petru 1972, 38: 9 - R 5821a),[11] Carnuntuma (Alram Stern 1989, 68-69, št. 166, t. 27) ter verjetno Murse in Siscije (Vikić-Belančić 1975, št. 501, 505).[12] Iványijeva (1935, 143-145, št. 1586-1609) omenja še številne druge oljenke s pečatom CASSI s panonskih[13] najdišč, vendar objava ne omogoča razlikovanja med severnoitalskimi in provincialnimi izdelki.

Oblikovanost zgornjega dela pečatnih oljenk tako, da ni diska, je neobičajna. Med izredno redke tako oblikovane oljenke severnoitalske izdelave sodi npr. primerek iz Aquileie, ki jo je Buchi opredelil kot tip Xa (Buchi 1975, 60, t. 21: 384). Številnejše (a kljub temu redke) so take oljenke na madžarskih najdiščih (Iványi 1935, 19, 263, št. 3685-3690, t. 46: 15,17; t. 53: 4,6,9,11), kar nakazuje, da so panonski izdelki. Iványjeva (l. c.) jih je uvrstila v različico[14] pečatnih oljenk z odprtim kanalom (tip XVII, ki ustreza tipu X po Loeschckeju), za katero sta značilna odsotnost diska in reliefni okras. Razmeroma slabo ohranjena oljenka iz Brigetia (Iványi 1935, 263, št. 3690, t. 53: 6) se zdi glede na objavljeno fotografijo odlična analogija oljenkam s Ptuja.[15] Moti le, da pečat ni omenjen. Iz objave ni razvidno, ali dno morda ni ohranjeno. Te oljenke ni bilo mogoče izslediti v slovaških niti madžarskih muzejih.[16] Tako nismo mogli preveriti, ali je dno oljenke sploh ohranjeno, niti opraviti makroskopskega pregleda keramike ali odvzeti vzorca za kemijsko analizo. Poetovionski izvor te oljenke ostaja torej le domneva.

Na podlagi tipološke opredelitve obravnavane oljenke sodijo v 2.-3. (malo verjetno tudi še 4.) stol. (prim. Istenič 1999, 155-157).

Opis

V kvaliteti odtisov labodov ni bistvenih razlik, zato jih pri opisih posameznih oljenk nisem omenjala. Isto velja za odtise pečatov CASSI, ki so plitvi, obe črki S pa dvojno odtisnjeni z rahlim zamikom v smeri navzgor/navzdol. Opis glavnih značilnosti keramike je podan v uvodnem besedilu in ga v katalogu ne ponavljam. Omembe levo/desno in spredaj/zadaj se nanašajo na oljenke, ki so postavljene z noskom naprej/navzgor. Inventarne številke se nanašajo na Pokrajinski muzej v Ptuju.

Tabla 1

1. Sivorjava in rdečerjava lisasta površina; izrazita deformacija nosu (predvsem spodaj). Na spodnji del nosu je "prilepljen" del posode (ročaj ali morda ustje - keramika F 8/7[17]). Na dnu so vidni sledovi prstnih odtisov, ki so nastali ob izdelavi. Dolžina 111 mm. Inv. št. R 13553.

2. Sivorjava površina brez izrazitih lis. Izrazito deformirana v zgornjem delu (ročaj, vdrtina v sredini). Dolžina 98 mm. Inv. št. R 13554.

3. Temnosiva površina z izrazitimi rjavordečami lisami na levem boku; na poškodovanem delu (spodnji del nosu) je vidno modrosivo jedro. Rahlo deformirana (nos postrani). Pečat je slabše ohranjen kot pri ostalih oljenkah. Oljenka je zlepljena in malo dopolnjena. Dolžina 100 mm. Inv. št. R 13555.

4. Temnosiva do sivordeča lisasta površina z majhnimi rjavordečami in svetlorjavosivimi lisami. Izrazito deformirana: globoka prečna razpoka na prehodu v nos, plitvejše razpoke na labodih, izrazito izbočenje ("mehur") na levi stranici recipienta, zašiljen nos. Na "mehur" je prilepljen delček druge posode ali oljenke modrosive barve. Dolžina 106 mm. Inv. št. R 13556; HTM in kemijska analiza M509 (glej Appendix); *sl. 5a,b*.

Tabla 2

5. Temnosiva do sivorjava lisasta površina; na dveh delih, kjer je površina poškodovana, je vidno modrosivo jedro. Izrazito deformirana: stisnjena na prehodu v nos. Dolžina 97 mm. Inv. št. R 13557; *sl. 5a,b*.

6. Temnosiva površina brez izrazitih lis; močno deformirana (predvsem v spodnjem delu); na spodnji del so na treh mestih "prilepljeni" delci drugih posod ali oljenk, ki ustrezajo keramiki F 7/F 8. Dolžina 98 mm. Inv. št. R 13558.

7. Temnosiva površina brez izrazitih lis. Ni izrazito deformirana (razpoka? na dnu). Zlepljena in malo dopolnjena. Dolžina 111 mm. Inv. št. R 13559.

8. Površina je lisasta: zgoraj temno siva, spodaj rdečerjava; v spodnjem delu so vidni ostanki tenkega rjavordečega premaza. Izrazita deformacija (vdrtina) v stranskem delu oljenke (spredaj desno), dno zvito. Dolžina 97 mm. Inv. št. R 13560.

Tabla 3

9. Sivorjava površina z rjavosivimi lisami. Rahlo deformirana (predvsem nos). Dolžina 99 mm. Inv. št. R 13561; *sl. 4*.

10. Temnosiva površina brez izrazitih lis, na poškodovanem delu je vidno modrosivo jedro. Izrazito deformirana v spodnjem delu (vdrto dno). Dolžina 99 mm. Inv. št. R 13562.

11. Temnosiva površina z majhno rjavordečo liso. Rahlo deformirana (nesimetrična na spodnji strani). Zlepljena in dopolnjena (pribl. 15 %). Dolžina 113 mm. Inv. št. R 13563; kem. analiza E606* (prim. op. 25).

3.2 **Običajne pečatne oljenke (tip Loeschcke X in različica Xk)**

(*t. 3-5:* 12-23; *sl. 6-8*)

13 pečatnih oljenk sodi v običajen in zelo pogost tip pečatnih oljenk z odprtim kanalom, tj. tip Loeschcke X; oljenki s

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[7] Glede izvora severnoitalskih oljenk glej Istenič 1999, 149 s citirano literaturo in Daszkiewicz, Schneider 1999, 184-190. Oljenke s pečatom CASSI še niso bile arheometrično obravnavane (prim. Daszkiewicz, Schneider 1999, 190, Table 10).

[8] Potrjeno z analizo WD-XRF, ki jo je izvedel dr. G. Schneider (Arbeitsgruppe Archäometrie, Freie Universität Berlin: vzorec E496), neobjavljeno.

[9] Opredelitev na podlagi ogleda oljenk.

[10] Opredelitev na podlagi objave.

[11] Opredelitev na podlagi ogleda oljenke.

[12] Opredelitev na podlagi objav.

[13] V skladu s takrat uveljavljenim prepričanjem so med primerki iz Panonije tudi oljenke iz Emone in njenega agra.

[14] V kataloškem delu (s. 263) je Iványijeva take oljenke uvrstila v 3. različico, v uvodnem delu (s. 19) pa v 4. (prim. Iványi 1935, 19, 263).

[15] Iványjeva (l. c.) je slabo ohranjen okras opisala kot "stilizirana žaba". Ročaj oljenke je odlomljen.

[16] Za trud pri iskanju te oljenke sem hvaležna dr. Janu Rájtarju (Slovenská Akadémia vied, Nitra) in dr. Lászlu Kócsisu (Magyar Nemzeti Múzeum, Budimpešta).

