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Alessandro Naso

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Alessandro Naso

Funde aus Milet

XXII. Etruscan Bucchero from Miletus: Preliminary Report

with a contribution by Giorgio Trojsi

Introduction

From the early 6th to the middle 5th cent. B.C. Etruscan luxury goods such as bronzes and wooden boxes with ivory plaques, together with particular types of pottery such as bucchero played an active role within the framework of archaic trade both in the western and eastern Mediterranean¹. The bucchero vases found in important Aegean findplaces like the Hera sanctuaries in mainland Greece at Perachora and in East Greece on Samos contributed substantially to the diffusion of Etruscan identity, because bucchero has been frequently identified as the Etruscan national pottery². This process is largely based on a single vase, the bucchero kantharos, a drinking vessel that had great popularity all over the Mediterranean, particularly in Greece, where it was received and further developed until it became an essential attribute of Dionysos, the wine-divinity. Already in the basic study of P. Courbin, developed by the later observations of scholars such as F. Villard, T. B. Rasmussen, M. Gras and H. Brijder, it has been remarked that the form of Etruscan kantharoi was imitated in Greece both by smiths and potters at least from the first quarter of the 6th cent. B.C. The earliest Attic black-figured kantharoi, dating from 585–580 B.C., offer the best term of reference³. H. Brijder preferred the possibility that Etruscan metal models were the source of inspiration. Brijder supported his theory employing the four bronze Etruscan kantharoi known to him, whose forms are closer than the bucchero examples to the early Attic products. Recently the number of metal examples from central and northern Italy has increased to 20, dating from the end of the 8th to the second half of the 6th cent. B.C.⁴. The wider distribution, which includes Didyma, seems to corroborate the proposal of the Dutch scholar.

1 In previous works I have quoted and commented on the bibliography dealing with the subject (Naso 2000a, Naso 2000b, Naso 2001a, Naso 2001b, Naso 2006a). This article is a part of my research about Etruscan and Italic finds in the Aegean, sponsored by the Alexander von Humboldt-Foundation (Bonn), which renewed my fellowship in 2007 at the *Institut für Klassische Archäologie in Tübingen*, where with the kind support of Friedhelm Prayon and Thomas Schäfer I can take advantage of the pleasant work atmosphere and the good library. The

supportive interest of Volkmar von Graeve, director of the excavations at Miletus, in many aspects of the complex history of this city made possible the work on the site, including the taking of the bucchero samples for petrographical and chemical analysis. I owe to him many useful suggestions. Dr. Simon Stoddart (Cambridge) corrected the English text.

2 The bucchero finds from Perachora have been published by Shefton 1962, from Samos by Technau 1929, Isler 1967 (but the choe no. 23, 81 pl. 42, 8. 9 is not Etruscan!) and Isler 1978. General

views about the distribution of bucchero in Eastern Mediterranean are traced by Rasmussen 1979, 150–156; Gras 1985, 676–679; Martelli 1988–1989, 21–24; von Hase 1989, 392–409 lists the bucchero vases according to the typology of T. Rasmussen. Regarding bucchero in Sicily see below.

3 I refer to Courbin 1953; Villard 1962; Rasmussen 1979, 38 and 105; Gras 1984; Brijder 1988.

4 Naso 2006a, 366 for the chronology and 377–379 for the list of examples.

The silver kantharos from Camiros in Rhodes, classified as a local product of the early 6th cent. B.C. under the influence of Etruscan models, shows that South East Greece had an active role in the reception process. The incised geometric decoration on the ribbon handles seems to declare that the model in this case was an Etruscan bucchero kantharos⁵. To support this hypothesis, one can add a quite neglected silver kantharos from the Zeus sanctuary at Olympia showing an upright closed fan just at the lower root of the handle (fig. 1)⁶. The fan is very similar to the usual type impressed on Etruscan bucchero, which are not common on kantharoi and not at all in this position⁷. If fans are on bucchero kantharoi, they are below the rim in a horizontal or more rarely in a vertical position⁸. On the grounds of the material and the unusual positioning of the decoration, I am, therefore, convinced that the silver kantharos from Olympia should be classified as a (South East) Greek product of the early 6th cent. B.C. strongly influenced by Etruscan craftsmanship.

The active role of East Greek workmanship in the reception of Etruscan goods is confirmed by the Etruscan bucchero finds from Miletus, one of the most important cities, if not the most important at all, in the archaic period in East Greece. Thanks to these new finds, we can add Miletus to the general distribution map of bucchero, where it was previously missing⁹.

The Finds

The first Etruscan bucchero sherd was identified in 1986 in a mixed layer on the southern slope of the Kalabaktepe and soon published by V. von Graeve¹⁰. In the following years, further sherds were found not only on the southern slope of the Kalabaktepe, but especially at the Aphrodite sanctuary on the Zeytin-tepe. Here S. Pfisterer-Haas identified 29 sherds among the finds of the 1994 excavation and estimated the total amount of bucchero vases from Miletus as about 10¹¹. Within the framework of a wider research which aims to collect Etruscan and Italic finds from the Aegean, the present writer came first to Miletus in 1998, where, engaged in the study of archaic trade amphorae, he remained at work until 2007. In these ten years it was possible to follow constantly the annual increase of bucchero finds, which now amount to 112 sherds, coming mostly from the Aphrodite sanctuary on the Zeytin-tepe (103 sherds), but also from the settlement at the Kalabaktepe (4 sherds), the Athena

5 Paris, Louvre inv. Bj 2165: Courbin 1953; Rasmussen 1979, 104; Gras 1984, 328; Brijder 1988, 103 with further bibliography, 112 f. fig. 13 a. b.

6 Athens, National Museum inv. 6330 = Met 215: Furtwängler 1890, 94 no. 650 pl. XXXV; Naso 2006a, 364. I owe good photographs of this kantharos to Dr. Beat Schweizer (Tübingen), who is studying the bronze vases from Olympia.

7 About fans on bucchero pots see in general Rasmussen 1979, 130 f. and Regter 1999; the study of Regter 2003, devoted to identify single workshops, has been hardly reviewed by Martelli 2007.

8 Caere, grave Monte Abatone 90: Pugnetti 1986, 73 nos. 50 (kyathos with vertical fans) and 51 (kyathos with

horizontal fans, both over the carination). CVA Edinburgh (1), 48 pl. 57, 4 (chalice) and 5 (strange kantharos-cup), both with horizontal fans. Three silver skyphoi found at Praeneste (Curtis 1925, 19 f. nos. 13.14 pl. 5) and Marsiliana (Minto 1921, 213 fig. 12), but made possibly at Caere, show below the rim respectively closed and open fans, which are very similar to the bucchero decoration.

9 The best distribution map is published by von Hase 1989, fig. 1, which one can correct (the sherds from Tarsos are probably of local production, as noted by Hanfmann 1963, 149 [G. Hanfmann was a skilled scholar in Etruscan craftsmanship] and assumed by Gras 1985, 678). Add some further details regarding kantharoi,

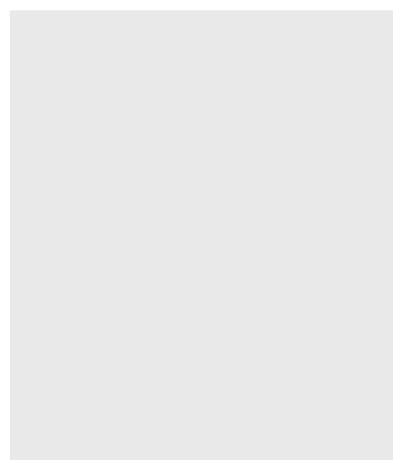


Fig. 1 Silver kantharos from Olympia. Athens, National Museum inv. 6330. Detail of the lower root of the handles

see below. In Tel Kabri in Israel a sherd belonging to a Etruscan jug (Rasmussen oinochoe 3a / olpe 1) has been found: Niemeier – Niemeier 2002, 238 no. 42 figs. 5.93:14; 5.95:16.

10 Inv. K 86.178.5: von Graeve 1987, 28 no. 71 pl. 17, here cat. 15 (fig. 5). The sherd edited doubtfully as bucchero (inv. K 86.111.24: von Graeve 1987, 28 no. 72 pl. 17), as M. Martelli promptly noted (Martelli 1988–1989, 22 q), is not Etruscan, but on grounds of clay and core it belongs to grey monochrome ware.

11 Pfisterer-Haas 1999, 265 for Zeytin-tepe, 267 for Kalabaktepe (both inventory numbers are uncorrected), 267–269 for a brief comment about the Milesian finds.

Temple (2 sherds), the so called *Südschnitt* (2 sherds)¹² and the old excavations, whose findplace is unidentified (1 sherd)¹³. 105 sherds can be referred to votive offerings deposited in sanctuaries, while only 7 sherds were found in the settlement area. It is impossible to compare these data with grave goods, because the necropolis of archaic Miletus has not been identified¹⁴.

