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RED-FIGURE POTTERY OF UNCERTAIN ORIGIN FROM CORINTH

Stylistic and Chemical Analyses

ABSTRACT

The focus of this article is a group of 18 red-figure fragments or fragmentary vessels found at Corinth whose place of manufacture cannot be determined by visual analysis. All are datable to the later 5th or early 4th century B.C. Several of the vases were decorated by the Academy Painter (an Attic Late Mannerist) or by another painter, designated the Painter of Corinth 1937-525, who is considered here for the first time. Chemical analysis of the fragments indicates that 15 of the 18 form a discrete group distinct from normal Attic and Corinthian clays. The analysis also confirms the Corinthian origin of a bell krater painted by the Attic Suessula Painter.

Many fragments of red-figure vases have come to light in the excavations at Ancient Corinth conducted since 1896 by the American School of Classical Studies at Athens.[1] Most of these fragments can be identified easily by visual analysis of fabric and style as either Attic or Corinthian, and most of the significant fragments have already been published.[2] A few fragments have been identified as imports from Sicily, South Italy, or

1. We wish to express our gratitude to Charles K. Williams II, Director Emeritus of the Corinth Excavations, for his generous permission, given many years ago, to analyze and to publish the material presented in this article. We are also very grateful to the current director, Guy Sanders, for his continuing support. Ian McPhee is indebted to Nancy Bookidis, Assistant Director Emerita, for her friendly assistance in the Corinth Museum over many years. Her successor as curator, Ioulia Tzonou-Herbst, has also been most helpful. Evangelia Kiriatzi, Director of the Fitch Laboratory of the British School at Athens, kindly accepted this project and facilitated our work. We also greatly appreciated the efficient cooperation of our Greek colleagues in Ancient Corinth. The photographs of the pottery were expertly produced by Lenio Bartzioti and Ino Ioannidou. Much of the cost of the chemical analysis undertaken at the Fitch Laboratory was defrayed by a grant from the Research Committee of the School of Historical and European Studies at La Trobe University; for this generous assistance, we are most appreciative. Ian McPhee is responsible for the catalogue and the stylistic discussion; Efi Kartsonaki is responsible for the chemical analysis.

2. Attic red-figure: Luce 1930; Pease 1937, pp. 257–272; Beazley 1955; Palmer in *Corinth* XIII, pp. 152–166; Boulter 1966; McPhee 1976; Boulter and Bentz 1980; McPhee 1981; Boulter in *Corinth* XV.3, pp. 364–365; McPhee 1987; Pemberton 1988; *Corinth* XVIII.1, pp. 143–151; McPhee 2000, pp. 457–461. Corinthian red-figure: Corbett in *Perachora* II, pp. 286–289; *Corinth* VII.4; McPhee 1983; Boulter in *Corinth* XV.3, p. 225; Herbert 1986; McPhee and Trendall 1986; *Corinth* XVIII.1, pp. 136–138; McPhee 1991; 1997, pp. 118–120; 2004, pp. 2–9.

Etruria.[3] In other cases, however, it is not possible to be certain, from a visual inspection alone, whether a fragment or fragmentary vase is Attic or Corinthian or was produced in some other center (e.g., Sikyon, the Argolid, Lakonia, Elis).[4]

With this problem in mind, the feasibility of a project that involved the scientific analysis of a small number of red-figure sherds from Corinth was raised with Ian Whitbread in 1997–1998, when he was the director of the Fitch Laboratory of the British School at Athens. With his support for the project, an application was made through the American School of Classical Studies to the Greek Ministry of Culture, and a permit was eventually received in January 2002. In 2003, 18 fragments or fragmentary vases, representing the majority of the red-figure pottery of uncertain origin, together with two control groups of Attic and Corinthian red-figure fragments, were selected and analyzed at the Fitch Laboratory in Athens.[5] In the case of the first 16 pieces of uncertain origin, the aim was to determine whether they were likely to be Attic or not; in the case of the last two pieces, the question was whether or not the clay was Corinthian.

In the first part of this article, the 18 fragments and fragmentary vases of uncertain origin are catalogued. The clay of pieces that have already been published is carefully described, but the iconography is given only a summary description and the appropriate references appended. The catalogue is followed by a stylistic discussion that focuses upon the work of the Academy Painter and that of another painter, the Painter of Corinth 1937-525, whose work is identified and characterized for the first time. In the second part, the results of the chemical analysis are presented and briefly discussed. The implications of the stylistic and scientific analyses are considered further in the conclusion, particularly in regard to a bell krater potted, as it seems, with Corinthian clay but decorated by the Suessula Painter, most of whose vases are made of Attic clay.

CATALOGUE

In the following catalogue, the reference in parentheses after the catalogue number is the sample number assigned for chemical analysis. Munsell readings are provided for fabric colors.[6] Grid coordinates are indicated for findspots in the central area of Corinth.[7] All dimensions are in meters. When a summary description is given and the scene is only partly preserved, the description of the remains is placed in parentheses.

1 (Cor 03/11) Bell krater Fig. 1

C-1971-258a, b (*ex* C-1937-526). Forum Southwest, grid 58:K, water-laid deposit beneath roadway levels north of building II (lot 6785); Forum South Central, grid 50:L, well 1937-1.

3. Published in McPhee and Pemberton 2004.

4. For a brief survey of local red-figure in Greece, see *The Dictionary of Art* 13, pp. 533–535, s.v. Red-Figure Pottery: Other Areas (I. D. McPhee). For Lakonian, see McPhee 1986, Stroszeck 2006. For Elean, see Schiering 1964; McPhee 1986b, 1990.

5. The sherds in the two control groups are presented in the Appendix. All were chosen from uncatalogued material without a precise findspot.

6. *Munsell Soil Color Charts,* Baltimore 1975.

7. For a plan of the central area, ca. 400 B.C., with the grid coordinates indicated, see Williams 1980, p. 112, fig. 2.

Figure 1. Bell krater 1. Scale 1:3

Hard, slightly gritty fabric, variably fired, 7.5YR 6/4 (light brown)–6/6 (reddish yellow) in core, to 7.5YR 6/2 (pinkish gray) and in spots 2.5YR 5/8 (red), 7.5YR 5–6/4 (light brown to brown) on surface; fine specks of mica on surface, few small white inclusions, few small voids. Dark reddish-brown miltos. Black glaze with slight sheen. Sample: C-1971-258a.

A (draped figure). B, three draped males.

McPhee 1987, pp. 284–286, no. 27, fig. 2, pl. 52. C-1971-638 (McPhee 1987, p. 286, no. 28, pl. 52) may well belong to the same vase.

Academy Painter, ca. 420–390 B.C.

2 (Cor 03/18) Lip and upper wall of bell krater Fig. 2

C-1978-99. Forum Southwest, grid 61–62:C, fill from robbing trenches for walls of building IV (lot 1978-43).

Hard, gritty fabric, 7.5YR 6/4 (light brown); frequent fine specks of mica on surface, frequent small to large white inclusions, few very large dark inclusions, many small to large voids. Light red miltos. Black to greenish black glaze with only slight sheen.

B (draped youth standing to left).

McPhee 1987, p. 286, no. 30, fig. 3, pl. 53.

Academy Painter, ca. 420–390 B.C.

3 (Cor 03/02) Wall of bell krater Fig. 2

C-1929-206. Probably from the north slope of Temple Hill.

Hard, slightly gritty fabric, 7.5YR 6/4 (light brown); numerous very fine specks of mica on surface, few small to medium white inclusions, many small voids. Slightly shiny black glaze, applied thinly on the interior.

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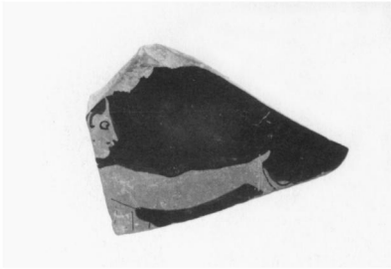

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Figure 2. Fragments of bell kraters 2, 3. Scale 1:2

B (draped youth standing to right, right arm extended).

Corinth VII.4, p. 55, no. 111, pl. 17 (catalogued as Corinthian); mentioned in McPhee 1983, p. 144, under no. 21, and McPhee 1987, p. 286, under no. 27.

Academy Painter, ca. 420–390 B.C.

4 (Cor 03/05) Fragments of a bell krater Fig. 3

C-1937-525a–e. Forum South Central, grid 50:L, well 1937-1.

Hard, slightly granular fabric, 7.5YR 6/6–8, but redder 5YR 6/6 (reddish yellow) in lower body; rare specks of mica on surface, few small white and dark inclusions, many small to medium voids. Slightly shiny, brownish black glaze, reddish where applied thinly; red in bottom of bowl. Sample: C-1937-525b.

A, winged figure between two women. B (draped males).

McPhee 1976, pp. 388–389, no. 21, pl. 88; cited in McPhee 1981, p. 277, under no. 49, and in *Corinth* XVIII.1, p. 89, under no. 61.

Painter of Corinth 1937-525, ca. 430–400 B.C.

5 (Cor 03/12) Fragments of a bell krater Fig. 4

C-1971-259a–d. Forum Southwest, grid 58–59:K, water-laid deposit beneath roadway levels north of building II (lots 6785–6787). Four nonjoining fragments. Fragment a: many joining sherds preserving much of one side, giving a profile from the rim almost to the stem; beginning of the stump of a handle at the upper left break. Fragment b: 13 sherds preserving a section of the body with the stump of a handle at the upper right break. Fragment c: (not illustrated) four sherds preserving a small section of the lower body. Fragment d: single sherd from the lower body.

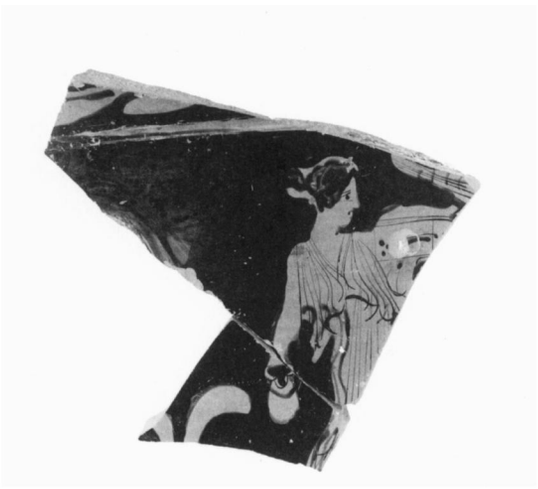

Figure 3. Bell krater 4. Scale 2:5

a) Max. p.H. 0.220, Diam. rim 0.290–0.300; b) max. p.H. 0.175, p.W. 0.173, Th. 0.006–0.010; c) max. p.H. 0.074, p.W. 0.091; d) max. dim. 0.053.

Hard, slightly grainy fabric, 7.5YR 6/4 to 6/6 (light brown to reddish yellow), but redder, 5YR 6/8 (reddish yellow), in the lower bowl; few small white inclusions, rare specks of mica, many small to medium voids. Light red miltos over reserved areas. Shiny black glaze, applied thinly in places. Glazed inside except for two reserved bands, one (W. 0.001–0.003) at the rim, the other (W. 0.004) at the base of the lip. Traces of wear on the upper band. Sample: C-1971-259b.

