

DETERMINING WHITE MARBLE PROVENANCE OF GREEK AND ROMAN SCULPTURE  
IN THE MUSEUM OF ART AND ARCHAEOLOGY, UNIVERSITY OF MISSOURI  
B. Kidd, D. Attanasio and R. H. Tykot

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(Tarragona 2009)

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# DETERMINING WHITE MARBLE PROVENANCE OF GREEK AND ROMAN SCULPTURE IN THE MUSEUM OF ART AND ARCHAEOLOGY, UNIVERSITY OF MISSOURI

B. Kidd, D. Attanasio and R. H. Tykot

## Abstract

Nine white marble sculptures from the Museum of Art and Archaeology, University of Missouri were analyzed to determine the quarry sources for the marble. The analyses included stable carbon and oxygen isotope mass spectrometry, EPR, and petrography. In conjunction with those results, art historical and archaeological contexts were considered when making final assignments.

## Keywords

White marble, isotopes, EPR, petrography, portraiture, votives, Ptolemies, Hadrian, Nero, Etruscilla, sarcophagi, neo-attic.

## Introduction

This study included nine white marble sculptures from the antiquities collection of the Museum of Art and Archaeology, University of Missouri, which were analyzed to determine the provenance of the stone. The objects chosen for testing date from the Roman Republican and Imperial periods, except one Ptolemaic portrait. The statuette of the young girl with a bird may be Hellenistic, but is more likely a Roman copy of a Hellenistic prototype. The other works include three portraits, two sarcophagi fragments, a fragment of a Neo-Attic krater, and a stele with an inscription to the Great Mother. Other objects in the Museum's collection, including small figurines, vessels, etc., were not tested because of their size and fragility. A Roman circus sarcophagus had previously been identified as Thasian marble.

## Analyses and provenances

Powder samples were examined with stable carbon and oxygen isotope analyses on a mass spectrometer at the University of South Florida while solid samples were analyzed using EPR (spectral intensity, spectral line-width, and total spectral extensions) and petrography (maximum grain size and sample color) at the Istituto Struttura della Materia, CNR, Rome. The provenances were established by statistical data analysis of the experimental isotopic, EPR, and petrographic data, according to a method already described (Attanasio *et al.* 2006, 213-259). The results are listed in Table 1 and include the relative and absolute probability parameters used to define the reliability of the assignments and defined as follows:

**Relative probability:** it is the probability of the sample to belong to some group within the assumption that

it originates in any case from one of the groups in the selection. The threshold is 60%. Low values indicate that the sample's assignment is in doubt between two or more groups.

**Absolute probability:** it is a distance dependent parameter measuring the absolute probability that the sample belongs to the chosen group or, in other words, is a typical representative of the group properties. The threshold is 10%, corresponding to samples on the edge of the 90% probability ellipse. Low values indicate anomalous samples (outliers) or samples possibly not belonging to any group in the selection.

## Object description and marble identification

### Portrait of a Ptolemaic Queen, perhaps Arsinoë III; Greek, 3<sup>rd</sup> century BC (MAA 61.66.1) (Fig. 1)

This portrait is characterized by the soft, late Classical modeling and passive demeanor that are typical of the earlier Ptolemaic queens down through the 3<sup>rd</sup> century. Some later images have a stronger, more masculine character, with harder lines (Smith 1991, 208). Because of the homogenous stylization of the earlier portraits, their identifications are notoriously difficult. The identification of this portrait as Arsinoë III remains tenuous at best. A similar portrait, identified as Arsinoë II, is in the Musée Royale de Mariemont (inv. no. 161) (Kyrieleis 1975, 99).

Given that Egypt itself lacked native white marble sources, a surprising number of Ptolemaic portraits in marble survive. This attests the frequent import of Greek marbles to Alexandria, where portraits were likely made by Greek sculptors. Unfortunately, a wide scale testing of Ptolemaic portraits has not been conducted, but two portraits in the MFA-Boston (inv. nos. 01.8207, 01.8208) have also tested as Paros I. Together with the MAA portrait, these few examples unfortunately present inadequate evidence for determining the frequency of this esteemed stone at the Ptolemaic court, when the rulers represented themselves in Greek rather than pharaonic manner. Ptolemaic portraits in Thasian marble are also known (Herrmann, 1992).