The sherds belong mostly to kantharoi (90 sherds from Zeytintepe and 9 from other sites), but also cups are present (5 sherds), kyathoi (2 sherds) and closed forms as oinochai or olpai (6 sherds). The bad preservation of the sherds, which as usual for the pottery from Zeytintepe are very tiny, make it very difficult to estimate the real number of the vases offered in the Aphrodite sanctuary on the Zeytintepe especially for the kantharoi: on the grounds of more than 30 handle sherds and by careful analysis, one can estimate the number of kantharoi as between 14 and 23, 1 giant-kantharos, at least 4 cups, 1 kyathos and 4 closed forms. The number of the sherds from other Milesian sites probably corresponds to the number of pots, because each is a single find; on this basis, we can estimate 9 kantharoi from the other sites. With a conservatively estimated number between 33 and 42 bucchero vases, Miletus has become the richest Etruscan bucchero findplace in the Eastern Mediterranean. The Heraion in Samos shows comparable finds with 38 sherds in good conditions, corresponding to at least 24 vases (5 giant-kantharoi Rasmussen 3d, 15 kantharoi Rasmussen 3e and 4 other forms)¹⁵.

The commonest form in Miletus is the kantharos of the Rasmussen 3e type (cat. 1–10, 12, 15–18); a giant-kantharos of the Rasmussen 3d type is present, too (cat. 11). The only typologically identifiable cup belongs to the Rasmussen 3b type and it is published here (cat. 14). The vertical lines under the rim let us identify at least one kyathos of the Rasmussen 4a type¹⁶. The chronology of these vases, which are well known in Central Italy, span the full Late Orientalising period. The kyathoi 4a are documented from the end of the third quarter until the last quarter of the 7th century. Giant-kantharoi are dated between 630–575 B.C. The chronology of kantharoi 3e and cups 3b in Etruria span from the last quarter of the 7th century to the middle of the 6th cent. B.C.¹⁷. Thus we can conclude that the votive offerings of Etruscan bucchero in the Aphrodite sanctuary at Miletus started at the end of 7th cent. B.C. and continued until at least the first half of 6th cent. B.C. The devotees were very probably Milesian traders: the few inscribed bucchero kantharoi found in Mainland Greek sanctuaries (Perachora), in East Greece (Rhodes) and in Sicily (Lentini) always show Greek names¹⁸. If our hypothesis is right, the bucchero kantharoi

12 The *Südschnitt* is a trench dug in the settlement area between Kalabaktepe and the Athena Temple near the southern city walls of the Hellenistic period (von Graeve 1973–1974).

13 All finds are in the storeroom of the Milet Müzei. A single sherd belonging to a rim of a kantharos is preserved in Berlin in the storeroom of the Antikensammlung SMPK Altes Museum, without inventory number, shelf 12; it was probably found in the early 20th century (kind communication of Dr. A. Herda, Berlin – Washington).

14 The actual information about Milesian graves has been reviewed by E. Forbeck: see Forbeck – Heres 1997, Forbeck 2002 and Forbeck i. p.

15 To the pots published by W. Technau (Technau 1929, 26 fig. 20, 2) and H.–P. Isler (Isler 1967; Isler 1978, 99 f. nos. 168; 169; 165 no. 662; see also von Hase 1989, 408 no. 76) one can add other finds, which are still unpublished. I wish to thank H. Kienast, former director of the Samos excavation, for the kind support offered to the research in the storerooms in the Heraion during my visits in 1997 and 2000.

16 Inv. Z 94.130.30 and Z 94.218.5, both probably belong to the same example. The kyathoi 4a have been discussed by Rasmussen 1979, 115 (typology) and 147 (distribution).

17 Rasmussen 1979, 115 (kyathoi 4a). 103 f. (giant-kantharoi 3d). 104–106

(kantharoi 3e). 119 f. (cups 3b). The rich bibliography published in the period after Rasmussen's work is collected and commented on site by site in many contributions in Naso 2006c.

18 von Hase 1997, 317 f. fig. 24; Naso 2006b, fig. 8 adds the inscriptions from the new sanctuary of Dioscuri at Lentini. A bucchero kantharos from Selinunte with a Greek inscription is republished by Colonna 2004. Docter 2006, 236 fig. 2 a has published a bucchero kantharos' sherd inscribed with a Greek personal name from the so-called Scarico Gosetti at Pithekoussai.

should be reciprocal exchange from Milesian trade in Italy. It is interesting to note that the imported bucchero kantharoi were a source of inspiration for Milesian potters. A tiny sherd from Miletus, found in the sanctuary of Aphrodite at Zeytintepe and belonging to a locally made pyxis (inv. Z 93.14.63; surface and core 5YR 8/4 pink), shows on the carination a decoration clearly inspired by the diamond notches of the Etruscan bucchero pots (fig. 2). Such a motif, unique in the production of Milesian pottery as V. von Graeve kindly confirmed to me, is documented on Etruscan pottery already in the early 7th cent. B.C.¹⁹. A local imitation is also a kantharos from a grave at Kerkyra on Corfu: the form is clearly inspired by Rasmussen 3e, but the surface has a reddish-blackish paint²⁰.

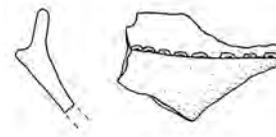


Fig. 2 Miletus, local sherd from the Aphrodite sanctuary at Zeytintepe (inv. Z 93.14.63) with diamond notches on the carination (M. 1 : 2)

Etruscan Bucchero in Greek Contexts in Sicily and Aegean

According to the bibliography quoted by R. M. Albanese Procelli, which recently reviewed Etruscan bucchero in Sicily²¹, the most important find places of Etruscan bucchero in Sicily are Megara Hyblaea (more than 130 examples of kantharoi Rasmussen 3e)²², Selinunte (more than 100 kantharoi)²³ and Syracuse (90 kantharoi)²⁴, followed by Gela (8–10 kantharoi)²⁵ and Lentini (perhaps 6–8 kantharoi)²⁶; the rich necropolis of Camarina seems quite poor for bucchero finds (2 kantharoi)²⁷. These sites are represented in the distribution map of Etruscan bucchero kantharoi type Rasmussen 3e, developed by Fr.-W. von Hase²⁸. To this map we can add at least the following sites in Eastern Mediterranean and in the Black Sea area, where they were brought within the framework of the extensive colonial activities of Miletus²⁹.

Greece:

- Megalopolis: a kantharos type Rasmussen 3e, unpublished, is preserved in the Museum of Tripolis³⁰.

Turkey:

- Daskyleion: a kantharos type Rasmussen 3e, unpublished, is in the Museum of Izmir. Further sherds of kantharoi have been recently found in the excavations led by Prof. T. Bakir³¹.
- Miletus, finds discussed here.
- Didyma, sanctuary at Taxiarchis: sherd of a large ribbon handle, belonging to a giant-kantharos type Rasmussen 3d (fig. 3)³².
- Emecik, Apollo sanctuary: a kantharos type Rasmussen 3e has been published and two further examples, unpublished, have been found³³.

19 Bonghi Jovino 1997 lists the earliest examples of diamond notches on Etruscan pottery, including bucchero.

20 Docter 2006, 235, pl. 1. The vase is preserved in the museum in Corfu, inv. 1757.

21 Albanese Procelli 2005, 313–316, up to dates the general views on Etruscan bucchero in Sicily of Tusa Cutroni 1966, Gras 1985, 490–497 and Rallo 1997, figs. 1–4.

22 Gras 1985, 491. 531–533 figs. 62–68; von Hase 1989, 408 no. 62.

23 Gras 1985, 491 f.; von Hase 1989, 408 no. 55 (64 examples); Dehl-von Kaenel 1995, 396–399 (further 57 examples), with previous bibliography, now integrated by Colonna 2004.

24 Gras 1985, 490; von Hase 1989, 408 no. 61 (more than 90 examples).

25 Gras 1985, 494 (8–10 examples). Further bucchero sherds have been found in the hinterland of Gela during the land survey (preliminary report in Bergemann 2004).

26 Gras 1985, 493 f.; von Hase 1989, 408 no. 60 finally published by Albanese Procelli 2005, 313–316; further sherds in Rizza 2003, 546–548 figs. 7. 8 pl. VI.

27 Gras 1985, 492; von Hase 1989, 408 no. 58; Fouilland 2006, 110 no. 10 quotes a further kantharos, locally made or of Campanian origin.

28 von Hase 1989, 406–408 fig. 27.

29 Ehrhardt 1988.

30 Personal communication of Dr. Alan W. Johnston (Oxford).

31 I'm indebted to Yasmin Polat (Izmir) for both notices.

32 Didyma storeroom, inv. Ke 01–264. Information concerning the new sanctuary at Taxiarchis is in Bumke – Röver 2002. I wish to thank Prof. Andreas Furtwängler (Halle) and Dr. Helga Bumke (Bonn), that kindly showed me this sherd and agreed with the publication.