Fragment a, from the obverse of the vase, preserves a libation scene involving two women. The woman on the left stands in frontal view, her left foot and head turned to the right. She wears a peplos with black stripe at the hem above and below, and holds a cista with her left arm. The second woman is similarly dressed and has a similar stance, but reversed, so that she faces her companion. She holds a bowl in her outstretched right hand and a trefoil-lipped jug in her left. Each woman wears a wreath of white leaves. Behind the left-hand woman, a leaf of the floral below the left handle. At the right, a side-spiral from the palmette below

Figure 4. Bell krater 5. Scale 2:5

the right handle. On the lip, a laurel wreath, with a single row of leaves pointing to left. Below the picture, a horizontal band of egg-pattern. Fragment b, from the reverse, preserves most of the right-hand figure (head and feet missing), standing in profile to left, wrapped in a himation. Below, a section of the egg-pattern. At the right, below the handle, a single palmette and one of the spiralling tendrils that flanked it. There may have been a narrow reserved band around the stumps of each handle, but no pattern. Fragment c (not illustrated), preserving parts of a side-tendril of the floral below a handle, probably comes from the left-hand side of the reverse, as also fragment d, which preserves the back foot of a draped figure standing in profile to right. Thin preliminary sketch lines, especially for the head of the right-hand woman on fragment a.

Cited in *Corinth* XVIII.1, p. 145, under no. 339.

Painter of Corinth 1937-525, ca. 430–400 B.C.

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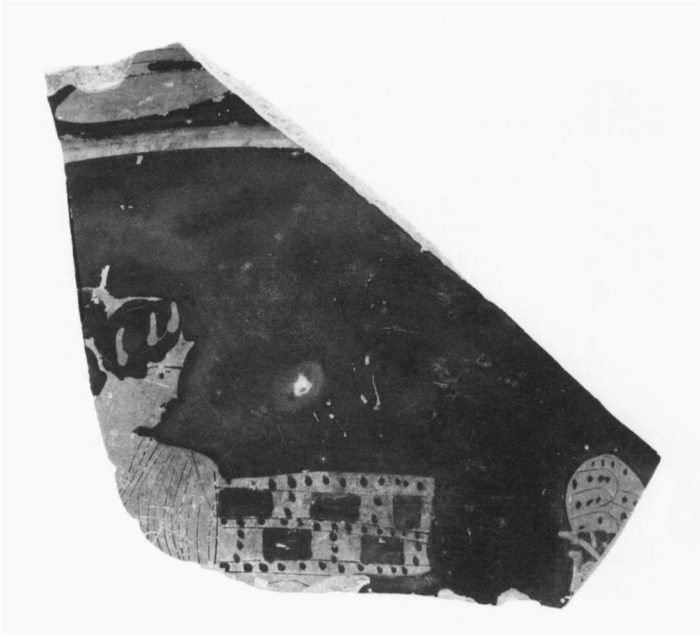

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Figure 5. Fragments of kraters 6, 7.
Scale 3:4

6 (Cor 03/10) Upper wall and lip of bell krater Fig. 5

C-1969-96. Sacred Spring Central, dumped fill above floor 2 (lot 5777).

Hard, gritty fabric, 7.5YR 6/4–6/6 (light brown to reddish yellow), but also 7.5YR 6/8 in places; many very fine specks of mica on surface, few small white inclusions, some voids. Slightly shiny black glaze outside, dull on the inside.

A, symposium (parts of two males).

McPhee 1981, p. 277, no. 49, pl. 69.

Painter of Corinth 1937-525, ca. 430–400 B.C.

7 (Cor 03/13) Upper wall and lip of krater Fig. 5

C-1971-581. Forum Southwest, grid 55:M, red earth northeast of pottery deposit in drain 1971-1.

Max. p.H. 0.094, p.W. 0.108, Th. 0.009–0.010. Probably from a bell krater rather than a calyx krater.

Hard, slightly grainy fabric, 5YR 6/6 (reddish yellow) in core, but 7.5YR 6/4 (light brown) in places, and light gray toward the outer surface; few small white grits, numerous specks of fine mica on surface, many small voids. Red miltos on reserved areas. The glaze has fired a reddish brown on the inside, a dull grayish black on the outside. Reserved band (W. 0.003) on the inside (the lower of the usual two).

The fragment preserves part of the picture from the main side of the vase. The head, in profile to right, and part of the torso, in frontal view, of a standing woman, who wears a sleeveless chiton and holds a box with her left hand. Her hair, which is tied up in a bun, is adorned with three leaves. At the right is the head (forehead and nose), in profile to left, of a figure, who may be male and who was probably seated. The figure wears a curious tall cap, characterized by dots and fine relief lines, so perhaps made of animal-skin, and has a wreath about the head. Above the figures, on the lip, a laurel wreath, the leaves pointing to left. Some preliminary sketch lines for the woman. Added white washed with red

8

9

Figure 6. Fragments of kraters 8, 9.
Scale 3:4

miltos on the leaves in the hair of the woman and on the wreath of the second figure.

Cited in *Corinth* XVIII.1, p. 145, under no. 339.

Painter of Corinth 1937-525, ca. 430–400 B.C.

8 (Cor 03/14) Upper wall and lip of krater Fig. 6

C-1975-30. Forum Southwest, grid 71:D.

Max. p.H. 0.053, p.W. 0.045, Th. 0.007–0.008. From a bell krater or a calyx krater.

Hard, slightly grainy fabric, 7.5YR 6/6 (reddish yellow); numerous fine specks of mica on surface, many small voids. Light wash over reserved areas. Shiny black glaze. Glazed on the inside except for a reserved band (W. 0.003) at about the midpoint.

A single figure remains from the obverse: head, in profile to right, upper torso, in three-quarter view, and parts of the upper arms of a naked youth, who seems to be gazing slightly upward. Given the position of his head just below the offset of the lip, he was probably standing or moving rather than seated. He may have been holding objects in his hands. Around the youth's head, a thin white fillet. At the upper break, the reserved groove marking the beginning of the lip. Many thin preliminary sketch lines.

Painter of Corinth 1937-525, ca. 430–400 B.C.

9 (Cor 03/09) Upper wall of bell krater Fig. 6

C-1964-478a–c. Sanctuary of Demeter and Kore (lots 2165, 4347, 4474).

Soft, fine fabric, 7.5YR 6/6 to 7/6–8 (reddish yellow); numerous fine specks of surface mica, few white inclusions, small voids. Light red miltos. Dull brownish black glaze on interior, applied unevenly; slight sheen on exterior. Sample: C-1964-478c.

A (youth in himation, woman). Only fragment a is illustrated here.

Corinth XVIII.1, p. 145, no. 339, pl. 38.

Painter of Corinth 1937-525, ca. 430–400 B.C.

10 (Cor 03/07) Rim and wall of large skyphos Fig. 7

C-1961-227a, b. Sanctuary of Demeter and Kore, pit 1961-2.

Medium hard, slightly gritty fabric, 7.5YR 6–7/6 (reddish yellow); some fine specks of surface mica, few small voids. Surface darkened with miltos. Dull glaze misfired on exterior, brownish black with slight sheen on interior. Sample: C-1961-227a.

10

11

12

Figure 7. Fragments of skyphoi 10, 11 and bell krater 12. Scale 1:2

B (draped male—the right-hand figure in the scene). A second, small fragment (max. dim. 0.035), not published in *Corinth* XVIII.1 and not illustrated here, preserves the right side of the youth's himation at the hem with part of a black stripe; to the right, the stem of a tendril from the floral beneath the handle. The skyphos was large, with a diameter at the rim of ca. 0.290.

Corinth XVIII.1, p. 89, no. 61, pl. 9; Stroud 1965, p. 7, pl. 2:b.

Painter of Corinth 1937-525, ca. 430–400 B.C.

11 (Cor 03/08) Upper wall and rim of large skyphos Fig. 7

C-1964-403. Sanctuary of Demeter and Kore, room L (lot 2142).

Max. p.H. 0.058, p.W. 0.066, Diam. (est.) 0.280–0.300, Th. (lower break) 0.006.

Soft, relatively fine fabric, misfired a grayish brown, closest to 7.5YR 6/4 but grayer; numerous fine specks of surface mica, small voids. Light red miltos. Dull brownish black glaze.

Head, in profile to left, and shoulders, seen in three-quarter view, of a woman. She wears a sleeveless chiton and her hair is tied at the back of her head. It is not clear whether she was standing or seated, but the thin object near the break above her proper right shoulder may be the finial of a scepter. A few preliminary sketch lines.

Other fragments of skyphoi from the Sanctuary of Demeter and Kore (e.g., C-1965-317a–c, C-1965-542) have a similar clay and glaze, but only C-1965-317c (a rim fragment preserving an egg-pattern and, below, the top of a head) may come from the same vase.

Close to the Painter of Corinth 1937-525, ca. 430–400 B.C.

12 (Cor 03/15) Lower wall of bell krater Fig. 7

C-1975-55. Forum Southwest, grid 73:E, Pentagonal Building, between west wall and bedrock (lot 1975-47).

Max. p.H. 0.099, p.W. (chord) 0.103, Th. 0.008–0.009. Mended from two sherds.

Hard, slightly grainy fabric, 5YR 6/8 (reddish yellow) in core to 7.5YR 6/6 on surface; many fine specks of mica, few small white inclusions, some voids. Shiny black glaze. Inside glazed.

The fragment preserves the left side of the obverse. At left, a tall leaf and bud from the side-tendril of the floral under the left handle. To the right, a male

Figure 8. Fragment of calyx krater 13.
Scale 1:2

figure (torso to calf), standing in three-quarter view to right. He wears a himation off his left shoulder, exposing the right side of his torso. He seems to have been wearing a second garment, a short cloak perhaps, the ends of which hang down along his left and right side, with black stripe at the hem. In front of this figure are the hindquarters of a sheep standing or moving to right. Many thin preliminary sketch lines. Relief contour along the back of the sheep.

Last quarter of the 5th century B.C.

13 (Cor 03/16) Wall and lip of small calyx krater Fig. 8

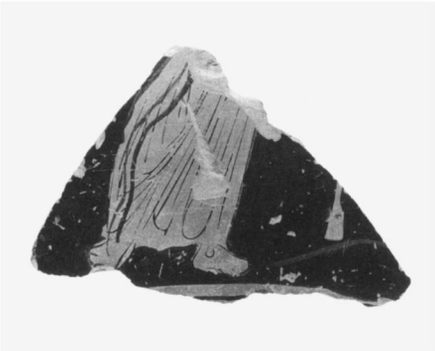
C-1976-155. Forum Southwest, grid 74:B (lot 1976-74). The beginning of the bowl (cul) is preserved at the lower break; the lip is offset from the wall by a reserved groove.

Max. p.H. 0.145, Diam. (est.) rim 0.270, H. of figured area 0.112, Th. wall 0.006–0.007.

Hard, slightly granular fabric, 5YR 6/8 (reddish yellow) in core, but browner, 7.5YR 6/6 (reddish yellow), in places and at surface; numerous very fine specks of surface mica, some voids. Slightly shiny black glaze, applied thinly and fired reddish in spots. Inside glazed except for two reserved bands (W. 0.002) at top and bottom of lip. Reddish brown miltos over the male figure but not, apparently, on the laurel.

A naked, rather corpulent male (head, left arm, right hand, and right foot missing) is shown in profile to right, his left leg raised. Below his left foot is a curving groundline rendered in added white washed with red miltos. The figure may be standing with his leg raised on a rise in the terrain, or moving forward to right. His right arm is bent forward. To judge from the brushstrokes of glaze at the left, he was the first figure on the left side of the picture. On the lip, a laurel wreath, with a single row of leaves pointing to left. Thin preliminary sketch lines on the figure, especially along the legs.

Last quarter of the 5th or early 4th century B.C.



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15

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Figure 9. Fragments of bell kraters 14, 15 and calyx krater 16. Scale 1:2

14 (Cor 03/17) Lower wall of bell krater Fig. 9

C-1977-98. Forum Southwest, grid 68:E, Punic Amphora Building, fill under paved floor (lot 1977-35).

Max. p.H. 0.070, p.W. 0.103, Th. (lower break) 0.015.

Hard, grainy fabric, 7.5YR 6/4 (light brown) in core, tending to 7.5YR 7/4 on surface; secondary burning along left break; few white inclusions, many very fine specks of mica, few small voids. Brownish black glaze with slight sheen.

