

SOME PRODUCTS FROM THE DOKIMEION QUARRIES: CRATERS, TABLES, CAPITALS, AND STATUES

J. J. HERRMANN, Jr.¹ and R. H. TYKOT²

1. *Museum of Fine Arts, 465 Huntington Avenue, Boston, Massachusetts 02115 USA*

2. *Department of Anthropology, University of South Florida, Tampa, Florida 33620, USA*

ABSTRACT

Samples were taken from various Roman objects that seemed to be marble from Dokimeion (Afyon) in Phrygia and from some typologically and stylistically related objects. Ratios of stable isotopes of carbon and oxygen were determined, and a preferred quarry of origin was chosen on the basis of the marble's macroscopic characteristics. The art-historical problems connected with some of the pieces are further explored. Marble from Dokimeion proves to have been favored for a group of large craters and was exploited on occasion by Neo-Attic workshops, which normally seem to have used Pentelic marble. Dokimeian marble was used by several workshops producing high quality capitals based in west-central Asia Minor. The marble seems to have been a major material for architectural decoration in Pamphylia and was used by Phrygian workshops in Italy. The marble was exploited for figural sculpture in Pamphylia – perhaps extensively. Marble from Ephesus also seems to have been used for architectural decoration at Perge in Pamphylia.

KEYWORDS: NEO-ATTIC, DOKIMEION, PROCONNESIAN, CARRARA, ISOTOPES, ROME,
EPHESUS, ANTALYA, PERGE, BOSTON

THE PROBLEM, METHODOLOGY, TESTING

It has long been recognized that pavonazzetto, the purple and white marble quarried at Dokimeion in Phrygia, near modern Afyon in west-central Turkey, was widely used throughout the Mediterranean for architectural elements such as columns, pavement slabs, and revetment panels (PENSABENE, 1994; KRAMER 1994, p. 19; WÄELKENS *et al.* 2002a; WÄELKENS *et al.* 2002b). Furnishings, such as craters, basins, and tables, were also made of

pavonazzetto (PENSABENE 1994, pp. 375-384). Frequently the marble used for such furnishings was sent out in rough blocks, which were shaped at their destination, but at times pavonazzetto furnishings were exported in finished form. This was certainly the case in a cargo of prefabricated pavonazzetto basins with pedestals shipwrecked off the coast of Calabria (PENSABENE 1978). Pavonazzetto vases with panther handles in Petra, Jordan, and from Italy in the Gardner Museum, Boston must also have been exported in finished form from the quarries of Dokimeion (VAN DEN HOEK and HERRMANN 2000, p. 196, figs 13,14; HERRMANN 2001).

It is well known that the plain white marble of Dokimeion, was used for sarcophagi, which were extensively exported (KRAMER 1994, pp. 12, 18, n. 26). White Dokimeian marble was also used for architectural elements in sites in west-central Turkey, such as Sagalassos in mountainous Pisidia. In that city the marble's use was limited to veneering, due to its high cost, but sculpted elements in low relief, such as pilaster capitals, trabeation, and bases, formed part of these compositions (WAELEKENS *et al.* 2002a, pp. 375-379, fig. 12). Other than at Sagalassos, little work has been done on the question of architectural decoration and furnishings made of plain white marble from Dokimeion (as distinct from the more showy pavonazzetto).

Over the past several years we have conducted sampling and testing to explore this issue as opportunities presented themselves. Objects chosen for sampling had marble that looked macroscopically like that of Dokimeion. Their marble appeared to be fine-grained, virtually pure white, and rather translucent. Veins, spots, and other flaws were at a minimum. Private collections as well as museums provided opportunities for sampling. We also took samples from objects that seemed to be made of marbles from different but similar quarries and that presented interesting stylistic or typological similarities to our potential Dokimeion group.

Samples were examined with a mass spectrometer at the University of South Florida. The ratios of delta C13 and delta O18 were plotted against the PDB standard. The results were compared with the database of Norman Herz at the University of Georgia, the database of Carlo Gorgoni of the University of Modena (GORGONI *et al.* 2002), and the diagrams of the Belgian team of Moens, De Paepe, and Walkens (fig. 1). As in most provenance investigations making use of stable isotopes, there were a multitude of possible identifications for the marble of each object – one of our samples had ten possible quarries of origin. We made our selection of the most probable source on the basis of the object's macroscopic characteristics and art historical and archaeological considerations in addition to its isotopic signature. The samples we identified as Dokimeian marble are listed in Table 1. All fall into or extremely close to the Dokimeion fields presented by the Belgian team (fig. 1). Gorgoni's expanded field (GORGONI *et al.* 2002, fig. 6c) covers the locations of the samples completely.

Craters

A group of three huge craters, all of which probably stem from central Italy, could have been products of the quarries of Dokimeion, since one of them, a crater in the Louvre, is made of pavonazzetto (CLARAC 1826; REINACH 1897, p. 64; HERRMANN 2001, p. 337, fig. 2) (fig. 2).

