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Edited by

Ali Bahadır Yavuz - Burak Yolaçan - Matthias Bruno



DOKUZ EYLÜL UNIVERSITY - İZMİR / TÜRKİYE

Dedicated to the dear memory of

Moshe Fischer

ASSOCIATION FOR THE STUDY OF MARBLE & OTHER STONES IN ANTIQUITY

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Preface

This proceeding book includes the papers presented at the Conference of the XII. Association for the study of Marble and other stone in Antiquity (ASMOSIA XII). The conference was organized by Geological Engineering and Archaeological departments of Dokuz Eylül University, İzmir, Türkiye, on the 8th to the 14th of October. Like in the previous congresses, ASMOSIA XII was highly international and interdisciplinary. During the conference more than 100 oral and poster presentations were submitted by the participants, archaeologists, geologists, art historians, conservators, historians of Classical antiquity, architectural historians, chemists and physicist from at least 15 different nationalities.

The papers presented in this book can be grouped under 4 main headings like applications to specific archaeological questions – use of marble; provenance identification marble and other stones; advances in provenance techniques, methodologies and databases; quarries and geology: quarrying techniques, organisation, transport of stones, new quarries, stone carving and dressing, hazards and preservation of quarries; stone properties, weathering effects and restoration, as related to diagnosis problems, matching of stone fragments and authenticity and pigments and painting on marble.

In this symposium, which lasted 7 days, including five days of presentations and 2 days of field trips, important scientific discussions were made on the above-mentioned issues by the attendees from various disciplines. We believe that the proceeding book of ASMOSIA XII including the results of the important multidisciplinary works will help the researchers who work in these fields.

We would like to thank Dokuz Eylül University for it's support during the symposium and for printing this proceeding book. We would like to express our special thanks to Dr. Akın Ersoy and to the other organization committee members of the ASMOSIA XII conferences. Additionally, we also would like to thank the reviewers who gave important support during the reviewing processes of this book.

Finally, we want to dedicate this volume of the XII Asmosia Izmir Proceedings to the dear memory of Moshe Fischer. Esteemed colleague, one of the greatest scholar about roman architectural decoration in the Levant and in larger part of the Mediterranean, Moshe was fellow of Asmosia since the first Workshop held at Il Ciocco (Lucca, Italy) in 1988 and finally member of the executive Committee of Asmosia since 2015. We will never forget his friendliness and kindness, his archaeological expertise, his deep voice and his mustache.

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Burak Yolaçan
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MT. FILFILA AND MARBLE IN RUSICADE (SKIKDA, ALGERIA) IN ROMAN TIMES

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Abstract

Rusicade, modern Skikda, lies near to the white marble quarries of Mt. Filfila, and this proximity makes it likely that the marble had a special importance in the city in ancient times. An extensive program of sampling for marble identification was undertaken in the Skikda's museums to explore the relationship between local and imported marble. Stable isotopes of carbon and oxygen were analyzed, and maximum grain size (MGS) measured. In the realm of architectural decoration, this data was often sufficient to eliminate all plausible alternatives to the Filfila quarries. In the realm of figural sculpture, however, archaeometric data could establish that some sculptures were Carrara marble, but in most cases macroscopic observation was required to determine the most probable quarry assignment among the possibilities indicated by the analytic data. Most white marble at Rusicade seems to come from Mt. Filfila, but several imported marbles could be identified. White marble was occasionally imported from nearby quarries, such as Cap de Garde and Mt. Mahouna, and was shipped from a few distant sources, such as Carrara, Italy, and probably Prokonnesos in the Sea of Marmara, and Mt. Pentelikon near Athens. In style and typology, central Italian models predominated, but eventually Asiatic models came to have importance, and it is likely that sculptors came to Rusicade from Italy and the Aegean to work the local marble. A few colored stones were imported from Algeria (onyx dorée) and the eastern Mediterranean (cipollino, breccia corallina, Aswan granite).

Keywords: Sculpture, architectural decoration, isotopic analysis.