Legs of a standing figure, probably female, her right leg seen frontally, her left leg in profile to right. She wears a peplos with a double black stripe down her proper right side. To the right, the bottom of an unidentified object (thyrsos?), perhaps held by the woman, is set upon a groundline rendered in added white. Below, a horizontal reserved band defining the upper edge of the pattern-band. Thin lines of preliminary sketch. Relief contour for the feet and the unidentified object.

About 430–400 B.C.

15 (Cor 03/03) Wall of bell krater Fig. 9

C-1931-320a. No precise findspot.

Max. dim. 0.076, Th. 0.004 (top)–0.006 (bottom).

Hard fabric, 7.5YR 6/6 tending to 7/6 (reddish yellow) in core, 7.5YR 5/4 (brown) on surface, some very fine mica on surface. Brownish black glaze with slight sheen. Miltos on reserved areas.

The sherd preserves a section of the floral below one handle: a double palmette with spiral tendril on its left. At the left, a bit of the pattern (eggs?) around the stump of a handle.

Probably last quarter of the 5th or first quarter of the 4th century B.C.

16 (Cor 03/01) Bowl and wall of calyx krater Fig. 9

C-1929-133. Odeion. The fragment preserves the beginning of the wall offset from the bowl by a reserved groove.

Max. p.H. 0.078, p.W. 0.100, Th. (upper break) 0.010–0.011.

Hard, slightly grainy fabric, 7.5YR 6/6 to 7/6 (reddish yellow) in core, some very fine specks of mica, small voids. Slightly shiny, brownish black glaze.

On the bowl, a zone of alternating upright and pendant palmettes. Little of the picture on the wall remains: a foot to left, the toes of a second foot(?), and the base of an altar or offering-table—perhaps a figure seated on or beside an altar? White groundline below the feet.

First quarter of the 4th century B.C.

Figure 10. Bell krater 17. Scale 1:3

17 (Cor 03/04) Bell krater Fig. 10

C-1937-447. Forum South Central, grid 50:L, well 1937-1.

Max. p.H. 0.186, Diam. lip 0.300.

Hard, fine fabric, 10YR 7/3–4 (very pale brown) in core, but 7.5YR 6/6 (reddish yellow) on surface. Orange to pale red wash. Slightly shiny, brownish black glaze, flaking (particularly on the inside of the vase).

A, departure or return of a young man. B (two draped youths).

Morgan 1937, pp. 547–548, fig. 11; Beazley 1940–1945, p. 17; *ARV*[2] 1345, no. 13; *Corinth* VII.4, pp. 47–48, no. 76, pl. 13; Johnston 1991, p. 231; Pemberton 1997a, p. 415, fig. 26; Pemberton 2003, p. 173.

Suessula Painter [P. E. Corbett in *Perachora* II, p. 287], ca. 420–400 B.C.

18 (Cor 03/06) Wall of calyx krater Fig. 11

C-1940-402. New Museum East, well 1940-1. The fragment preserves at the lower break the beginning of the bowl and the horizontal reserved groove above.

Max. p.H. 0.145, p.W. 0.172, Th. 0.005 (upper break).

Hard, fine fabric, 7.5YR 7/6 (reddish yellow) to 10YR 7/6 (yellow). Thin orange slip (surface 7.5YR 7/4–6). Slightly shiny, mottled, greenish black glaze, flaking.

At left, representing the first figure on the left of the picture, are the lower legs, in profile to left, of a seated male wearing a himation with a black border. To the right, a female figure (head and lower legs, except right foot, missing) seated to right, her torso in three-quarter view. Her arms and right foot are painted in added white. She wears a belted garment that is elaborately ornamented (wave, pendant rays, palmettes). A himation with black border enfolds her legs. She holds a white wreath in her lowered right hand, and a scepter in her raised left, so she is probably a goddess. The fragment also preserves the hem of the chiton and the lower part of a second garment *(ependytes),* decorated with a wave-pattern and rays, worn by a third figure, probably female. Behind the seated woman, rocks are indicated with incised lines. Preliminary sketch lines for all figures. Relief contour for the lower part of the himation of the seated woman.

Cited in *Corinth* VII.4, p. 22; McPhee 1978, p. 563.

First quarter of the 4th century B.C.

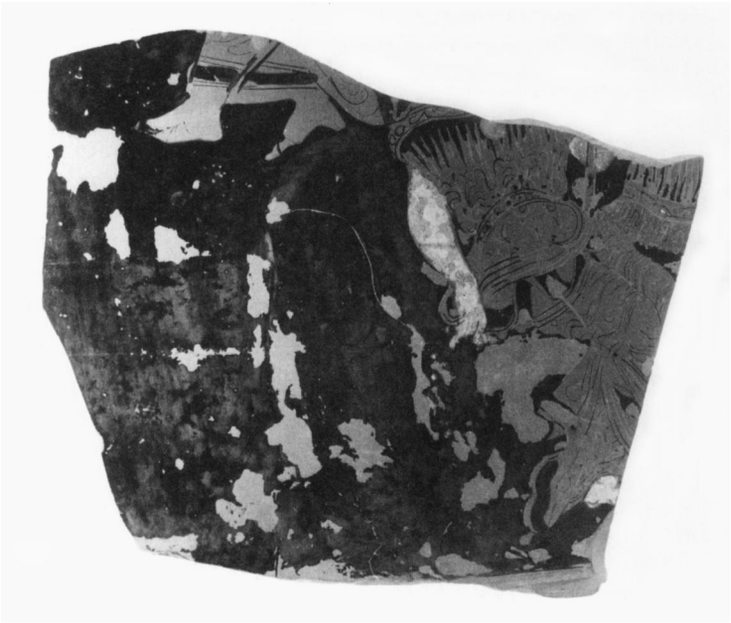


Figure 11. Fragment of calyx krater 18.
Scale 1:2

STYLISTIC ANALYSIS

Items **1–16** display, to the naked eye, a very similar fabric. The fired clay is usually a pale brown in color, 7.5YR 6/6 (reddish yellow) in the core, although it may be slightly redder, 5YR 6/6 (**7**) or 6/8 (**5**, **12**, **13**) or even 2.5YR 5/8 (**1**). In texture it is usually hard,[8] and rather grainy, with small white inclusions, mica, and voids. The fabric is generally similar to that used for contemporary Attic red-figure vases, and hardly distinguishable by eye, but it is perhaps a little browner than is normal in Attic, the firing tends to produce more voids, and there are more fine specks of mica, particularly on the surface.

Among these fragments the work of two painters may be distinguished on grounds of style. Items **1–3** can be attributed to the Academy Painter, who comes at the very end of the so-called Mannerist tradition in J. D. Beazley's compilation of Athenian red-figure vase-painters.[9] Four vases by one hand were first grouped together by Beazley in 1939.[10] Three years later, in the first edition of *Attic Red-Figure Vase-Painters,* these were attributed to a Painter of Bonn 1614, and a separate group of six vases was considered to be the work of the Academy Painter.[11] Later, Beazley recognized that the Painter of Bonn 1614 represented the late phase of the Academy Painter, and by 1963 the total number of vases attributed to him had increased to 20.[12] In 1979 Charles Williams contributed two fragments of a bell krater from his excavations at Corinth,[13] and we are able to add, also from the American excavations in Corinth, fragments of a further five or six vases that seem to be attributable to the painter, along with another that is at least in his manner,[14] as well as two small bell kraters in the archaeological museums of Thebes and Chalkis.[15] Recently, Giada Giudice has assigned to the same painter two more column kraters in Ragusa and Camarina, and Angela Schöne-Denkinger has added a previously unpublished bell krater in Berlin.[16] This brings the number of known vases by the painter to about 31, with another three or four in his manner.[17]

8. The skyphos fragment **11** is an exception, but this is probably due to its depositional history. The Sanctuary of Demeter and Kore is situated on the north slope of Acrocorinth, where the fill is shallow and has been seriously affected by water runoff over the centuries: see Pemberton 1983, p. 65.

9. *ARV*[2] 1124–1125, 1684; *Paralipomena* p. 453; *Beazley Addenda* p. 332. The Academy Painter has recently been studied as one of the Late Mannerists in Mannack 2001, pp. 43–45, 114, 124–126.

10. Beazley 1939, p. 26.

11. *ARV*[1] 849 (Painter of Bonn 1614), 394 (Academy Painter).

12. *ARV*[2] 1124–1125, 1684.

13. C-1978-113 + CP-1668: Williams 1979, p. 132, no. 41, pl. 49; McPhee 1987, p. 286, no. 29, pl. 53; Mannack 2001, p. 125, no. AC.20.

14. Academy Painter: kraters **1–3** above, to which add C-1938-330 (McPhee 1987, pp. 285–286), C-1977-70 (McPhee 1987, pp. 286–287, no. 31, pl. 53), C-1974-29 (McPhee 1987, p. 287, no. 32, pl. 53). Manner of the Academy Painter: C-1972-91 (McPhee 1987, p. 287, no. 33, pl. 53).

15. Thebes Th.P. 702: *CVA,* Thebes 1 [Greece 6], pp. 88–89, fig. 41, pl. 83 [361]; Chalkis 2719: mentioned in McPhee 1987, p. 286, under no. 27.

16. Giudice 2007, pp. 124–125, nos. 210, 211. There can be no doubt about the column krater in Camarina (no. 211), but the available photographs of the Ragusa vase (no. 210: see Giudice 2007, p. 124; Pelagatti 1973, p. 149, no. 442, pl. 47) are inadequate to confirm Giudice's attribution. Berlin 31573: *CVA,* Berlin 11 [Germany 86], pp. 48–49, pl. 46 [4546]. The bell krater in Berlin is small, only 0.193 m high.

17. See the list in Mannack 2001, pp. 124–126, which adds a column krater in Ferrara, inv. 2996 (no. AC.26), but fails to include C-1938-330 and C-1929-206 (bell krater **3**) from Corinth, as well as the bell kraters in Chalkis, Thebes, Camarina, and Berlin. Mannack also gives a separate number (no. AC.22) to C-1971-638, even though it probably belongs to the same vase as C-1971-258 (no. AC.21) (bell krater **1**).

The Academy Painter is principally a painter of bell kraters, but he decorates three other shapes as well: column krater, pelike, and hydria. In this he follows the Mannerist tradition, except in preferring bell kraters to column kraters. The column krater, however, was beginning to disappear from the repertory of the Athenian potter by the late 5th century in favor of the bell krater and, to a lesser extent, the calyx krater.[18] From the known findspots, it is obvious that the vases of the Academy Painter reached a wide market, from Al Mina (2), to Spina (4), Suessula (1), Camarina (1 or 2), and Ampurias (1). Most, however, have been found in Greece: Athens and Attica (at least 5), Corinth (at least 5), Rheneia (1), Boiotia (1). The number of vases by the one hand from Corinth is surprising, even though vases by earlier Mannerists had certainly reached the city.[19]

Adolph Greifenhagen dated the bell krater in Bonn to the "Ende 5. Jahrhundert oder nicht viel später," and, in publishing a fragmentary vase from Al Mina, Beazley remarked, "daft style of the beginning of the fourth century."[20] There is, unfortunately, little contextual evidence for the chronology of the painter, independent of the individual scholar's concept of the stylistic development of Attic red-figure. First, some of the sherds that make up krater **1** were found in a deposit at Corinth, well 1937-1, the pottery of which covers the period 420–380 B.C.[21] Second, a pelike in Mykonos was found on Rheneia: presumably it had been removed from Delos during the Athenian "purification" of the island in 425 B.C., and so must have been manufactured before this date.[22] Third, there are the vases from tombs at Spina, although only the pottery from tomb 200 has been fully published.[23] This tomb must belong broadly to the last quarter of the 5th century, and that is the date also suggested for tomb 794, although its contents do not seem to have been illustrated.[24]

In all these instances, however, the dating of the context depends at least in part upon the red-figure pottery, so that the argument is circular. The small bell krater in Thebes is supposed to have come from the polyandrion of the Thespians killed in the battle at Delion in 424 B.C., which, if correct,

18. Late Attic red-figure column kraters: *ARV*² 1409, nos. 2–8, and 1693 (Meleager Painter); Kathariou 2002, pp. 9–11, pl. 9; Napoli 1970, p. 197, figs. 115, 116 (Montesarchio, T. 227).