The other two, which are still in Rome, are made of fine-grained white marble. One is in the garden of the Museo Nazionale Romano (AMBROGI 1984; VAN DEN HOEK and HERRMANN 2000, p. 194) (fig. 3). The other stands are in the atrium of S. Cecilia (VAN DEN HOEK and HERRMANN 2000, p. 194, figs 9-10) (fig. 4). The three craters are very similar in design and scale. All three had scrolling, double vine-stem handles, which end below in ivy leaves. They also had six projections under their rims. In the Louvre and Museo Nazionale Romano examples, the projections are carved with figures: tragic masks on the former and children engaged in seasonal labors on the latter. The projections are left unfinished on the S. Cecilia example. The design of the vases goes back to the Republican period, judging by a smaller bronze crater at Pompeii (PERNICE 1925; AMBROGI 1984). The execution of these marble giants, to judge from the drillwork used in masks on the Louvre crater, probably dates from the second century. The Louvre vase (height to rim ca. 1.55 m) is missing the scrolling tops of its handles. The example in the Museo Nazionale Romano measures 2.18 m. to the rim and proved to be made of Dokimeian marble (Table 1.1, fig. 1). The crater in S. Cecilia, which is 1.84 m. high at the rim, however, is more difficult to identify (Table 2). The use of Dokimeian marble for two of the three pieces suggests that the craters have a close relationship with the Anatolian quarries. Isotopically the S. Cecilia crater cannot be Dokimeian. Several possible sources such as Proconnesus, Thasos and Paros 2 are unlikely since they are coarse grained. The crater moreover, lacks the grayish color and banding of Proconnesian. Two fine-grained quarries in the Peloponnesus, Doliana and Mani, are isotopically possible, but the use of these marbles at Rome would be highly unusual. The possibility or provenance from the Göktepe quarries near Aphrodisias, which reportedly are also fine-grained, should also be kept in mind. The S. Cecilia crater, in any case, needs further investigation with the inclusion of other methods.

Several different scenarios can be envisaged to explain the use of a different marble for one of the three craters. The simplest hypothesis is that the marble was sent as rough, unformed blocks from various quarries to Rome, where the design was created and the carving carried out. Against this is the practical consideration that it would have been less expensive to rough out these large objects in the quarry, as sarcophagi were, to reduce the weight for transport. The unfinished projections under the rim of the S. Cecilia crater also suggest a process of shaping and finishing in several steps between the quarry and the final destination.

Another option is that the design originated in Rome and was sent out to various quarries for preliminary execution. An analogous case of transmitted designs is provided by the colossal statues of barbarians made of pavonazzetto and found in Rome and in the quarries at Dokimeion (WÆLKENS 1985). The example in the quarries proves that they were largely carved there, but such monumental triumphal figures could only have been commissioned under imperial auspices. They must have been carved following a design or a plaster cast sent from Rome (PENSABENE 1972, p. 331; WÆLKENS 1985).

Post scriptum: The sample of the crater in the atrium of S. Cecilia was retested, and the results were slightly different but no longer compatible with a provenance from Carrara (Table 2 USF 6154). In January 2008, a visit to Rome revealed that the crater had been recently cleaned and that its surface was much more legible. The marble is undoubtedly

pavonazzetto of mediocre quality (mostly white, with relatively few blue-black spots). The incrustations from use as a fountain and from air pollution had obscured the surface and must have contaminated the sample that was tested. The marble used for the crater certainly comes from Dokimeion, like that of the two similar pieces in the Louvre and the Museo Nazionale Romano. All three clearly were exported from Dokimeion in a largely finished state.

A Table Leg

An unpublished table leg of unusual design in a private collection (collection A) also seems to be white Dokimeian marble on the basis of its isotopic ratios (Table 1.8, figs 1, 5a-c). The objects in collection A are thought to come from Italy, but, as is virtually always the case for material that does not come from regular excavations, the provenance is not entirely certain. In side view, where it has a lobe (or a tongue pattern or a reeded flute) and a reinforcing scroll, the fragmentary support reveals evident connections with Hellenistic and Roman table legs in Palermo, at Delphi, on Delos, and from Kos in Istanbul (RICHTER 1966). Several other fragmentary table legs have been found in Corinth (BOOKIDIS and STROUD 1997, cat. nos. 24–26; 44–46, pls. 60, 62). The comparisons make it clear that the leg in collection A would have terminated below in a lion's paw. On its front side, the leg has two bands rising up the sides to turn into pointed, leaf-like forms at the top. At the center of the front is a reed, which is topped by a palmette flanked by blossoms. The organization of the front is much like that of a fragmentary leg from Corinth (BOOKIDIS and STROUD 1997, cat. no. 26B, pl. 60). In the piece from Collection A, the palmette composition topping the reed recalls the ornament of Greek funerary monuments of the late Classical and Hellenistic periods. This kind of ornament was often transplanted into the marble decorative art of early Imperial Italy (SAURON 1979). The design of the table leg in collection A has an elegant fantasy that independently suggests just such an early Roman Imperial date, probably between 30 B.C. and 20 C.E.

The parallels for the table leg in Collection A are all from Greece or Italy, and the leg fits into the 'Neo-Attic' tradition connected with the movement of products and craftsmen from Athens to central Italy. The reign of Augustus was a period when workshops and workmen were moving to Italy from the Aegean area in general and Attica in particular. The isotopic evidence, however, clearly indicates that Dokimeian marble was used for the leg. Thus an essentially Greek workshop active in Italy apparently drew on marble that was neither native to Italy nor familiar from central Greece or the islands.

There are some stylistic features that suggest that the sculptor as well as the material might have come from Asia Minor. The tiny palmette on the front of the table leg has a loose structure seen in Early Imperial decoration from Asia Minor. In the temple at Didyma the outer petals of palmettes spring from separate stems, much as in the table leg (VOIGTLÄNDER 1975, pls. 17, 20–22). An especially relevant example appears in a marble burial chest probably of the first century excavated at Sardis (HANFMANN 1978) (fig. 6). The chest is embellished with palmettes that have a comparably disconnected structure. Moreover, the petals are articulated

by central grooves, the palmette is accompanied by lateral scrolls, and the ornament has a shallow relief – all features seen in the table leg in collection A. The Greek Neo-Attic workshop probably located in central Italy may have been eclectic in the origins of its craftsmen as well as in its choice of marble.