Introduction

The large marble quarries of Mt. Filfila (Djebel Filfila) overlook the Mediterranean harbor city of Skikda (formerly Philippeville), the ancient Colonia Iulia Veneria Rusicade, in the Roman province of Numidia, now eastern Algeria. Rusicade and the quarries are only about 14 km apart, and this proximity makes the city a site of special importance for understanding this marble source. The Ministry of Culture and the Ministry of Energy and Mines in Algiers have permitted us to conduct extensive campaigns of sampling in the quarries and museums of Algeria, and we have analyzed the isotopic ratios of carbon and oxygen and measured maximum grain size (MGS) (Tab. 1). The Filfila quarries have also been analyzed by Antonelli *et al.*¹ and have proven to be variable from an archaeometric point of view; they produce isotopic values that stretch across the heart of the fields for most of the main ancient white marbles (Fig. 1). The marble has both fine and coarse grain. It is mostly calcitic, but there is a small dolomitic area. The Mn⁺⁺ content is usually high, but also variable. In spite of this variability and the problematic location of the isotopic field, multi-method study, combining archaeometric analysis, macroscopic examination, and archaeological information, can establish probable and in some cases virtually certain identifications of Filfila and other marbles at Rusicade.

¹Antonelli *et al.* 2010.

Two other quarries in Numidia also produced white marble, but they can usually be distinguished both optically and archaeometrically. Cap de Garde, near the ancient city of Hippo Regius, modern Annaba, about 90 km to the east of Skikda by sea, produced both white marble and a variety of greco scritto. Mt. Mahouna, which is a little more than 50 km to the SSE of Rusicade, produces a pink and gray onyx marble with some areas of white. The isotopic fields of these marble sources are separate from those of the main ancient white marbles (Fig. 1)².

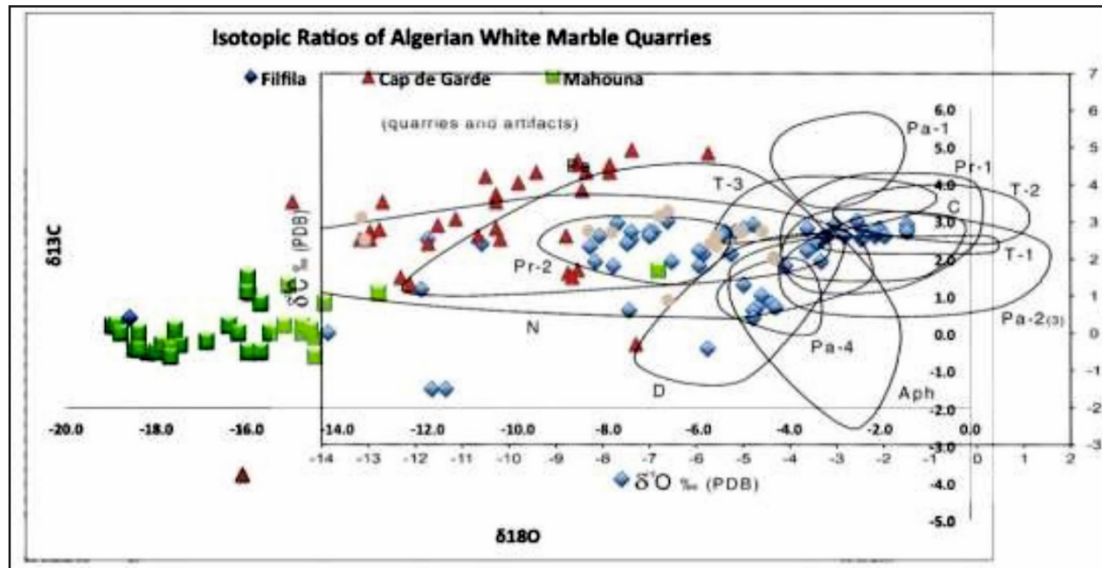


Figure 1: Isotopic ratios of architectural decoration at Rusicade/Skikda, quarry samples of Djebel Filfila, and main Mediterranean marbles (Graph: Gorgoni diagram modified by H. Tykot).

The role of Filfila marble in antiquity has been somewhat contested. Geologists and archaeologists from the French period to the present believe that it was as important in antiquity as it has been in modern times³. Attanasio and Bruno, however, found that in the ancient capital city of the region, Caesarea Mauritaniae (Cherchell, Algeria), none of the statues they analyzed were marble from Filfila; instead, the marble came from the quarries of Greece, Türkiye, and Italy⁴. Other studies have shown that most architectural decoration in Cherchell was Carrara marble⁵. On the other hand, in the politically less important cities of Numidia, such as Djemila⁶, Hippo, Thamugadi, etc.⁷, architectural decoration and some fine sculpture was indeed made of Filfila marble and other Algerian marbles, as well as from traditional Classical marble sources, such as Carrara, Pentelikon, Paros, Prokonnesos, and Thasos. The contributions of the various sources, however, varied from place to place.

Architectural decoration makes the best starting point for an analysis of marble use at Rusicade. In many regions, the local marble is used for most architecture even when imported marble plays the main role in figure sculpture⁸.