[17] Opredelitev po Istenič 1999, 87-89.

kratkim noskom (št. 14 in 15) uvrščamo v različico Loeschcke Xk.[18] Ob upoštevanju kvalitete izdelave ustrezajo tipoma Buchi Xa/b oz. Xb.[19] Oljenke št. 12 in 13, 14 in 15 ter 16 in 17 so bile zelo verjetno odtisnjene v istih kalupih.

Zastopani so pečati APRIO/F (št. 20), CERIALIS (št. 23), FORTIS (št. 16-19, 22; *sl. 8b*) in OCTAVI (št. 12-13, 21; *sl. 8b*). Dva pečata sta nečitljiva (št. 14-15), eden pa ni ohranjen (št. 24). Vsi čitljivi pečati so poznani z oljenk severnoitalske izdelave (Istenič 1999, 150-155; CERIALIS: Buchi 1975, 22-25; Gualandi Genito 1986, 271-272) in tudi z oljenk provincialne izdelave (Alram Stern 1989, 67, 69, 71-72, 78; Istenič 1999, 155-157, sl. 146).

Večina oljenk kaže jasne znake deformacije oblike ali/in razpoke, ki so posebej izrazite npr. pri oljenkah št. 12, 18-19, 22 (*sl. 8a,b*). Zastopane pa so tudi oljenke, ki ne kažejo poškodb, za katere bi lahko domnevali, da so nastale med njihovo izdelavo (št. 15, 17).

Glede barve, strukture in otipa površine ter tudi jedra keramike, ki je vidno le pri manjšem delu oljenk, te oljenke povsem ustrezajo skupini enajstih oljenk s pečatom CASSI (glej 3.1).

Datacija obravnavanih oljenk po tipoloških kriterijih kaže na 2.-3. (malo verjetno še 4.) stoletje (prim. Istenič 1999, 155-157).

Opis

Opis keramike je podan v glavnem besedilu in ga v katalogu ne ponavljam. Omembe levo/desno in spredaj/zadaj se nanašajo na oljenke, ki so postavljene z noskom naprej oziroma navzgor.

Tabla 3

12. Tip Buchi Xb. Temnosiva površina z rjavordečo liso. Izrazito deformirana, na dnu tudi izrazit mehur z luknjo. Na disku reliefna podoba gledališke maske. Pečat OCTAVI je dvojno odtisnjen z majhnim zamikom. Verjetno iz istega kalupa kot št. 13. Nosek rahlo dopolnjen. Dolžina 91 mm. Inv. št. R 13564; *sl. 8a,b*.

13. Tip Buchi Xb. Temnosiva površina z rjavordečimi lisami. Ni deformirana. Na disku reliefna podoba gledališke maske. Pečat OCTAVI je "dvojno" odtisnjen, viden je rahel zamik. Verjetno iz istega kalupa kot št. 12. Zlepljena in rahlo dopolnjena. Dolžina 88 mm. Inv. št. R 13565.

Tabla 4

14. Tip Buchi Xb, različica s kratkim nosom.[20] Sivorjava do rdečerjava lisasta površina. Rahlo deformirana (dno). Sledovi tenkega premaza? Pečat ni čitljiv. Na dnu vidni prstni odtisi. Verjetno iz istega kalupa kot št. 15. Dolžina 73 mm. Inv. št. R 13573.

15. Tip Buchi Xb - kratek nos. Sivorjava do rdečerjava lisasta površina. Ni deformirana. Sledovi tenkega premaza? Pečat ni čitljiv. Verjetno iz istega kalupa kot št. 14. Na ramenu vidni "prstni odtisi". Dolžina 73 mm. Inv. št. R 13574.

16. Tip Buchi Xa/b. Temnosivorjava do rdečerjava lisasta površina. Ni deformirana. Na disku dve reliefni podobi gledališke maske. Pečat FORTIS je dobro odtisnjen, pod njim pa je slabši odtis venčka. Morda iz istega kalupa kot št. 17. Dolžina 88 mm. Inv. št. R 13556; kem. analiza E609* (prim. op. 25).

17. Tip Buchi Xb. Rumenordeča površina z delno ohranjenim tenkim nesvetlečim premazom temnejše rumenordeče barve in z majhnimi lisami temnosive barve. Pečat F(OR)TIS, pod njim venček. Ni deformirana niti ne kaže drugih poškodb, ki bi nastale med izdelavo. Manjka pretežni del diska in del dna oljenke. Na notranji površini spodnjega dela so vidni prstni odtisi. Morda iz istega kalupa kot št. 16. Dolžina 92 mm. Inv. št. R 13578.

18. Tip Buchi Xb. Temnosiva površina z rjavosivimi in rdečerjavimi lisami. V razpoki na dnu je vidna modrosiva keramika. Pečat FORTIS. Izrazito deformirana (dno, nosek), na zadnji strani recipienta (na mestu, kjer se stikata zgornji in spodnji del oljenke, ki sta bila odtisnjena vsak v svoj kalup) je 28 mm dolga razpoka, na dnu pa razpoka dolga 33 mm. Na desni bok je prilepljen del druge posode ali oljenke. Delček zaključka noska manjka. Dolžina 87 mm. Inv. št. R 13571; *sl. 8a,b*.

19. Tip Buchi Xb. Temnosiva površina z rjavosivimi in rdečerjavimi lisami. Pečat FORTIS, lepo oblikovane črke, neenakomeren odtis. Deformirana (dno, mehurji na nosu in bokih). Na desnem boku recipienta (na mestu, kjer se stikata zgornji in spodnji del oljenke, ki sta bila odtisnjena vsak v svoj kalup) je razpoka dolga 35 mm. Dolžina 86 mm. Inv. št. R 13570.

Tabla 5

20. Tip Buchi Xb. Temnosiva površina z rjavosivimi in rdečerjavimi lisami. Pečat APRIO/F, lepo oblikovane črke in dober odtis. Oblika ni deformirana, na levem boku recipienta (na mestu, kjer se stikata zgornji in spodnji del oljenke, ki sta bila odtisnjena vsak v svoj kalup) pa je razpoka dolga 37 mm. Dolžina 93 mm. Inv. št. R 13568.

21. Tip Buchi Xa/b. Temnosiva površina. Rahlo deformirana. Na spodnji strani vidni prstni odtisi. Pečat OCTAVI - lepe črke in dober odtis. Na spodnji strani so na dveh mestih prilepljeni majhni keramični ostanki drugih posod ali oljenk modrosive barve. Dolžina 82 mm. Inv. št. R 13569.

22. Tip Buchi Xb. Temnosiva površina s sivimi in rjavordečimi lisami. V prelomu na nosu modrosiva keramika. Izrazito deformirana. Pečat FORTIS, dvojni rahlo zamaknjen odtis, lepo oblikovane črke. Sprednji del nosu manjka. Na trupu na dveh mestih prilepljena keramična ostanka drugih posod ali oljenk. Ohr. dolžina 68 mm. Inv. št. R 13572; kem. analizi E601* in E602* (prim. op. 25).

23. Tip Buchi Xb. Siva površina. V prelomu modrosiva keramika. Pečat CERIALIS, dvojni zamaknjen odtis. Oblika ni deformirana. Ohranjen je le spodnji del oljenke, zlepljen iz dveh kosov. Na notranji površini so vidni sledovi prstnih odtisov. Dolžina 88 mm. Inv. št. R 13575; kem. analizia E600* (prim. op. 25).

24. Tip Buchi Xb. Siva površina in sivorjave lise. V prelomih modrosiva keramika. Ohranjena je le pribl. tretjina oljenke. Pečat ni ohranjen. Ohr. dolžina 50 mm. Inv. št. R 13576 in 13577; kem. analiza E607* (prim. op. 25).