### Portrait of the Emperor Nero; Roman, ca. 60-68 AD (MAA 62.46) (Fig. 2)

Because he suffered a *damnatio memoriae*, the emperor Nero (r. 54-68 AD) did not leave behind great quantities of portraits. This example, from Egypt, perhaps Alexandria, may have been warehoused rather than destroyed and was hastily altered later into a portrait of



FIG. 1. Portrait of a Ptolemaic Queen, perhaps Arsinoë III.

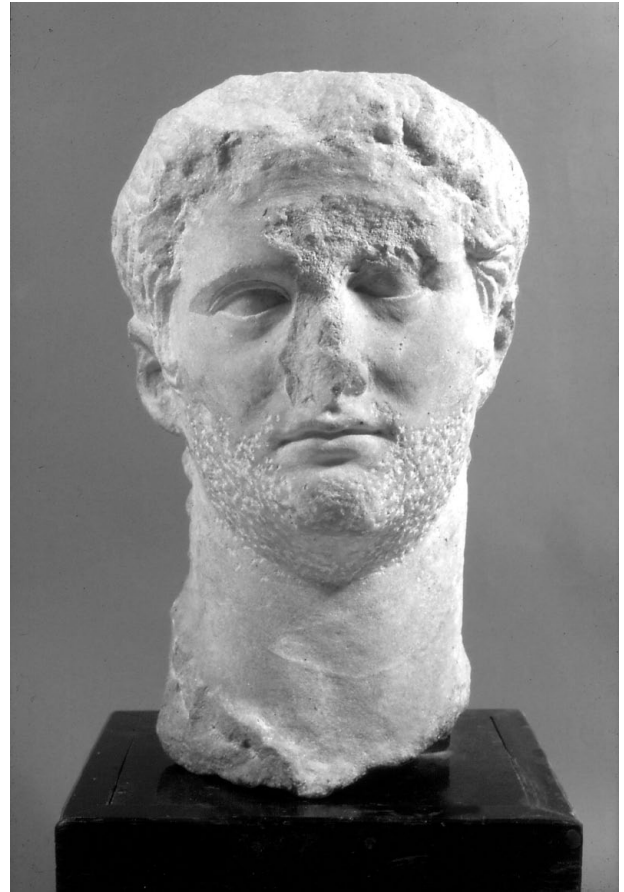


FIG. 2. Portrait of the Emperor Nero.

Gallienus (r. 260-268) (Varner 2000, 146-149). On the other hand, the long locks of hair on the nape of the neck may indicate a previous identity for the portrait. That hairstyle is commonly associated with Caligula, and thus the portrait's incarnation as Nero may be its first recarving. The stippled beard and incomplete backside could have been rendered in stucco, a characteristic common in marble portraits in Egypt, both from the Ptolemaic and Roman periods. Though somewhat rudimentarily carved, the emperor Nero is still recognizable, and the addition of paint and stucco would have embellished the portrait with further lifelike qualities. Like MAA's Ptolemaic portrait, this one is also made from Paros I marble.

**Portrait of the Emperor Hadrian; Roman, ca. 130-138 AD (MAA 89.1) (Fig. 3)**

Unlike Nero, more than 175 portraits of the emperor Hadrian survive, and a number of types have been identified among those. Represented by the MAA head, one type depicts the youthful Hadrian wearing a neck beard, probably in the guise of the Greek hero Diomedes (Albertson, 1993-1994). Incised irises and carved pupils indicate a date of about 130 AD or later. One of the closest parallels to the MAA head is one from the emperor's palatial estate at Tivoli, today in the Museo della Villa Adriana (inv. no. 2260). The characteristics of these portraits can also be linked to the general style of Aphrodis-