A large collection of architectural elements from Rusicade has been assembled in the city's Roman Theatre and in Skikda's museum⁹. We have sampled and analyzed sixteen

² Herrmann *et al.* 2012a; Herrmann *et al.* 2012b.

³ Gsell 1898, 10, 71-72.

⁴ Herrmann *et al.* 2012a; Herrmann *et al.* 2012b.

⁵ Pensabene 1973; Herrmann *et al.* 2012b.

⁶ Antonelli *et al.* 2010.

⁷ Herrmann *et al.* 2012a; Herrmann *et al.* 2012b; Herrmann *et al.* 2012c; Herrmann *et al.* 2015a; Herrmann *et al.* 2015b; Herrmann *et al.* 2017.

⁸ Pike *et al.* 2002, 271-273; Herrmann *et al.* 2015b, 165.

⁹ Gsell illustrates 12 pieces, two of which may no longer be present: Gsell 1898, pl. 11.9,12.

architectural pieces (capitals, column shafts, and a small altar). Much of the decoration shows strong links to central Italy in typology and style. This is particularly clear in the case of the Corinthian capitals, most of which can be paralleled closely in 2nd and 3rd century Ostia¹⁰. The most common kind of capital at Rusicade is the schematic version of the orthodox Corinthian capital (USF 10938) (Fig. 2)¹¹.



Figure 2: Schematic Corinthian capital, Skikda Theater, C16, USF 10938, Filfila marble, ca. 160-220 CE (Photo: A. Van Den Hoek).

The composition is complete, but the details of foliage have not been finished. This modest capital type can be paralleled quite exactly at Ostia¹², but central Italian standards of execution were not uniformly maintained at Rusicade. Corinthian capitals tend to be less sharply defined than at Ostia, and often become sloppy and indefinite. Composite capitals in Rusicade were also inspired by Italian designs but were more variable and less bound to Italian types¹³.

In Ostia and Rome, almost all architectural decoration in the central Italian style is made of Carrara marble, the local white marble of Italy¹⁴, but the isotopic data make it clear that most of the Italianate capitals of Rusicade are made of the local marble from Mt. Filfila, or, in any case, not marble from Carrara (Fig. 1). Furthermore, most of the twelve capitals sampled have coarse grain, unlike the fine grain of Carrara. In this respect, the situation at Rusicade differs radically from the situation in Augustan times at the capital city of Caesarea Mauretaniae (modern Cherchel), where capitals followed ambitious central Italian designs and were skillfully carved of Carrara marble¹⁵. Sculptors may periodically have come to Rusicade from Italy, and model capitals could also have been sent, as in the case of an Istrian limestone Corinthian capital sent to Prokonnesos to be reproduced for export back to the West¹⁶. The isotopic ratios of marble architectural decoration at Rusicade also fall into the isotopic fields of several Greek marbles (Fig. 1), but three of these marbles, from Naxos, Dokimeion, and Aphrodisias, should be discounted since they were apparently not used for architectural decoration in the western Mediterranean. Two Aegean quarries, Prokonnesos and Mt.

¹⁰ Gsell 1898, pl. 11.3 (C56: USF10943) is almost identical to Pensabene 1973, cat. nos. 318-319.

¹¹ For another example, see Gsell 1898, pl. 11.2.

¹² Pensabene 1973, cat. 422, 114, pl. 42.

¹³ Herrmann 2017.

¹⁴ Pensabene 1973.

¹⁵ Pensabene 1973; Herrmann *et al.* 2012b.

¹⁶ Lazzarini 1990, 259, fig 4. A capital in the Pula museum more-or-less reproduces this same design in banded prokonnesian marble (optical identification).