3.3 **Reliefna oljenka**
(*t. 5:* 25; *sl. 6*)

Le ena oljenka (št. 25) iz obravnavnega konteksta ni pečatna. Sodi k oljenkam tipa Loesckcke VIII, za katere je značilen okrogel recipient in zaokrožen nosek brez volut (Loeschcke 1919, 31, sl. 7). Izvirajo iz Italije, kjer so jih izdelovali od začetka 1. stoletja dalje in kjer so bile priljubljene še v 3. stol.

Oljenke tega tipa italske izdelave so na območjih severno od Alp (Leibundgut 1977, 36) in tudi pri nas redke.[21] Prav tako so redki panonski provincialni izdelki. Okvirno jih datiramo v 2.-3. stol. (Iványi 1935, 14; Leibundgut 1977, 36, op.

[18] Loeschcke 1919, 257, 278, t. 1: Xk; Buchi 1975, XXVIII.

[19] Prim. Istenič 1999, 153.

[20] Buchi (1975, XXIV, XXVIII, kat. št. 16, 17, 30, 31, 124, 313, 314, 325, 350 itd.) je pri klasifikaciji oljenk s kratkim noskom nedosleden, saj jih opredeli le po obliki ("tipo X-forma corta"), pri čemer kvaliteta izdelave, ki je pri klasifikaciji ostalih oljenk tipa X upoštevana, ostane neopredeljena. Za oljenke s kratkim nosom predlagam torej enako delitev po kvaliteti izdelave kot pri ostalih oljenkah tipa X(a-c), pripis kratek nos pa naj opozori na oblikovno posebnost.

[21] Med številnimi oljenkami zahodnih grobišč Poetovione je npr. le en primerek (Istenič 1999, 165; Istenič 2000, 155, t. 99: 6).

2). Iványijeva jih je uvrstila v svoj tip X (Iványi 1935, 13-14, t. 34, 35: 3-8),[22] ki se od italskih vzorov razlikuje po masivnejšem in rahlo podolgovatem telesu. Zanje je značilen tudi ploščat ročaj, ki je lahko preluknjan. Oljenka št. 25 je izdelana kvalitetneje kot večina oljenk, ki jih navaja Iványijeva.

Glede barve, strukture in otipa površine oljenka št. 25 povsem ustreza opisani skupini enajstih oljenk s pečatom CASSI (glej 3.1). Deloma kaže enake značilnosti tudi prelom, v katerem so opazne podolgovate luknjice, ki jih pri redkih prelomih drugih oljenk iz obravnavanega konteksta nismo opazili (glej opis) in so posledica previsoke temperature žganja. Oblika ni deformirana.

Opis

Tabla 5

25. Na ramenih odtisnjen jajčni niz, v sredini znotraj kroga rozeta z drobnimi listki. Temnosiva površina z rjavosivo liso. Del dna manjka. Modrosiv prelom je v delu, kjer je debelejši (5 mm), v pasu pribl. 1,2 mm ob zunanji površini modrosiv, v preostalem delu pa je temnordečesiv (10R 4/1) in izrazito porozen: vidne so do 1,5 mm dolge podolgovate luknjice. V delih, kjer so stene tanjše, je prelom enoten: modrosiv in brez luknjic. Inv. št. R 13567; kem. analiza E608* (prim. op. 25).

Istenič

4. OPIS IN OPREDELITEV POSOD

Poleg oljenk so bile v obravnavanem kontekstu tudi posode: pet čaš gubank (*t. 6:* 26-30; *sl. 9*), šest skodelic s trakastim ročajem, od tega tri sprijete (*t. 6:* 31-33; *sl. 10; 11*), velik vrč in spodnji del vrča. Velika večina posod kaže izrazite deformacije, ki so nastale med žganjem. Te posode glede barve, strukture in otipa površine ter tudi jedra keramike, ki je vidno le pri majhnem delu posod, ustrezajo oljenkam in opisu v poglavju 3.1. Izstopajo čaša gubanka št. 26, vrč in spodnji del vrča (št. 37-38), ki glede keramike ustrezajo poetovionskima skupinama F 7 oz. F 15 (Istenič 1999, 87-89) in ne kažejo izrazitih poškodb (št. 37-38) ali pa le zmerne (št. 26).

Vseh pet čaš gubank ima po šest gub in podobno obliko; po dve (št. 27 in 28 ter št. 29 in 30) imajo tudi enako oblikovano ustje. Njihove velikosti so različne. Skodelice z ročajem (št. 31-36) so enako oblikovane in podobnih velikosti. Pred deformacijo so bile verjetno približno enako velike in so jih torej izdelali po enotnih merah.

Gubanke in skodelice z ročajem imajo odlične analogije med keramiko iz lončarske peči, ki je bila odkrita v neposredni bližini tu obravnavane najdbe. Nekateri odlomki kažejo jasne poškodbe, ki so nastale med žganjem (Strmčnik-Gulič 1993, t. 1: 3,6,13; t. 6: 1-16).

Čaše gubanke med poetovionsko keramiko niso redke (nekaj objavljenih primerjav: Kujundžić 1982, t. 3: 17; t. 8: 11-13; t. 11: 5; Istenič 1999, 117-118) in okvirno sodijo v 1. do 3. stoletje (Istenič, l. c.). Skodelice z ročaji, razen najdb iz omenjene lončarske peči, zaenkrat nimajo primerjav med objavljenimi oziroma poznanimi najdbami. Vrč podobne oblike, kot je št. 37, je bil npr. najden v poetovionskem grobu (Kujundžić 1982, t. 18: 17).

Opis

Tabla 6

26. Čaša gubanka. Keramika F 7 (prim. Istenič 1999, 87-88), na površini neenakomeren, tenak rdeč do temnordečesiv premaz (2.5 YR 5/6- 5YR 4/2), pod njim napršene grudice gline; zlepljena iz številnih odlomkov in dopolnjena. Oblika rahlo deformirana. Višina 202-206 mm. Inv. št. R 13541.

27. Čaša gubanka. Temnosiva do rjavosiva lisasta površina. Sveži prelom je modrosiv. Oblika izrazito deformirana. Zlepljena iz številnih odlomkov in delno dopolnjena, pribl. petina posodice manjka. Na dno je prilepljen del keramičnega predmeta. Višina 128 mm. Inv. št. R 13545; HTM-analiza (glej Appnedix) in kem. analiza E610* (prim. op. 25); *sl. 9*.

28. Čaša gubanka. Temnosiva do svetlorjavosiva rahlo lisasta površina. Oblika rahlo deformirana (stisnjena s strani - ustje elipsasto). Zlepljena iz številnih odlomkov in dopolnjena. Višina 120 mm. Inv. št. R 13542.

29. Čaša gubanka. Temnosiva do svetlorjavosiva, rahlo lisasta površina. Oblika ni deformirana niti ni znakov drugih poškodb, ki bi nastale ob izdelavi. Zlepljena iz številnih odlomkov in dopolnjena. Višina 88 mm. Inv. št. R 13544.

30. Čaša gubanka. Temnosiva do rjavosiva, rahlo lisasta površina. Oblika ni deformirana niti ni znakov drugih poškodb, ki bi nastale ob izdelavi. Zlepljena iz številnih odlomkov in dopolnjena. Višina 80 mm. Inv. št. R 13543.

31. Skodelica s trakastim ročajem. Dno je ozko, trebuh širok. Razmeroma ozko ustje je rahlo izvihano, njegov rob pa ima plitev žleb. V največji obod je vtisnjenih sedem pribl. 50 mm dolgih poševnih linij, ki skodelico v tem delu nagubajo. Na notranji površini so očitni sledovi vrtenja na kolesu (vodoravno narebrenje). Temnosiva do rjavosiva, rahlo lisasta površina. Poškodbe površine na več mestih odkrivajo modrosivo keramiko. Skodelica je zlepljena iz številnih odlomkov in rahlo dopolnjena. Višina 95 mm. Inv. št. R 13548; *sl. 10*.

