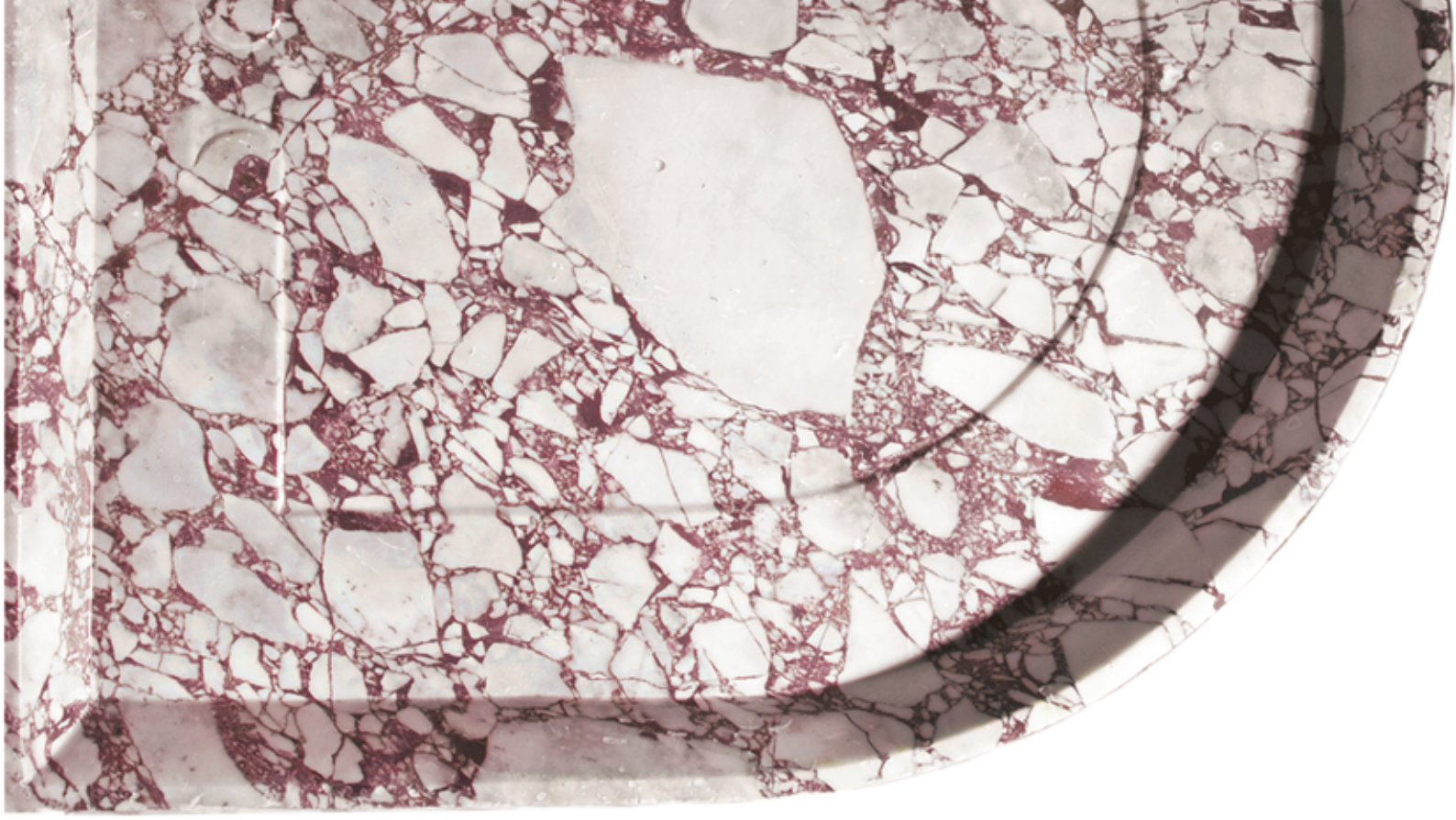
Marble on Rome's Southwestern Frontier: Thamugadi and Lambaesis

Tykot, Robert H.; Bouzidi, Ouahiba; Herrmann, John J.; van den Hoek, Annewies



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MARBLE ON ROME'S SOUTHWESTERN FRONTIER: THAMUGADI AND LAMBAESIS

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Abstract

In spite of their location 200 km south of the Mediterranean and just to the north of the Aurès Mountains in eastern Algeria, the Roman cities of Thamugadi (Timgad) and Lambaesis (Lambèse/Tazoult) made substantial use of marble and high quality travertine (onyx marble). Forty-five architectural and sculptural artifacts were sampled to provide a cross-section of the sources used in the two nearby cities. White, grayish white, and colored artifacts were chosen. The samples were analyzed at the University of South Florida to determine mineralogy, grain size, and isotopic ratios of stable isotopes of carbon and oxygen. The results were compared with databases for quarries of Algeria and for the ancient Mediterranean at large. Because of isotopic overlappings, macroscopic observations of markings on the artifacts themselves were often important for establishing the most likely source for the marble.