Capitals

On the basis of art historical and archaeological methods, Joachim Kramer identified a late Roman workshop producing pilaster capitals and linked it to the Dokimeion quarries (KRAMER 1994). Two pilaster capitals in private collections not mentioned by Kramer can also be connected with this workshop (figs 7 and 8, collections A and B); they are virtually identical with several of the capitals he publishes (KRAMER, 1994, cat. nos. 7-22, pls. 1-3). Like many capitals used for interior decoration, these and the other capitals produced by the workshop can be considered Corinthianizing rather than Corinthian; that is, they have acanthus leaves but lack the full apparatus of canonical Corinthian capitals. This group of capitals omits the row of egg-and-dart that is seen in most Corinthianizing capitals produced in western Asia Minor; an example with egg-and-dart in the Museum of Fine Arts, Boston is said to come from Cremna in Pisidia (fig. 14). Examples with the egg-and-dart were also produced at Aphrodisias, Ephesos, and Pergamon (DILLON 1997; KOLLER 2002; ROHMANN 1988). Those at Pergamon were probably made of Prokonnesian marble (CRAMER *et al.* 2009). The capitals in the private collections (figs 7 and 8) are typical of Kramer's 'Dokimeian workshop' in having helices (scrolls that curve in to the center of the capital) as well as volutes (scrolls that curve out to the edge of the capital). The scrolls themselves are very broad and full. The pilasters also have a 'full' row of three leaves from which the scrolls spring. As in the two examples in private collections, pilasters may have either one or two tiers of leaves, and they usually have 'fine-toothed acanthus' rather than conventional leaves. The sculptor created these leaves with a series of drill holes, finishing off some of the contours with a chisel but elsewhere leaving the drill holes to suggest the serrated edges of foliage. Kramer connects the capitals in this workshop to Phrygia and the Dokimeion quarries on the basis of their geographic distribution and their similarity to capitals on Dokimeian sarcophagi, grave stelae, and false doors of the second and third centuries (KRAMER 1994, pp. 11–18).

In spite of their association with Phrygia in Roman times, the workshop producing these capitals traveled widely, and their work can be found in Greece, Syria, and Italy (KRAMER 1994, pp. 18–19). One of the most numerous and impressive groups of these capitals comes from S. Maria Antiqua in the Roman Forum, where the pilasters were sculpted for a phase of the building datable to the late third or early fourth century, long before the construction was turned into a church (KRAMER 1994, cat. nos. 7-22, pls. 1-3). The two pilaster capitals in the private collections (figs 7-8) are virtually identical to those in the Forum Romanum and must be contemporary products of the same workshop. The example in Collection A is thought to have come from Italy.

No testing has been done to determine if any of the capitals from this workshop are actually made of Dokimeian marble, and Kramer does not attempt to identify the marble by eye. While it seems likely enough that a workshop operating in Phrygia or west-central Anatolia would use Dokimeian marble, the question remains whether this workshop would have continued to use this material for its commissions in distant places. While it has not been possible to test the pilaster capitals in S. Maria Antiqua, samples could be taken from the capitals in private collections (figs 7-8). Like the pilasters in S. Maria Antiqua, which they so strongly resemble, the pieces in the private collections are made of fine-grained, pure white marble. The isotopic results confirm that they are indeed made of Dokimeian marble (Table 1.5-7). It therefore seems highly probable that the S. Maria Antiqua capitals were also carved in this material. The tests indicate not only that the workshop producing this type of decoration was indeed connected with the Dokimeion quarries but also that the shop used Dokimeion marble even when working far from the quarries.

A Corinthianizing pilaster capital with fine-toothed acanthus in the Museum of Fine Arts, Boston has fine grained, pure white, translucent marble, which Mark Waelkens has independently identified by eye as Dokimeian (fig. 9). The pilaster's isotopic signature confirms the identification (Table 1.11). The broad, corkscrew volutes are much like those of Kramer's Dokimeian workshop, but in other respects the pilaster considerably expands the range of designs and styles that can be ascribed to the Phrygian sculptors. In the first place, it is a figural capital, with a Silenus taking up the central position and thereby replacing the central acanthus leaf and the helices. On the basis of the figure style, the pilaster has been dated to the period 200 - 260 C.E. (COMSTOCK and VERMEULE 1976, cat. no. 307), making it earlier than most of the pieces presented by Kramer. The Boston piece has double leaves: that is, the leaves are carved in such a way that a second leaf seems to stand behind the first. Double leaves are fairly common in Kramer's Phrygian group (KRAMER 1994, cat. nos. 1-3, 6, 50). The double leaves of the Boston capital, however, present an unusual feature; the inner and the outer leaves are bound together by the lower lobe. This would appear to be a relatively early experiment preceding less ambiguous double leaves. Finally, most of the lobes in the Boston capital have a deep central drill channel, a feature not found in Kramer's group. Fine-toothed acanthus with deep central grooves or channels is, however, seen in Antonine and Severan capitals of other Asiatic traditions (KRAMER 1994, pl. 13.3-4; DILLON 1997, figs 2-5, 7, 32-36; KOLLER 2002). The Boston pilaster was purchased in Naples and probably was found in central or southern Italy. Thus it was apparently produced by a workshop from Phrygia that travelled to Italy in the first half of the third century.