Pentelikon, however, were used for architectural decoration in the central Mediterranean (Tunisia and western Libya)¹⁷ and could potentially have been used farther west at Rusicade. It is, however, unlikely that any decoration at Rusicade was actually made of pentelic marble; its typical brilliant white color and foliated texture seem to be missing, and the local quarries of Mt. Filfila seem like a much more likely option. Prokonnesian marble and Asiatic sculptors, however, evidently did have a role at Rusicade. A few Corinthian capitals of standard Asia Minor type and workmanship were carved of marble of a gray color¹⁸. Although not analyzed isotopically, their marble is probably from Prokonnesos or Lesbos¹⁹, and the capitals could well have been imported in a prefabricated state. One example of Asiatic type, however, made of a fine-grained, lighter gray marble, was analyzed, and isotopically its marble seems to stem from Filfila rather than Prokonnesos (USF10940). The design of its abacus flower, moreover, is Western, as Fulvia Bianchi has pointed out²⁰, and it must have been made by a travelling sculptor trained in the Asiatic tradition. The imported Asiatic capitals and the presence of such migratory sculptors trained in the Asiatic tradition clearly had an important influence on capital production at Rusicade. Many Corinthian and composite capitals in Filfila marble from the late 2nd through the 4th century show the influence of Asia Minor in the design of their acanthus leaves. Some have turned up far to the south at Thamugadi (Timgad)²¹. Other kinds of architectural decoration were made of Filfila marble. Many column shafts at Rusicade are a pale grayish or dingy white marble with occasional gray spots or streaks, which seems to be from Filfila (USF10950-1). Filfila column shafts with more interesting spots or markings (*reseda*) appear elsewhere in Algeria²². Judging from its isotopic values, an altar dedicated to Mercury is also Filfila marble (USF 10928). Other North African sources of both white marble and limestone for architectural decoration were also available at Rusicade. Striated gray-and-white marble column shafts (*greco scritto*) came from the Cap de Garde (USF10950). It is striking that no capitals at Rusicade seem to be made of marble from Hippo/Cap de Garde or Guelma/Mt. Mahouna.

All three Numidian sites seem to have primarily used marble from their own nearby quarries for more intricate architectural carving²³. However, an elaborate Corinthian capital, probably of Flavian or Trajanic date is made not of marble but of a yellowish, fine-grained limestone (USF10944, Fig. 3). Similar limestone capitals are found in Carthage, Bulla Regia, and Kairouan²⁴, and it seems likely that the example in Rusicade was made by a sculptor from the Tunisian area, and the limestone could have come from a quarry in that area as well.

A few pieces of architectural decoration are made of colored stone. One is local, an altar was made of yellowish onyx dorée alabaster from Aïn Smara, some 90+ km to the SW of Rusicade (USF10954). The others are imported from the east. Several column shafts at Rusicade are of cipollino (Carystan marble), one is Aswan granite (optical identifications), and another is breccia corallina from an indeterminate source but probably Asia Minor (USF10948-9)²⁵. Several sources of breccia corallina have recently been discovered in western Türkiye, but their isotopic signatures are not yet known²⁶.

¹⁷ Bianchi 2009.

¹⁸ Gsell 1898, pl. 11.1.

¹⁹ On the use of Lesbian marble for standard Asia Minor capitals, Bianchi *et al.* 2023.

²⁰ Personal communication: Herrmann *et al.* 2012b, 1329, tab. 3, figs. 5, 6.

²¹ Herrmann 2017, 356-357, figs. 19, 22-24; Tykot *et al.* 2018, USF10863, 475-477, tab. 2, figs. 18-19.

²² Herrmann *et al.* 2019, 473, 475-476, tab. 2, fig. 15p.

²³ Herrmann *et al.* 2012b, 1323-1330; Herrmann 2017, figs. 7-9, 14.

²⁴ Harrazi 1982, probably cat. no. 25, sandstone.

²⁵ Herrmann *et al.* 2012c; said to be Filfila marble: Gsell 1898, 72.

²⁶ Bruno *et al.* 2012, 568-570.



Figure 3: Corinthian capital, Skikda Theater, C66, USF10944, unknown limestone, probably Tunisian, ca. 80-120 CE (Photo: A. Van Den Hoek).

The figure sculptures of Rusicade have isotopic values that spread over more of the isotopic field for Filfila than the architectural decoration does (compare Figs. 1, 4). This may be coincidental or it may indicate that marble for figure sculpture was extracted opportunistically wherever a good block could be found. All the sarcophagi tested have fine grain, with a MGS ranging from 0.5 mm to 1.5 mm. The four decorated pieces have isotopic values that are compatible with both Filfila and prokonnesian, the most popular marble for sarcophagi at Rome at that time²⁷, but a source on Mt. Filfila seems more likely, since the sarcophagi have a finer grain size than usual in prokonnesian, and none of them display the parallel banding almost always seen in prokonnesian sarcophagi.