Keywords
stable isotopes, X-ray fluorescence, sculpture, architecture

Introduction

Starting in 81 CE, the Roman emperors founded military camps and then cities at Thamugadi (Timgad) and Lambaesis (Tazoult/Lambèse) only 24 km from one another in southern Numidia as bases to control the Berber population of the Aurès Mountains in eastern Algeria (Fig. 1). The Mediterranean coast lies ca. 200 km to the north, and the nearest well-known source of high quality decorative stone is the alabaster of Aïn Smara, 122 km to the north. Thamugadi and Lambaesis were largely built of limestone and sandstone of apparently local origin[1], but they also have a significant presence of marble and high-quality travertine from more distant quarries. A variety of architectural and sculptural artifacts were sampled to provide a cross-section of the sources. The samples were taken from 18 figural sculptures, including reliefs, statues, and statuettes, from 22 pieces of architectural decoration, including column shafts, capitals, and slabs, and from five pieces of colored architectural decoration. The figural sculptures date from the second and third centuries and the architectural decoration dates from the second to the sixth centuries. The results of laboratory analyses were compared with data on Algerian and other Mediterranean quarries. Given the abundance of marble quarries in Algeria, the use of local Algerian sources versus more distant sources was a critical issue. Special attention was paid to figural sculptures of coarse-grained, unspotted white marble in the hope of identifying dolomitic marble from Thasos as a clear marker for long-distance importation.

Fig. 1. Map

Methodology

Samples were analyzed at the University of South Florida (USF). Ratios of stable isotopes of carbon and oxygen were determined, and maximum grain size (MGS) was determined either macroscopically or by measurement.

1 BALLU 1897, 7.

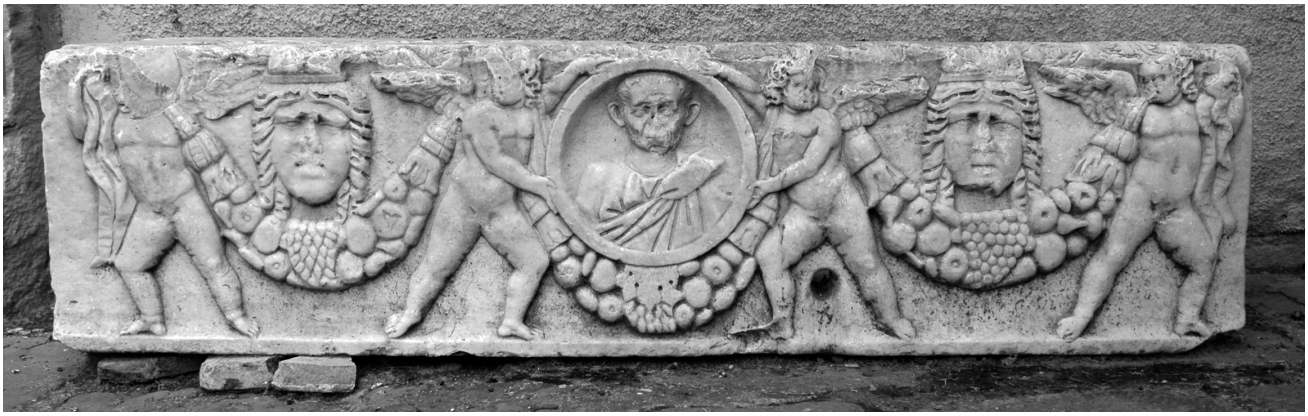

Fig. 2. Garland sarcophagus, third century, marble from Mt. Filfila. Thamugadi Museum. USF9443

Mineralogy was determined by X-ray fluorescence (XRF). These parameters were compared with the results of our survey of Algerian quarries[2], with a British team's samples from Mt. Filfila, Algeria[3], with an Italian team's databases for Algeria,[4] and with various databases for other Mediterranean quarries[5]. Algeria's most important modern source of white and gray marble on Mt. Filfila, however, is highly variable analytically. Its stone can have either coarse or fine grain,[6] and its widespread isotopic field shadows that of Afyon/Docimium quite closely.[7] Electron paramagnetic resonance spectroscopy (EPR) has also produced highly variable data for Filfila.[8] While Filfila marble is usually calcitic, 7% of the samples proved to be pure dolomite.[9] As a result of overlappings with analytic data for foreign marbles, macroscopic criteria were often important in establishing probable quarries of origin. Filfila marble, for example, can at times have pale gray areas with a rather distinctive cloudy or smoky effect, although other kinds of markings also appear.

Some of Algeria's many quarries of colorful marble and travertine have also been analyzed isotopically,[10] but comparable data for colored marble quarries on the north shores of the Mediterranean are scanty. As a result, macroscopic identifications are important in this realm as well.