In Asia Minor sculptors also used Dokimeian marble to produce large-scale, full-round capitals. A large and beautiful orthodox Corinthian capital, whose marble proved to be from Dokimeion (Table 1.3, fig. 10), stands beside the propylon of the South Baths at Perge (ÖZGÜR 1988, pp. 55-58). The capital (which is one of a pair) has an eagle on its abacus and typical Asiatic acanthus leaves with sharp, deeply grooved points. The Perge capitals could have been made for a Trajanic or Hadrianic project, since in detail its acanthus greatly resembles that of the Trajanic palaestra colonnades of the Gymnasium at Pergamon (ROHMANN 1998, B6, pl. 24). A Corinthianizing capital with fine-toothed acanthus in the southern Sev-

eran nymphaeum at Perge is also made of Dokimeian marble (Table 1.4, fig. 11). Its typology and style is not related to any of the Corinthianizing capitals previously examined. Many other capitals, bases, columns, entablatures and wall blocks apparently around the city gates of Perge seem to be made of Dokimeian marble. This greater abundance of both white and colored Dokimeian marble in the Pamphylian Perge than at Sagalassos probably reflects both its greater prosperity and its more accessible location.

A canonical Corinthian capital of about 50-20 B.C.E. outside the Istanbul Archaeological Museum is fine-grained white marble. Its isotopic signature also indicates that it is Dokimeian (Table 1.10, fig. 12). The capital has a strong similarity to those of the Octagon at Ephesus, which has been identified by Hilke Thür as the tomb of Arsinoë IV, who died in 41 B.C. E. (HEILMEYER 1970, pp. 79-80, pl. 21, 1; THÜR 1995, pp. 178-180).

Capitals in Other Marbles

One of the surprises in the southern Severan nymphaeum at Perge was an orthodox Corinthian capital whose marble looked somewhat whiter and finer-grained than Prokonnesian (Table 2, fig. 13). Its isotopic signature suggests that the marble does not come from either the Prokonnesos or Dokimeion. Of the various possibilities, the quarries of Ephesus seem the most likely.

A pilaster capital in the Museum of Fine Arts, Boston has the widespread Asiatic form with two large acanthus leaves separated by an egg-and-dart (fig. 14). The capital is atypical, however, in presenting a child personifying winter (carrying a duck and holding a reed), and having both helices and volutes that are covered by fine-toothed acanthus leaves. The capital, which has been dated to 180-215 C.E., is said to come from Cremna (COMSTOCK and VERMEULE 1976, cat. no. 308). The medium- to coarse-grained marble could come from several different quarries (Table 3). Since Cremna, like Sagalassos, is in Pisidia, then Aphrodisian marble is the most likely choice. The only marbles used for sculpture at Sagalassos were from Dokimeion and Aphrodisias (WÄELKENS *et al.* 2002A, pp. 373-374). The style of the capital, however, does not closely resemble that of the pilaster capitals found at Aphrodisias itself (DILLON 1997).

A Corinthianizing pilaster capital in collection A is made of greyish medium-grained marble, whose isotopic signature indicates an origin in the Prokonnesos (Table 3, fig. 15). The composition of the pilaster has much in common with that of Kramer's Phrygian group. The pilaster has two tiers of leaves, in this case with sharp, deeply grooved points typical of Asiatic workmanship. The broad volutes offer another point of similarity and, in any case, they differentiate the pilaster from the thin, band-like volutes usual on the Aegean coast of Turkey. An even closer analogy in both style and composition is provided by a full-round capital in the northern nymphaeum at Perge (fig. 16). The volutes and the acanthus leaves, whose points seem crushed together, are very similar. Like the pilaster in collection A, the Perge capital appeared to be made of Prokonnesian marble. The pilaster may, however, be earlier than the Severan north nymphaeum; its acanthus is richer and has more deeply drilled veins. The flower of the abacus, which in both cases has a clearly carved stem, has fine-toothed petals in the

pilaster capital and simpler leaves in the nymphaeum capital. In spite of such differences of detail, the pilaster capital in collection A could well have been made by a sculptor from a Pamphylian workshop, perhaps around 180-220 C.E. The capital is thought to come from Italy. Another "Pamphylian" capital very similar to the piece in Perge is in the cloister of Ss. Quattro Coronati in Rome, and five more are in the Side Museum.

Figural sculpture

These tests also identified a statue in Antalya and a portrait in Boston that are probably made of Dokimeian marble (Table 1, nos. 2 and 9). The statue in Antalya, an unnumbered and headless piece in the garden of the museum was the same type as the so-called Apollo from the North Nymphaeum at Perge (ÖZGÜR 1988, pp. 76-77, fig. 103). The statue was one of many in the museum that seemed to be carved of this stone. In coastal Pamphylia, as in mountainous Pisidia (WÄELKENS *et al.* 2002A, pp. 371-374), Dokimeian marble seems to have been the preferred material for figural sculpture.

The portrait in Boston was bought in Rome and is a typical example of severely realistic central Italian portraiture of the first century B.C. (COMSTOCK and VERMEULE 1976, cat. no. 321). Like the table leg in collection A discussed above, this portrait provides evidence that white marble from the Dokimeian quarries had a role at Rome around the beginning of the Imperial period.

CONCLUSIONS

As a result of these isotopic tests, it is now clear that white Dokimeian marble had a position of prestige in the production of marble furnishings and architectural decoration in the Roman Empire. It was popular for craters, which were probably exported in a schematic state. Dokimeian marble was taken up even in Neo-Attic ateliers in Rome in Augustan times. Phrygian sculptors, who traveled far and wide, used Dokimeian marble to produce pilaster capitals for interior decoration. In Pamphylia, regular capitals (and probably large quantities of other architectural elements) were carved of Dokimeian marble. Prokonnesian marble has generally been considered to be the dominant quarry for architectural decoration in Asiatic styles, but more attention must be paid to the creative contribution of the Dokimeian quarries and its associated sculptors. Another surprise is seeing standard Corinthian capitals made of what is probably Ephesian marble in Perge. Ephesus may well have played a role in the torrent of marble that flowed into second-century Pamphylia.