33 Berges – Tuna 2000, 198–201 fig. 15 b; Berges – Tuna 2001, 162 fig. 13. On East Greek plates from the site recently Attula 2006. I wish to thank Dr. Dietrich Berges (Hamburg) and Dr. Regina Attula

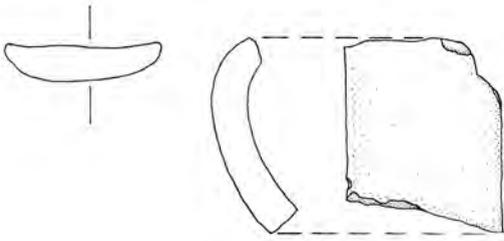


Fig. 3 Sherd of a ribbon handle belonging to a bucchero giant-kantharos (inv. Ke 01-264), from the Taxiarchis sanctuary at Didyma (M. 1 : 2)

Black Sea Area:

- Berezan: according to R. M. Cook a few Etruscan bucchero kantharoi reached Berezan. These materials are not published³⁴.
- Taganrog (on the Sea of Azov, west of the mouth of the Don): three sherds belonging to the rim and to the carination with hooked notches of a Etruscan bucchero kantharos type Rasmussen 3e³⁵.

The Greek appreciation of Etruscan kantharoi is revealed also by kantharoi Rasmussen 3d, or giant-kantharoi. Their form is similar to the 3e example, but the dimensions are particularly developed: the height may reach 35 cm, the diameter may be larger than 30 cm. Etruscan put giant-kantharoi in their tombs and dedicated them in their sanctuaries not only in Vulci, where their production is convincingly placed, but also in Tarquinia, Caere and Veii; finds from the hinterland, for instance at Stigliano near Canale Monterano in the territory of Caere, are also known³⁶. The majestic dimensions were adapted to make them special gifts: it is not by accident that giant-kantharoi are well represented outside Etruria. In Sicily, they were identified at Megara Hyblaea (at least 2 examples)³⁷, Gela (at least 2 examples)³⁸, Syracuse (at least 1 example)³⁹ and probably Lentini⁴⁰. T. Rasmussen hypothesized a local production at Gela⁴¹. In the Heraion of Samos several sherds, probably corresponding to 5 vessels, were found; two examples, as we have seen, also reached Miletus (cat. 11) and the Apollon sanctuary in Didyma (fig. 3). Together with the silver kantharoi from Camiros and Olympia, the new bucchero finds from south East Greece confirm the particular connection of this region to the southern Etruscan city-states.

The Results of the Mineralogical-Petrographical Analysis

In order to identify the possible production centres in Etruria of the bucchero found in Miletus, it was possible to take samples in 2003 from all vases published here⁴² (see below the contribution of G. Trojsi p. 144–146). It is useful to compare the results of the thin-section, X-ray diffraction and X-ray fluorescence analysis

(Berlin) who showed me the finds from Emecik.

34 R. M. Cook, in Cook – Dupont 1998, 111 n. 9. Finds from Berezan are preserved in many museums and institutions, in the Russian Federation (Moscow, St. Petersburg, Odessa, Cherson and Ochakov: kind information of Dr. R. Posamentir, DAI Istanbul), in Ukraina (Institute of Archaeology, Kiev: kind information of Dr. Alla Buyskikh, Institute of Archaeology, Kiev) and in Germany (Universities of Bonn and Halle). R. Posamentir and S. Solovyov are publishing the material in the State Hermitage Museum in St. Petersburg, for that several volumes are planned (Solovyov 2005; see also Mommsen et al. 2006; Posamentir – Solovyov 2006). The finds in Bonn and Halle have been published by Kerschner 2006.

35 The Greek settlement at Taganrog, explored by a German-Russian team

(Kopylov 1999; Dally 2006; Dally et al. 2006), is lying partially under the water. The complex of pottery, mostly of East Greek origin, dates back to the 7th–6th cent. B.C. Pottery from Taganrog is preserved in the museums in Taganrog, Tanais and Rostov. I wish to thank Dr. Sergey Solovyov (The State Hermitage Museum, St. Petersburg), which kindly showed me his line drawings of the bucchero sherds. Regarding Etruscan pottery in the Black Sea area, it is useful to remark that the presumed presence of Etruscan-corinthian vases in Odessa and Berezan (Martelli 1987, 24 map without comment) is wrong (Szilágyi 1998, 587 no. 185 for Odessa, 602 no. 90 for Berezan).

36 Giant-kantharoi form the type 3d in Rasmussen 1979, 103 f. 155. The example from the sanctuary at Stigliano near Canale Monterano is published by Gasperini 1988, 32 fig. 4.

37 Gras 1985, 573. I would classify the giant-kantharos from the grave 86 of Megara Hyblaea as a local product (Siracusa, Museo Paolo Orsi, inv. 7949).

38 Adamesteanu 1960, 149 n. 3; Rasmussen 1979, 152. 154; a good photograph is now in Amata 1998, 360a.

39 Gras 1985, 573 from the grave excavated in 1922 in Quartiere Santa Lucia (Siracusa, Museo Paolo Orsi inv. 42972).

40 Rizza 2003, 548 fig. 8 pl. VI.

41 The second giant-kantharos from Gela (Adamesteanu 1960, 149 no. 3 fig. 14) has been attributed to local production by Rasmussen 1979, 152 and Gras 1985, 494.

42 The samples were obtained thank the permission of the late director of the Milet Müzesi, Mehmet Yaldiz. The main results of the analysis on the bucchero from Miletus have been briefly reviewed by Trojsi 2006.

with the results of the considerable research carried out by K. Burkhardt on the mineralogical-petrographical composition of bucchero, in which almost 400 bucchero samples from many sites in Etruria were analyzed and classified⁴³. Three groups and two singles resulted from the analysis of the 18 bucchero samples from Miletus. The characteristics of the first group, formed by cat. 1, 3, 4, 6–11, 13, 14, 17, i. e. by 10 kantharoi and 2 cups, fit very well into the group assigned to Caere by Burkhardt. The second group, formed by cat. 2 and 15, i. e. 2 kantharoi, show a mineralogical composition similar to the bucchero from Tarquinia, to whom may belong also cat. 5 and 12, i. e. 2 kantharoi of the third group. Cat. 16 and 18, i. e. two kantharoi, are single. From an archaeological point of view, one can observe that the provenance from Caere for more than the half of the analyzed samples confirms the existence of particular connections between Caere and Miletus, which were both among the most important centres of archaic trade respectively in western and in eastern Mediterranean. The Etruscan archaic trade amphora from Miletus, the only one known in the Aegean and classified as type Py 4a, came probably from Caere after the Persian destruction of Miletus in 494 B.C.: as a single object, I am ready to interpret it as the product of a gift made in Caere to a Milesian, that brought it to Miletus⁴⁴.

It is useful to emphasise the probable provenance from Caere of the giant-kantharos suggested by the mineralogical-petrographical analysis (cat. 11), because this type was attributed to Vulci by T. Rasmussen, perhaps with an over-estimation of the several examples found at Vulci⁴⁵. The absolute leadership of Caere in the bucchero production makes it unlikely that so peculiar a vase as the giant-kantharos was produced exclusively in Vulci⁴⁶.

The origin of Tarquinia for at least 4 kantharoi found in Miletus is, on the contrary, a new result, which opens new perspectives to the research: one can firmly suggest a Milesian role in the well known Tarquinian activity of wall painting, where South East Greek influences have been already observed by M. Cristofani. Cristofani remarked stylistic connections between the Grave of Hunting and Fishing (Tomba della caccia e della pesca) in Tarquinia, dated around 530–520 B.C., and the Ionian Little Masters cups, attributed by R. M. Cook to Samian potters⁴⁷. According to new finds from Miletus, where a Cup of the Vineyard which looks like the famous example in the Louvre from Italy (Etruria?) has also been found, U. Schlotzhauer was recently able to suggest the placing of the Ionian Little Masters workshop at Miletus rather than at Samos⁴⁸. The bucchero kantharoi from Miletus may be slightly earlier than the Ionian Little Master pots, dated about 550 B.C. Milesian trade amphorae were found also in Etruria⁴⁹, where Ionian products were concentrated in Gravisca, the ancient harbour of Tarquinia. In Gravisca, Milesian trade amphorae and fine wares are represented particularly around the middle and in third quarter of the 6th century B.C.⁵⁰. In Gravisca, M. Torelli and A. Johnston have depicted the third quarter of 6th century as the acme of dedicatory graffiti, where the Ionians played an important role⁵¹. All this information seems to corroborate the hypothesis of direct relationships between Tarquinia and Miletus around the middle of the 6th century B.C. and later. Probably these relationships have been characterized by personal connections between Milesians and Etruscans, which may also be reflected in the pots dedicated in the Aphrodite sanctuary at Miletus.

43 The results of the research have been illustrated principally in Burkhardt 1991a and in some minor contributions of the same author (Burkhardt 1991b, Burkhardt 1993, Burkhardt 1994). In that research the present writer was responsible for the archaeological classification of the pots.

44 The amphora (Milet Müze inv. 1399: Naso 2001a, 180 fig. 9) has been found in 1983 at Kalabaktepe in a context dated to the first half of the 5th cent. B.C., referred to the brief resettlement after the Persian destruction in 494 B.C. (Kerschner 1995). Prof. F. D'Andria (Lecce) kindly told me of the probable existence of a similar amphora in Phokaia; a research on the excavation reports and some letters to Prof. Ö. Özyigit, director of the excavation, were not able to confirm this information. Chronology and localization of the production centre of the Etruscan trade amphora type Py 4a were confirmed by the underwater exploration of the wreck called Grand Ribaud F along the southern French coast (Long et al. 2006), as presumed by Colonna 2006.