Fig. 3. Basin with Bacchic reliefs, marble from Mt. Filfila, Thamugadi Museum. USF10867

Results and comments: Relief sculpture

Analysis showed that Filfila marble was clearly used for relief sculpture. This is evident from isotopic results in the case of the garland sarcophagus USF9443 (Fig. 2);[11] its very negative isotopic values for $\delta^{18}O$ fall in an area occupied by a pair of quarry samples from Djebel Filfila. Stylistically, the sarcophagus is a flattened and somewhat provincial version of Roman prototypes. The walls of the locally quarried chest were evidently not thick enough for Italian-style decoration. The fountain basin with Bacchic reliefs USF10867 (Fig. 3) has isotopic ratios for Proconnesus, Pentelicon, and Filfila, but its very fine grain (mgs 0.3 mm) excludes Proconnesus, its markings probably exclude Pentelicon, and its dull surface favors Filfila.

2 HERRMANN *et al.* 2012C ; HERRMANN *et al.* 2012D; HERRMANN *et al.* 2015, figs. 1-2.

3 WALKER, MATTHEWS 1990, 127.

4 ANTONELLI *et al.* 2009; ANTONELLI *et al.* 2010.

5 GORGONI *et al.* 2002; ATTANASIO 2003.

6 HERRMANN *et al.* 2012C, 1317-1318.

7 HERRMANN *et al.* 2015, figs. 1-2.

8 HERRMANN *et al.* 2015, figs. 3a-b.

9 HERRMANN *et al.* 2015A, 743. (Verified 30 Jan 2016).

10 HERRMANN *et al.* 2012D.

11 http://www.alamy.com/stock-photo-marble-sarcophagus-outside-museum-at-roman-timgad-algeria-north-africa-21450849.html (Verified 30 Jan 2016).

Fig. 4. Strigillated sarcophagus with portrait, probably Proconnesian marble, Thamugadi Museum. USF9444

Fig. 5.
Statue of Concordia, probably marble from Mt. Filfila, Thamugadi Museum. USF9441

Isotopically, a good quality strigilated sarcophagus, USF9444,[12] could be of either Filfila or Proconnesian marble (Fig. 4). Macroscopically it has a few long gray bands that are more typical of Proconnesian and several irregular cracks that seem more typical of Filfila. The design with columns at the corners and a central doorway enclosed in an aedicula is a standard type known from many examples produced in Italy, for example, Pisa,[13] Naples,[14] and Palermo. Another appears in Skikda, Algeria,[15] which seems to be Filfila marble. It seems likely that USF9444 was carved by a workshop from Rome, and the traces of gray bands favor a Proconnesian identification for the stone.

Results: statues in local Algerian marble

A good quality statue of Concordia with a cornucopiae, USF9441 (Fig. 5) is probably fine-grained Filfila marble. Its isotopic ratios fit the Turkish quarries of Afyon and Göktepe as well, but macroscopically, the statue's straight, grayish bands with fine cracks seem more characteristic of Filfila. Marble from Filfila was also used for some poor quality statues at Lambaesis: the fragments USF10884 and 10885 (Figs. 6-7) have isotopic ratios that fall in the fields for a number Asiatic sculptural marbles and Pentelicon, but the medium-to-coarse grain and pale, grayish tone exclude all but Filfila. These and most of the other statues of draped females are extremely shallow and have flat backs, as if they were to be placed against a wall. These proportions not only give them a family resemblance but also link them to a practice traceable across North Africa from Africa Proconsularis to Alexandria.[16]

12 BLAS DE ROBLÈS, SINTES 2003, 165-6. http://www.alamy.com/stock-photo-marble-sarcophagus-outside-museum-at-roman-timgad-algeria-north-africa-21344147.html (Verified 30 Jan 2016).

13 ARIAS *et al.* 1977, 161, pl. 108, C8 int. https://commons.wikimedia.org/wiki/File:Sarcofago_52,_strigilato_con_la_porta_dell'Aldil%C3%A0_%28inizio_del_III_secolo%29_01.JPG (Verified 30 Jan 2016).

14 http://4.bp.blogspot.com/-zlntVnlHYkI/UtQKiVA4E9I/AAAAAAAAAIY/tPX46bR7HgA/s1600/Foto+%25211.JPG (Verified 30 Jan 2016).