White Dokimeian marble also seems to have been used for figure sculpture well beyond its immediate region. It is perhaps to be expected that statues on the south coast of Turkey were made of this marble, but it comes as something of a surprise to realize that white Dokimeian marble was an option for portraiture in central Italy in the first century B.C.

Marble decorative products from Dokimeion (that is, furnishings and capitals) seem to have been produced in various ways. Quarrymen may have only roughed out their products for shipment; detail and finishing were provided by others near the final destination. This may well have been the case for the large marble craters. Sculptors may have fully prefabricated their products in or near the quarries. This could have been a common procedure for standard Corinthian capitals. Sculptors also accompanied their marble to a distant market or building site, finishing it there. This seems to have been the case of pilaster capitals made for marble revetments. The revetments had to be made to measure for the rooms they decorated. Many uncertainties remain about the process of production in Roman Imperial times, and the process seems to have varied from case to case. Studies of refined marble decoration will probably always have to wrestle with such issues of place of production, even when both the ancient place of use of the object and the source of the marble are firmly identified.

ACKNOWLEDGMENTS

Special thanks are due to Adriano La Regina, Alpay Pasinli, Orhan Atvur, Rebecca Reed, Annewies van den Hoek, and two scholarly private collectors.

Table 1: Objects of fine-grained, white, relatively spotless marble, here identified as from Dokimeion.

#	USF#	Location	Description	$\delta^{13}C$	$\delta^{18}O$	Possible quarries
1	6153	Museo Nazionale Romano, garden	Large crater	0.8	- 5.7	D, N, Pa-4, Ch-1, M, E-2
2	6160	Antalya Museum, garden	Torso, Perge Apollo type	1.0	- 4.3	A, C, D, N, Pa-4, E-2, My
3	6164	Perge, beside entrance to S. Baths	Corinthian capital with eagle on ab.	2.1	- 4.3	A, C, D, N, Pa-4, Pe, Pr-1, U, My
4	6165	Perge, S. Severan nymphaeum	Corinthianizing capital	1.5	- 3.7	A, C, D, N, Pa-2, Pr-1, E-2, He, U, My
5	6653	Collection B.	Corinthianizing pilaster	1.4	- 4.5	A, D, N, Pa-4, Pe, E-2, My
6	6654	Collection B.	As previous patinated surface	1.1	- 4.2	A, D, N, Pa-4, E-2, My
7	5482	Collection A	Corinthianizing pilaster capital	0.9	- 4.6	
8	5483	Collection A	Neo-Attic table leg	0.9	- 4.9	
9	5490	Museum of Fine Arts, Boston, 99.343	Republican portrait	1.0	- 6.1	
10	6657	Istanbul, Archaeological Museum, 1.19	Corinthian capital	1.0	- 4.0	A, D, N, Pa-4, E-2, My
11	6660	Museum of Fine Arts, Boston, 01.8211	Corinthianizing capital with Silenus	0.9	- 4.7	

Marble quarries: A (Aphrodisias); C (Carrara); Ch-1 (Chemtou 1); D Dokimeion=Afyon); E-2 (Ephesos 2); He (Heracleia); My (Mylasa); N (Naxos); Pa-2 (Paros 2); Pa-4 (Paros 4); Pe (Mt. Pentelikon); Pr (Prokonnesos=Marmara); U (Ushak).

Table 2: Objects of fine-grained marble not attributed to Dokimeion.

<i>USF#</i>	<i>Location</i>	<i>Description</i>	$\delta^{13}C$	$\delta^{18}O$	<i>Possible quarries</i>	<i>Preferred quarry</i>
6154	Rome, S. Cecilia, atrium	Large crater	3.1	-3.0	C (very outer fringe); Pa-2; Pr-1; Th-2,3; Ma; Do-2; De-1; My; U	-
			3.3	-23	Ma?; Do-2?; Göktepe?	
6166	Perge, South Severan nymphaeum	Corinthian capital H: 33.5 cm.; W abacus face: 40 cm.	4.4	-3.3	Pa-1, Th-3, E-1, Sa	E-1

Marble quarries: C (Carrara); De-1 (Denizli 1); Do-2 (Doliana 2); E-1 (Ephesos 1); Ma (Mani); My (Mylasa); Pa-2 (Paros 2); Pr (Prokonnesos=Marmara); Sa (Sardis); Th-2,3 (Thasos Aliko, Thasos Cape Vathy).

Note: The second set of isotope values for S. Cecilia crater corresponds to a second measurement of the same sample.

Table 3: Objects of medium- to coarse-grained marble.

<i>USF#</i>	<i>Location</i>	<i>Description</i>	$\delta^{13}C$	$\delta^{18}O$	<i>Possible quarries</i>	<i>Preferred quarry</i>
6661	Museum of Fine Arts, Boston 66.71	Corinthianizing pilaster with Winter	1.9	-3.2	A, C, D, Pa-2, U	A
5481	Collection A	Corinthianizing pilaster with Asiatic acanthus	3.4	-1.9	Pr	Pr

Marble quarries: A (Aphrodisias); C (Carrara); D (Dokimeion=Afyon); Pa-2 (Paros 2); Pr (Prokonnesos=Marmara); U (Ushak)