32. Skodelica enake oblike kot št. 31. Rdečerjava keramika s tenko temnorjavosivo lisasto plastjo na površini. Skodelica je zlepljena iz številnih odlomkov, pribl. tretjina pa je dopolnjena. Višina 100 mm. Inv. št. R 13546; *sl. 10*.

33. Skodelica enake oblike kot št. 31. Temnosiva površina z rjavosivo liso. Oblika skodelice je izrazito deformirana zaradi pritiska keramičnega predmeta, ki ne ustreza keramiki F7/F8 in je sprijet s skodelico. Zlepljena iz več odlomkov in dopolnjena (pribl. šestina). Višina 95 mm. MGR-analiza keramike, ki je sprijeta s skodelico - M511 (glej Appendix). Inv. št. R 13547; *sl. 10*.

34-36. Tri skodelice iste oblike kot št. 31. Temnosiva in rjavosiva površina, prelomi niso vidni. Dve skodelici imata izrazito deformirano obliko, vse tri so spojene s trupi. Na skodelico inv. št. R 13552 sta "prilepljena" tudi en velik in en majhen odlomek druge posode (temnosiva površina, enaka keramika kot skodelica). Ena skodelica je cela (inv. št. R 13550), dve pa zlepljeni iz številnih odlomkov in dopolnjeni. Višina najmanj deformirane skodelice (inv. št. R 13550) znaša 101 mm, pri ostalih dveh pa 93 in 90 mm. Inv. št. R 13550, 13551, 13552; *sl. 11*.

Tabla 7

37. Velik enoročajni vrč. Siva površina (2.5 Y 7/1), raskava zaradi obilice finih delcev kremena. Keramika ustreza skupini F 15 (Istenič 1999, 88-89). Zlepljena iz številnih odlomkov in dopolnjena. Višina 369 mm. Inv. št. R 13540.

38. Spodnji del posode, verjetno vrča. Svetlorjava keramika (obe površini in prelom), prašnata površina, trdota 3. Ustreza poetovionski skupini F 7 (prim. Istenič 1999, 87-88). Zlepljen iz več delov in delno dopolnjen. Ohranjena višina 63 mm. Inv. št. R 13549.

Istenič

[22] Iványijeva je v svoj tip X uvrstila oblikovno precej različne oljenke.

5. DISKUSIJA IN INTERPRETACIJA NAJDBE

Velika večina obravnavanih predmetov kaže izrazite znake neuspešnega žganja. Ti znaki so deformirane oblike, mehurji in razpoke, ki ne nastanejo npr. pri sušenju keramike, pač pa so pričakovane poškodbe pri žganju na previsoki temperaturi. Analizi oljenke št. 4 (vzorec M509) in gubanke št. 27 (vzorec E610) v talilnem mikroskopu[23] sta potrdili, da so opisane poškodbe nastale zaradi previsoke temperature med žganjem, ki je znašala pri oljenki najmanj 1100 °C, pri gubanki pa najmanj 1250 °C. Temperatura pri običajnem žganju keramike skupine F 7/F 8, h kateri sodita tudi analizirana vzorca, je znašala 800 do 1000 °C (prim. Daszkiewicz, Schneider 1999, 183).

Vzorec M511 je bil odvzet od keramike, ki je pripojena na skodelico št. 33. Morda je del keramičnega podstavka ali distančnika, ki je podpiral v peči naložene posode. Makroskopsko se jasno razlikuje od keramike skupine F 7/8. Ponovno žganje tega vzorca[24] je pokazalo, da je bil izpostavljen temperaturi 1050-1100 °C in ni bil staljen. Potem, ko je skodelica zaradi visoke temperature postala mehka, je prišla v stik s tem predmetom, se deformirala in se prilepila nanj (glej Appendix).

Neenakomerno žgane, pri žganju le deloma nepoškodovane oz. različno močno poškodovane oljenke kažejo, da temperatura v peči ni bila enakomerno razporejena. Redke oljenke oz. posode ali njihovi deli niso bili izpostavljeni škodljivo visoki temperaturi in ustrezajo lastnostim najpogostejše skupine poetovionskih keramičnih izdelkov, tj. F 7 (prim. Istenič 1999, 87-89). Iz tega sklepamo, da bi obravnavane poškodovane oljenke in posode ob normalnem žganju povsem ustrezale makroskopskemu videzu skupine F 7/F 8. To so potrdile kemijske raziskave vseh devetih analiziranih vzorcev (oljenke št. 11, 16, 22-25, gubanka št. 27 in del posodice ali oljenke, ki je pripojen k oljenki št. 22;[25] oljenka št. 4).[26] Sodijo namreč v kemijski skupini A in B, ki ustrezata na podlagi makroskopskega opazovanja definirani skupini F 7/F 8. Ta je značilna za poetovionske keramične izdelke (Istenič 1999, 87-89; Daszkiewicz, Schneider 1999).

Zavrženi ponesrečeni keramični izdelki kažejo, da je bila tu lončarska delavnica. K njej je sodila pribl. 15 metrov oddaljena lončarska peč (*sl. 1:* 2), ki je bila raziskana leta 1974 (Strmčnik-Gulič 1993; Strmčnik-Gulič 1988; Strmčnik-Gulič 1977). V njej je bilo najdenih veliko lončenih posod, med drugim skodelice z ročajem enake oblike kot skodelice št. 31-33 (Strmčnik-Gulič 1993, t. 1: 3,6 - izrazit ponesrečen izdelek, 13) in čaše gubanke, podobne gubankam št. 26-30 (o. c. t. 2). Ni jasno, ali so to posode, ki so bile žgane ob zadnjem žganju te peči (Strmčnik-Gulič 1993, 484) ali pa so bile iz ene ali več morebitnih sosednjih peči vanjo vržene, ko je že bila opuščena.[27] Obravnavani ponesrečeni predmeti so bili verjetno izdelani sočasno. Čas njihovega nastanka v 2. ali 3. stoletju opredeljujejo oljenke in čaše gubanke.

Istenič

6. SKLEP

Obravnavani predmeti so poetovionski izdelki iz 2.-3. stol. Večina med njimi predstavlja očitno neuspele izdelke iz lončarske peči, saj so razpokani, deformirani in celo sprijeti s sosednjimi predmeti. Te poškodbe so nastale zaradi žganja na previsoki temperaturi, ki v peči ni bila enakomerna in je znašala do 1250 °C. Skromna arheološka dokumentacija ne dovoljuje sklepa o tem, ali so bili ti predmeti deponirani v jamo ali npr. na kup na planem. Precej homogena sestava ponesrečenih izdelkov nakazuje, da so tu odložili neuspele izdelke enega žganja.

Obravnavani ponesrečeni izdelki in lončarska peč, ki je bila najdena v neposredni bližini kažejo, da je tu delovala lončarska delavnica. Sodi med redke zabeležene ostaline lončarskih delavnic na desnem bregu Drave v Poetovioni (*sl. 2*). Nanje kažejo ostaline lončarskih in opekarskih peči. Skupina štirih je bila najdena na parc. št. 1087/1 in 1087/3 (*sl. 2:* 4; Mikl Curk, Lubšina Tušek 2002), po ena pa na parc. št. 1082/1-2 k.o. Hajdina (*sl. 2:* 2; Smodič 1958-1959, 39-40), v današnji Gubčevi ulici na parc. št. 1086/2 k.o. Hajdina (*sl. 2:* 3; Vomer Gojkovič 1998, 18-22), na vzhodnem robu parcele št. 504 k.o. Hajdina[28] (*sl. 2:* 1) in na meji parc. št. 1998/1 in 2004/2 k.o. Ptuj (*sl. 2:* 6; Tušek 1985, 241-242).