19. Vases by Mannerists from Corinth: 1) Athens, National Museum 1427: *ARV*² 564, no. 29 (Pig Painter); 2) C-1932-72 and C-1932-161: Boulter and Bentz 1980, p. 299, nos. 12, 13; *ARV*² 568, no. 34 (Leningrad Painter); 3) T-1144: Beazley 1955; *ARV*² 571, no. 74 (Leningrad Painter); 4) C-1936-530: Boulter and Bentz 1980, p. 299, no. 11; *Paralipomena* p. 391, no. 93 (Leningrad Painter); 5) CP-998: Boulter and Bentz 1980, p. 300, no. 14; *ARV*² 573, no. 14 (Manner of the Leningrad Painter); 6) CP-2635: Boulter and Bentz 1980, p. 300, no. 15; *ARV*² 584, no. 19*ter* (Early Mannerists: Undetermined); 7) T-620: *Corinth* XIII, pp. 326–327, pl. 98; *ARV*² 587, no. 68 (Early Mannerists: Undetermined); 8) C-1934-372 and C-1934-373: Pease 1937, p. 263, fig. 4, and p. 271, no. 19; *ARV*² 1108, no. 24 (Nausicaa Painter); 9) T-2790: *Corinth* XIII, p. 326, no. X-264, pl. 97; *ARV*² 1120, no. 7 (Later Mannerists: Undetermined). Compare also C-1970-100: McPhee 1981, p. 268, no. 6 (Pig Painter?); C-1973-270: McPhee 1987, p. 281, no. 8 (Early Mannerist?); C-1972-139: McPhee 1987, p. 281, no. 9 (Early Mannerist?). This list is confined to Corinth, but there are other Mannerist vases from elsewhere in the Corinthia: e.g., Perachora (*ARV*² 566, no. 7, Manner of the Pig Painter) and Solygeia (*ARV*² 570, no. 56, Leningrad Painter; 586, no. 50, Early Mannerists: Undetermined).

20. Greifenhagen, in *CVA,* Bonn 1 [Germany 1], p. 22; Beazley 1939, p. 26, no. 62.

21. Well 1937-1 is discussed in *Corinth* VII.3, pp. 216–217, deposit 79; *Corinth* VII.4, pp. 18–19, deposit 4; McPhee 1997, pp. 124–125; McPhee 2005, pp. 84–85.

22. *ARV*² 1124, no. 3; *Délos* XXI, p. 36, no. 41, pls. 14, 16.

23. Aurigemma 1965, pp. 53–54, pls. 54–58.

24. Berti, Bisi, and Camerin 1993, p. 49.

would provide a terminus ante quem for the vase. Unfortunately, Demetrius Schilardi, who has carefully studied the material from the polyandrion, believes that the bell krater may be intrusive.[25] At present, therefore, one can only suggest tentatively that the Academy Painter was active during the last quarter of the 5th century B.C., with his early work probably dating to the years before 425 and his later work perhaps produced at the beginning of the 4th century.[26] None of the vases from Corinth seems, as far as one can determine, to belong to the painter's early phase, and some are clearly late works; thus, a date in the period from ca. 420 to 390 B.C. seems appropriate.[27]

At least seven (**4–10**), and possibly eight (**11**), of the items in the catalogue represent the work of a second painter, who may be called the Painter of Corinth 1937-525, after krater **4**, one of his more complete vases. In his publication of this vase in 1976, McPhee noted that the clay seemed to be Attic, but that the style was "peculiar," and he pointed out the similarity in fabric and style to that of an unpublished fragment (**6** here).[28] The latter was published in 1981, together with three other fragments (C-1972-66, C-1972-69, and C-1972-181), which seemed to be related in fabric, but which were too small to allow any attribution.[29] In publishing the Greek pottery from the Sanctuary of Demeter and Kore, Elizabeth Pemberton pointed out that skyphos **10** and bell krater **9** could be assigned to the same hand, and she drew attention to fragments of two other kraters as well (**5**, **7**).[30] To these we can add a further krater fragment (**8**), and another (**11**) that is at least near the painter in style. To this nucleus from Corinth can be added a fragment of a bell krater in Tübingen (S./10 1612), which was recognized by Elke Böhr as having been painted by the same hand as krater **4**.[31]

At present only a small number of vases can be attributed to the Painter of Corinth 1937-525. He is almost entirely a decorator of bell kraters (**4–9**, Tübingen S./10 1612), although we have at least one large skyphos (**10**) from his hand. One bell krater was painted with a symposium on the main side (**6**), but it is striking that at least four had scenes that included women holding cistae and vessels (oinochoe, phiale) used for pouring a libation (**4**, **5**, **7**, Tübingen S./10 1612).[32] The subjects are appropriate for vases that come from sanctuaries (Sacred Spring, Sanctuary of Demeter and Kore), or from the excavations beneath the southwestern part of the Forum, where during the Classical period there were both sanctuaries and buildings with dining facilities.

25. Schilardi 1977, vol. 2, p. 275. See also V. Sabetai, in *CVA*, Thebes 1 [Greece 6], pp. 11, 89.

26. This dating accords with that proposed in Mannack 2001, p. 119, where the painter's earliest works are dated ca. 430 and his latest ca. 400–390.

27. None of the pieces from Corinth is comparable to an early work such as the Mykonos pelike (see n. 22, above). On the other hand, the fragmentary bell kraters represented by C-1978-113 + CP-1668 (McPhee 1987, p. 286, no. 29, pl. 53) and C-1977-70 (McPhee 1987, pp. 286–287, no. 31, pl. 53) are very similar to late works such as the bell kraters in Antioch and Bonn: *ARV*² 1125, nos. 13, 14; Beazley 1939, p. 26, no. 62; *CVA*, Bonn 1 [Germany 1], pl. 21:2.

28. McPhee 1976, pp. 388–389, no. 21.

29. McPhee 1981, pp. 277–278, nos. 49–52. C-1972-66 had been catalogued as Corinthian by Sharon Herbert in *Corinth* VII.4, p. 56, no. 120.

30. *Corinth* XVIII.1, pp. 89, 145, nos. 61, 339.

31. *CVA*, Tübingen 4 [Germany 52], p. 68, pl. 30 [2547]:2. The fragment came from the Arndt Collection, but without a findspot.

32. Elke Böhr (*CVA*, Tübingen 4 [Germany 52], p. 68) believes that the woman on the Tübingen vase is a maenad, but this is unlikely in light of the right-hand figure on **5**.

In terms of style, the treatment of heads is most distinctive. The eye is big and open, with two straight lines above and one below, and a black dot, often large, for the pupil. The line of the mouth is short and turned down sharply. Heads of youths may have short curls before and behind the ear. Women wear peploi with black borders, the pleat-lines sometimes drawn with curling ends, and forming a V-shaped arrangement at the neck. Wreaths or fillets may be painted with white (**5**, **8**), or with white or slip covered with a strong red miltos (**4**, **6**, **7**). The reverses of krater **5** and skyphos **10** both preserve a draped youth on the right-hand side; the himation is rendered with straight pleat-lines running aslant from the left shoulder of the figure.

At present, the stylistic connections of the Painter of Corinth 1937-525 are unclear. It may, however, be noteworthy that fragments of a bell krater by the Academy Painter (**1**) were found in the same contexts as bell kraters by the Painter of Corinth 1937-525 (**4**, **5**). Certainly there is some similarity in the way that both painters treat the pleats of a himation: compare the draped males standing in profile to left on **5** and **10**, by the Painter of Corinth 1937-525, with the right-hand figure on krater **1**, by the Academy Painter.

In regard to style and iconography there is little to be noted about fragments **12–16**. The flat, swirling pleat-lines over the bent leg of the male on krater **12** suggest that this piece is not Attic. If the subject is a myth, the flight of Odysseus from the cave of Polyphemos might come to mind, but the curiously draped standing male would not fit the standard iconography of that story, at least in Athenian vase painting, so it is more likely that the scene represents the preparations for a sacrifice, with a sheep brought to or standing before an altar.[33]

CHEMICAL ANALYSIS

In general, the scientific study of the provenance of Greek pottery has been undertaken through two complementary approaches: petrographic examination of nonplastic inclusions in the clay body, and chemical determination, using various methods, of the elemental composition of the clay. In the case of fine ware, especially the highly processed red-figure pottery of the Classical period, it has long been recognized that chemical analysis is more likely to achieve satisfactory results.[34] The most common techniques employed in studies of provenance have been neutron activation analysis (NAA), X-ray fluorescence (XRF), and inductively coupled plasma spectrometry (ICP).[35] The present analysis was carried out at the Fitch Laboratory using the technique ICP-AES (ICP-atomic emission spectroscopy).[36]

33. As, for example, on the Attic red-figure bell kraters illustrated in Van Straten 1995, figs. 32–34.

34. A convenient summary of earlier research is provided in Jones 1986.

35. See Hein et al. 2002.

36. ICP-AES is a chemical analytical technique that uses an inductively coupled plasma—that is, a plasma for which the energy is supplied by an electrical current produced by electromagnetic induction—to determine the quantity of an element in a sample. The plasma is used first to break down the sample into atoms and/or ions and then to excite these atoms/ions to a higher energy state. The atoms/ions return to their lower or ground state by emitting electromagnetic radiation. The radiation is characteristic of each element, while its intensity depends on the concentration of the element in the sample, thus permitting quantification.

Method

Samples were taken from the 18 items catalogued above, and from two control groups, each consisting of 10 uninventoried red-figure sherds, one group supposedly Corinthian, the other Attic, and all roughly contemporary with the pieces in the catalogue (see Table 1). The 20 sherds in the two control groups are described and illustrated in the Appendix. About 1 cm^3 of each sherd was cleaned with a tungsten carbide drill and powdered in an agate mortar. About 50 mg (exactly weighted) of the powdered and dried sample was put into a platinum crucible together with twice the quantity of lithium metaborate ($LiBO_2$) flux. The crucible was placed in a furnace and heated to 1100° C. The melt was then dissolved in a 25% aqua regia solution (3:1 HCl [30%]:HNO_3 [65%], supra pure reagents) up to 50 ml. The final solution was kept in PET vials. Prior to the analysis by ICP the solution was diluted 10 times with deionized water.

The ICP-AES analysis was performed with a Perkin-Elmer Plasma 400 spectrometer (sequential) with a 40MHz RF generator. The elements detected were silicon (Si), aluminum (Al), iron (Fe), manganese (Mn), chromium (Cr), sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), titanium (Ti), strontium (Sr), and nickel (Ni). Alfa Aesar standards were used for the preparation of the calibration standards. Table 2 lists the concentration of the standards used for each element. Both standards and blank solution had a content of 2.5% of aqua regia, in order to match the matrix of the samples.

The analytical data were submitted to principal component analysis (PCA), with the aid of the commercial statistical package STATISTICA 6.0, using the logarithms of the concentrations of the elements Si, Al, Fe, Mn, Cr, Na, K, Ca, Mg, Ti, Sr, and Ni as the means of normalizing the data, in order to explore compositional similarities and differences among the sherds. PCA is a well-known chemometric technique that allows the discrimination of numerical groups, corresponding in our case to the compositional data of ceramic materials. The main purpose for the use of PCA, and for chemometric techniques in general, is to reduce the complexity of a multivariate data set. This method can reveal information that is not easily noticeable in the original set because of the large volume of data. The new variables, known as principal components, are denoted as principal component 1, principal component 2, and so on, according to their decreasing contribution to the variability of the data. The data are then represented and plotted by the first two principal components, which account for the majority of the variability, thereby facilitating the assessment of the similarities and differences among them.