45 Rasmussen 1979, 147. 155.

46 This hypothesis is corroborated by the production of giant-kantharoi in Chiusi, presumed by Martelli, A. 2007.

47 Cristofani 1976, 1–8 noted East Greek influence on wall paintings in Tarquinia come particularly from Phokaia and North Ionia and in minor way from South Ionia. Martelli 1981 commented on the North Ionian influences on Etruscan vase-painting. Cook 1972, 129 f. located at Samos the Ionian Little Masters, while later he suggested also Miletus (R. M. Cook in: Cook – Dupont 1998, 92–94).

48 Paris, Louvre inv. F 68. Schlotzhauer 2000, 414 f. fig. 299 for the Milesian cup; on Ionian Little Masters see Schlotzhauer 2006.

49 P. Dupont in: Cook – Dupont 1998, 170–177, with previous bibliography. Further finds are preserved in the Etruscan National Museum of Villa Giulia (Rome) and elsewhere.

50 Boldrini 1994, 262–264 (with previous bibliography.)

51 Johnston 2000, 23 (with previous bibliography) and 50 f. Relations between Samos and Tarquinia have been suggested by Barron 2004.

Catalogue

Catalogue entries and samples (see below p. 144–146, M 1–18) have the same numbers. Catalogue entries are arranged according to the findplaces: nos. 1–14 are from Zeytintepe, nos. 15–17 from Kalabaktepe. The position of the sherd no. 18, which has been found on Zeytintepe, has been wrongly placed for a misunderstanding.

- 1** Z 94.205.49, Kantharos Fig. 4
B 5,7; H 5 cm. Surface and core N 3/
very dark grey.
Together with the joining sherds
Z 94.14.64, Z 94.14.65 and Z 94.19.8,
Z 94.205.49 belongs to the upper part
of the same vase: plain rim, arched and
diamond notches on the carination.
625–550 B.C.
- 2** Z 94.127.116, Kantharos Fig. 4
B 7,5; H 4,3 cm. Surface and core N 2.5/
black.
Together with the joining sherds
Z 94.71.3, Z 94.53.174 and Z 94.127.116
belongs to the lower part of the same
kantharos, with diamond notches on the
carination and conical foot.
625–550 B.C.
- 3** Z 01.37.19, Kantharos Fig. 4
B 6,8; H 7,2 cm. Surface and core N 3/
very dark grey.
Five joining fragments belonging to the
upper part of a kantharos: two horizontal
incised lines below the rim, arched
notches and slanted strokes on the
carination. Inclusions of mica.
625–550 B.C.
- 4** Z 94.14.37, Kantharos Fig. 4
B 2,9; H 3,3 cm. Surface and core N 2.5/
black.
Sherd of rim with two horizontal incised
lines just below.
625–550 B.C.
- 5** Z 94.205.20, Kantharos Fig. 4
B 4,6; H 7,5 cm. Surface and core N 2.5/
black.
Sherd of rim, including the upper part
of the body from rim to carination:
rim rounded and carination sharp. Three
horizontal incised lines below the rim;
arched and diamond notches on the
carination.
625–550 B.C.
- 6** Z 94.281.90, Kantharos Fig. 4
B 5; H 4,9 cm. Surface and core N 2.5/
black.
Sherd of rim, including the upper part of
the body until the carination. Rim and
carination are rounded. Two horizontal
incised lines below the rim; hooked
notches on the carination.
625–550 B.C.
- 7** Z 94.1.29, Kantharos Fig. 4
B 2,1; H 5,2 cm. Surface and core N 3/
very dark grey.
Upper part of a ribbon handle with a
slightly concave upper surface.
625–550 B.C.
- 8** Z 94.7.166, Kantharos Fig. 4
B 2,1; H 3,8 cm. Surface and core N 2.5/
black.
Lower part of a ribbon handle, originally
just over the root.
625–550 B.C.
- 9** Z 94.8.41, 94.256.10, Kantharos Fig. 4
B 2,2; H 10,2 cm. Surface and core N 2.5/
black.
Three joined sherds of a ribbon handle
with a slightly concave upper surface.
625–550 B.C.
- 10** Z 94.170.37, Kantharos Fig. 4
B 1,7; H 4,9 cm. Surface and core N 2.5/
black.
Upper part of a ribbon handle with a
slightly concave upper surface.
625–550 B.C.
- 11** Z 94.145.84, Kantharos Fig. 5
B 6,6; H 5,4 cm. Surface and core N 2.5/
black.
Sherd of lower body, comprising carination
decorated with diamond notches. From
the thickness of the wall should be a
giant-kantharos of the type Rasmussen
3d.
625–550 B.C.
- 12** Z 94.147.13, Kantharos Fig. 5
B 3,9; H 4,4 cm. Surface and core N 2.5/
black.
Sherd of lower body, undecorated.
625–550 B.C.
- 13** Z 94.56.41, Cup Fig. 5
B 5,2; H 3,1 cm. Surface and core N 3/
very dark gray.
Sherd of lower body, decorated outside
from two bands of horizontal incised
lines.
625–575 B.C.
- 14** Z 94.270.44, Cup Fig. 5
B 3; H 3,1 cm. Surface and core N 2.5/
black.
Sherd relating to the lower part of a
rounded and large body, where are incised
three groups of horizontal lines (from
upside respectively composed from 3, 4
and 2 lines), traced one by one. Three
groups of incised lines are characteristic
only for the cup type Rasmussen 3b.
625–575 B.C.
- 15** K 86.178.5, Kantharos Fig. 5
B 7,5; H (handle) 5,5 cm. Surface and
core N 2.5/black; surface polished and
lustrous, except that under the handle;
micaceous inclusions.
Two joined sherds relating to rim and
carination, comprising also the upper part
and the lower root of a ribbon handle.
Three incised horizontal lines below the
rim and arched notches on the carination
(only one survives).
von Graeve 1987, 28 no. 71 pl. 17;
Pfisterer-Haas 1999, 267 note 11; Martelli
1988–1989, 22q.
625–550 B.C.
- 16** K 92.542.67, Kantharos Fig. 5
B 8,1; H 6,5 cm. Surface and core N 2.5/
black; micaceous inclusions.
Sherd of body with a sharp carination,
decorated from arched and diamond
notches. The lower root of a ribbon
handle is preserved.
Pfisterer-Haas 1999, 267 note 11.
625–550 B.C.
- 17** 68 S 16.1, Kantharos Fig. 5
B 5,9; H 4,6 cm. Surface N 3/very dark
grey; core N 2/black; slightly micaceous
clay.
Sherd of carination, comprising bowl and
body; arched notches on the carination.
625–550 B.C.
- 18** Z 94.252.5, Kantharos Fig. 5
B 1,7; H 2 cm. Surface and core N 3/
very dark grey.
Sherd of body, relating perhaps to the
same kantharos of the ribbon handle
Z 94.252.4, that shows also a core falky
and porous like this.
625–550 B.C.