15 GSELL 1898, 34, pl. 4.3.

16 KANE 1992, 124-125.

Fig. 6. Fragmentary togatus, Filfila marble, Lambaesis Museum. USF10884

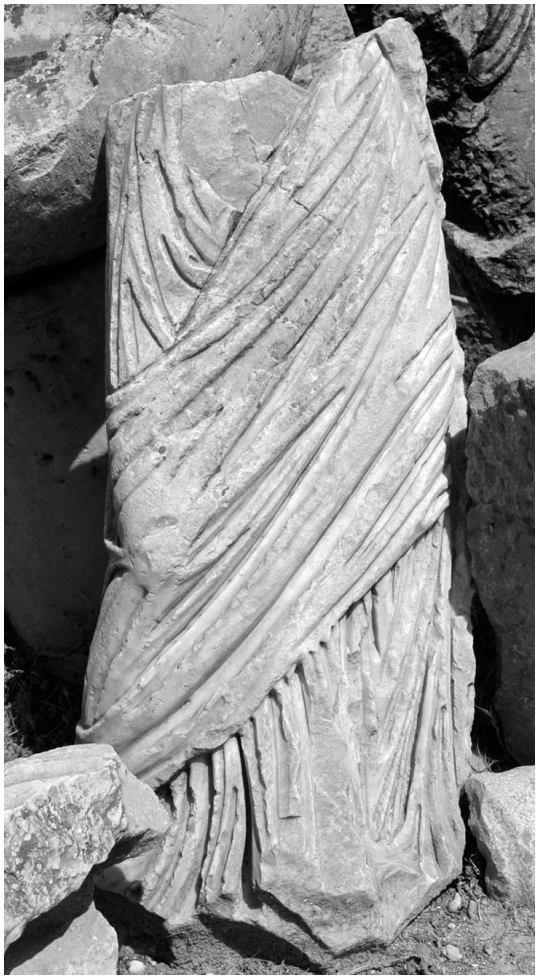

Fig. 7. Lower half of draped woman, Filfila Marble, Lambaesis Museum. USF10885

Results: Statues and portraits in marble from northern Mediterranean quarries

It is clear that dolomitic marble was imported from the Cape Vathy/Saliara area on Thasos for statues (that is, free-standing works including statuettes and busts). Previous analyses have shown that three imperial portrait heads of the Antonine period excavated at Markouna, near Lambaesis, and now in the Louvre are made of this marble.[17] One of the Louvre heads appears to be the work of a sculptor from Rome and the other two are by North African artists. In the new analyses, seven more figure sculptures have been unmistakably identified as Thasian dolomitic marble on the basis of both their mineralogy and their isotopic ratios (USF9440, 9442, 9445, 9446, 10864, 26388-9, 26390). One of them, a head of the young Lucius Verus (USF26388-9), adds to the group of Antonine portraits in Thasian marble (Fig. 8). The delicate treatment of eyes and mouth are worthy of a sculptor from Rome, but the large wreath with medallion is characteristic of North Africa. As in others from the Antonine group, the sculptor shows strong links to central Italy. A cuirassed torso of Thasian marble (USF9440, Fig. 20) came from a statue of Lucius Verus and is an Eastern type seen in the Parthian Monument at Ephesus.

A few of the Thasian marble statues are replicas of well-known ideal or divine types. An under-life-size head of Serapis, USF 10864 (Fig. 9), which was made for insertion in a bust or statue, is a type found all around the Roman world, including a similar piece in Thasian marble,[18] but this example was a special production since its eyes were originally inlaid in another material. This provision for contrasting materials and colors suggests that the head was also meant to be inserted in a colored stone bust. It seems likely that such a sophisticated and luxurious sculpture was either imported or else produced by a travelling sculptor from a major center. A head of Jupiter made of Thasian marble in Maktar, Tunisia also

17 CALLIGARO *et al.* 2013, Table I, Ma1163, 1175, 5101.

18 HERRMANN *et al.* 2009, 140, fig. 11-12.

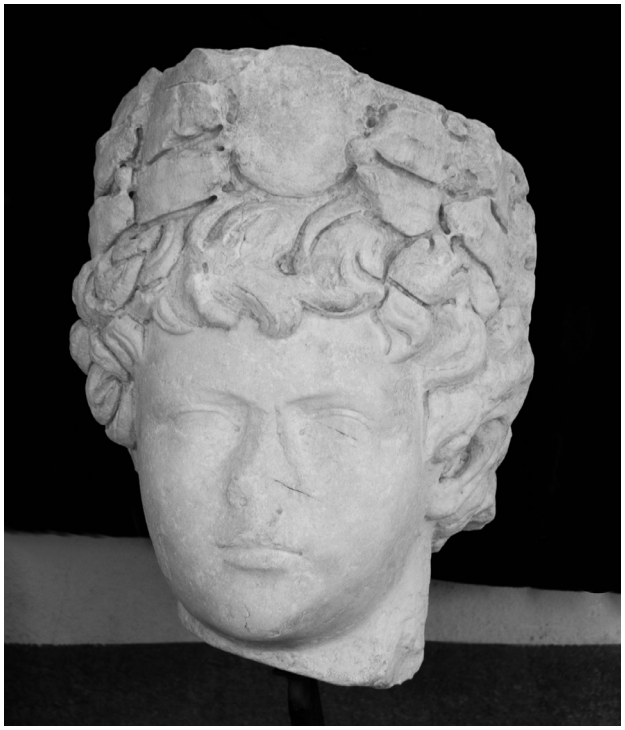

Fig. 8. Portrait of the young Lucius Verus, Thasian marble, Thamugadi Museum. USF26388-9