Results

The multivariate analysis produced three distinct compositional clusters of pottery samples (groups A–C). Figure 12 shows the clusters, plotted on the first two principal components. The first principal component accounts for 55.08% of the total variability, while the second accounts for 25.12%. The factor loadings are listed in Table 3. Table 4 presents the elemental composition (expressed as oxides) of the samples, grouped according to their probable origin.

TABLE 1. SAMPLES FOR CHEMICAL ANALYSIS

Sample Number	*Catalogue or Lot Number*	*Description*
Red-Figure of Uncertain Origin		
Cor 03/01	16	Calyx krater bowl fragment
Cor 03/02	3	Bell krater wall fragment
Cor 03/03	15	Bell krater wall fragment
Cor 03/04	17	Bell krater
Cor 03/05	4	Bell krater
Cor 03/06	18	Calyx krater wall fragment
Cor 03/07	10	Skyphos wall and rim fragment
Cor 03/08	11	Skyphos wall and rim fragment
Cor 03/09	9	Bell krater wall fragment
Cor 03/10	6	Bell krater wall and lip fragment
Cor 03/11	1	Bell krater
Cor 03/12	5	Bell krater
Cor 03/13	7	Krater wall and lip fragment
Cor 03/14	8	Krater wall and lip fragment
Cor 03/15	12	Bell krater wall fragment
Cor 03/16	13	Calyx krater wall and lip fragment
Cor 03/17	14	Bell krater wall fragment
Cor 03/18	2	Bell krater wall and lip fragment
Corinthian Red-Figure Control Group		
Cor 03/19	7138-1	Krater lip fragment
Cor 03/20	7138-2	Krater lip fragment
Cor 03/21	7138-3	Krater lip fragment
Cor 03/22	7138-4	Krater lip fragment
Cor 03/23	7138-5	Krater lip fragment
Cor 03/24	7138-6	Bell krater wall and handle fragment
Cor 03/25	7138-7	Bell krater wall fragment
Cor 03/26	7138-8	Bell krater wall fragment
Cor 03/27	7138-9	Krater wall and lip fragment
Cor 03/28	7138-10	Bell krater wall fragment
Attic Red-Figure Control Group		
Cor 03/29	7201-1	Krater lip fragment
Cor 03/30	7201-2	Krater lip fragment
Cor 03/31	7201-3	Krater lip fragment
Cor 03/32	7201-4	Bell krater wall fragment
Cor 03/33	7201-5	Krater wall fragment
Cor 03/34	7201-6	Bell krater wall fragment
Cor 03/35	7201-7	Krater wall fragment
Cor 03/36	7201-8	Bell krater wall fragment
Cor 03/37	7201-9	Krater wall fragment
Cor 03/38	7201-10	Bell krater wall fragment

TABLE 2. STANDARDS USED FOR ICP-AES ANALYSIS

Element	*Si*	*Al*	*Fe*	*Mn*	*Cr*	*Na*	*K*	*Ca*	*Mg*	*Ti*	*Sr*	*Ni*
Std 1 (ppm)	15	5	2.5	0.05	0.1	0.2	2.5	5	2.5	0.5	0.01	0.1
Std 2 (ppm)	30	10	5	0.5	0.5	2	5	10	5	1	0.05	0.5

Ppm = parts per million.

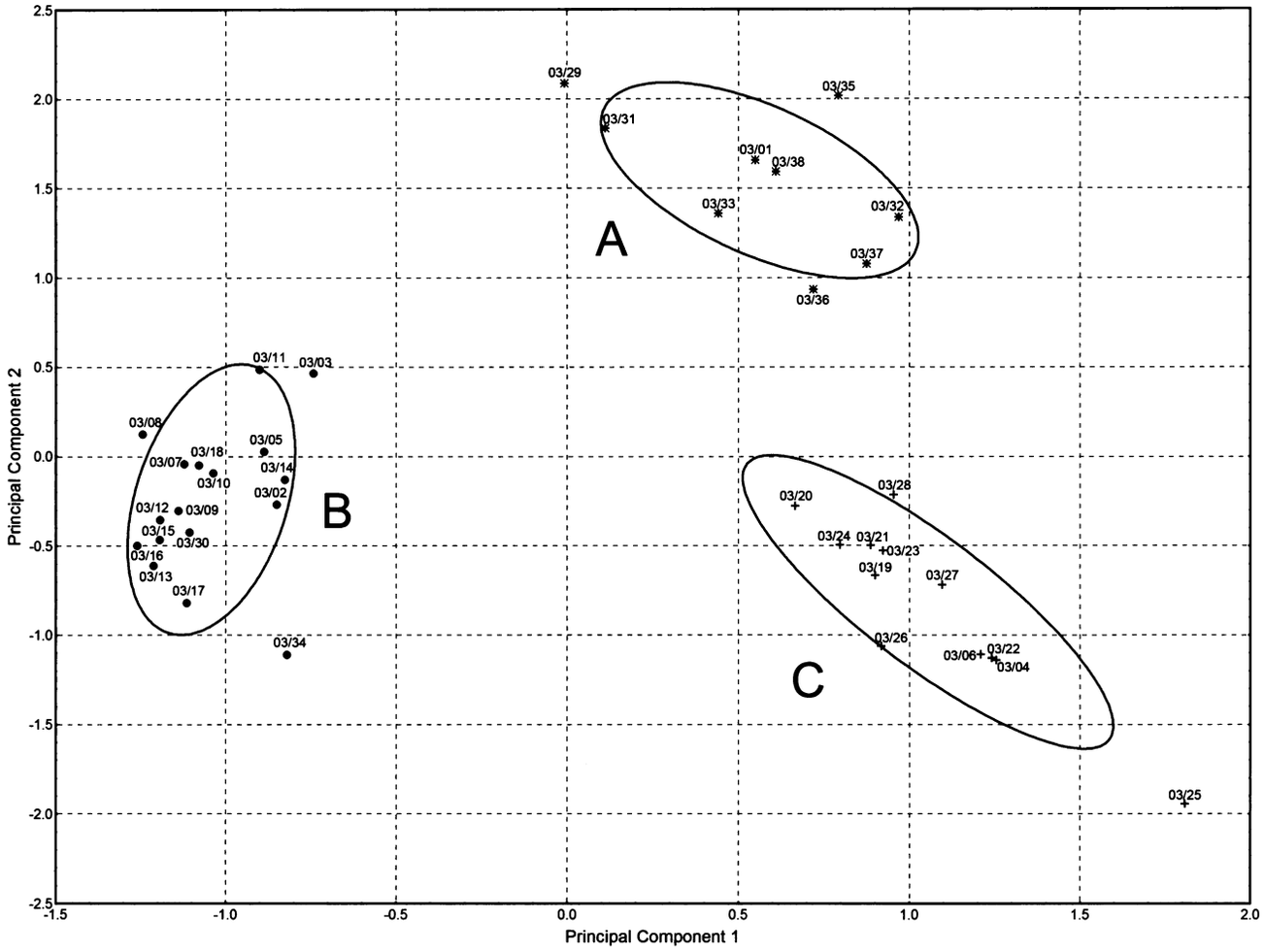


Figure 12. Principal component analysis plot of analyzed samples. Group A: Attic control group; group B: samples of uncertain provenance; group C: Corinthian control group.

One of the clusters (group C) includes all the pottery in the control group that had been assigned a Corinthian origin (see Fig. 12, Table 4). Two vases originally of uncertain origin, Cor 03/04 (**17**) and Cor 03/06 (**18**), fall here within the compositional range of the Corinthian control group. Since the samples in this group have a similar elemental profile, all the pottery should have the same provenance, in this case Corinth, as visual fabric analysis and stylistic characteristics had suggested.

Previous studies of Corinthian pottery, going back to the work of Marie Farnsworth in the 1960s and 1970s, have been mainly concerned with the composition of Corinthian clay and the determination of possible clay sources, and analysis has concentrated upon coarse or semi-coarse ware, particularly amphoras, or fine ware of the Archaic period.[37] There has been no previous scientific analysis of Classical Corinthian red-figure pottery. All studies, however, have shown that Corinthian clay has a high calcium content. A neutron activation analysis of 40 samples of Corinthian fine ware dating from the 7th to the 3rd century B.C. yielded a mean calcium content of 10%, close to that of 9.98% for group C here.[38] Another analysis, by optical emission spectroscopy at the Fitch Laboratory, of 15 Corinthian coarse ware samples dating to the 4th century B.C., produced a compositional range quite similar to that of group C, although higher in

37. The most recent general account is given in Whitbread 2003. See also Jones 1986, pp. 173–189; Whitbread 1995, pp. 293–346. For the work of Farnsworth, see, e.g., Farnsworth 1970; Farnsworth, Perlman, and Asaro 1977.

38. See Farnsworth, Perlman, and Asaro 1977, p. 457, table I (4).

TABLE 3. FACTOR LOADINGS FOR PCA

Element	*Factor 1*	*Factor 2*
Si	-0.853192	0.160563
Al	-0.906524	0.176488
Fe	0.152423	0.869148
Mn	0.794656	-0.207639
Cr	0.527952	0.795195
Na	-0.919159	-0.165538
K	-0.615133	0.254529
Ca	0.686941	-0.602385
Mg	0.761256	0.573139
Ti	-0.815630	0.443191
Sr	0.862620	-0.244308
Ni	0.665024	0.697441

calcium.[39] Some differences are to be expected in these results, since two different types of pottery were analyzed, and two different methods of analysis were employed.

A second cluster (group A) includes the majority of the samples from the Attic control group (see Fig. 12, Table 4). However, two fragments, Cor 03/30 and Cor 03/34, which had originally been presumed to be Attic based upon visual analysis and stylistic characteristics, do not seem to fall within the compositional range of the Attic group, but rather into the range of the third cluster (group B) that contains most of the examples of unknown fabric. This result was unexpected, but subsequent inspection has shown that the two fragments can indeed be visually separated from the Attic group: the surface of Cor 03/30 has a pinkish wash, very like the surface of **7** (Cor 03/13); and Cor 03/34 can now be seen to be so like **5** (Cor 03/12) that it may even come from the same bell krater (part of the floral below the right handle), or if not from this vase, then from its twin. One of the fragments of uncertain origin (**16** [Cor 03/01]) also seems to be compatible with the Attic control group.

In general, group A is much lower in calcium than group C, but richer in iron, chromium, and nickel, as we would expect for pottery of Attic origin, although the concentrations of calcium and titanium are lower and those of sodium higher than might be expected.[40] Apart from the methodological problem of calibrating analyses done at different times, in different laboratories,[41] and with varying techniques, previous analyses of Attic pottery have not usually involved material of such a restricted chronological range or ceramic type as our red-figure control group.[42] Moreover, although

39. See the appendix by R. E. Jones in Wright 1980, pp. 176–177. In Garezou 1997, p. 382, the elemental composition of a calyx krater in the National Museum in Athens (NM 1381) is given in order to support a possible Attic provenance. However, the high calcium content and the general elemental profile might be taken to favor a Corinthian origin.

40. For earlier analyses of Attic pottery, see Jones 1986, pp. 150–164. Particularly useful for our purposes are Prag et al. 1974, esp. p. 173, table 6; and Fillieres, Harbottle, and Sayre 1983, esp. p. 61, table 2. For a convenient table of more recent chemical analyses, see Aloupi-Siotis 2008, p. 116. See also Mirti, Perardi, and Gulmini 2006, p. 34, table 1.