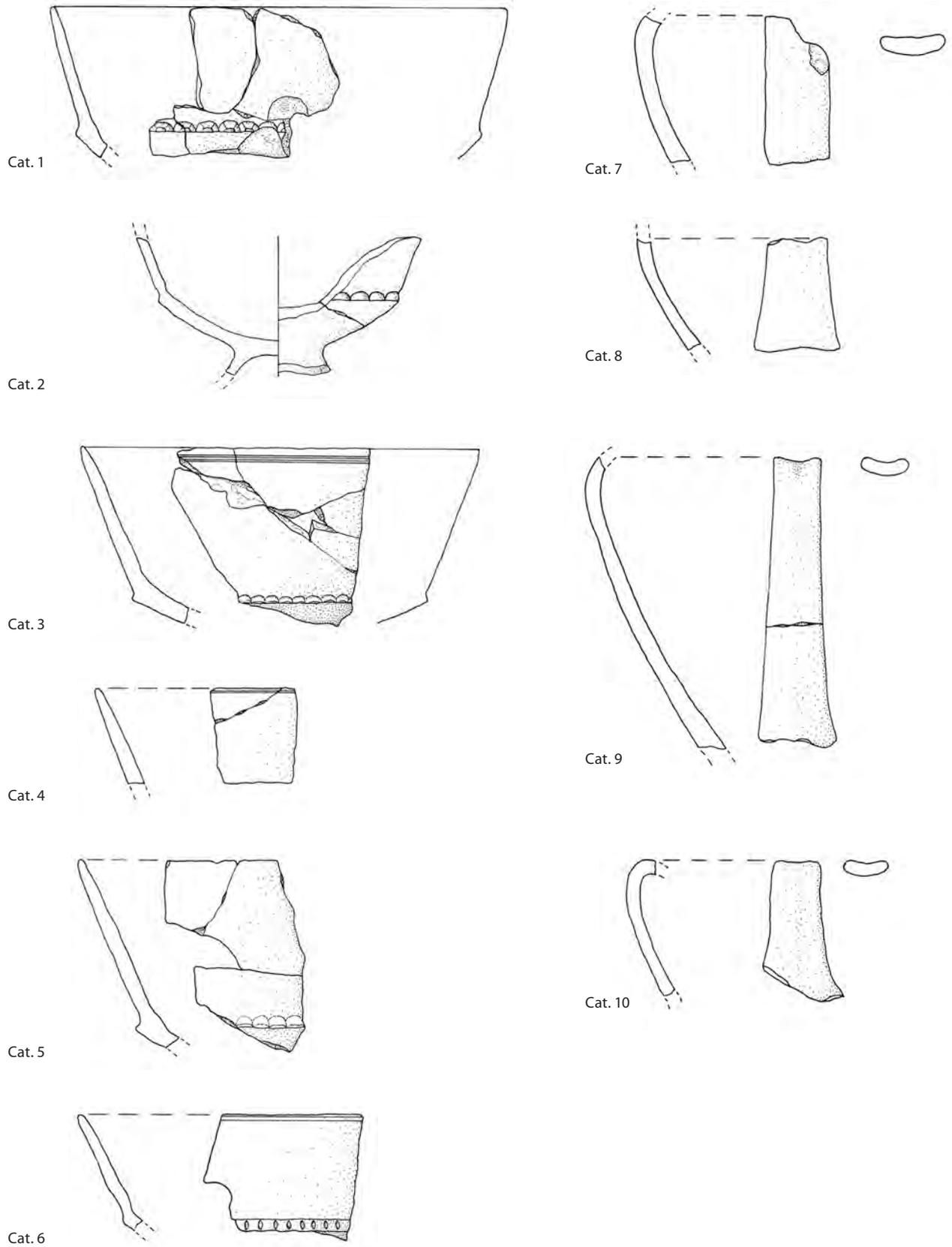


Fig. 4 Cat. 1-10 (scale 1:2)

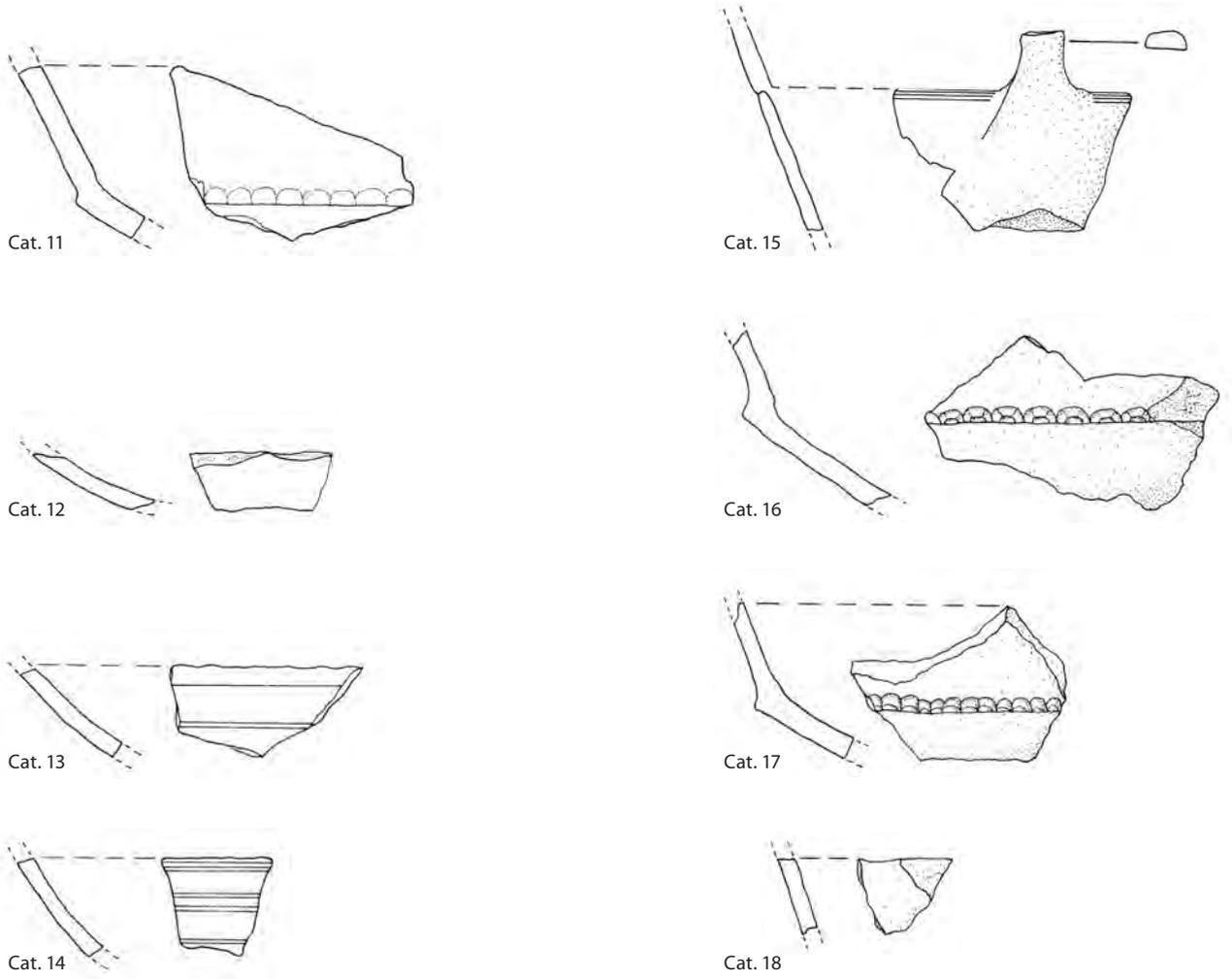


Fig. 5 Cat. 11-18 (scale 1:2)

Giorgio Trojsi

Archeometric Analysis on Some Etruscan Bucchero Fragments from Miletus

Introduction

Through the analytical methodologies (X-rays diffraction, X-rays fluorescence and the thin sections microscopy)⁵², utilized for the chemical and mineralogical-petrographic characterization of ceramics finds, have been analysed 18 Etruscan bucchero fragments coming from Miletus (M1–M18) and related to 16 kantharoi and 2 cups (M13–M14) dating to the end of 7th–6th cent. B.C.

Analytical Methodology

X-rays diffraction (XRD) has been carried out by way of a X-rays diffractometer X Itai Structures 3K5 with Co tube working at 35 KV e 30 mA, portable multi-channel analyser (4096 channels), counting time of 1800 seconds⁵³; with regard to thin sections microscopy, finds have been observed with an optical polarized light microscopy Nikon Eclipse E400 Pol⁵⁴; the chemical analyses (executed only on 5 samples, particularly meaningful, due to the lack of material) in X-rays fluorescence (XRF), of main elements expressed in the form of oxides (% of weight) have been executed by means of Panalytical Axios spectrometer.

The selected samples have been treated to be suitable for analyses. In this respect, once evidenced the structure, the surface peculiarities and indirectly the consistency's degree through stereomicroscope Nikon Eclipse L150, small parts from any sample have been taken and then such parts have been milled in agates mortar, getting some fine grained powder intended for X-rays diffraction and fluorescence. Afterwards some additional portions have been taken; through them have been created the thin sections, observed by means of a petrographic polarized light microscopy.

Results

Samples M1, M3, M4, M6, M7–M11, M13, M14, M17 are characterized by thinning agent of granulometry from medium-thin to thin (tab. 1), composed by a number of quartzs grains, a constant presence of potassium feldspars (of sanidines type $KAlSi_3O_8$, anorthoclase $Na,K(Si_3Al)O_8$) and frequent micas, (mostly muscovite $KAl_2(OH,F)_2AlSi_3O_{10}$).

The iron oxides (prevalently magnetite Fe_3O_4) and the plagioclase (particularly the anorthite $Ca,Na(AlSi)_2Si_2O_8$) are well testified in nearly all above mentioned bucchero vases. The lithic component is represented by fragments of metamorphic rocks of quartzose and schistose nature.

Samples M2, M5, M12, M15 differ for granulometry from medium-thin to thin, with several quartz's grains, potassium feldspars (anorthoclase) and little presence of micas (muscovite) and plagioclase (anorthite) while the iron oxides (mainly magnetite) are well traceable. It's worth noting in these samples the presence of fossils (bioclast-foraminifera). The lithic component is represented by fragments of rocks either carbonatics or calcareous or metamorphic-quartzose.

⁵² Particular thanks are due to Prof. Vincenzo Morra (University «Federico II» of Naples, Department Scienze della Terra) for XRF analysis and for the valuable collaboration.

⁵³ Bonisconi – Ricci Bitti 1988; Documenti 1994.

⁵⁴ Documenti 1985a; Documenti 1985b; Mackenzie – Guilford 1985.

Sample	Quartz	Calcite	K-feldspars	Plagioclase	Micas	Fe Oxides	Pyroxenes
M1	+++		++	±	++		
M2	+++	+	±	±		±	
M3	+++		++		+	±	
M4	+++		++		+	±	
M5	+++	++	+	±		±	
M6	+++		+	±	++	+	
M7	+++		++	±	+	±	
M8	+++		±	+	++		
M9	+++		±	++	+	+	
M10	+++	+	++		++	±	
M11	+++	+	++		+	+	
M12	+++	+	++		±	±	
M13	+++		++	±	+		
M14	+++		++		+	±	
M15	+++	+	+		±	±	
M16	+++	+	+		+		+
M17	+++		++		+	±	
M18	+++	++	++		++		+

Tab. 1 Results of the analyses in X-rays diffraction (M 1–18 = Cat. 1–18). Legend:

+++ above the average
 ++ on average
 + below the average
 ± traces

At this stage the two samples M16 and M18 are taken out for the doubtful assignment to a specific group.