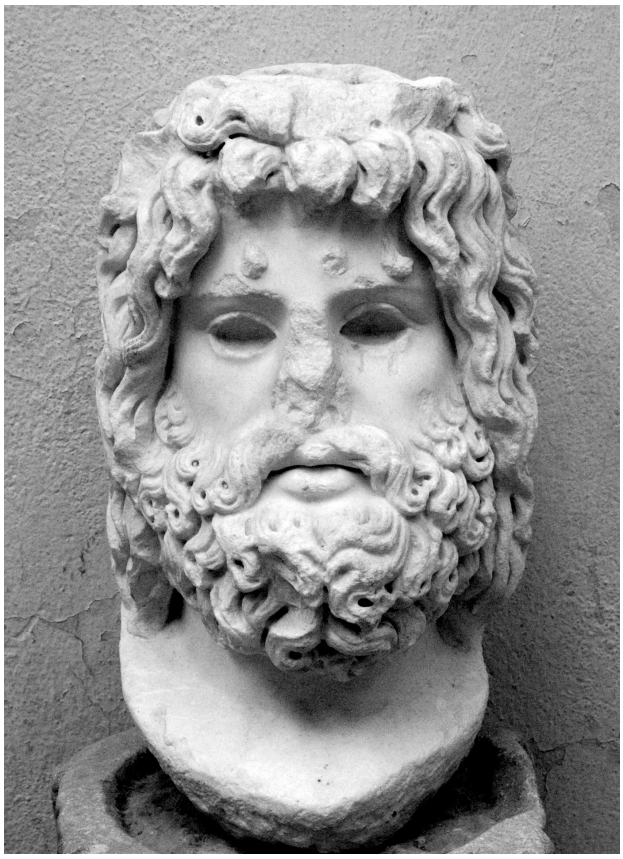

Fig. 9. Head of Serapis, Thasian marble, Thamugadi Museum. USF10864

Fig. 10. Statuette of Venus of the Capitoline type, Thasian marble, Lambaesis Museum 47. USF9446

Fig. 11. Head of a young divinity or personification, Thasian marble, Thamugadi Museum. USF23900

Fig. 12. Fragment of a statue of Perseus, Pentelic marble, Thamugadi Museum. USF10868

Fig. 13. Statue of Perseus, possibly Pentelic marble, Lambaesis Museum. USF9447

has provisions for inlaying, in this case only the irises.[19]

Most ideal or divine statues were probably produced locally and based on plaster casts, which were copied with greater and lesser degrees of fidelity. A Thasian marble statue of Isis (USF9445) is the same type as a less-detailed head in Cherchel. A rather crude Thasian marble statuette of Venus (USF9446) (Fig. 10) is a reduced version of the Capitoline type. Full-sized versions of the type in other marbles are in Cherchel[20] and Lambaesis itself.[21]

Several ideal statues or unusual types could be considered independent variations or inventions by local workshops. A head of a youth with long hair made for insertion, presumably, into a tunic-clad body, could be a personification of a season or the Genius of the Roman people (USF2390) (Fig. 11). A Thasian marble statue of the goddess Libera, USF9442, now missing her head, is a fine and unusual work, and, although in a different marble, the Concordia, USF9441 (Fig. 5), is a similar, finely chiseled, sensuous rendering of a goddess. In both works the goddess throws her mantle over her back and in front reveals her feminine contours through her tunic. A statue of a woman from Carthage (Bardo C1212) also seems related. This figure, which also appears to be of Thasian marble, suggests that these goddesses might have been produced by a regional workshop based in Africa Proconsularis. All three are thin slabs, and the figures seem flattened in side view.

19 HERRMANN *et al*. 2002, 361, fig. 7.

20 SINTES, REBAHI 2003, cat. no. 88; DORBANE 2003, cat. no. 102.

21 PACHTÈRE 1909.

Fig. 14. Statue of woman as Ceres, unknown travertine, Thamugadi Museum. USF10869

Like the portrait busts from Lambaesis in the Louvre, the statues and statuettes of Thasian dolomitic marble in Thamugadi and Lambaesis display no typologies or stylistic characteristics that link them directly to Thasos or northern Greece. If their sculptors originally came from Thasos, they must have been retrained in cosmopolitan workshops in major centers, such as Athens, Rome, or Carthage. Even in Cherchel, with its multitude of marble statues, it is thought that the sculpture was produced by traveling or, at any rate, moveable workshops.[22]

Pentelic marble was certainly used for at least one of the statues in Thamugadi. A leg from a statue, USF10868, can only come from Mt. Pentelicon, on the basis of its isotopic ratios and the macroscopic qualities of its marble

22 LANDWEHR *et al*. 2012/2013, 250-252.

Fig. 15. Small column shaft with swirling gray markings, Filfila marble, column deposit, Thamugadi. USF10880

(Fig. 12). The statue is identifiable as Perseus from the sea monster carving at the base of the support. A Perseus at Lambaesis (USF9447) of a slightly different type (Fig. 13) also seems to be made of Pentelic marble, although the isotopic evidence is more ambiguous.[23] Statues of this hero are rare, and there may have been a special interest in Perseus in Numidia because of his mythic trip across North Africa, where he turned Atlas into the mountain of the same name (Ovid, *Metamorphoses.* iv. 655; Servius, *ad Aeneidos.* iv. 246).