The isotopic signatures of the Rusicade sarcophagi also correspond to the fine-grained marbles Paros, Afyon, and Göktepe, but these marbles are hardly ever used for Roman sarcophagi in the West. Isotopically, three sarcophagi could be from Mt. Pentelikon, but they do not show the foliation common in that marble. In terms of iconography and style, two of the decorated sarcophagi at Rusicade are closely linked to Rome. One has a tomb door and fluting (USF 10921) and is much like pieces in Timgad²⁸ and Tunis²⁹. All of these African examples are essentially indistinguishable from tomb-door sarcophagi in Italy³⁰. Guntram Koch considers a sarcophagus with centaurs pulling chariots (USF 10919) a local imitation of Roman sarcophagi³¹. The quality of this sarcophagus has been excessively criticized³². The figures on the Centaur sarcophagus are slightly flattened and use of the drill is reduced, as in a garland sarcophagus in Timgad, which also has a Roman design³³. Sculptors may have come from Italy, and cartoons on cloth or paper may have also been sent for execution in the local marble. In other markets of the Western Mediterranean, such as Sardinia, most of the marble sarcophagi were imported from Italy³⁴. In Rusicade with its nearby supply of white marble, it was evidently more convenient to do the carving locally.

²⁷ Van Keuren *et al.* 2010.

²⁸ Tykot *et al.* 2018, 466, fig. 4, in prokonnesian or perhaps Filfila marble.

²⁹ Teatini 2011, 213, fig. 201.

³⁰ Gabba *et al.* 1977, cat. nos. 225, 228; Teatini 2011, cat. nos. 43; Huskinson 2015, 81-84, fig. 5.3; Borg 2013, 128, 130, fig. 78.

³¹ Koch, Sichtermann 1982, 312, fig. 337.

³² Matz 1975, 454, 463-464, fig. 272.

³³ Tykot *et al.* 2018, 468, fig. 2.

³⁴ Teatini 2011, 414-417, cat. nos. 72, 77, 84.

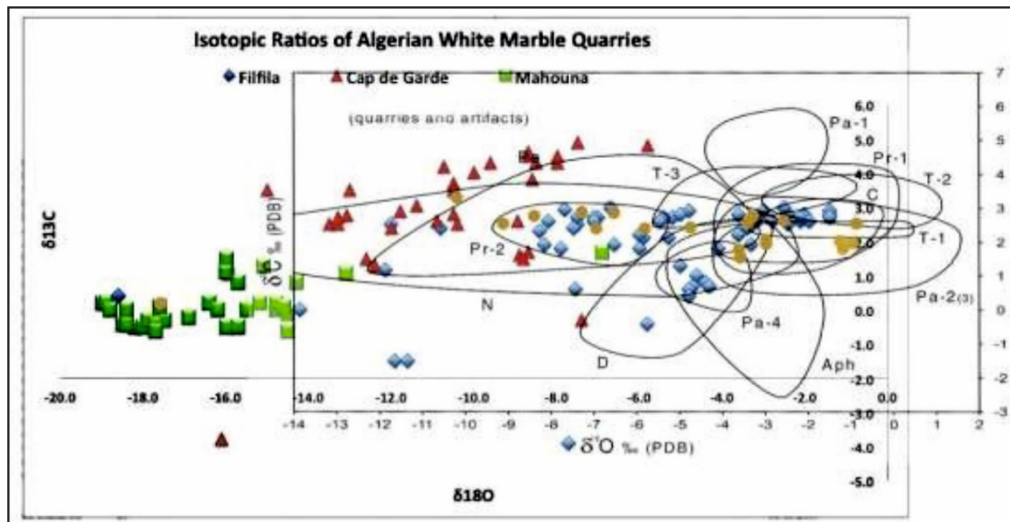


Figure 4: Isotopic ratios of figural sculpture at Rusicade/Skikda, quarry samples of Djebel Filfila, and main Mediterranean marbles (Graph: Gorgoni diagram modified by H. Tykot).



Figure 5: Sarcophagus with a hunt, Skikda Museum, SARK 214, USF10922, Filfila marble, ca. 235-240 BC (Photo: A. Van Den Hoek).

A Filfila marble sarcophagus decorated with an unusual hunting scene is more creatively provincial (USF 10922) (Fig. 5)³⁵. The figures are flattened, as on the back and sides of many Roman sarcophagi. The subject, a hunter pursuing a hare, is rare on sarcophagi but popular in Tunisian mosaics of the 3rd century³⁶. The chase surprisingly leads beyond a tree and flocks of animals into the lair of a herdsman with a club and lionskin. The scene recalls an Early Imperial landscape relief with a Hercules-like herdsman from Italy in Munich³⁷. The jutting chin of the hunter on the sarcophagus recalls the features of the Emperor Maximinus the Thracian (235-238 CE), and the sarcophagus probably dates from about that time. A Filfila marble sarcophagus with the Good Shepherd of the early 4th century (USF10920) is more schematic and more provincial in workmanship than the others. It seems to draw on the traditions of the Adriatic, where sarcophagi have widely spaced figures in archways³⁸.