Številne in raznolike ostaline lončarskih delavnic pa so bile raziskane v Rabelčji vasi na levem bregu Drave v Poetovioni (Horvat et al. 2003, 167, 170, 181, Fig. 14, s citirano lit.; Tomanič Jevremov 2004, 97-99). Kažejo na obsežne delavnice za izdelavo keramičnih izdelkov in se skladajo s spoznanji o velikem pomenu Poetovione pri proizvodnji keramičnih izdelkov in njihovi distribuciji, ki smo jih pridobili s preučevanjem poetovionskih keramičnih izdelkov in njihovo razširjenostjo (Istenič 1999, 15-16, 167-172, 191-202).

Istenič, Tomanič Jevremov

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[23] Osnove metode so razložene v Daszkiewicz, Schneider 1999, 183.

[24] Osnove metode so razložene v Daszkiewicz, Schneider 1999, 181 (razvoj metode, ki je bila tu imenovana "colour analysis", je bil leta 1999 še v povojih.

[25] Pregled analiziranih vzorcev in rezultatov (po Daszkiewicz, Schneider 1999, 174-175, 188-189, Preglednici 1 in 8).

št. vzorca	inv. št.	kem. skup	kat. št.
E600*	PMP R 13575	A	23
E601*	PMP R 13572	B	22
E602*	PMP R 13572	A	22, prilepljeni odlomek
E606*	PMP R 13563	B	11
E607*	PMP R 13577	B	24
E609	PMP R 13578	B	16
E608*	PMP R 13567	B	25
E610*	PMP R 13545	A	27

[26] Primerjaj Appendix, *tab. 1*.

[27] Običajno so v opuščene lončarske peči odmetavali ponesrečene lončarske izdelke iz sosednjih peči (dr. Vivien Swan, ustna informacija).

[28] Nadzor Zavoda za varstvo kulturne dediščine Slovenije, območna enota Ptuj, pri postavljanju električnega droga marca 2002 (za podatek se zahvaljujeva vodji nadzora Mariji Lubšina Tušek).

Zahvale

Dr. Jana Horvat in Andreja Dolenc (obe Inštitut za arheologijo ZRC SAZU) sta prijazno posredovali topografske in druge podatke, ki sta jih zbrali v Temeljni podatkovni zbirki arheoloških najdišč Ptuja. Dr. Jana Horvat je tudi prebrala besedilo članka in prispevala koristne pripombe. Prevod Katarine Jerin je lektorirala dr. Vivien Swan.

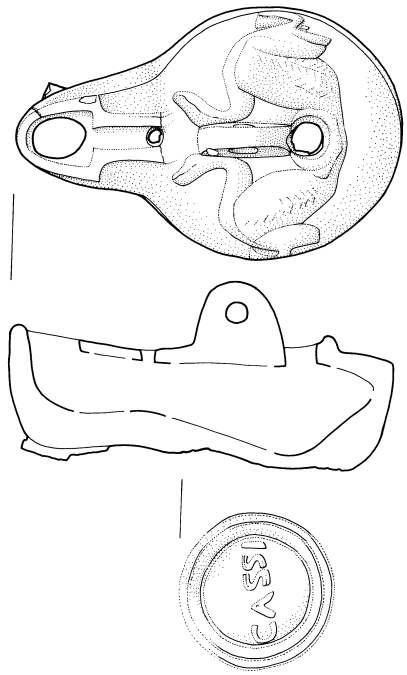
Fotografije 3-11 je naredil Tomaž Lauko, risbe na tablah 1-7 pa Uroš Štiškovski in Ida Murgelj (vsi Narodni muzej Slovenije), razen št. 26 in 37, ki ju je narisala Nejka Uršič Jesenik (Pokrajinski muzej Ptuj). Sliko 1 je pripravil Ivo Bizjak (s. p., Storitve z računalniško, foto in video opremo), sl. 2 pa Mateja Belak (Inštitut za arheologijo ZRC SAZU). Vse slikovno gradivo je računalniško obdelal in pripravil za tisk Roman Hribar (Narodni muzej Slovenije).

Janka Istenič
Narodni muzej Slovenije
Prešernova 12
SI-1000 Ljubljana
janka.istenic@narmuz-lj.si

Marjana Tomanič Jevremov
Pokrajinski muzej Ptuj
Muzejski trg 1
SI-2250 Ptuj

Małgorzata Daszkiewicz
ARCHEA - Archaeometric Analysis and Research
ul. Ogrodowa 8 m95
PL-00-896 Warszawa
m.dasz@wp.pl

Ewa Bobryk
Wydzial Chemiczny
Politechnika Warszawska
ul. Noakowskiego 3
Pl-00-664 Warszawa
bobryk@ch.pw.edu.pl



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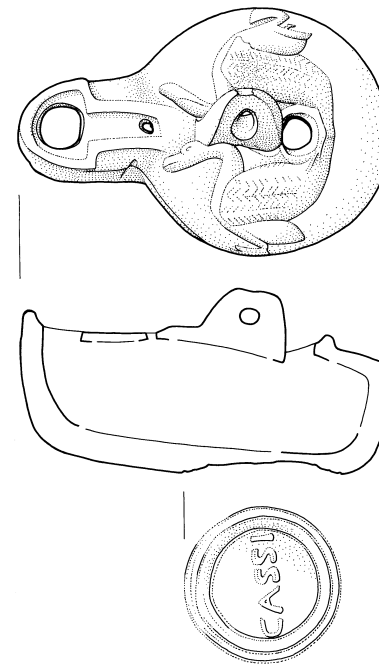

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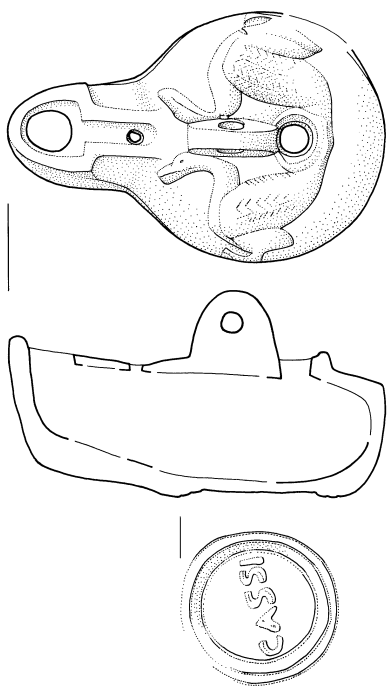

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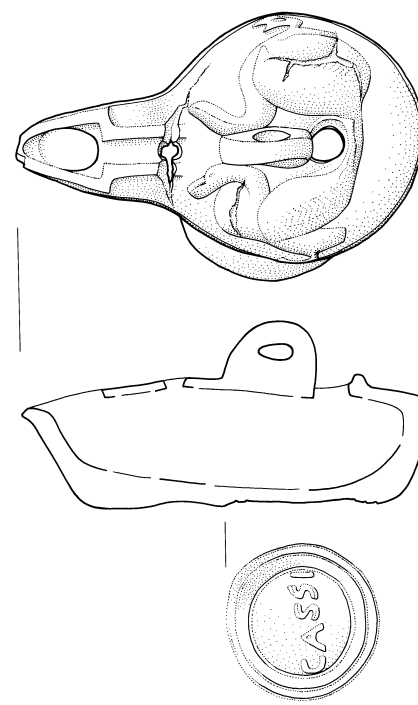
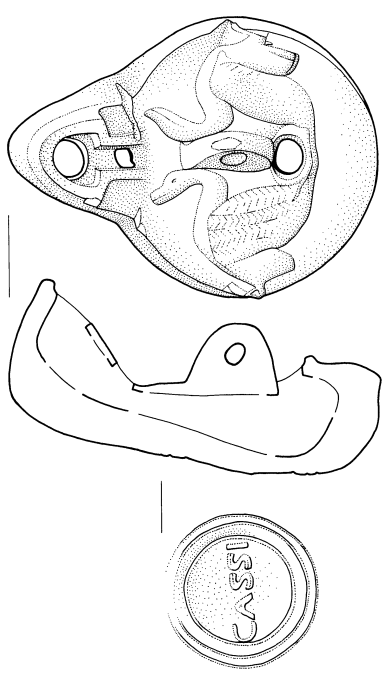


4

Pl. 1: Ceramic lamps nos. 1-4. Scale = 1:2.
T. 1: Oljenke št. 1-4. Keramika. M. = 1:2.