The good quality block of pure white marble used for the statue of Faustina II, USF10870, could be from Filfila or from various quarries on the northern shores of the Mediterranean, isotopically, but it is not possible to establish a clear preference among them.

A clumsy statue of a woman in Thamugadi, USF10869, was carved from a porous travertine that was probably meant to be plastered and painted (Fig. 14). The woman is characterized as a priestess of Ceres by her grain, pomegranates, and cluster of scrolls. A travertine column shaft at Guelma has somewhat similar pinkish bands and a similar isotopic signature,[24] and the two could come from the same unknown but presumably local Numidian quarry.

Results: White and gray architectural marble

Filfila marble was much more dominant in Thamugadi and Lambaesis than in cities further north[25] or at Tebessa to the east.[26] A column shaft is identifiable as

23 For another Perseus in this pose see a mosaic in Conimbriga, Portugal.

24 HERRMANN *et al.* 2015A: USF10833 (Jardin Archéologique).

25 HERRMANN *et al*. 2012B; HERRMANN *et al*. 2012C.

26 HERRMANN *et al.* 2012A, 307, table 2, USF9367. Several other Cap de Garde shafts could be identified macroscopically.

USF Lab #	$\delta^{13}C$	$\delta^{18}O$	MGS	Dolomite (Mg)?	Quarry assignment	Museum/Collection/Co	Title	Marble notes
9440	3.0	-4.0		dolomite	T3, Afy, Aphr, Pa	Thamugadi Museum courtyard	Cuirassed torso of Lucius Verus from the Curia[27]	
9441	2.9	-3.7			Afy, Aphr, F, G	Thamugadi Museum courtyard	Concordia with cornucopiae[28]	Fine grain, horizontal flaws and shadows
9442	3.9	-4.3		dolomite	T3, Afy, Eph-1	Thamugadi Museum courtyard	Goddess with low-belted tunic: Libera[29]	Pure white, coarse grain
9443	1.0	-11.4			F, N	Thamugadi Museum courtyard	Garland sarcophagus	
9444	2.5	-2.7			F, Pro1, Pa2	Thamugadi Museum courtyard	Strigillated sarcophagus	
9445	3.2	-4.4		dolomite	T3, F, Afy, N	Lambaesis Museum	Statue of Isis[30]	Coarse grain, pure white
9446	3.0	-4.0		dolomite	T3, Afy, Aphr, Pa	Lambaesis Museum 47	Statuette of Venus	Coarse grain, pure white
9447	2.4	-4.4			F, Afy, Aphr, Pe, N	Lambaesis Museum S14	Statue of Perseus	highly polished, fine grain, translucent, micaceous zone.
10864	3.0	-4.0	1.1	dolomite?	T3, Afy, F	Thamugadi Museum	Head of Serapis[31]	Pure white, glittering, coarse grain
10867	2.5	-7.0	.3		F, Pe, Afy	Thamugadi Museum	Semicircular basin, Bacchic reliefs, from House of Sertius[32]	Dull white, long gray streaks
10868	4.1	-6.6	1.0		Pe	Thamugadi Museum	Leg with ketos (Perseus)	Sparkling, rather translucent, soft gray vein. Hint of mica
10869	2.2	-1.9	2.0		Unknown travertine	Thamugadi Museum courtyard	Priestess of Ceres	White layered with red strata
10870	2.4	-2.2			F, Afy, Aphr, Ca, Pa	Thamugadi Museum courtyard	Faustina II lifting mantle (head missing)[33]	Pure white, medium grain
10884	2.9	-4.1	2.0		F, Afy, Aphr, Pe, Pro2	Lambaesis Museum garden JH6	Fragment (left side) of togatus	Slightly grayish, some foliation
10885	2.6	-4.1	3.0		F, Afy, Aphr, Pe, Pro2	Lambaesis Museum garden JH5	Lower half of draped women	Some large quartz-like crystals, grayish
26388				dolomite	T3	211 2005	Head of young Lucius Verus[34]	Unspotted yellowish white, cavity in wreath
26389				dolomite	T3	211 2005	Retest of preceding	As preceding
26390				dolomite	T3	211 2009	Head of long-haired youth	

Afy = Afyon, Aphr = Aphrodisias, Eph = Ephesus, F = Mt. Filfila, G = Göktepe, N = Naxos, Pa = Paros, Pe = Mt. Pentelikon, Pro = Proconnesus, T3 = Thasos, Cape Vathy

Table 1. Figural sculpture at Thamugadi and Lambaesis. Most probable quarry assignment in red

27 BALLU, CAGNAT 1903, pl. 3,3; VERMEULE 1959/60, cat. nos. 211=276. The Parthian monument with its similar cuirasses is also Thasian marble. The Timgad torso could be by the same workshop. For the identification of the Thasian marble of the Parthian monument, see HERRMANN, NEWMAN 1995, 78, fig. 9.