41. For this problem, see Hein et al. 2002.

42. For an analysis of Attic red-figure fragments, see Mirti et al. 2004, p. 716, table 2 (samples LF40, 43, 47–50).

TABLE 4. SAMPLES EXPRESSED AS OXIDES AND SORTED BY PCA INTO GROUPS

Sample	SiO_2	Al_2O_3	Fe_2O_3	*MnO*	Cr_2O_3	Na_2O	K_2O	*CaO*	*MgO*	TiO_2	*Sr (ppm)*	*Ni (ppm)*
Group A (probable Attic origin)												
Cor 03/01 (**16**)	55.6	16.1	8.34	0.108	0.078	1.99	4.73	3.08	3.67	0.390	246.5	288.0
Cor 03/29	53.8	19.1	7.91	0.089	0.073	2.60	3.11	3.52	4.19	0.400	223.0	239.7
Cor 03/31	54.1	18.4	7.66	0.104	0.074	2.72	3.21	3.38	4.03	0.388	237.7	243.6
Cor 03/33	51.1	17.1	7.41	0.106	0.065	2.35	4.07	3.51	4.18	0.382	227.6	245.1
Cor 03/36	44.1	15.8	7.12	0.100	0.072	2.04	3.47	2.90	3.46	0.356	154.4	215.9
Cor 03/37	42.7	16.0	7.24	0.098	0.073	2.17	3.63	3.08	3.67	0.353	197.0	239.8
Cor 03/38	41.3	17.6	7.72	0.108	0.079	2.37	3.62	3.65	4.34	0.392	187.5	209.6
Cor 03/32	48.1	16.7	7.61	0.150	0.076	2.45	4.98	3.85	4.59	0.376	247.5	257.5
Cor 03/35	46.2	18.0	8.13	0.139	0.085	2.48	3.80	3.67	4.37	0.386	163.1	311.4
Mean	48.6	17.2	7.68	0.112	0.075	2.35	3.85	3.41	4.06	0.380	209.4	250.1
Std	5.3	1.1	0.40	0.020	0.005	0.25	0.64	0.32	0.38	0.016	35.3	32.3
Std%	11.0	6.7	5.2	17.9	7.2	10.4	16.7	9.4	9.4	4.2	16.9	12.9
Group B (unknown origin)												
Cor 03/02 (**3**)	56.6	18.9	6.57	0.093	0.029	1.22	2.09	4.70	2.12	0.393	224.41	122.05
Cor 03/03 (**15**)	51.7	21.1	7.81	0.092	0.032	1.02	2.02	4.51	2.17	0.378	129.19	131.16
Cor 03/05 (**4**)	53.4	19.9	6.96	0.101	0.031	1.09	2.28	4.51	2.01	0.389	145.96	119.33
Cor 03/07 (**10**)	54.8	20.0	6.70	0.090	0.033	1.03	2.02	4.22	1.93	0.416	119.87	95.03
Cor 03/18 (**2**)	53.6	19.9	6.80	0.088	0.032	1.04	2.26	4.45	2.22	0.398	126.49	80.68
Cor 03/10 (**6**)	54.6	20.3	7.14	0.106	0.028	1.11	2.36	5.23	2.16	0.394	118.76	82.83
Cor 03/14 (**8**)	53.5	19.5	7.31	0.104	0.029	0.94	2.30	5.38	2.08	0.382	122.77	81.19
Cor 03/13 (**7**)	56.3	20.0	6.16	0.099	0.023	1.17	2.31	5.52	2.15	0.409	117.76	89.82
Cor 03/30	52.9	21.2	6.45	0.101	0.022	1.02	2.40	5.18	2.37	0.391	99.22	83.66
Cor 03/17 (**14**)	55.1	19.2	6.26	0.101	0.021	1.17	2.15	5.01	2.17	0.391	104.70	71.43
Cor 03/12 (**5**)	55.9	19.5	6.19	0.094	0.026	1.01	2.48	4.52	2.09	0.400	117.53	94.62
Cor 03/15 (**12**)	54.6	20.0	6.62	0.100	0.018	1.04	2.55	5.37	2.09	0.395	104.37	95.43
Cor 03/08 (**11**)	54.2	21.5	7.09	0.094	0.031	1.03	1.97	3.65	2.15	0.428	122.02	68.45
Cor 03/09 (**9**)	55.3	19.9	6.21	0.095	0.031	1.10	1.83	3.09	2.09	0.413	127.22	81.85
Cor 03/11 (**1**)	51.8	21.9	7.67	0.109	0.027	0.85	2.39	4.85	2.28	0.409	111.11	112.10
Cor 03/34	48.5	18.6	5.85	0.092	0.021	1.04	2.48	4.63	2.06	0.370	221.57	78.43
Cor 03/16 (**13**)	54.8	20.3	6.37	0.094	0.020	1.05	2.32	4.63	2.22	0.411	123.51	79.68
Mean	54.0	20.1	6.71	0.097	0.027	1.05	2.25	4.67	2.14	0.398	131.56	92.22
Std	2.0	0.9	0.55	0.006	0.005	0.09	0.20	0.63	0.10	0.015	36.08	18.43
Std%	3.7	4.4	8.2	6.1	18.3	8.2	9.1	13.4	4.8	3.7	27.4	20.0
Group C (probable Corinthian origin)												
Cor 03/04 (**17**)	42.0	14.4	6.41	0.124	0.037	0.63	1.74	8.98	2.66	0.325	383.72	134.69
Cor 03/19	45.8	15.8	6.51	0.127	0.032	0.59	1.98	9.28	3.11	0.366	422.92	145.26
Cor 03/20	46.6	17.3	6.94	0.131	0.035	0.63	2.18	9.26	3.21	0.381	444.44	131.94
Cor 03/23	46.7	17.5	6.95	0.135	0.036	0.63	2.02	10.75	3.27	0.347	445.31	134.77
Cor 03/24	46.1	17.2	7.09	0.128	0.026	0.64	2.10	9.41	3.39	0.354	448.62	137.35
Cor 03/27	46.6	16.4	6.74	0.163	0.034	0.63	2.08	10.07	2.97	0.338	406.43	159.84
Cor 03/22	46.1	15.9	6.50	0.151	0.032	0.67	1.79	11.19	3.05	0.336	531.31	144.81
Cor 03/21	47.2	17.6	6.76	0.128	0.032	0.55	1.74	9.98	3.37	0.363	323.18	147.35
Cor 03/28	45.3	17.1	7.18	0.137	0.036	0.71	2.03	9.65	3.27	0.361	502.94	180.39
Cor 03/26	46.1	16.2	6.39	0.136	0.037	0.74	1.81	10.06	3.00	0.329	287.55	119.57
Cor 03/25	41.0	13.8	6.01	0.134	0.033	0.59	1.42	11.81	2.90	0.300	530.27	116.21
Cor 03/06 (**18**)	41.9	14.4	6.23	0.121	0.036	0.46	2.10	9.33	2.78	0.317	287.43	117.76
Mean	45.1	16.1	6.64	0.135	0.034	0.62	1.92	9.98	3.08	0.343	417.84	139.16
Std	2.2	1.3	0.36	0.012	0.003	0.07	0.22	0.87	0.23	0.023	84.98	18.41
Std%	4.8	8.3	5.4	8.7	9.2	11.6	11.4	8.7	7.5	6.8	20.3	13.2

some potential clay sources in Attica (e.g., Amaroussi, Cape Kolias) are known, others have probably not been discovered or have been exhausted, circumstances that may account for the variation in elemental composition.[43] On the other hand, the variation may also be the result of varying technological practices in different red-figure workshops.

Most of the ceramics of uncertain origin, which are the focus of this study, are grouped together in a third cluster (group B), along with the two samples of presumed Attic provenance (Cor 03/30, 03/34) discussed above. This group presents a rather different chemical composition from that of the two control groups. In particular, these samples are noticeably lower in chromium, sodium, potassium, and magnesium than those of the Attic group. Our analysis indicates clearly that, with the exception of vessels **16–18** (Cor 03/01, 03/04, 03/06) mentioned above, all of the questionable fragments share a common composition, and thus a similar use of raw material, suggesting that one workshop was responsible for the production of this pottery.

Two hypotheses may account for these results: all of the pots could have been made in a workshop outside Corinth or Attica, perhaps somewhere in the Argolid; or they may have been made by a workshop active in Attica but using a distinctive source of clay. Unfortunately, although local production of pottery in the Classical period is known from a number of centers in the northeastern Peloponnese, no scientific analyses have been published that provide a useful comparison.[44] On the other hand, since two of the samples originally assumed to be Attic (7201-2 [Cor 03/30] and 7201-6 [Cor 03/34]) are included in group B, it may not be unreasonable to suggest that the entire group comes from a workshop active somewhere in Athens or Attica. In that case, the compositional differences between groups A and B may be due to the use of different clay sources or of different production methods. In order to explore each of these possibilities, more analyses of 5th-century fine ware are necessary, both from Attica and from sites in the northeastern Peloponnese.

CONCLUSIONS

The results of the chemical analysis suggest that items **1–15** in the catalogue do indeed represent a single fabric, which is distinct from that normally used for Attic red-figure pottery in the later 5th and early 4th century. Of the fragments of uncertain origin, only krater **16** seems to be aligned with the Attic control group. As discussed above, it is not known whether these vases were made by Attic potters using a different clay source and/or different processing methods, or whether their origin is to be sought outside Attica.[45] We may note, however, that whereas much of the work of the

43. For clay sources, see Jones 1986, pp. 150–152. For kilns and debris from potters' workshops in Athens and Attica, see now Monaco 2000. For discussion of pottery production in Athens and Corinth within its social context, see Arafat and Morgan 1989.

44. For local pottery production associated with kilns in the Argolid, see most recently Hjohlman, Penttinen, and Wells 2005. Most scientific analyses of ceramics from the Peloponnese have used pre-Classical material: see Jones 1986, pp. 190–224.

45. Analysis of the clay of other vases produced in the workshop of the Later Mannerists would be useful. Mannack (2001) is concerned primarily with style, not the technology of manufacture.

Academy Painter is equally split between Athens and Corinth, the work of the Painter of Corinth 1937-525 (**4–10, 11**?) is found only at Corinth. (The findspot of the Tübingen fragment is not known.) Could the Academy Painter have left Athens at some time during the Peloponnesian War and established himself somewhere in the northeastern Peloponnese? Could he have worked together with the Painter of Corinth 1937-525?

The last two items in the catalogue (**17, 18**) were chosen for study because it seemed, on the basis of visual analysis, that they were made from Corinthian clay, but in both cases this assessment had been questioned. The ICP-AES analysis now strongly supports a Corinthian identification. The calyx krater **18**, which had been thought to be Attic and had been used to date the early phase of Corinthian red-figure to the last quarter of the 5th century, now takes its place as a fragment from one of the more elaborate Corinthian calyx kraters, probably of the early 4th century.[46] More interesting is the case of the bell krater **17**, which has been attributed to the Suessula Painter, who is usually considered to have worked in Attica. This attribution, which was first proposed by Peter Corbett and accepted by J. D. Beazley, seems to be correct.[47] All of the other vases assigned to the Suessula Painter appear to have been potted from normal Athenian clay. It is, of course, possible that this particular vase was potted and painted in Attica using imported Corinthian clay, but at present there is no evidence that Athenian potters imported clay from anywhere outside Attica during the later 5th century. It is much more likely that the pot was made in Corinth, for fragments of two other Corinthian vases, a bell krater and a pelike, seem to be the work of a close imitator of the Suessula Painter, and the general influence of the Suessula Painter on the early phase of the local Corinthian red-figure is demonstrable.[48] If this is correct, we might speculate that the Suessula Painter, whether he was a resident alien or a slave, took an opportunity during the Peloponnesian War to leave, or escape from, Athens, and subsequently established himself in Corinth.[49]

46. This is the "large fragment of an Attic red-figure calyx-krater" dated ca. 420–410 by Herbert in *Corinth* VII.4, p. 22, and used to provide a rough date for an early Corinthian red-figure fragment by the Pelikai Painter (p. 32, no. 15) from the same context (use fill of well 1940-1). McPhee (1978, p. 563) had already pointed out that the fragment was more likely to be Corinthian, and the date early 4th century.