Several splendid sculptures of the 2nd century closely follow the standards of central Italy in terms of typology and workmanship, but they too were very probably made of Filfila marble: Antoninus Pius (10933), Togatus Sk 215 (USF 10934) (Fig. 6), Togatus Sk 217 (USF

³⁵ Koch, Sichtermann 1982, 312, fig. 343.

³⁶ Dunbabin 1978, 46, 49-50, 52, pls. 22, 43-44.

³⁷ Adriani 1959, 8, pl. 8, no. 26, calling the herdsman "Polyphemos", Wünsche 2007, 159.

³⁸ Rebecchi 1978; Herrmann *et al.* 2019, 242, figs. 8, 10.

10935), and the Large Herculaneum Woman, Sta Sk 219 (USF 10936). These statues have isotopic signatures that correspond to a multitude of white sculptural marbles, but their coarse grain size reduces the options to Prokonnesos, Aphrodisias, and the Carrière Romaine at Djebel Filfila. Their isotopic signatures fall on the border of Prokonnesos 1 but are located centrally in the fields of Aphrodisias and Filfila. Since Aphrodisias is an uncommon marble in the western Mediterranean, this group is very probably made of Filfila marble. These good quality statues could have been produced by sculptors from Rome working in Rusicade. A portrait of a woman of the time of Antoninus Pius belongs to this sophisticated group (USF 10931)³⁹. Although the bust's isotopic values are somewhat different and could indicate an origin on Mt. Pentelikon as well as Filfila, its coarse grain favors the local Numidian source. Local workmanship may be revealed in the bust's rather faint definition and the absence of polishing. A local sculptor could have been copying a plaster cast sent from Rome.

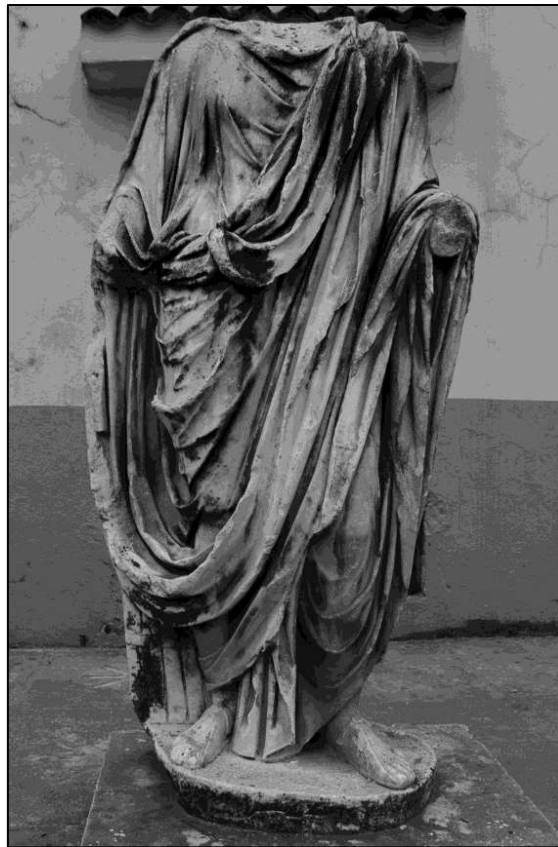


Figure 6: Togatus, Skikda Museum, Sk215, USF10934, Filfila marble, early 2nd century (Photo: A. Van Den Hoek).

Four sculptures in a uniform white marble could be from either Mt. Pentelikon or Filfila on the basis of their fine grain and their isotopic ratios. Only one of them, however, a worn and fragmentary portrait, seems actually to be imported marble. The marble's long parallel flaws may indicate a Pentelic origin (USF 10924) (Fig. 7). The head could well represent Vespasian; it has the proportions seen in many portraits of the emperor, including an example from Carthage in the British Museum⁴⁰. The other three sculptures are likely to be marble from Filfila rather than Pentelikon since they lack foliation. In a portrait of Julia

³⁹ Gsell 1898, pl. 10.4.

⁴⁰ British Museum 1850,0304.35.

Domna (USF 10927)⁴¹, the outline of the iris of the eyes is omitted, as in a portrait of Faustina II from Lambaesis (Lambèse, Algeria) in the Louvre (MA1175), and the head could be local work. A relief with a victory, a cuirass, and palm branches (USF 10926) has a simplified style with heavy-handed drill channels that recalls Roman sarcophagi of around 300 CE. A bust of a long-haired youth (USF 10930) (Fig. 8) is typologically similar to busts of minor Eleusinian gods, such as *Triptolemos*, produced around Athens⁴², but its rough workmanship is undoubtedly local.