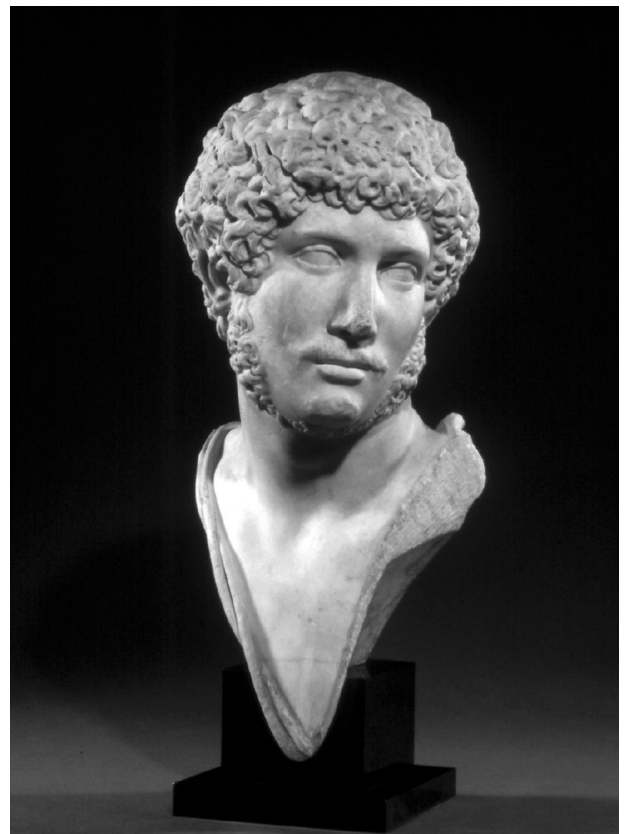


FIG. 3. Portrait of the Emperor Hadrian.

ian portraiture (Smith, 2006), though the treatment of the hair curls is rather different. Most importantly, the presence of Göktepe marble in Hadrianic and later Roman sculpture has been identified in a number of other examples (Attanasio *et al.* 2009a). To these, we can now add the MAA's portrait of the young Hadrian.

**Portrait of an Empress, perhaps Herennia Etruscilla; Roman, ca. 250 AD (MAA 2004.1) (Fig. 4)**

One of the Museum's most recent and important additions to the Roman sculpture collection, this handsome portrait represents a mid 3<sup>rd</sup> century empress, perhaps Herennia Etruscilla, wife of Trajan Decius (r. 249-251). It also represents another example of recarving in ancient portraiture (Kidd 2002-2004; Lindhagen 2010). The portrait was never entirely completed as is especially evident in the hair. Two pointing marks remain over the forehead. At some point, the bun in the back of the head was cut back and a large hole was bored into the crown of the head. This probably took place when the portrait underwent recarving, and the head was fitted for a head-dress (cult attachment?). The alleged provenance of the head is Tunisia, though it is unknown if this is its *ancient* provenance. If so, we might expect imported stone though recent investigations in Algeria have shed more light on white marble quarries at Cap de Garde and Mt. Filfila (Herrmann *et al.* 2012). Given its frequent banding, Prokonnesian marble was not common for portraits, but no comprehensive study has been conducted on the

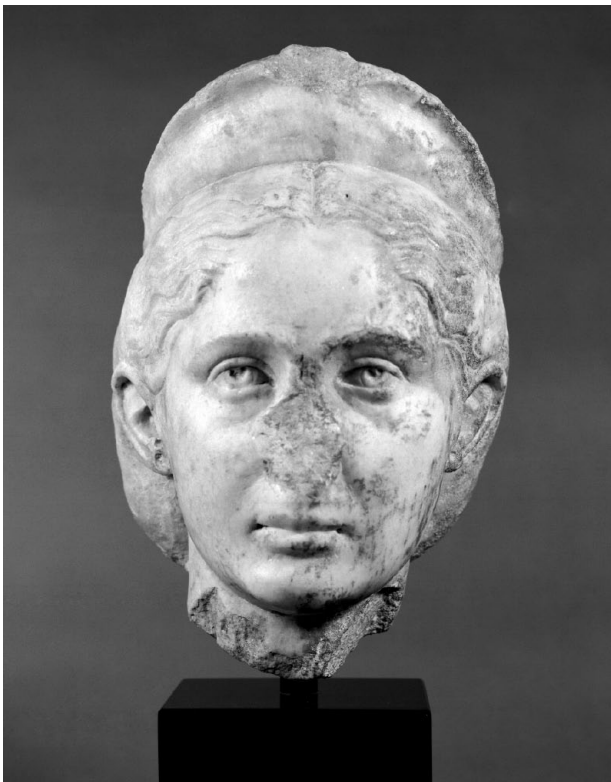


FIG. 4. Portrait of an Empress, perhaps Herennia Etruscilla.

provenance of white marble sculpture from Roman North Africa (for Cyrenaica: Attanasio *et al.* 2009b; for Tunisia: Herrmann *et al.* 2002; de Chaisemartin, 1987).