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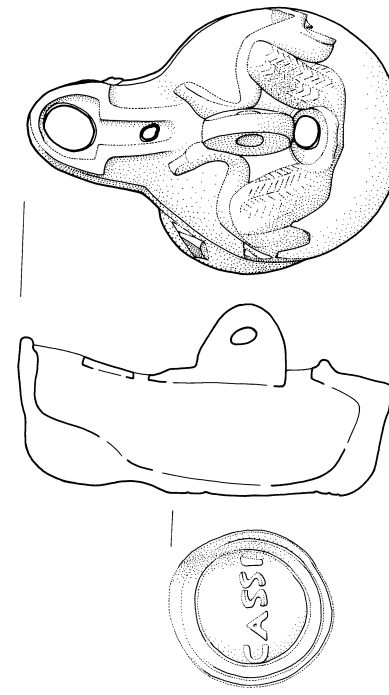

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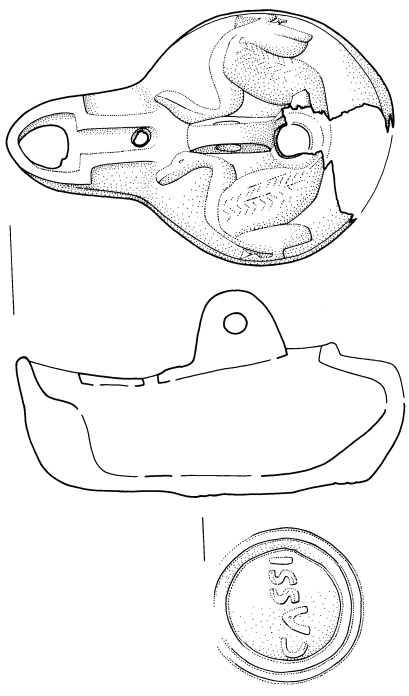

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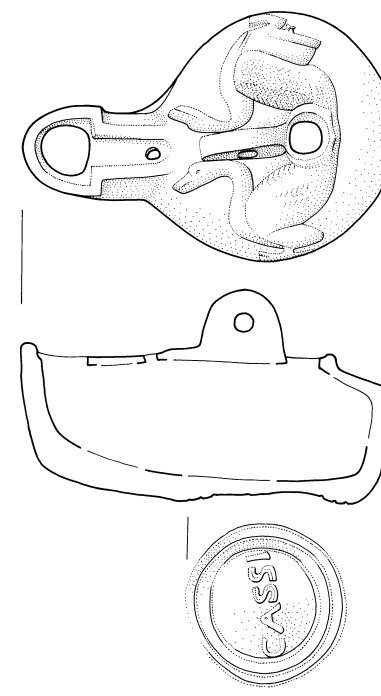
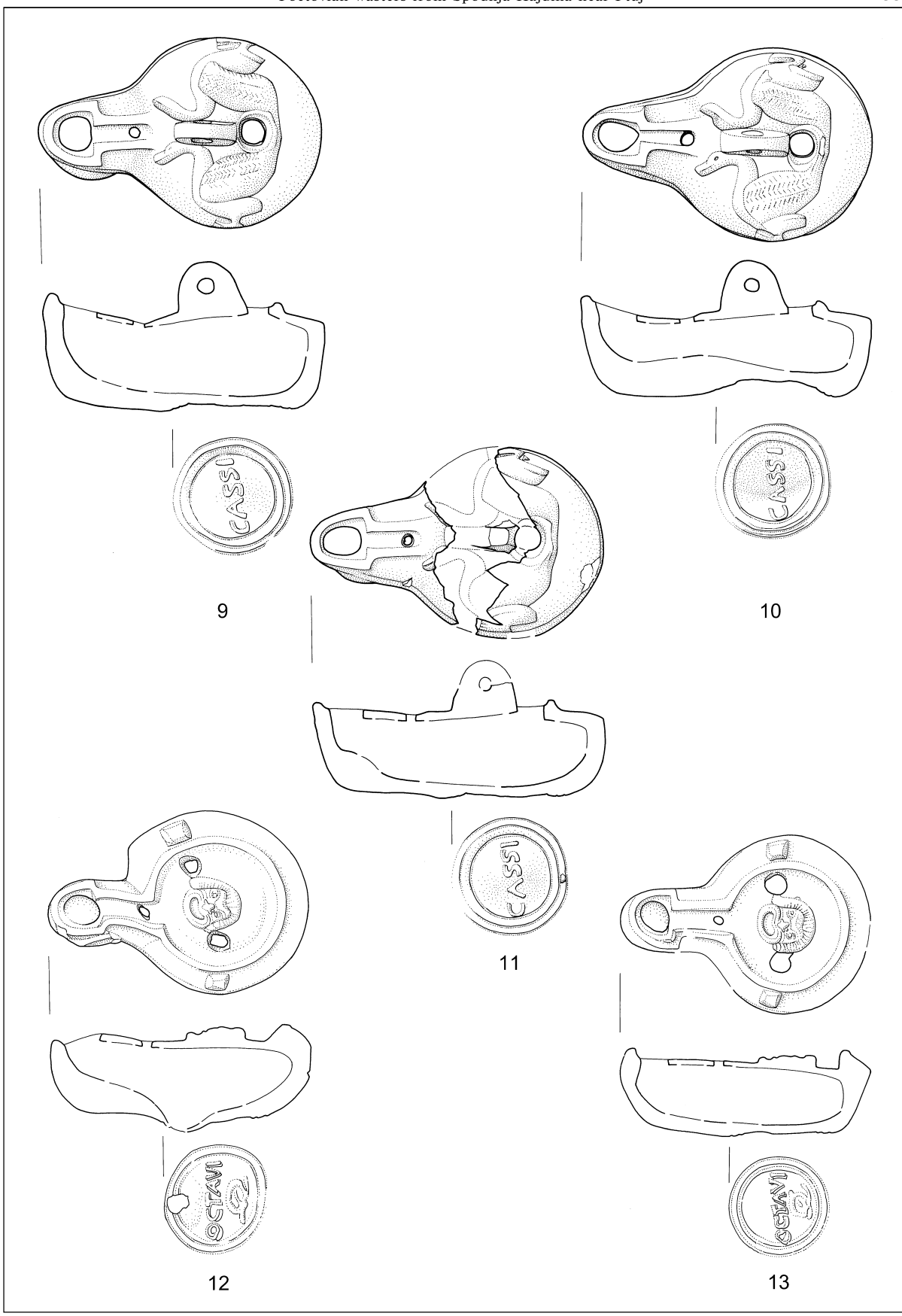
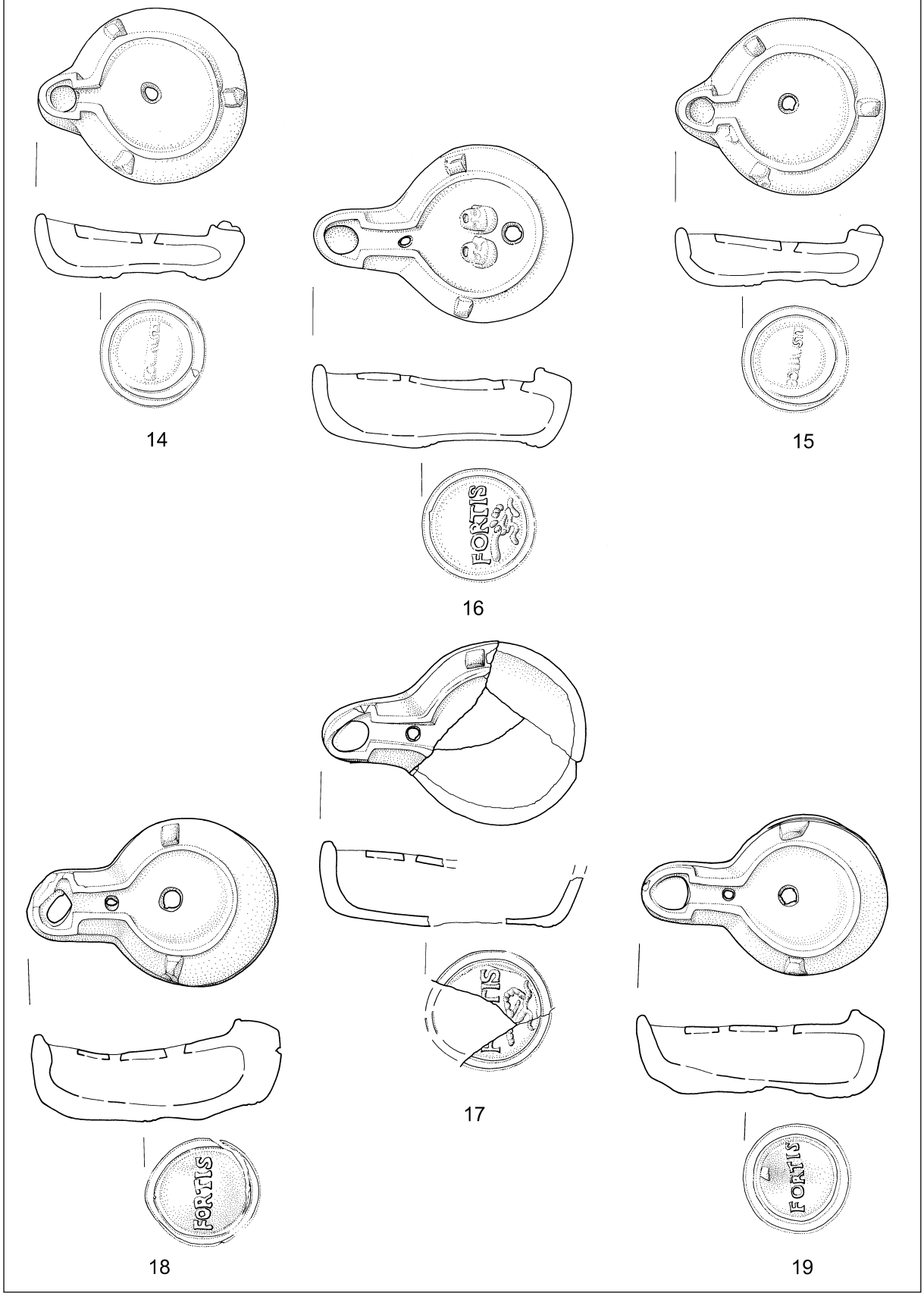