BIBLIOGRAPHY

- AMBROGI, A., 1984, "Cratere colossale," in *Museo Nazionale Romano: Le sculture I/7*, cat. no. xxv, 37, 566-568, De Luca, Rome.
- BOOKIDIS, N., and STROUD, R., 1997, *The Sanctuary of Demeter and Kore: Topography and Architecture, Corinth*, 18, part 3, American School of Classical Studies at Athens, Princeton, N.J.
- CLARAC, C., *Compte de*, 1826, *Musée de sculpture antique et moderne II.*, no. 129, pp. 428-429, pl. 172, Paris.
- COMSTOCK, M., and VERMEULE, C., 1976, *Sculpture in Stone: The Greek, Etruscan, and Roman Collections of the Museum of Fine Arts*, Boston, Museum of Fine Arts, Boston.
- CRAMER, T., GERMANN, K., HEILMEYER, W.-D., and KASTNER, V., 2009, "Marble Objects from Asia Minor in the Berlin Collection of Classical Antiquities: Characteristics and Provenance," in Y. MANIATIS (ed.), *ASMOSIA VII, The Study of Marble and Other Stones in Antiquity – Proceedings of the 7th International Conference of the Association for the Study of Marble and Other Stones in Antiquity, BCH Suppl.*, 51, pp. 371-383.
- DILLON, S., 1997, "Figured Pilaster Capitals from Aphrodisias", *American Journal of Archaeology*, 101, pp. 731-769.
- GORGONI, C., LAZZARINI, L., PALLANTE, P., and TURI, B., 2002, "An updated and detailed mineropetrographic and C-O stable isotopic reference database for the main Mediterranean marbles used in antiquity", in J.J. HERRMANN JR., N. HERZ and R. NEWMAN (eds), *ASMOSIA 5, Interdisciplinary Studies on Ancient Stone – Proceedings of the 5th International Conference of the Association for the Study of Marble and Other Stones in Antiquity*, Archetype Publications, London, pp. 115-131.
- HANFMANN, G., 1978, "Sculpture from Sardis: The Finds through 1975", cat. no. 227, Fig. 394, Harvard University Press, 152, Cambridge, Mass.
- HEILMEYER, W.-D., 1970, *Korinthische Normalkapitelle*, *Römische Mitteilungen*, Beiheft 16.
- HERRMANN, J., 2001, "Crater with Panther Handles", in Z. FIEMA, C. KANELLOPULOS, T. WALISZEWSKI, and R. SCHICK, (eds), *The Petra Church*. Amman: American Center of Oriental Research, pp. 335-339.
- KOLLER, K., 2002, "Die Pilasterkapitelle aus dem 'Marmorsaal' der Wohneinheit 6: Bemerkungen zu Dekoration und Zeitstellung" in F. KRINZINGER (ed.), *Das Hanghaus 2 von Ephesos: Studien zu Baugeschichte und Chronologie. Archäologische Forschungen 7*, Vienna: Österreichischen Akademie der Wissenschaften.
- KRAMER, J., 1994, *Korinthische Pilasterkapitelle in Kleinasien und Konstantinopel, Istanbul Mitteilungen*, Beiheft 39.
- ÖZGÜR, E., 1988, *Perge*, Istanbul/Izmir/Antalya/Nevshehir: Net Turistik Yayınlar
- PENSABENE, P., 1972, "Considerazioni sul trasporto di manufatti marmorei in età imperiale a Roma e in altri centri occidentali", *Dialoghi di archeologia*, 6.
- PENSABENE, P., 1978, "Marble off Punta Scifo", in *International Journal of Nautical Archaeology*, 7, pp. 106-108.
- PENSABENE, P., 1994, *Le vie del marmo: I blocchi di cava di Roma e di Ostia: Il fenomeno del marmo nella Roma antica*. Soprintendenza Archeologica di Ostia, Ostia.
- PERNICE, E., 1925, *Die hellenistische Kunst in Pompeji IV: Gefäße und Geräte aus Bronze*. Berlin und Leipzig: Walter de Gruyter, 15, pl. 14.

- REINACH, S., 1897, *Répertoire de la statuaire grecque et romaine* I. Paris.
- RICHTER, G., 1966, *The Furniture of the Greeks, Etruscans, and Romans*. Phaidon Press, London, 68-69, 111, figs 350-361, 574.
- ROHMANN, J., 1998, *Die Kapitellproduktion der römischen Kaiserzeit in Pergamon: C44-49*, 63, 134, pl. 50. Berlin and New York: Walter De Gruyter.
- SAURON, G., 1979, "Les modèles funéraires classiques de l'art décoratif néo-attique au I^{er} siècle av. J.-C.," *Mélanges de l'École Française de Rome, Antiquité*, 91, pp. 183-236.
- THÜR, H., 1995, "The Processional Way in Ephesos as a Place of Cult and Burial", in H. KOESTER, (ed.), *Ephesos: Metropolis of Asia* (Harvard Theological Studies 41), pp. 157-199.
- VAN DEN HOEK, A., and HERRMANN, J., 2000, "Paulinus of Nola, Courtyards, and Canthari", *Harvard Theological Review*, 99:3, pp. 173-219.
- VOIGTLÄNDER, W., 1975, *Der jüngste Aplontempel von Didyma*, *Istanbuler Mitteilungen*, Beiheft 14, Wasmuth, Tübingen.
- WAEKENS, M., 1985, The Statues of the Dacian Prisoners in Trajan's Forum, *American Journal of Archaeology*, 89, pp. 644-645, 651-653, pls. 71-72.
- WAEKENS, M., MUCHEZ, P., LOOTS, L., DEGRYSE, P., VANDEPUT, L., ERCAN, L., MOENS, L., and DE PAEPE, P., 2002a, "Marble and the marble trade at Sagalassos (Turkey)", in J.J. HERRMANN JR., N. HERZ and R. NEWMAN (eds), *ASMOSIA 5, Interdisciplinary Studies on Ancient Stone – Proceedings of the 5th International Conference of the Association for the Study of Marble and Other Stones in Antiquity*, Archetype Publications, London, pp. 370-380.
- WAEKENS, M., DEGRYSE, P., VANDEPUT, L., LOOTS, L., and MUCHEZ, P., 2002b, "Polychrome Architecture at Sagalassos (Pisidia) during the Hellenistic and Imperial Period against the Background of Greco-Roman Coloured Architecture," in L. LAZZARINI (ed.), *ASMOSIA VI, Interdisciplinary Studies on Ancient Stone – Proceedings of the 6th International Conference of the Association for the Study of Marble and Other Stones in Antiquity*, Bottega d'Erasmus Aldo Ausilio Editore, Padova, pp. 517-530.