**Archaizing Hermes, Fragment of a Neo-Attic Krater; Roman, 2<sup>nd</sup>/1<sup>st</sup> century BC (88.33) (Fig. 5)**

A number of ateliers in Athens were supplying Roman collectors with Neo-Attic kraters and other decorative arts as early as the 2<sup>nd</sup> century BC. Furniture, urns/kraters, candelabra, and garden ornaments were common (Herrmann *et al.* 2009). After Sulla's sack of Athens in 86, these workshops began shifting to Rome, where they remained active during the Augustan period, though classical revivals are also known under subsequent emperors. Along with neoclassicism, archaism was also popular, though less common than works created in the neoclassical manner. In a period rife with artistic nostalgia and retrospection, we can surmise that archaism elicited romantic notions of a long-gone epoch of Greek civilization. In most cases, both neoclassicism and archaism appeared in relief sculpture and probably had a decorative function, though religious meaning is plausible in some objects. The god Hermes/Mercury seems to have been a popular subject on these kraters; another example, in the neoclassical style, is in the Museum of Fine Arts, Boston (inv. no. 01-8213). Neo-Attic objects dating before the sack of Athens by Sulla are more likely to be Pen-



FIG. 5. Archaizing Hermes, fragment of a Neo-Attic Krater.



FIG. 6. Young Girl with a Bird.

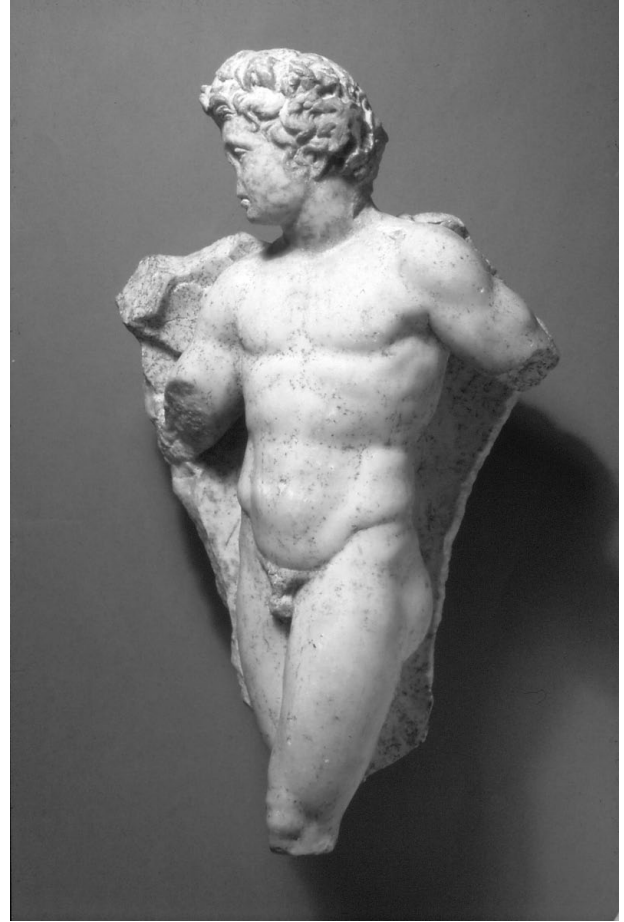


FIG. 7. Autumn Figure, from Seasons Sarcophagus.

telic marble, while those made later in Italy are probably Carrara or other stones. The MAA krater's identification as Pentelic should place it before the migration of Greek workshops to Italy though this is somewhat uncertain.