47. *ARV*² 1345, no. 13. Corbett (*Perachora* II, p. 287) first noted "the presence in Corinth Museum of a bell-krater by the Suessula Painter which differs from normal Attic examples of the period in the pale colour of its clay." Herbert (*Corinth* VII.4, p. 48) remarks: "The clay of the Corinth krater is definitely Corinthian, and the hand of the reverse, at least, is that of the Suessula Painter." Böhr (1980, p. 191), in her review of *Corinth* VII.4, does not find the attribution of C-1937-447 to the Suessula Painter convincing. She thinks that the bell krater is a Corinthian imitation and suggests that Beazley may have taken over Corbett's attribution without having seen the original. Since Beazley visited Corinth after 1937, the suggestion is unlikely to be correct. In any case, there is no reason to doubt the attribution.

48. The two fragments are C-1937-445 (*Corinth* VII.4, p. 48, no. 77, pl. 14) and C-1976-136a–c (McPhee 1983, p. 148, no. 37, pl. 39). For the influence of the Suessula Painter on Corinthian red-figure, see Herbert in *Corinth* VII.4, pp. 10–11; MacDonald 1981, pp. 162–163; McPhee 1983, p. 148.

49. It has been assumed that the Suessula Painter was an Athenian who went to Corinth for a short period and then returned to Athens (see, e.g., Johnston 1991, p. 229). Pemberton (1997a, pp. 416–417), however, has suggested that the painter may have been a Corinthian. Doric dialect forms are found in inscriptions on vases decorated by the Kadmos Painter, from whom the Suessula Painter probably learned his craft, and on at least one vase by the Suessula Painter himself: see McPhee and Pemberton 1988, p. 90, n. 11; Pemberton 1997a, p. 417. Pemberton (1997a, p. 417; 1997b, pp. 76, 88) also points out a contemporary instance of a stamp that was used on an Attic heavy-wall cup-skyphos and a Corinthian light-wall cup-skyphos: the stamp was presumably brought by a potter from Athens to Corinth. For migrant potters in the Archaic and Classical periods, see most recently Papadopoulos 2009.

APPENDIX
RED-FIGURE CONTROL GROUPS

The Corinthian and Attic red-figure samples in the two control groups are described and illustrated below. The samples were chosen from red-figure sherds with no definite findspots, taken from lots 7138 and 7201 from early excavations conducted at Corinth. The first number listed is the sample number, and the second number is that of the sherd within the lot.

Corinthian Red-Figure Control Group (Lot 7138)

Cor 03/19 (7138-1) Fig. 13

Lip of a calyx krater or bell krater.
W. 0.158, Diam. 0.39. 2.5Y 8/4 (pale yellow).
Laurel to left.

Cor 03/20 (7138-2) Fig. 13

Lip of a bell krater or calyx krater.
W. 0.082. 10YR 7/6 (yellow).
Laurel and berry to left.

Cor 03/21 (7138-3) Fig. 13

Lip of a calyx krater or bell krater.
W. 0.091, Diam. 0.38. 10YR 7/6 (yellow), but a little browner. Orange slip.
Laurel to left.

Cor 03/22 (7138-4) Fig. 13

Lip of a calyx krater or bell krater.
W. 0.085. 10YR 7/6 (yellow).
Laurel to left.

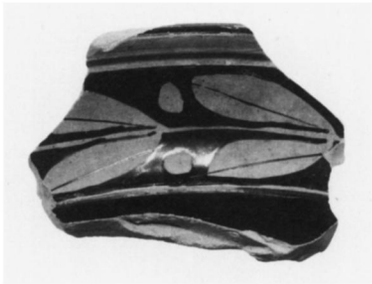
Cor 03/23 (7138-5) Fig. 13

Lip of a bell krater or calyx krater.
W. 0.082. 10YR 7/6 (yellow). Orange slip.
Laurel to left.

Cor 03/24 (7138-6) Fig. 13

Wall of a bell krater with the stump of a handle.
W. 0.069. 10YR 7/6 (yellow), but a little browner. Orange slip.
Part of palmette below the handle.

03/19



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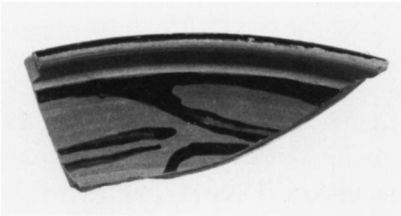

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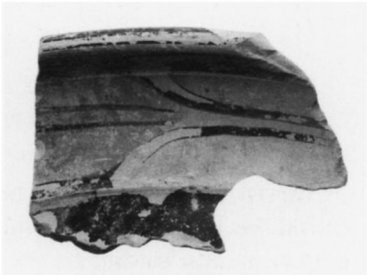

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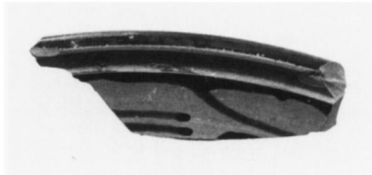

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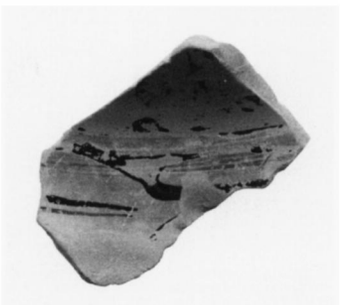

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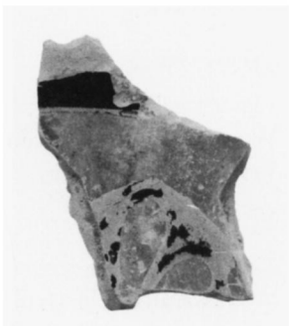


03/28

Figure 13. Corinthian control samples Cor 03/19–Cor 03/28.
Scale 1:2

Cor 03/25 (7138-7) Fig. 13

Lower wall of a bell krater.
H. 0.046, W. 0.088. 10YR 6–7/6 (yellow). Orange slip.
Spiral tendril; right leg, to right, of a male, and the heel of his forward left foot; below, egg-pattern.

Cor 03/26 (7138-8) Fig. 13

Lower wall of a bell krater.
H. 0.065, W. 0.058. 10YR 7/6 (yellow) to 7/4 (very pale brown).
Part of a floral; below, meander to right and dotted saltire square.

Cor 03/27 (7138-9) Fig. 13

Lip and upper wall of a bell krater or calyx krater.
W. 0.07. 10YR 7/6 (yellow).
Laurel to right on the lip.

Cor 03/28 (7138-10) Fig. 13

Wall of a bell krater.
Max. dim. 0.089. 10YR 7/6 (yellow) to 2.5Y 7/6 (yellow).
Tips of palmette from a handle-floral, and, above, the reserved area between the stumps of the handle.

All of the fragments listed above may be dated within the period 425–350 B.C.

Attic Red-Figure Control Group (Lot 7201)

Cor 03/29 (7201-1) Fig. 14

Lip of a bell krater or calyx krater.
W. 0.058. 7.5YR 6/6 (reddish yellow).
Laurel to left.
Ca. 450–420 B.C.

Cor 03/30 (7201-2) Fig. 14

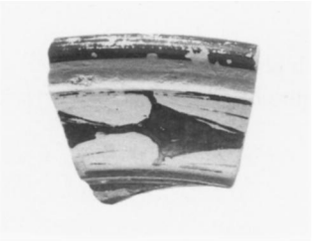
Lip of a bell krater or calyx krater.
W. 0.086. 7.5YR 6/4 (light brown).
Laurel and berry to left.
Ca. 425–375 B.C.

Cor 03/31 (7201-3) Fig. 14

Lip of a bell krater or calyx krater.
W. 0.036. 7.5YR 6/6 (reddish yellow).
Laurel to left.
Ca. 450–400 B.C.

Cor 03/32 (7201-4) Fig. 14

Lower wall of a bell krater.
H. 0.065, W. 0.077. 7.5YR 6/6 (reddish yellow) to 10YR 6/6 (brownish yellow).
Pattern band: meanders to right.
Ca. 450–400 B.C.



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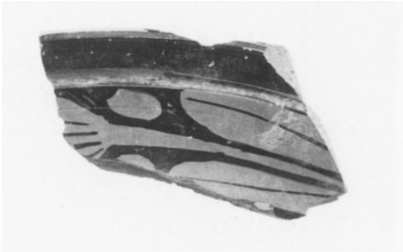

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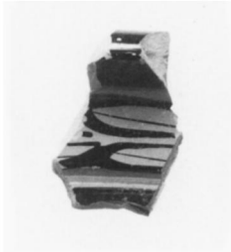

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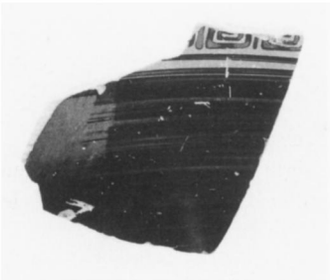


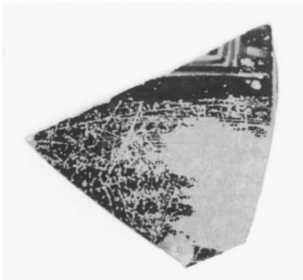
03/32

03/33

03/34

03/35

03/36



03/37

03/38

Figure 14. Attic control samples Cor 03/29–Cor 03/38. Scale 1:2

Cor 03/33 (7201-5) Fig. 14

Lower wall of a bell krater or volute krater.

H. 0.094, W. 0.058. 7.5YR 6–7/6 (reddish yellow).

Hem of chiton and toes of left foot of figure moving to left. Below, stopped meanders to left.

Ca. 450–430 B.C.

Cor 03/34 (7201-6) Fig. 14

Lower wall of a bell krater.

H. 0.055, W. 0.067. 7.5YR 6/6 (reddish yellow).

Spirals at base of a palmette (handle-floral); below, egg-pattern.

Ca. 425–375 B.C.

Cor 03/35 (7201-7) Fig. 14

Wall of a bell krater or calyx krater.

H. 0.070, W. 0.048. 7.5YR 6/6 (reddish yellow).

Male (back of head, right side, thighs, right arm) seated in three-quarter view to left, looking back, holding up a white fillet. The style recalls the Meleager Painter (*ARV*[2] 1408–1415).

Ca. 400–375 B.C.

Cor 03/36 (7201-8) Fig. 14

Lower wall of a bell krater.

H. 0.057, W. 0.075. 7.5YR 6/6 (reddish yellow).

Uncertain remains (stele?); below, continuous meanders to left.

Ca. 400–375 B.C.

Cor 03/37 (7201-9) Fig. 14

Lower wall of a column krater(?).

H. 0.066, W. 0.069. 7.5YR 6/6 (reddish yellow) to 10YR 6/6 (brownish yellow).

Parts of a meander and checker square.

Ca. 450–400 B.C.

Cor 03/38 (7201-10) Fig. 14

Lower wall of a bell krater.

H. 0.043, W. 0.044. 7.5YR 6/6 (reddish yellow).

Palmette and side-tendril (right side of handle-floral).

Ca. 425–375 B.C.

REFERENCES

Aloupi-Siotis, E. 2008. "Recovery and Revival of Attic Vase-Decoration Techniques: What Can They Offer Archaeological Research?" in *Papers on Special Techniques in Athenian Vases. Proceedings of a Symposium Held in Connection with the Exhibition "The Colors of Clay: Special Techniques in Athenian Vases," at the Getty Villa, June 15–17, 2006,* ed. K. Lapatin, Los Angeles, pp. 113–128.