28 BALLU 1903, 77, 78, fig. 15; BOESWILLWALD *et al.* 1905, 319, fig. 150.

29 BALLU, CAGNAT 1903, pl. 2,4.

30 LAPORTE 2004, 294, fig. 19.

31 LE GLAY 1991, 77, pl. 5; BARATTE 2003, 164, cat. no. 74; DORBANE 2003, cat. no. 124; LAPORTE 2004, 309-312, figs. 26-27.

32 BALLU 1903, 84, 86, fig. 17; BOESWILLWALD *et al.* 1905, 331, fig. 161: Bacchus on a panther, flanked by boats, one with Silenus.

33 BALLU, CAGNAT 1903, pl. 2,3.

34 BALLU, CAGNAT 1903, pl. 4,3; BARATTE 2003, 85, cat. no. 32.

USF Lab #	$\delta^{13}C$	$\delta^{18}O$	MGS	Quarry assignment	Site	City	Title	Marble notes
8714	2.9	-4.3		F, N T3, Afy	Library courtyard	Thamugadi	chip	
10863	2.9	-3.1	.5	CdG, F	By excavation office	Thamugadi	Corinthian capital with Asiastic acanthus,	White with some gray shadows
10866	2.1	-1.6	1.0	FF, C, Afy, Hy	Museum	Thamugadi	White column (under big Serapis)	Gray shadows, white veins
10871a	2.4	-8.8	.1	F because of markings	Apsed hall outside N Gate	Thamugadi	N. column shaft	Reseda vert of Filfila
10871b	2.7	-8.9	.1	F, Pe, Pro2, N	Apsed hall outside N Gate	Thamugadi	N. column shaft	Reseda vert of Filfila
10872	2.0	-2.0	Undetermined	C, FF, Pro1, Pa2	Apsed hall outside N Gate	Thamugadi	Large chip fin front of columns	
10873	2.3	-3.1	.5	F, G, Afy, Hy	Library	Thamugadi	Spiral fluted column at N	White with a few gray lines
10874	2.6	-5.0	3.0	F, Eph 1	Open area west of Forum	Thamugadi	Small slab	Zigzagging black line
10875	2.7	-3.4	1.0	F, G, Afy	Zigzagging line	Thamugadi	White chip, thickness 1.1 cm.	
10878	0.0	-18.7	.6	Guendou or unknown	Column deposit by N Baths	Thamugadi	Small gray shaft with big white shell patterns	Similar to Bigio antico
10879	0.7	-4.0	2.0	F, Aphr	Column deposit by N Baths	Thamugadi	Small white shaft	
10880	2.2	-3.2	1.5	F, Pro1, Aphr, N, Pa2	Column deposit by N Baths	Thamugadi	Small shaft with swirling gray patterns	
10881	3.9	-8.9	2.0	Boudjoudoune?	Column deposit by N Baths	Thamugadi	Small column; black with thin white calcite veins	Similar to Bigio antico
10882	-0.4 –0.1	-18.7 -19.7	1.5	Mahouna or CdG	Byzantine Fort	Thamugadi	Marble pavement, dark gray lines	
10883	3.2, 3.3	-10.5, -10.5	5	Mahouna or CdG	Byzantine Fort	Thamugadi	Gray and white Onyx marble pavement	
10886	1.1	-4.1	2.0	F, Aphr	Thermes Legionnaires, apodyterium	Lambaesis	Fluted pseudo-Pavonazzetto column	White with area of large quartz-like crystals and black veins
10887	2.8	-4.6	.5	F, Afy, Pe	Thermes Legionnaires, apodyterium	Lambaesis	Slab with parallel channels	Grayish white with a wiggly gray vein
10888	-8.4	-8.1	12.0	unknown	Fields approaching Capitolium	Lambaesis	Chip	
10889	2.9	-7.3	.6	F, Pe	Fields approaching Capitolium	Lambaesis	Chip	
10890	-0.4	-7.3	7.0	CdG, F	Fields approaching Capitolium	Lambaesis	Chip	
10892	2.8	-4.1	.8	F, Afy, Pe	Capitolium, storeroom in podium	Lambaesis	Plaque 1.3 cm thick, angle of about 85 degrees	Pure white, not particularly translucent
10893			1.6	not marble	Capitolium, storeroom in podium	Lambaesis	Plaque 1.4 cm. thick	Pure white, highly translucent: alabaster
10894	1.8	-5.5	5.0	F, Dj. Azeiza,	Field NW of temple	Lambaesis	Dark gray block	Surface layer of large white quartz-like crystals

Afy = Afyon, Aphr = Aphrodisias, Boudjoudoune = Boudjoudoune, Tebessa, C = Carrara, CdG = Cap de Garde, Dj. Azeiza = Mt. Azeiza, Tunisia, F = Mt. Filfila, G = Göktepe, Guendou = Guendou, Constantine; Hy = Mt. Hymettus, Mahouna = Mt. Mahouna, N = Naxos, Pa = Paros, Pe = Pentelikon, Pro = Proconnesus

Table 2. White and gray architectural marbles at Thamugadi and Lambaesis. Most probable quarry assignment in red