**Young Girl with a Bird; probably Roman copy of Hellenistic type, 2<sup>nd</sup> century AD(?) (MAA 76.163) (Fig. 6)**

Beginning in the 3<sup>rd</sup> century BC, statuettes of young girls with birds are well known from sanctuaries of Asklepios and Artemis, and with a distribution ranging from Attica to Crete to Asia Minor (Smith 1991, fig. 115; Papaoikonomou 1982, figs. 1-8). The treatment of the drapery and the anatomy of the MAA statuette are atypical of Hellenistic work, however, and probably indicate a Roman copy of an earlier type. Isotopic analysis indicated that the stone was likely Paros I, a result that is confirmed by EPR and petrographic data.

**Autumn Figure, from Seasons Sarcophagus; Roman, 3<sup>rd</sup> century AD (MAA 81.111) (Fig. 7)**

Seasons sarcophagi were common in the 3<sup>rd</sup> and 4<sup>th</sup> centuries of the Roman Imperial period, but largely con-

finied to Rome, with sporadic examples elsewhere (Kranz 1984). By the 2<sup>nd</sup> century, personifications of the seasons had begun to change from female to male, and the Arch of Trajan at Benevento is among the earliest monuments to exhibit the change. By the Severan and Constantinian periods, representations of male seasons were plentiful on sarcophagi, sometimes combined with zodiacal or Dionysiac imagery (Kranz 1984, taf. 86). Seasons sarcophagi are well represented in museums today, perhaps the most familiar being the extravagant "Badminton Sarcophagus" in the Metropolitan Museum of Art (inv. no. 55.11.5). Like many sarcophagi from this period, the marble of seasons sarcophagi comes from eastern Mediterranean quarries. The identification of the MAA fragment as Prokonnesian is not at all unlikely since the island's quarries were renowned for sarcophagi production.

**Unidentified Figure, Fragment of an Asiatic Sarcophagus; 2<sup>nd</sup> or 3<sup>rd</sup> century AD (MAA 2004.88) (Fig. 8)**

Asiatic sarcophagi were among the largest and showiest of the Roman world. Unlike some other types of Roman sarcophagi, the Asiatic variety was decorated in the round, most commonly with high-relief figures set against



FIG. 8. Unidentified Figure, fragment of an Asiatic Sarcophagus.

elaborately carved architectural backdrops (discussion of the type: Waelkens 1982, 68-101, tafs. 23-24, 26-27; Koch 1993, 117-121). Polychromy and gilt would have further embellished already ornate surfaces. The identity of this figure is unknown. He may be a *camillus* or a per-



FIG. 9. Stele with Horseman and inscription to the Great Mother.

sonification connected to mourning, death, or the afterlife. Though various places have been suggested for the carving of these sarcophagi, the Dokimeion quarries supplied much of the marble. Analysis now allows us to say with certainty that the sarcophagus to which this fragment belonged was also made of Dokimeion marble.

**Stele with Horseman and Inscription to the Great Mother; Roman, 3<sup>rd</sup> century AD (MAA 67.23) (Fig. 9)**

Museum records indicate that this stele was acquired by the wife of a dean of Robert College in Istanbul in the

Museum Inv. #	Description	$\delta^{18}\text{O}$	$\delta^{13}\text{C}$	Quarry Matches (isotopes)	Quarry Matches (EPR/petrographic)	Assignment
81.111	Season Sarcophagus Fragment with Personification of Autumn	-3.3	2.7	A1, C, D, N, Pa-2, Pe?, Pr1, Th, M?, He, U	Pr-1	Prokonnesian
88.33	Neo-Attic Krater with archaizing Hermes	-6.2	2.6	N, Pe, Pr2, DI?	Pe	Pentelic
76.163	Statuette of a Girl with Bird	-3.4	4.9	Pa-1, E-1	D, Pe	Dokimeion or Pentelic
61.66.1	Ptolemaic Queen	-3.0	4.6	Pa-1, E-1	Pa-1, E-1	Parian
62.46	Portrait of Nero	-3.7	1.2	A, C?, D, N, Pa-2, Pr-1, E-2, My	Pa-2	Parian
81.1	Portrait of Hadrian	-2.3	2.7	Gok-3, Gok-4	Gok-3, Gok-4	Göktepe
2004.1	Portrait of an Empress	-1.3	3.1	C, Pr-1, Th, De-1	Pr-1	Prokonnesian
2004.88	Asiatic Sarcophagus Fragment with Unidentified Figure	-4.4	2.4	A1, D, N, Pe, Th, U	D, C	Dokimeion
67.23	Horseman Stele with Inscription to the Great Mother	-2.1	2.6	C, Pa-2, Pr-1, Th, H, M, Dol-2, Ia, De-1	Pr-1	Prokonnesian