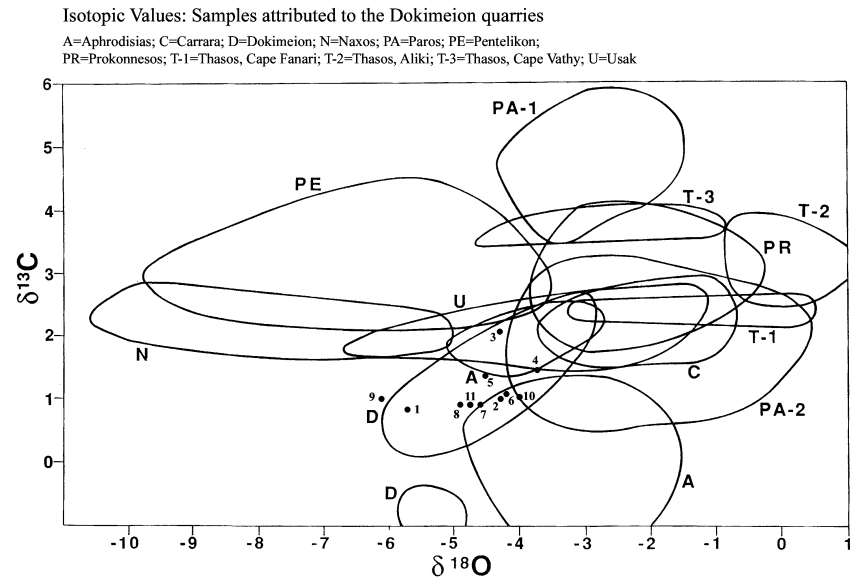


Fig. 1. — Isotopic values for objects of fine-grained, white, relatively spotless marble: here identified as from Dokimeion. Diagram by Rebecca Reed.

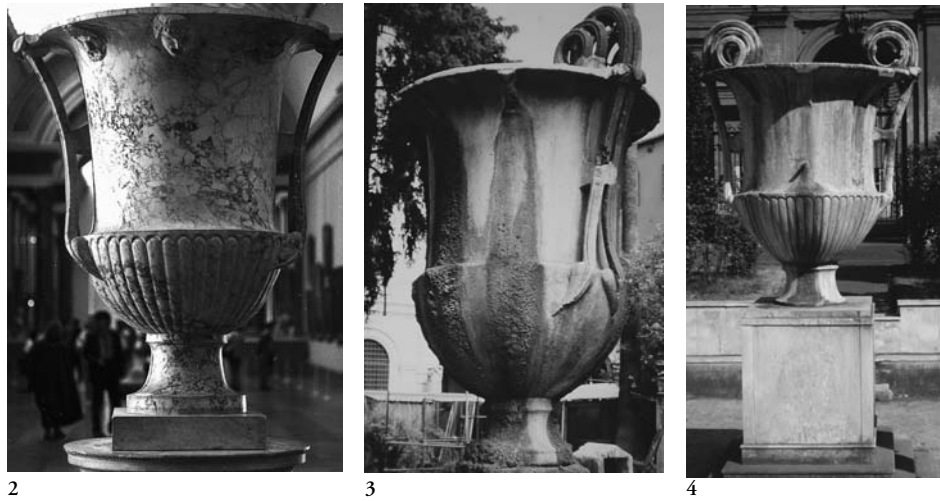


Fig. 2. — Dokimeian marble (Pavonazetto) crater with tragic masks, about 140-210 C.E. (untested), Paris, Louvre.

Fig. 3. — Dokimeian marble crater with children performing seasonal labors, about 140-210 C.E. Rome, Museo Nazionale Romano.

Fig. 4. — Crater in marble of uncertain origin, about 140-210 C.E. Rome, atrium of S. Cecilia.