Sample M16 shows a thinning agent of thin granulometry composed by quartz grains, potassium feldspars (sanidine), micas (muscovite), calcite (CaCO₃), rare pyroxenes (augite Ca(Mg,Fe) Si₂O₆) and iron oxides. The lithic component is represented by fragments of carbonatic as well as metamorphic-quartzose rocks.

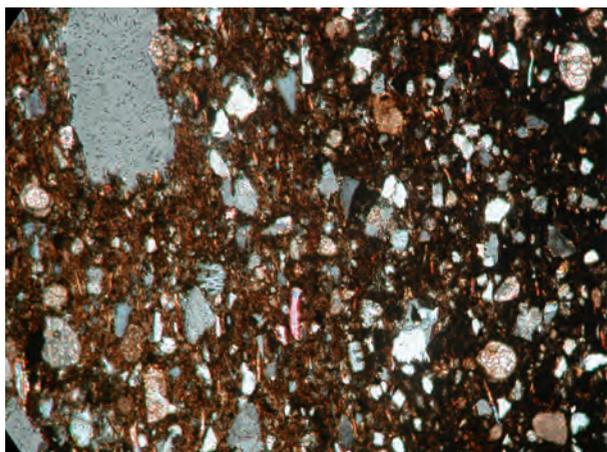
Fragment M18 reveals a thinning agent medium-thin granulometry consisting of quartz grains potassium feldspars (anorthoclase), micas (muscovite) and rare pyroxenes (augite). Fossils (bioclast, foraminifera) are numerous. The lithic component consists of fragments of metamorphic quartzose rocks.

By way of an example, four pictures, taken through petrographic microscopy, are included with specific reference to sample M5 showing the presence of fossils and sample M11 where fossils are missing, and to samples M16, M18 (fig. 6–9).

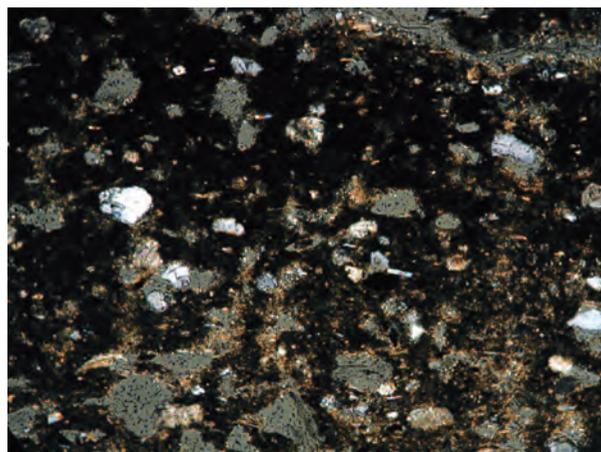
The chemical composition obtained through X-ray fluorescence analysis (tab. 2) allowed to get some information related to the kind of material used for manufacture's creation and to show any possible adjustment introduced related to the clay. The results concerning the chemism of five fragments analyzed as well as the ones relating to the mineralogy show a substantial homogeneity among the samples M2, M5, M12 without significant fluctuations among the percentages of some oxides. On the contrary, fragments M9 and M13 reveal non carbonatic *impasti* given the reduced content in CaO (<3 %).

Tab. 2 X-ray fluorescence analysis results (data as a percentage on the weight's sample)

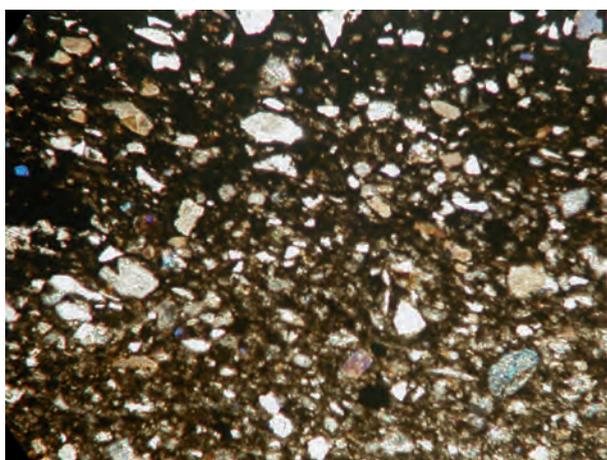
Sample	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	Tot
M2	60,54	0,80	17,73	7,07	0,09	2,27	8,14	0,58	2,60	0,18	100
M5	61,10	0,80	17,70	7,03	0,10	2,26	7,69	0,59	2,59	0,17	100
M9	64,39	0,83	18,54	7,38	0,20	1,82	2,55	0,96	3,10	0,23	100
M12	61,50	0,83	17,41	6,81	0,12	2,43	7,43	0,62	2,65	0,20	100
M13	66,90	0,80	16,95	7,05	0,03	1,70	2,40	0,97	2,82	0,36	100



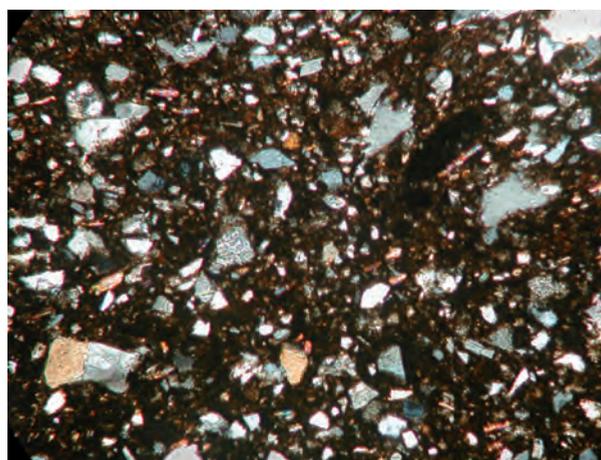
6



7



8



9

Conclusions

This research has been performed on a restricted number of samples and denotes a first archeometric characterization which partly resumes a former study carried out on a relevant group of bucchero fragments coming from many places in southern Etruria⁵⁵ and that seems to confirm the archaeological evidences and what already previously stated in literature.

From the analyses' results it is possible to get a diversification of the samples in hand, assuming their hypothetical origin. Samples M1, M3, M4, M6, M7–M11, M13, M14 and M17 would appear, with a reasonable certainty, to be compatible with the area of Caere, while samples M2, M5, M12 and M15 could come from the area of Tarquinia (characterized by the presence of fossils in the clay); two fragments (M16 and M18) are taken out and their origin are unclear.

To confirm and better understand the archaeometric issues related to the origins of the bucchero found in Miletus, it would be useful a *continuum* of the research aiming at the enlargement and organization of all data obtained so far by means of a larger number of samples that can enhance the results obtained from an analytical and statistical point of view.

Photomicrograph (crossed polars)

Fig. 6 Sample M5 (100X)

Fig. 7 Sample M8 (100X)

Fig. 8 Sample M16 (100X)

Fig. 9 Sample M18 (100X)

55 Burkhardt 1991.

Abstract

Alessandro Naso, Finds from Miletus XXII. Etruscan Bucchero from Miletus: Preliminary Report

Keywords

Miletus • Ionia • Etruscan •
bucchero • votive offering

Bucchero, the Etruscan national pottery, was appreciated also by Greeks, who adopted in their culture the form of the commonest Etruscan vase, the kantharos, as an attribute of Dionysos. This adoption led to a widespread distribution of this vase in the Greek world, which is also clearly demonstrated by the bucchero finds in the Aegean. Here Miletus is the richest bucchero findplace, since the excavations conducted by V. von Graeve from 1985 onwards have produced more than 100 Etruscan bucchero sherds, belonging mostly to kantharoi, which were dedicated in the Aphrodite sanctuary. Mineralogical and petrographical analysis carried out by G. Trojsi has enabled us to identify the probable Etruscan production centres of the bucchero pots by comparison with the results of previous research. These centres are Caere and Tarquinia, two of the most important Etruscan city-states, which had direct relationships with Miletus.