Figure 7: Flavian Portrait, possibly Vespasian, S Sk118, USF10924, probably pentelic marble, ca. 70-96 BC (Photo: A. Van Den Hoek).



Figure 8: Bust of a genius or Triptolemos, S Sk125, USF10930, probably Filfila marble, ca. 150-200 (Photo: A. Van Den Hoek).

Isotopic analysis reveals clear identifications of two figure sculptures from other Algerian quarries. A relief with small figures engaged in a sacrifice (USF10937) has fine grain, but its isotopic ratios place it solidly in the area of Cap de Garde. A statuette of the Mithraic *genius Cautopates* is onyx marble from Mt. Mahouna⁴³.

Archaeometric data make it clear that some marble for freestanding figure sculptures was imported from the northern shores of the Mediterranean. Four figure sculptures at Rusicade are very probably Carrara marble. They have fine grain, but isotopically they are not from Filfila. Their oxygen values are particularly positive or “heavy”. They could be Paros 2, or prokonnesian as well as Carrara, but those are medium to coarse-grained marbles. A splendid statue of Kore could also be from Mt. Hymettus isotopically (USF 10929) (Fig. 9). Since Hymettan marble is rare in the West, it is more likely to be Carrara. The statue is comparable to the elaborate draped statues of Carrara marble dated to the 1st century in Leptis Magna⁴⁴. The Kore’s head and hands were made separately, possibly in an even more prized marble. A rather lackluster togatus of the later 1st century is also made of Carrara and put together from pieces (USF 10953). The marble for both statues must have been shipped from Carrara, perhaps as slabs or blocks, to Rusicade, where it would have been carved, possibly by sculptors trained in Rome. A statuette represents a *Genius* holding a cornucopia probably of the first half of the 2nd century (USF10932). Another of these fine-grained Carrara pieces

⁴¹ Gsell 1898.

⁴² Limc 8, s.v. Triptolemos (G. Schwarz), cat. 159.

⁴³ Clauss 2011, fig. 96.

⁴⁴ Musso *et al.* 2016.

shows Latona/Leto with Apollo and Diana/Artemis in her arms (USF10925) (Fig. 10). This is a virtually unique subject: the standing Leto of Hierapolis in Asia Minor, otherwise known only from coins of Cibyra of 161-180⁴⁵. The isotopic signature suggests that the marble might be from Dokimeion, not far from Kibyra, but the dingy, spotted piece of stone and the rather local-looking style of carving do not suggest a work exported from Asia Minor, and isotopically Carrara is a more probable source of the material. Except for the Latona, the Carrara sculptures are relatively early, and local marble may have largely displaced imported marble in the course of the 2nd century.



Figure 9: Statue of Kore, STA Sk 116, USF10929, Carrara marble, 1st century (Photo: A. Van Den Hoek).



Figure 10: Statuette of Latona with Apollo and Diana, Sta Sk 021, USF10925, Carrara marble, ca. 170-220 (Photo: A. Van Den Hoek).