8

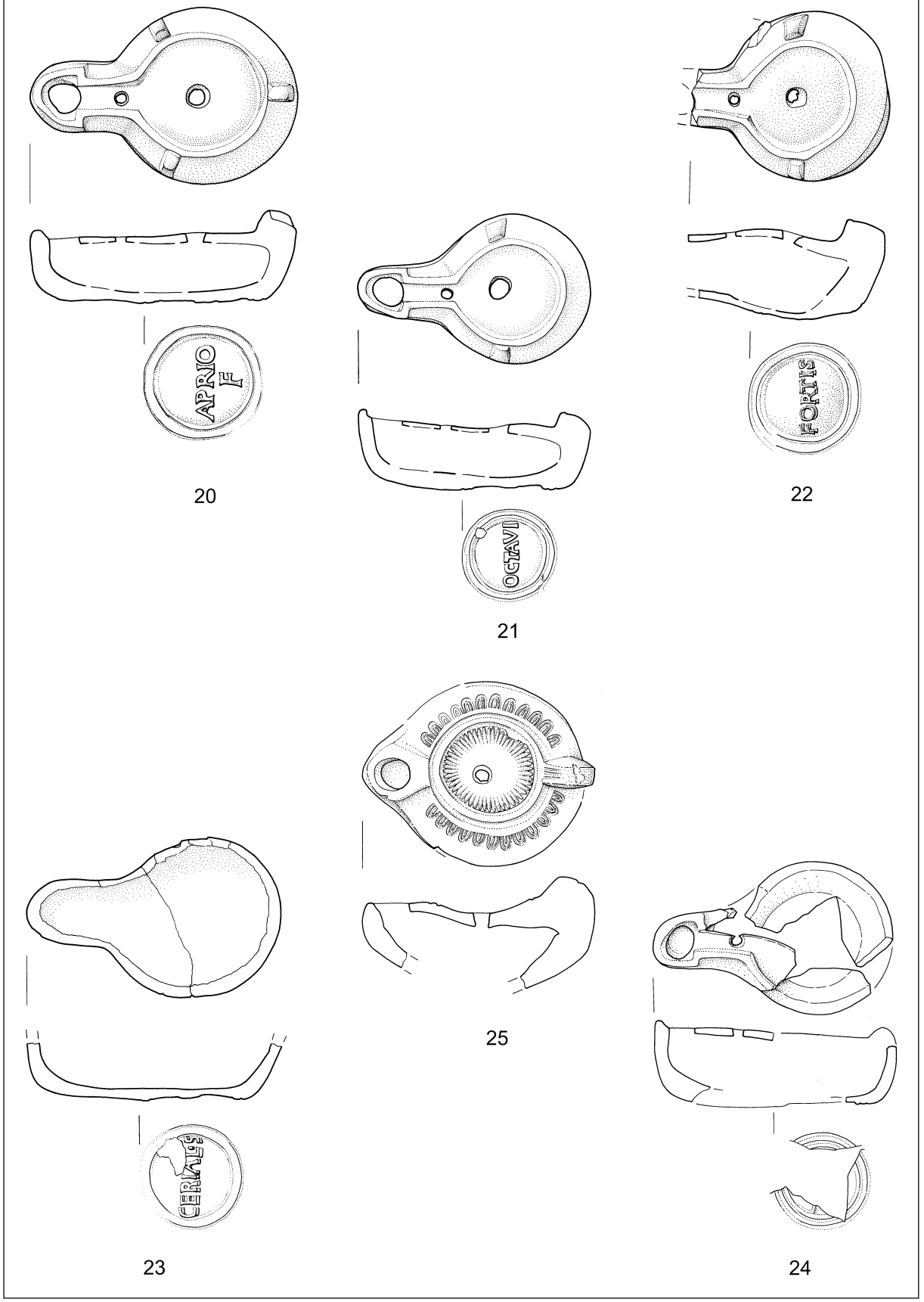
Pl. 2: Ceramic lamps nos. 5-8. Scale =1:2.
T. 2: Oljenke št. 5-8. Keramika. M. = 1:2.