TABLE I. List of MAA marble tested, with quarry matches and most likely attributions.

A1= Aphrodisias; C= Carrara; D= Dokimeion; De-1= Denizli 1; DI= Djebel Ichkeul; Dol-2= Doliana 2; E-1= Ephesos 1; E-2= Ephesos 2; Gok-3=Gökepe 3; Gok-4= Gökepe 4; H= Hymettos; He= Heracleia; Ia= Iassos; M= Mani; My= Mylasia; N= Naxos-Apollonas/Apir/Kin; Pa-1= Paros; Pa-2= Paros 2; Pe= Pentelic; Pr-1= Prokonnesos (Marmara) 1; Pr-2= Prokonnesos (Marmara) 2; Th= Thasos (Cape Phaneri and Aliki); U= Usak

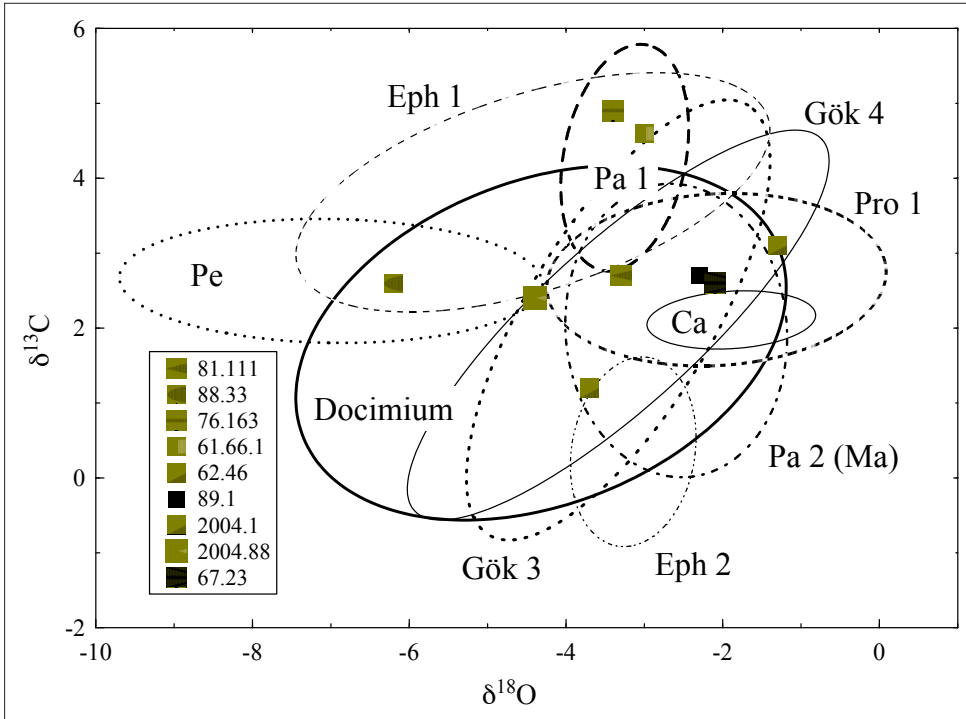


FIG. 10. Isotopic graph of the nine white marble artifacts tested at the Museum of Art and Archaeology, University of Missouri, Columbia.