Arafat, K., and C. Morgan. 1989. "Pots and Potters in Athens and Corinth: A Review," *OJA* 8, pp. 311–346.

Aurigemma, S. 1965. *La necropoli di Spina in Valle Trebba* I.2, Rome.

Beazley, J. D. 1939. "Excavations at Al Mina, Sueidia III: The Red-Figured Vases," *JHS* 59, pp. 1–44.

———. 1940–1945. "Miniature Panathenaics," *BSA* 41, pp. 10–21.

———. 1955. "Hydria-Fragments in Corinth," *Hesperia* 24, pp. 305–319.

Berti, F., F. Bisi, and N. Camerin. 1993. "Revisione critica della necropoli di Valle Trebba: Le cremazioni," in *Studi sulla necropoli di Spina in Valle Trebba. Convegno del 15 ottobre 1992,* Ferrara, pp. 7–54.

Böhr, E. 1980. Rev. of *Corinth* VII.4, in *Gnomon* 52, pp. 190–192.

Boulter, C. G. 1966. "The Berlin Painter at Corinth," *Hesperia* 35, pp. 310–319.

Boulter, C. G., and J. L. Bentz. 1980. "Fifth-Century Attic Red Figure at Corinth," *Hesperia* 49, pp. 295–308.

Corinth = *Corinth: Results of Excavations Conducted by the American School of Classical Studies at Athens,* Princeton

VII.3 = G. R. Edwards, *Corinthian Hellenistic Pottery,* 1975.

VII.4 = S. Herbert, *The Red-Figure Pottery,* 1977.

XIII = C. W. Blegen, H. Palmer, and R. S. Young, *The North Cemetery,* 1964.

XV.3 = A. N. Stillwell and J. L. Benson, *The Potters' Quarter: The Pottery,* 1984.

XVIII.1 = E. G. Pemberton, *The Sanctuary of Demeter and Kore: The Greek Pottery,* 1989.

Délos XXI = C. Dugas, *Les vases attiques à figures rouges* (*Délos* XXI), Paris 1952.

Farnsworth, M. 1970. "Corinthian Pottery: Technical Studies," *AJA* 74, pp. 9–20.

Farnsworth, M., I. Perlman, and F. Asaro. 1977. "Corinth and Corfu: A Neutron Activation Study of Their Pottery," *AJA* 81, pp. 455–468.

Fillieres, D., G. Harbottle, and E. Sayre. 1983. "Neutron-Activation Study of Figurines, Pottery, and Workshop Materials from the Athenian Agora," *JFA* 10, pp. 55–69.

Garezou, M.-X. 1997. "Whitebait or Pottery? A Case of an Attic Import in Fourth-Century Boeotia," in *Athenian Potters and Painters: The Conference Proceedings,* ed. J. H. Oakley, W. D. E. Coulson, and O. Palagia, Oxford, pp. 371–384.

Giudice, G. 2007. *Il tornio, la nave, le terre lontane: Ceramografi attici in Magna Grecia nella seconda metà del V sec. a.C. Rotte e vie di distribuzione,* Rome.

Hein, A., A. Tsolakidou, I. Iliopoulos, H. Mommsen, J. Buxeda i Garrigós, G. Montana, and V. Kilikoglou. 2002. "Standardisation of Elemental Analytical Techniques Applied to Provenance Studies of Archaeological Ceramics: An Interlaboratory Calibration Study," *The Analyst* 127, pp. 542–553.

Herbert, S. 1986. "The Torch-Race at Corinth," in *Corinthiaca: Studies in Honor of Darrell A. Amyx,* ed. M. A. Del Chiaro, Columbia, pp. 29–35.

Hjohlman, J., A. Penttinen, and B. Wells. 2005. *Pyrgouthi: A Rural Site in the Berbati Valley from the Early Iron Age to Late Antiquity: Excavations by the Swedish Institute at Athens, 1995 and 1997* (*SkrAth* 4°, 52), Stockholm.

Johnston, A. 1991. "Greek Vases in the Marketplace," in *Looking at Greek Vases,* ed. T. Rasmussen and N. Spivey, Cambridge, pp. 203–231.

Jones, R. E. 1986. *Greek and Cypriot Pottery: A Review of Scientific Studies* (Fitch Laboratory Occasional Paper 1), Athens.

Kathariou, K. 2002. *Το εργαστήριο του Ζωγράφου του Μελεάγρου και η εποχή του,* Thessaloniki.

Luce, S. B. 1930. "Attic Red-Figured Vases and Fragments at Corinth," *AJA* 34, pp. 334–343.

MacDonald, B. R. 1981. "The Emigration of Potters from Athens in the Late Fifth Century B.C. and Its Effect on the Attic Pottery Industry," *AJA* 85, pp. 159–168.

Mannack, T. 2001. *The Late Mannerists in Athenian Vase-Painting,* Oxford.

McPhee, I. D. 1976. "Attic Red Figure of the Late 5th and 4th Centuries from Corinth," *Hesperia* 45, pp. 380–396.

———. 1978. Rev. of *Corinth* VII.4, in *AJA* 82, pp. 563–564.

———. 1981. "Red-Figured Pottery from Corinth: Sacred Spring and Elsewhere," *Hesperia* 50, pp. 264–284.

———. 1983. "Local Red Figure from Corinth, 1973–1980," *Hesperia* 52, pp. 137–153.

———. 1986a. "Laconian Red-Figure from the British Excavations in Sparta," *BSA* 81, pp. 153–166.

———. 1986b. "The Painter of the Large Egg-Patterns: An Elean Red-Figure Vase-Painter," *NumAntCl* 15, pp. 169–177.

———. 1987. "Attic Red Figure from the Forum in Ancient Corinth," *Hesperia* 56, pp. 275–302.

———. 1990. "Local Red-Figured Pottery from Ancient Elis: The Austrian Excavations of 1910–1914," *ÖJh* 60, cols. 17–52.

———. 1991. "A Corinthian Red-Figured Calyx-Krater and the Dombrena Painter," *OJA* 10, pp. 325–334.

———. 1997. "Stemless Bell-Kraters from Ancient Corinth," *Hesperia* 66, pp. 99–145.

———. 2000. "Falaieff Bell-Kraters from Ancient Corinth," *Hesperia* 69, pp. 453–486.

———. 2004. "Classical Pottery from Ancient Corinth: The A. D. Trendall

Memorial Lecture 2003," *BICS* 47, pp. 1–21.
———. 2005. "The Corinth Oinochoe: One- and Two-Handled Jugs in Ancient Corinth," *Hesperia* 74, pp. 41–94.
McPhee, I., and E. Pemberton. 1988. "ΟΥ ΠΑΝΤΟΣ ΕΣΤΙ ΚΟΡΙΝΘΟΣ: A Misleading Reference," *ZPE* 73, pp. 89–90.
———. 2004. "South Italian and Etruscan Red-Figure Pottery from Ancient Corinth," in *Festschrift in Honour of J. Richard Green* (*MeditArch* 17), ed. C. D. Barker, L. A. Beaumont, and E. A. Bollen, Sydney, pp. 55–60.
McPhee, I. D., and A. D. Trendall. 1986. "Six Corinthian Red-Figure Vases," in *Corinthiaca: Studies in Honor of Darrell A. Amyx,* ed. M. A. Del Chiaro, Columbia, pp. 160–167.
Mirti, P., M. Gulmini, A. Perardi, P. Davit, and D. Elia. 2004. "Technology of Production of Red Figure Pottery from Attic and Southern Italian Workshops," *Analytical and Bioanalytical Chemistry* 380, pp. 712–718.
Mirti, P., A. Perardi, and M. Gulmini. 2006. "A Scientific Investigation of the Provenance and Technology of a Black-Figure Amphora Attributed to the Priam Painter," *Archaeometry* 48, pp. 31–43.
Monaco, M. C. 2000. *Ergasteria: Impianti artigianali ceramici ad Atene ed in Attica dal protogeometrico alle soglie dell'ellenismo* (*StArch* 110), Rome.
Morgan, C. H. 1937. "Excavations at Corinth, 1936–37," *AJA* 41, pp. 539–552.
Napoli, M. 1970. *La Tomba del Tuffatore: La scoperta della grande pittura greca,* Bari.
Papadopoulos, J. K. 2009. "The Relocation of Potters and the Dissemination of Style: Athens, Corinth, Ambrakia, and the Agrinion Group," in *Athenian Potters and Painters* 2, ed. J. H. Oakley and O. Palagia, Oxford, pp. 232–240.
Pease, M. Z. 1937. "A Well of the Late Fifth Century at Corinth," *Hesperia* 6, pp. 257–316.
Pelagatti, P. 1973. "Camarina," in *Archeologia nella Sicilia sud-orientale,* ed. P. Pelagatti and G. Voza, Naples, pp. 133–158.
Pemberton, E. G. 1983. "A Late Corinthian Perseus from Ancient Corinth," *Hesperia* 52, pp. 64–69.
———. 1988. "An Early Red-Figured Calyx-Krater from Ancient Corinth," *Hesperia* 57, pp. 227–235.
———. 1997a. "Athens and Corinth: Workshop Relations in Stamped Black-Glaze," in *Athenian Potters and Painters: The Conference Proceedings,* ed. J. H. Oakley, W. D. E. Coulson, and O. Palagia, Oxford, pp. 407–421.
———. 1997b. "Corinthian Black-Glazed Pottery with Incised and Stamped Decoration," *Hesperia* 66, pp. 49–97.
———. 2003. "Classical and Hellenistic Pottery from Corinth and Its Athenian Connections," in *Corinth, the Centenary: 1896–1996* (*Corinth* XX), ed. C. K. Williams II and N. Bookidis, Princeton, pp. 167–179.
Perachora II = T. J. Dunbabin, ed., *Perachora: The Sanctuaries of Hera Akraia and Limenia: Excavations of the British School of Archaeology at Athens, 1930–1933* (*Perachora* II), Oxford 1962.
Prag, A., F. Schweizer, J. Williams, and P. Schubiger. 1974. "Hellenistic Glazed Wares from Athens and Southern Italy: Analytical Techniques and Implications," *Archaeometry* 16, pp. 153–187.
Schiering, W. 1964. "Rotfigurig bemalte Keramik," in A. Mallwitz and W. Schiering, *Die Werkstatt des Pheidias in Olympia* (*OlForsch* 5), Berlin, pp. 248–266.
Schilardi, D. U. 1977. "The Thespian Polyandrion (424 B.C.): The Excavations and Finds from a Thespian State Burial" (diss. Princeton Univ.).
Stroszeck, J. 2006. "Lakonisch-rotfigurige Keramik aus den Lakedaimoniergräbern am Kerameikos von Athen (403 v. Chr.)," *AA* 2006/2, pp. 101–120.
Stroud, R. S. 1965. "The Sanctuary of Demeter and Kore on Acrocorinth, Preliminary Report I: 1961–1962," *Hesperia* 34, pp. 1–24.
Van Straten, F. T. 1995. *Hierà Kalá: Images of Animal Sacrifice in Archaic and Classical Greece* (Religions in the Graeco-Roman World 127), Leiden.
Whitbread, I. K. 1995. *Greek Transport Amphorae: A Petrological and Archaeological Study* (Fitch Laboratory Occasional Paper 4), Athens.
———. 2003. "Clays of Corinth: The Study of a Basic Resource for Ceramic Production," in *Corinth, the Centenary: 1896–1996* (*Corinth* XX), ed. C. K. Williams II and N. Bookidis, Princeton, pp. 1–13.
Williams, C. K., II. 1979. "Corinth, 1978: Forum Southwest," *Hesperia* 48, pp. 105–144.
———. 1980. "Corinth Excavations, 1979," *Hesperia* 49, pp. 107–134.
Wright, K. S. 1980. "A Tiberian Pottery Deposit from Corinth," *Hesperia* 49, pp. 135–177.

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