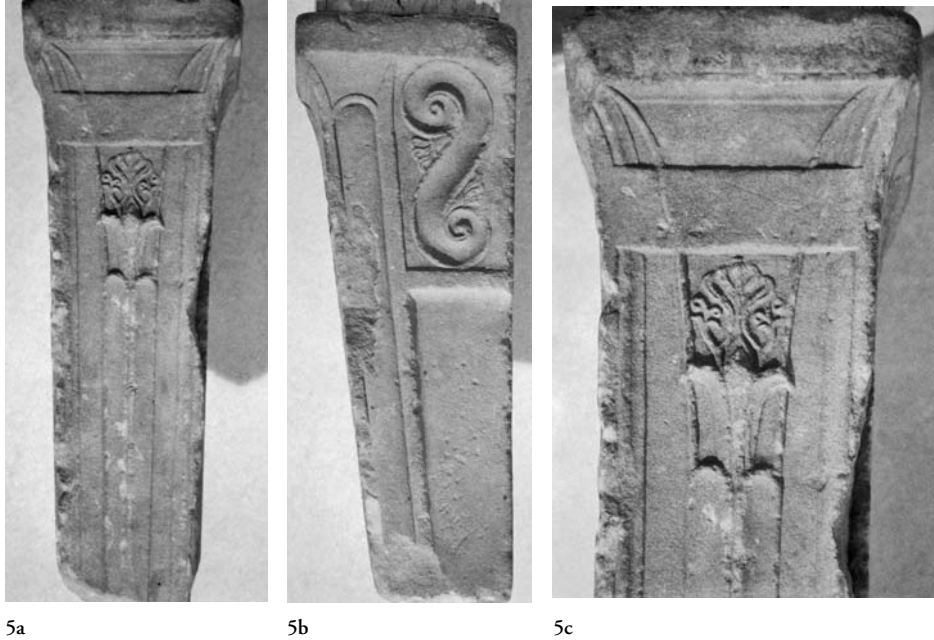


Fig. 5a-c. — Dokimeian marble table leg, about 30 B.C.E. – 20 C.E., Collection A.



Fig. 6. — Marble burial chest, early first century C.E.?, marble unknown. From Sardis, Manisa Museum. (Photo: Archaeological Exploration of Sardis, Harvard University).

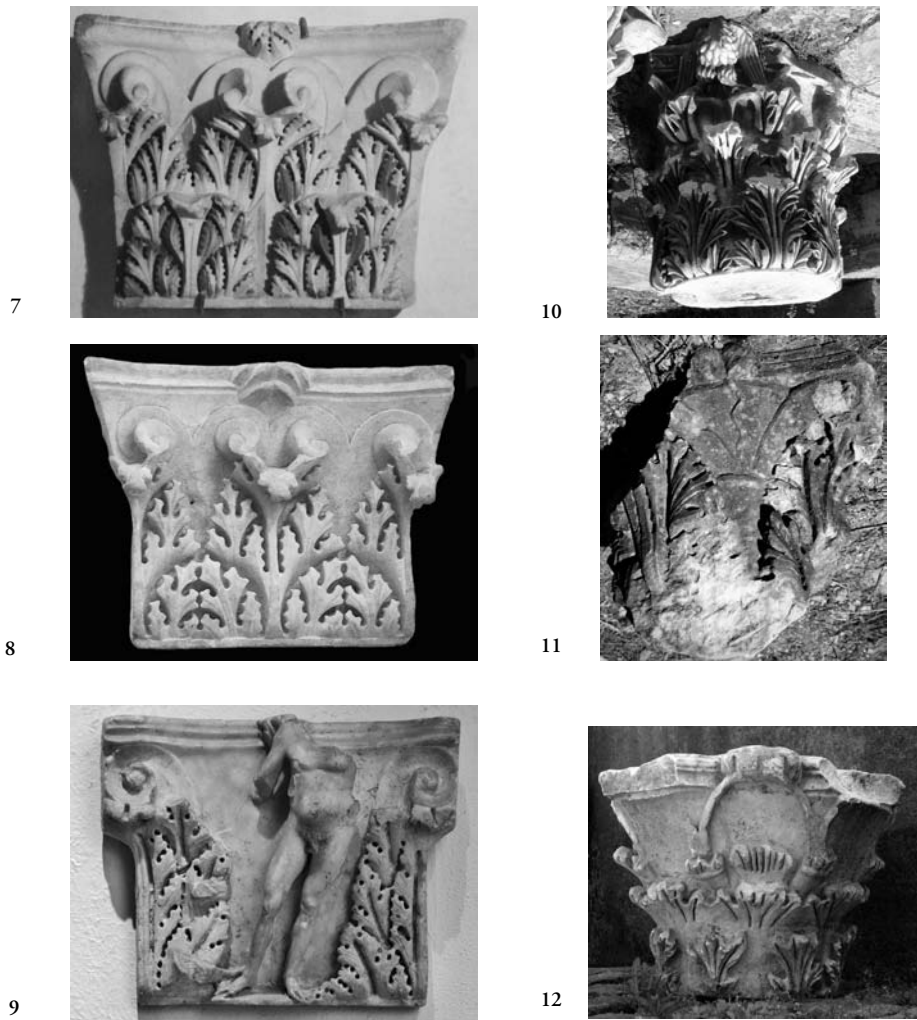


Fig. 7. — Corinthianizing pilaster capital, 285-325 C.E., Dokimeian marble. Collection A.

Fig. 8. — Corinthianizing pilaster capital, 285-325 C.E., Dokimeian marble. Collection B.

Fig. 9. — Corinthianizing pilaster capital with Silenus, 200-260 C.E., Dokimeian marble. Museum of Fine Arts, Boston, 01.8211. (Photo: Museum of Fine Arts).

Fig. 10. — Corinthian capital with eagle on the abacus, 117-138 C.E., Dokimeian marble. Perge, beside propylon of South Baths.

Fig. 11. — Corinthianizing capital (width of abacus 44 cm.), 193-235 C.E., Dokimeian marble. Perge, South Severan Nymphaeum.

Fig. 12. — Corinthian capital, 50-20 B.C.E., Dokimeian marble. Istanbul, Archaeological Museum, 1.19.



Fig. 13. — Corinthian capital (height 33.5 cm.), 193-235 C.E., marble probably from Ephesus. Perge, South Severan Nymphaeum.

Fig. 14. — Corinthianizing pilaster capital with a personification of winter, 180-210 C.E. Aphrodisias marble. Museum of Fine Arts, Boston, 66.71.

Fig. 15. — Corinthianizing pilaster capital, 180-220 C.E., Prokonnesian marble. Collection A.

Fig. 16. — Corinthianizing capital, 193-235 C.E., probably Prokonnesian marble (untested). Perge, North Severan Nymphaeum.