Sources of Illustrations

Fig. 1: D-DAI-ATH-1981/72 (G. Hellner) • Fig. 2–5: drawings and ink (M. Menzel) • Fig. 6–9: G. Trojsi

Abbreviations

Adamesteanu 1960 • D. Adamesteanu, in D. Adamesteanu – P. Orlandini, Gela. Nuovi scavi, NSc 14, 1960, 67–246
 Albanese Procelli 2005 • R. M. Albanese Procelli, Bucchero etrusco da Leontinoi, in: R. Gigli (ed.), ΜΕΓΑΛΑΙ ΝΗΣΟΙ. Studi dedicati a Giovanni Rizza (Palermo 2005) 313–316
 Amata 1998 • S. Amata, Bucchero, in: R. Panvini (ed.), Gela. Il Museo Archeologico. Catalogo (Gela 1998) 360
 Attula 2006 • R. Attula, Archaic Greek Plates from the Apollo Sanctuary at Emecik, Knidia, in: A. Villing – U. Schlotzhauer (eds.), Naukratis: Greek Diversity in Egypt. Studies on East Greek Pottery and Exchange in the Eastern Mediterranean (London 2006) 85–92
 Barron 2004 • J. Barron, Go West, Go Native, in: K. Lomas (ed.), Greek Identity in the Western Mediterranean. Papers in Honour of Brian Shefton (Leiden 2004) 259–266
 Bergemann 2004 • J. Bergemann, Der Bochumer Gela-Survey. Vorbericht über die Kampagnen von 2002 bis 2004, RM 111, 2004, 437–475

- Berges – Tuna 2000 • D. Berges – N. Tuna, Das Apollonheiligtum von Emecik. Bericht über die Ausgrabungen 1998 und 1999, *IstMitt* 50, 2000, 171–214
- Berges – Tuna 2001 • D. Berges – N. Tuna, Kult-, Wettkampf- und politische Versammlungsstätte. Das Triopion-Bundesheiligtum der dorischen Pentapolis, *AW* 2001/2, 155–166
- Boldrini 1994 • S. Boldrini, Le ceramiche ioniche, *Gravisca* 4 (Bari 1994)
- Bonghi Jovino 1997 • M. Bonghi Jovino, Ceramisti tarquiniesi di orizzonte protostorico: noterella sulla decorazione a »false punte di diamante«, in: *Etrusca et italica. Scritti in ricordo di Massimo Pallottino* (Pisa 1997) 71–77
- Bonissoni – Ricci Bitti 1988 • G. Bonissoni – R. Ricci Bitti, La diffrattometria dei raggi X per materiali policristallini (Milano 1988)
- Brijder 1988 • H. A. G. Brijder, The Shapes of Etruscan Bronze Kantharoi from the Seventh Century B.C. and the Earliest Attic Black-Figure Kantharoi, *BABesch* 63, 1988, 103–114
- Bumke – Röver 2002 • H. Bumke – E. Röver, Ein wiederentdecktes Heiligtum auf dem »Taxiarchis« in Didyma, *AA* 2002/1, 79–118
- Burkhardt 1991a • K. Burkhardt, Petrographische und geochemische Untersuchungen an etruskischer Bucchero-Keramik von den Fundorten Chiusi, Orvieto, Vulci, Tarquinia, Allumiere, Tolfa, Cerveteri, Ceri, Veji und Rom, *Münchener geologische Hefte* 5 (München 1991)
- Burkhardt 1991b • K. Burkhardt, Petrographische und geochemische Untersuchung von Bucchero-Objekten aus der Tomba dei Denti di Lupo, in: A. Naso, *La tomba dei Denti di Lupo a Cerveteri* (Firenze 1991) 91–96
- Burkhardt 1993 • K. Burkhardt, Petrographische und geochemische Untersuchung von etruskischer Bucchero-Keramik aus Cerveteri, in: M. Cristofani (ed.), *Lo scarico arcaico della Vigna Parrocchiale I*, *Caere* 3, 1 (Roma 1993) 178–187
- Burkhardt 1994 • K. Burkhardt, Petrographische und geochemische Untersuchung an etruskischer Bucchero-Keramik, in: F. Burragato – O. Grubessi – L. Lazzarini (eds.), *1st European Workshop on Archaeological Ceramics*, Rom 10–12.10.1991 (Roma 1994) 133–142
- Colonna 2004 • G. Colonna, Selinunte, *StEtr* 70, 2004, 336 f. no. 56
- Colonna 2006 • G. Colonna, A proposito della presenza etrusca nella Gallia meridionale, in: *Gli Etruschi da Genova ad Ampurias. Atti del XXIV Convegno di Studi Etruschi e Italici*, Marseille-Lattes 26.9–1.10.2002 (Pisa 2006) 657–678
- Cook 1972 • R. M. Cook, *Greek Painted Pottery* ²(London 1972)
- Cook – Dupont 1998 • R. M. Cook – P. Dupont, *East Greek Pottery* (London 1998)
- Courbin 1953 • P. Courbin, Les origines du canthare attique archaïque, *BCH* 77, 1953, 322–345
- Cristofani 1976 • M. Cristofani, Storia dell'arte e acculturazione: le pitture tombali arcaiche di Tarquinia, *Prospettiva* 7, 1976, 2–9
- Curtis 1925 • C. D. Curtis, The Barberini Tomb, *MemAmAc* 5, 1925, 9–52
- Dally 2006 • O. Dally in: Jahresbericht 2005 des Deutschen Archäologischen Instituts, *AA* 2006/2, 128–131 (Taganrog [Russische Föderation])
- Dally et al. 2006 • O. Dally – V. P. Kopylov – P. A. Larenok, Eine griechische Siedlung bei Taganrog, *EurAnt* 11, 2005, 37–49
- Dehl-von Kaenel 1995 • C. Dehl-von Kaenel, Die archaische Keramik aus dem Malophoros-Heiligtum in Selinunt. Die korinthischen, lakonischen, ostgriechischen etruskischen und megarischen Importe sowie die »argivisch-monochrome« und lokale Keramik aus den alten Grabungen (Berlin 1995)
- Docter 2006 • R. Docter, Etruscan Pottery: Some Case Studies in Chronology and Context, in: *Gli Etruschi da Genova ad Ampurias. Atti del XXIV Convegno di Studi Etruschi e Italici*, Marseille-Lattes 26.9–1.10.2002 (Pisa 2006) 233–240
- Documenti 1985a • Documenti Normal: Sezioni sottili e lucide di materiali lapidei: tecnica di allestimento (14/83), CNR – ICR (Roma 1985)
- Documenti 1985b • Documenti Normal: Manufatti e aggregati a matrice argillosa: schema di descrizione (15/84), CNR – ICR (Roma 1985)
- Documenti 1994 • Documenti Normal 1994: Analisi di materiali »argillosi«: mediante XR (34/91), CNR – ICR (Roma 1994)
- Ehrhardt 1988 • N. Ehrhardt, Milet und seine Kolonien. Vergleichende Untersuchung der kultischen und politischen Einrichtungen ²(Frankfurt a. M. 1988)
- Forbeck 2002 • E. Forbeck, Gräber des hellenistischen und kaiserzeitlichen Milet, in: Ch. Berns – H. v. Hesberg – L. Vandeput – M. Waelkens (eds.), *Patris und Imperium: Kulturelle und politische Identität in den Städten der römischen Provinzen Kleinasien in der frühen Kaiserzeit*. Kolloquium, Köln 19.–21. November 1998, *BABesch Suppl.* 8 (Leuven 2002) 97–105
- Forbeck i. p. • E. Forbeck, Die Nekropolen von Milet. Grabungen und Untersuchungen in den Jahren 1900–1907 und 1993–1995 (in preparation)