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USF Lab	$\delta^{13}C$	$\delta^{18}O$	MGS	Description	Location	Gsell 1898 p. & plate	Quarry assignment
10918	2.7	-4.3	1	Composite Capital CH.SK.051, H 33.3 cm	Museum	-	D, F
10919	2.5	-6.0	1	Sarcophagus with 2 centaur chariots SAR.SK.117	Museum	p. 30, pl. 2.2	F, Pe
10920	2.9	-6.8	.6mm	Good Shepherd sarcophagus SARK.SK.212	Museum	p. 35, pl. 3.2	F, Pe
10921	2.9	-3.3	.5mm	Strigillated sarcophagus with tomb door SARK.SK.213	Museum	p. 34, pl. 4.3	F, Pr
10922	2.7	-2.8	1.5	Sarcophagus with hunt SARK.SK.214	Museum	p. 32, pl. 2.1	F, Pr, crackled veins
10923	-0.2	-17.9	2	Genius with torch (Cautopates) S.Sk.001.	Museum	p. 46, pl. 6.3	Mahouna yellowish, translucent, layering
10924	2.9	-7.8	1.2	Flavian portrait., S Sk118	Museum	-	F, Pe: isotopes, long flaws
10925	2.1	-1.7	1	Latona and twins Sta. Sk. 021 Sta.	Museum	-	dirty smudgy C or Pr
10926	2.7	-9.2	.6mm	Relief with Victory and a trophy S.Sk.045	Museum	p. 54	F or Pe
10927	2.9	-8.5	1	Julia Domna S.Sk.046	Museum	p. 62, pl. 9.2	F or Pe: faint gray smudges, no clear Foliation
10928	2.6	-4.8	2	Altar to Mercury St.Sk.047	Museum	-	F, Pr, N, coarse, gray Band
10929	2.5	-1.1	.6mm	Kore STA.SK.116	Museum	-	C
10930	2.8	-3.7	.6mm	Bust of Genius S.Sk.125	Museum	-	Doc, Aphr, Pa1, F looks like plaster
10931	2.7	-7.0	2	Bust of Antonine woman S.Sk.126	Museum	p. 65, pl. 10.4	Grayish Pr or F
10932	1.8	-1.6	.8 mm	Genius S.Sk.126	Museum	p. 54, pl. 7.5	C, gray veining
10933	1.9	-3.6	1.7	Antoninus Pius, Sta.Sk.210	Theater	p. 60, pl. 8	smudgy streak, white face Pr, Pa2, F
10934	2.1	-3.4	3	Togatus STA.SK.215	Museum	-	Aphr, Pa2, F
10935	2.3	-3.4	2.5	Togatus STA.SK.217	Museum	-	Aphr, Pa2, F
10936	1.6	-3.6	2	Large Herculaneum Woman STA.SK.219	Theatre	-	Aphr, Pa2, F
10937	3.2	-10.3	.8mm	Relief with sacrifice, H 55, W 64, D 21 cm	Theatre	p. 38, pl. 1.4	white, small brown spots, CdG, F
10938	2.8	-5.0	2	Schematic Corinthian capital C.16, coarse grain, H 42 cm	Theatre	-	Pe, Pr2, D, Aph, F
10939	2.6	-5.3	2	Schematic composite capital C.28, H 23.2 cm	Theatre	-	Pe, Pr2, D, Aph, F
10940	2.8	-5.0	2.5	Asiatic Corinthian pier capital C29, H 57.5 cm ⁴⁵¹	Theatre	-	Pe, Pr2, D, Aph, F
10941	3.1	-6.6	2	Schematic composite capital C.31, diagonal of abacus 50.8 cm	Theatre	-	Pe, Pr2, D, F
10942	2.3	-5.5	2.5	Schematic composite capital C.47, H 37.6 cm	Theatre	pl. 11.6	Pe, Pr2, D, Aph, F
10943	3.3	-6.5	8	Corinthian capital C56, H 45 cm	Theatre	pl. 11.3	Pe, Pr2, D, Aph, F fine crack
10944	2.4	-13.1	.5mm	Corinthian capital with decorated abacus C66, H 60 cm	Theatre	-	CdG, Unknown limestone
10944	2.4	-13.0	.5mm	Corinthian capital with decorated abacus C66, H 60 cm	Theatre	-	CdG, Unknown limestone
10945	2.7	-5.4	2	Schematic Corinthian capital C.73	Theatre	-	Pe, Pr2, D, Aph, F
10946	2.5	-8.2	1.1	Schematic Corinthian capital with rounded abacus ornament, C22, H 39 cm	Theatre	-	Pe, Pr2, D, F: irregular cracks
10947	0.8	-6.7	2	Composite capital with decorated abacus, limestone (?), H 38 cm	Theatre	-	N, D, F
10948	2.0	-9.1	4	Breccia corallina column shaft COL38	Theatre	-	Breccia corallina
10948	2.3	-9.2	4	Breccia corallina column shaft COL38	Theatre	-	Breccia corallina
10949			7	Breccia corallina column shaft COL38 (sample B)	Theatre	-	Breccia corallina
10950	3.3	-13.3	2	Column shaft, COL51, CdG., dm ca. 50 cm	Theatre	-	CdG
10951	2.8	-7.6	1.5	Giant column COL67bis	Theatre	-	Pe, Pr2, D, N, F
10952	2.8	-4.4	.6mm	Plain sarcophagus, SA.8	Theatre	-	Pe, Pr2, D, Aph, F
10953	2.1	-1.4	.8mm	Togatus, St. 02, H frag. 93 cm	Theatre	-	Pa2, Ca
10954	0.2	-10.4	3	Altar with pitcher and patera 50, Onyx dorée	Theatre	-	Ain Smara

Aph=Aphrodisias, C=Carrara, CdG=Cap de Garde, D=Dokimeion, F=Djebel Filfila, N=Naxos, Pe=Penelicon, Pr=Proconnesus, Preferred quarry source in **bold**

Table 1: Marble artifacts from the Theater and the Museum at Skikda/Rusicade, analyzed at the University of South Florida (USF).

⁴⁵ Herrmann *et al.* 2012B, 1329, tab. 3, figs. 5, 6.

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