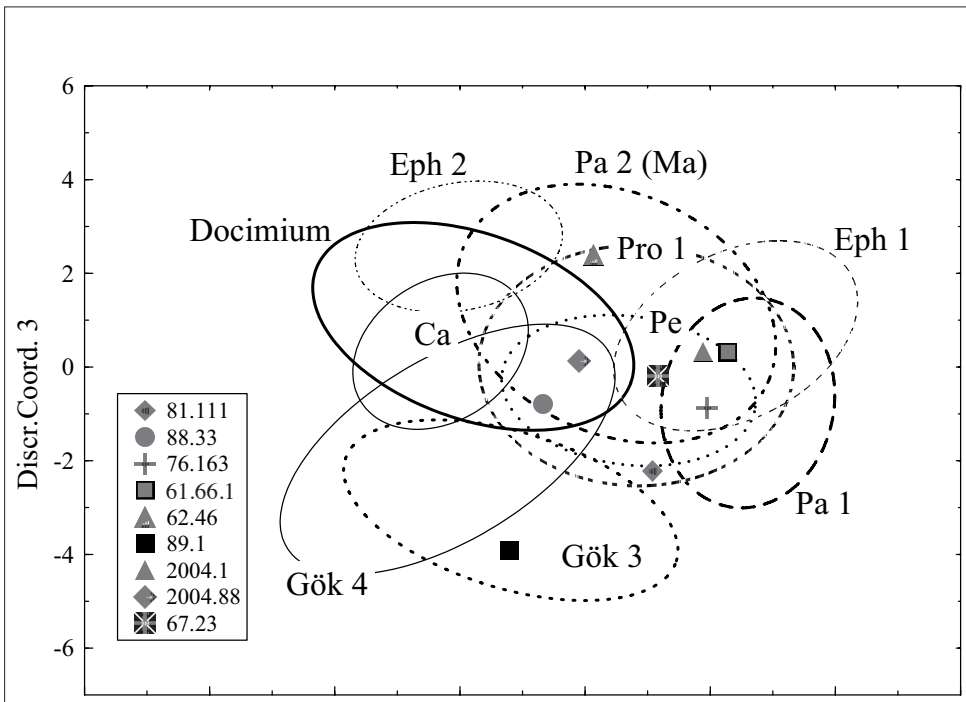


FIG. 11. Statistical discriminant graph of the nine white marble artifacts tested at the Museum of Art and Archaeology, University of Missouri, Columbia. The discriminant coordinates are linear combinations of the experimental variables. The graph shows extensive superposition, implying that no single discriminant variable exists. The assignments are based on a statistical criterion of distance that takes into account the contribution of all the experimental variables.

1920s/30s, and that its alleged provenance was a vegetable garden in the vicinity of the ancient hippodrome. The stele depicts a horseman followed by a subsidiary figure, and the inscription MHTRI EYXHN | MHNIOC MHNIOY = "To the Mother a vow, Menios son of Menios." Though isotopes from this marble showed a wide range of provenance possibilities, the petrographic/EPR results indicated Prokonnesos as the source. Given the island's proximity to Istanbul, this identification is secure. The marble source is also corroborated by the name "Menios," which is attested

in more epigraphy from Byzantium and the surrounding area than elsewhere (Lane 1969, 37).

### Conclusions

The testing of the nine antiquities from the Museum of Art and Archaeology has both substantiated past information and shed new light on the movement of marble in the ancient Mediterranean. The three works from North



Africa (Ptolemaic Queen, Nero, Roman Empress) all confirm the import of white marble, as we would expect. More research is needed, however, to confirm whether Parian was commonly used for Ptolemaic and Roman portraits in Egypt, or whether Prokonnesian is attested in Roman sculpture from Tunisia or elsewhere in North Africa. In the case of inexpensive votive objects, such as the Girl with the Bird and the stele with the Great Mother inscription, the logical assumption is that marble from closer sources were used. While the provenance of the votive girl is unknown, the island marble source indicates the statuette's manufacture in the West rather than the East, though it remains uncertain where the votive was dedicated. On the other hand, the name on the stele and its Prokonnesian marble confirm its provenance in Byzantium. The two sarcophagi fragments had predictable results, with both the Prokonnesian and Dokimeion quarries being well known as centers of sarcophagi production. The most unusual and surprising result in this study was the identification of Göktepe marble for the portrait of Hadrian. As yet, only a few sculptures of white Göktepe marble have been identified, and the MAA Hadrian is the first in an American collection.

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