- Forbeck – Heres 1997 • E. Forbeck – H. Heres, Das Löwengrab von Milet, BWPr 136 (Berlin 1997)
- Fouilland 2006 • F. Fouilland, Ceramiche non corinzie da Rífriscolaro, in: P. Pelagatti – G. Di Stefano – L. de Lachenal (eds.), *Camarina 2600 anni dopo la fondazione. Nuovi studi sulla città e sul territorio. Atti del convegno internazionale, Ragusa 7 dicembre 2002 / 7–9 aprile 2003* (Roma 2006) 109–128
- Furtwängler 1890 • A. Furtwängler, Die Bronzen und die übrigen kleineren Funde von Olympia, *Olympia* 4 (Berlin 1890)
- Gasperini 1988 • L. Gasperini, Gli Etruschi e le sorgenti termali, in *Etruria meridionale. Conoscenza, conservazione, fruizione. Atti del convegno, Viterbo, 29/30 Novembre – 1 Dicembre 1985* (Roma 1988) 27–35
- von Graeve 1973–1974 • V. von Graeve, Milet. Bericht über die Arbeiten im Südschnitt an der hellenistischen Stadtmauer 1963, *IstMitt* 23/24, 1973–1974, 63–115
- von Graeve 1987 • V. von Graeve, Grabung auf dem Kalabaktepe, in: W. Müller-Wiener, *Milet 1986. Vorbericht über die Arbeiten des Jahres 1986*, *IstMitt* 37, 1987, 5–79
- Gras 1984 • M. Gras, *Canthare, société étrusque et monde grec*, *Opus* 3, 1984, 325–339
- Gras 1985 • M. Gras, *Trafics tyrrhéniens archaïques* (Rome 1985)
- Hanfmann 1963 • G. M. A. Hanfmann, The Iron Age Pottery of Tarsus, in: H. Goldman (ed.), *Excavations at Gözli Kule, Tarsus 3. The Iron Age* (Princeton 1963) 18–332
- von Hase 1989 • F.-W. von Hase, Der etruskische Bucchero aus Karthago. Ein Beitrag zu den frühen Handelsbeziehungen im westlichem Mittelmeergebiet (7.–6. Jahrhundert v. Chr.), *JbRGZM* 36, 1989, 327–410
- von Hase 1997 • F.-W. von Hase, Présences étrusques et italiques dans les sanctuaires grecs (VIII^e–VII^e siècle av. J.–C.), in: F. Gaultier – D. Briquel (eds.), *Les Étrusques, Les plus religieux des hommes. État de la recherche sur la religion étrusque. Actes du colloque international, Paris 17–19 novembre 1992* (Paris 1997) 293–323
- Johnston 2000 • A. Johnston, Greek and Latin Inscriptions, in: A. Johnston – M. Pandolfini, *Le iscrizioni, Gravisca 15* (Bari 2000)
- Isler 1967 • H.–P. Isler, Etruskischer Bucchero aus dem Heraion von Samos, *AM* 82, 1967, 77–88
- Isler 1978 • H.–P. Isler, Das archaische Nordtor und seine Umgebung im Heraion von Samos, *Samos 4* (Bonn 1978)
- Kerschner 1995 • M. Kerschner, Die Ostterrasse des Kalabaktepe, *AA* 1995, 214–218
- Kerschner 2006 • M. Kerschner, Zur Herkunftsbestimmung archaisch-ostgriechischer Keramik: die Funde aus Berezan im Akademischen Kunstmuseum der Universität Bonn und im Robertinum der Universität Halle-Wittenberg, *IstMitt* 56, 2006, 129–156
- Kopylov 1999 • V. P. Kopylov, The Place of the Taganrog Settlement within the System of the Early Greek Colonies in the Region to the North of the Black Sea, *AncCivScytSib* 6, 1999, 1–11
- Long et al. 2006 • L. Long – L. F. Gantès – M. Rival, L'épave Grand Ribaud F. Un chargement de produits étrusques du début du V^e siècle avant J.–C. in: *Gli Etruschi da Genova ad Ampurias. Atti del XXIV Convegno di Studi Etruschi e Italici, Marseille-Lattes 26.9–1.10.2002* (Pisa 2006) 455–495
- Mackenzie – Guilford 1985 • W. S. Mackenzie – C. Guilford, *Atlante dei minerali costituenti le rocce in sezione sottile* (Bologna 1985)
- Martelli, A. 2007 • A. Martelli, Kantharos di bucchero, in: M. Iozzo (ed.), *Materiali dimenticati, memorie recuperate. Restauri e acquisizioni del Museo Archeologico Nazionale di Chiusi* (Chiusi 2007) 27 f.
- Martelli 1981 • M. Martelli, Un askos del Museo di Tarquinia e il problema delle presenze nord-ioniche in Etruria, *Prospettiva* 27, 1981, 2–13
- Martelli 1987 • M. Martelli, La ceramica etrusco-corinzia, in: M. Martelli (ed.), *La ceramica degli Etruschi. La pittura vascolare* (Novara 1987) 23–30
- Martelli 1988–1989 • M. Martelli, Scrigni etruschi tardo-archaici dall'Acropoli di Atene e dall'Iliria, *Prospettiva* 53–56, 1988–1989, 17–24
- Martelli 2007 • M. Martelli, Review of W. Regter, *Imitation and Creation. Development of Early Bucchero Design at Cerveteri in the Seventh Century BC* (Amsterdam 2003), *Gnomon* 79, 2007, 342–350
- Minto 1921 • A. Minto, *Marsiliana d'Albegna. Le scoperte archeologiche del principe Don Tommaso Corsini* (Firenze 1921)
- Mommsen et al. 2006 • H. Mommsen – M. Kerschner – R. Posamentir, Herkunftsbestimmung von 111 Tonproben aus Berezan mit Hilfe von Neutronenaktivierungsanalysen, *IstMitt* 56, 2006, 157–168
- Naso 2000a • A. Naso, Etruscan and Italic Artefacts from the Aegean, in: D. Ridgway – F. R. Serra Ridgway et al. (eds.), *Ancient Italy in Its Mediterranean Setting. Studies in Honour of Ellen Macnamara* (London 2000) 193–208

- Naso 2000b • A. Naso, Etruskische und italische Weihungen in der Ägäis: altbekannte und neue Funde, in: F. Krinzinger (ed.), *Die Ägäis und das westliche Mittelmeer. Beziehungen und Wechselwirkungen 8. bis 5. Jh. v. Chr. Akten des Symposions*, Wien 24.–27.3.1999 (Wien 2000) 157–163
- Naso 2001a • A. Naso, La penisola italica e l'Anatolia (XII–V sec. a.C.), in: U. Muss (ed.), *Der Kosmos der Artemis von Ephesos* (Wien 2001) 169–183
- Naso 2001b • A. Naso, Reflexe des griechischen Wunders in Etrurien, in: V. M. Strocka – D. Papenfuss (eds.), *Gab es das griechische Wunder? Griechenland zwischen dem Ende des 6. und der Mitte des 5. Jahrhunderts v. Chr. Tagungsbeiträge*, Freiburg i. B. 5.–9.4.1999 (Mainz 2001) 317–327
- Naso 2006a • A. Naso, Anathemata etruschi nel Mediterraneo orientale, in: G. M. Della Fina (ed.), *Gli Etruschi e il Mediterraneo. Commerci e politica. Atti del convegno*, Orvieto 16–18.12.2005, *AnnFaina* 13 (Roma 2006) 351–416
- Naso 2006b • A. Naso, Etruscan and Italic Finds in North Africa, 7th–2nd century BC, in: A. Villing – U. Schlotzhauer (eds.), *Naukratis: Greek Diversity in Egypt. Studies on East Greek Pottery and Exchange in the Eastern Mediterranean* (London 2006) 187–198
- Naso 2006c • A. Naso (ed.), *Appunti sul bucchero* (Firenze 2006)
- Niemeier – Niemeier 2002 • B. Niemeier – W.–D. Niemeier, Archaic Greek and Etruscan Pottery, in: N. Scheffelowitz – R. Oren (eds.), *A. Kempinski, Tel Kabri. The 1986–1993 Excavation Seasons* (Tel Aviv 2002) 223–253
- Pfisterer-Haas 1999 • S. Pfisterer-Haas, Funde aus Milet VI. Die Importkeramik, *AA* 1999, 263–271
- Posamentir – Solovyov 2006 • R. Posamentir – S. Solovyov, Zur Herkunftsbestimmung archaisch-ostgriechischer Keramik aus Berezan in der Ermitage von St. Petersburg, *IstMitt* 56, 2006, 103–128
- Pugnetti 1986 • A. Pugnetti, Tomba 90, in: B. Bosio – A. Pugnetti (eds.), *Gli Etruschi di Cerveteri. Exhibition catalogue Milan* (Modena 1986) 64–82
- Rallo 1997 • A. Rallo, Considerazioni su una rotta tra Etruria, Sicilia e Cartagine, in: G. Nardi (ed.), *Etrusca et italica. Scritti in ricordo di Massimo Pallottino* (Pisa 1997) 536–549
- Rasmussen 1979 • T. B. Rasmussen, *Bucchero Pottery from Southern Etruria* (Cambridge 1979)
- Regter 1999 • W. Regter, Forever Fascinating Fans, in: R. F. Docter – E. M. Moormann (eds.), *Proceedings of the XVth International Congress of Classical Archaeology*, Amsterdam 12–17 July 1998 (Amsterdam 1999) 323 f.
- Regter 2003 • W. Regter, Imitation and Creation. Development of Early Bucchero Design at Cerveteri in the Seventh Century BC (Amsterdam 2003)
- Rizza 2003 • G. Rizza, Scoperta di un santuario dei Dioscuri a Lentini, *RendLinc* 14, 2003, 537–567
- Schlotzhauer 2000 • U. Schlotzhauer, Die südionischen Knickrandschalen: Formen und Entwicklung der sog. Ionischen Schalen in archaischer Zeit, in: F. Krinzinger (ed.), *Die Ägäis und das westliche Mittelmeer. Beziehungen und Wechselwirkungen 8. bis 5. Jh. v. Chr. Akten des Symposions*, Wien 24.–27.3.1999 (Wien 2000) 407–416
- Schlotzhauer 2006 • U. Schlotzhauer, Ostgriechische koroplastisch gestaltete Gesichts- und Kopfgefäße aus milesischen Werkstätten, in: R. Biering – V. Brinkmann – U. Schlotzhauer – B. F. Weber† (eds.), *Maiandros. Festschrift Volkmar von Graeve* (München 2006) 229–256
- Shefton 1962 • B. B. Shefton, Etruscan Bucchero, in: T. J. Dunbabin (ed.), *Perachora II* (Oxford 1962) 385 f.
- Solovyov 2005 • S. L. Solovyov, Borysthenes-Berezan: The Hermitage Archaeological Collection I (St. Petersburg 2005)
- Szilágyi 1998 • J. G. Szilágyi, *Ceramica etrusco-corinzia figurata II. 590/580–550 a.C.* (Firenze 1998)
- Technau 1929 • W. Technau, Griechische Keramik im Samischen Heraion, *AM* 54, 1929, 6–66
- Trojsi 2006 • G. Trojsi, Risultati preliminari delle analisi mineralogico-petrografiche su frammenti di bucchero da Mileto, in: Naso 2006a, 407–409
- Tusa Cutroni 1966 • A. Tusa Cutroni, La presenza del bucchero a Selinunte: suo significato, *Kokalos* 12, 1966, 240–248
- Villard 1962 • F. Villard, Les canthares de bucchero et la chronologie du commerce étrusque d'exportation, in: M. Renard (ed.), *Hommages à Albert Grenier 3* (Bruxelles 1962) 1625–1635

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