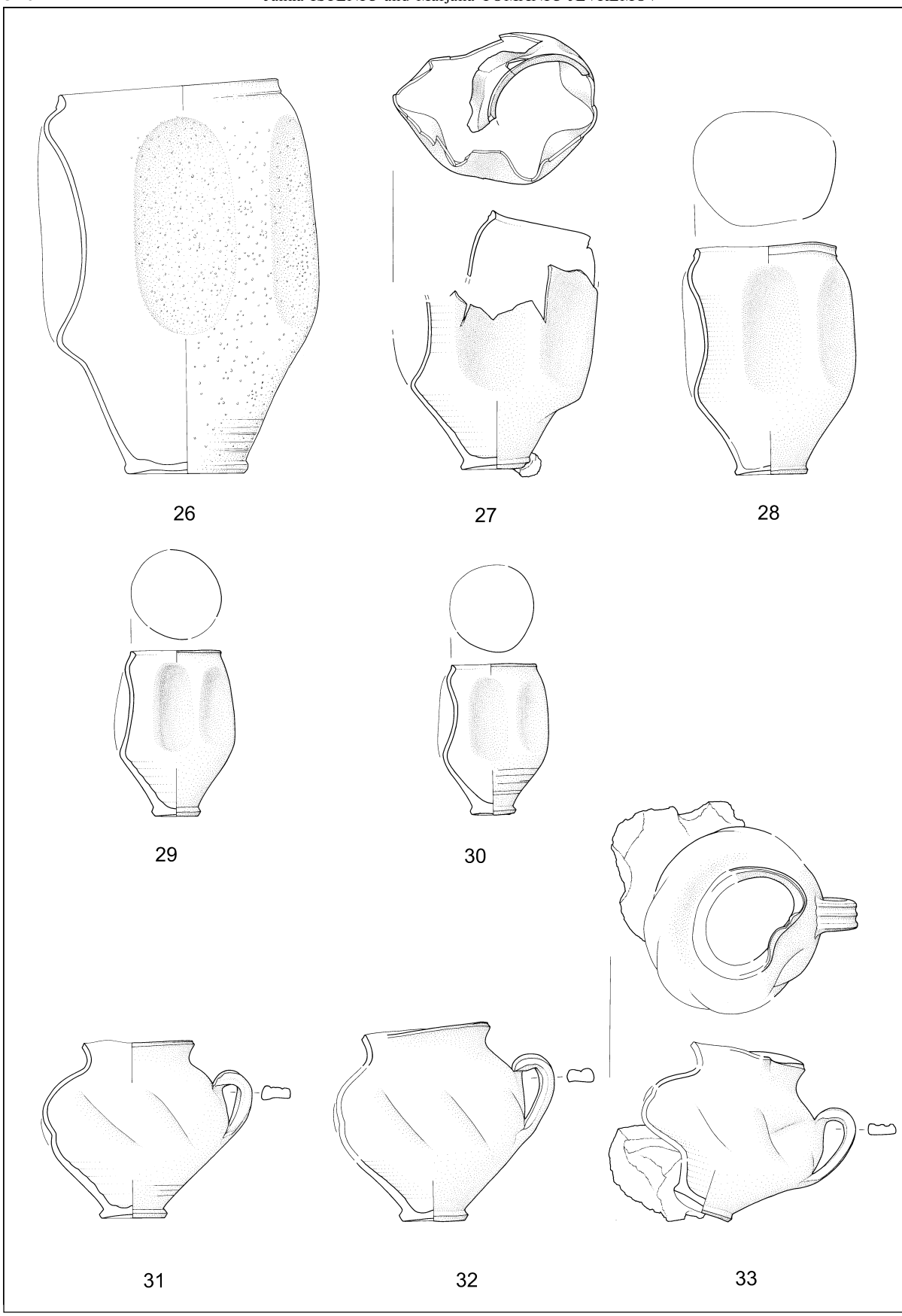
Pl. 3: Ceramic lamps nos. 9-13. Scale =1:2.
T. 3: Oljenke št. 9-13. Keramika. M. = 1:2.



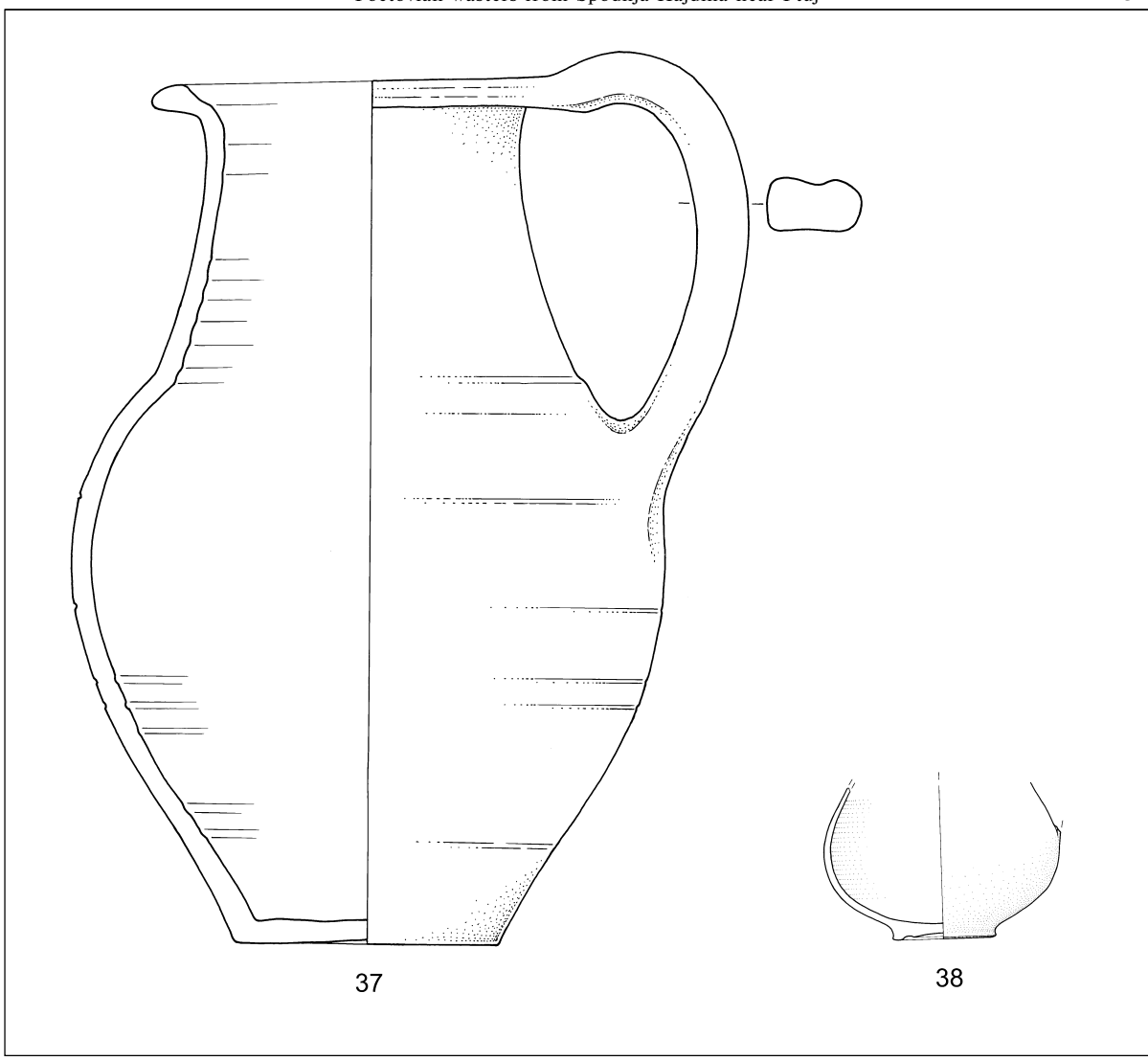
Pl. 4: Ceramic lamps nos. 14-19. Scale =1:2.
T. 4: Oljenke št. 14-19. Keramika. M. = 1:2.



Pl. 5: Ceramic lamps nos. 20-24. Scale =1:2.
T. 5: Oljenke št. 20-24. Keramika. M. = 1:2.



Pl. 6: Indented beakers and handled beakers nos. 26-33. Scale = 1:3.
T. 6: Čaše in skodelice št. 26-33. Keramika. M. = 1:3.



Pl. 7: Jug (no. 37) and the lower part of an enclosed vessel (no. 38). Scale = 1:3.
T. 7: Vrč in spodnji del posode, št. 37, 38. Keramika. M. = 1:3.