USF Lab #	$\delta^{13}C$	$\delta^{18}O$	MGS	Quarry Assignment	Site	City	Description
10865	3.0	-4.0	.5	Keddel, Tunisia?	Museum	Thamugadi	Pink travertine column with white spots
10876	4.2	-7.9	.5	Aïn Tekbalet?	On path from E up hill to Donatist church	Thamugadi	Chunk of rose marble
10877	-0.1	-14.9	1.0	unknown limestone	Chapel to E of Donatist church	Thamugadi	Semicolumn at E end of S aisle, Red and green breccia
10891	-2.1	-9.8	1.5	Rosso brecciato (Iassense), SW Turkey	Capitolium, storeroom in podium[35]	Lambaesis	Plaque 1.35 cm. thick; red marble speckled with white and black
10895	-0.9	-9.5	1.3	Rosso brecciato (Iassense), SW Turkey	Near temple of Aesculapius[36]	Lambaesis	Thin red marble plaque speckled with white and black

Table 3. Colored marbles at Thamugadi and Lambaesis

Fig. 16. Small column shaft of fossiliferus limestone, possibly from Guendou, column deposit, Thamugadi. USF10878

Fig. 17. Small column shaft of fossiliferus limestone, possibly from Boudjoudoune, column deposit, Thamugadi. USF10881

Filfila by its swirling cloudy markings as well as its isotopic signature, USF10880 (Fig. 15). Other important stones of NE Algeria, such as onyx marble from Mahouna and spotted and streaked marble from Cap de Garde, seem to appear rarely at Thamugadi and Lambaesis. They may have been used combined with cipollino in a pavement in the Byzantine fortress at Thamugadi (USF10882-3), but the column shafts and capitals of these marbles frequently seen in sites to the north and east are missing. Surprisingly, Carrara marble is present (USF10866, 10872); the stone is otherwise known only in the provincial capital of Caesarea (Cherchel).[37] Two columns of fossiliferous gray limestones with gray or white inclusions appear to come from otherwise unknown local quarries (USF10878, 10881) (Figs. 16-17); they could be considered substitutes for *Bigio antico*, a type of marble quarried along the coast of Asia Minor and much used in Italy. [29]

A fine Corinthian capital, USF10863 (Fig. 18), is not only of Filfila marble but was carved by a sculptor based either in the Filfila quarries or in the nearby city of Rusicade (modern Skikda). A similar capital is preserved in the Rusicade theatre (Fig. 19); the Rusicade capital seems to be Filfila marble, like most of the architectural

35 HERRMANN *et al.* 2012D, 1337-8, table 2.

36 HERRMANN *et al.* 2012D, 1337-8, table 2.

37 HERRMANN *et al.* 2012C, 1321-2.

Fig. 18. Corinthian capital, ca. 300, Filfila marble. Thamugadi Museum. USF10863

Fig. 19. Corinthian capital, third century, probably Filfila marble. Rusicade (Skikda), Theatre

decoration accumulated in the theatre.[38] The sculptor probably carved USF10863 at Thamugadi since one of its volutes is left unfinished.[39]

Results: Colored marble[40]

Some colored marbles can be identified macroscopically. Colonnettes of *Alabastro a pecorella* (from Bouhanifia, western Algeria) were mounted in the triumphal gate at Thamugadi,[41] and plaques (*crustae*) of *Rosso brecciato* (from Iasos, SW Turkey) were used in temples at Lambaesis (USF10891, 10895). *Cipollino* plaques appear in a pavement in the Byzantine fortress at Thamugadi. The modern pavement of the Thamugadi museum incorporates *crustae* of *Giallo antico* from Chemtou, Tunisia, and of various Aegean marbles, including *Cipollino, Pavonazzetto, Africano,* and *Breccia corallina*. The pavement also includes local colored marbles, such as *Alabastro a pecorella* and perhaps the purple-and-pinkish-gray breccia from Cape Chenoua near Cherchel.

Laboratory analyses have indicated some novel sources for colored stones. Travertine may have come from Mt. Keddel on the Tunisian coast (USF10865) (Fig. 21). A piece of rose-colored marble from Thamugadi seems to come from Aïn Tekbalet, western Algeria (USF10876). An attractive red and green breccia

Fig. 20. Cuirassed torso of Lucius Verus from the Curia, Thamugadi, Thasian marble. USF9440

38 HERRMANN *et al.* 2012C, 1323, 1328, table 3, fig. 5.

39 Other examples of the capital type at Thamugadi: another example by the excavation office, reused in the Donatist basilica, and reused in the chapel attached to the Donatist basilica.

40 HERRMANN *et al.*, 2012D.

41 HERRMANN *et al.*, 2012D, 465, fig. 4.

Fig. 21. Column shaft, travertine, Keddel?, 2nd-3rd century. Thamugadi Museum. USF10865

limestone, which recalls breccia corallina, comes from an unknown local source (USF10877).

Conclusions

Combining laboratory analysis and macroscopic evidence, it is possible to establish several distinct features of marble use in the inland cities of Thamugadi and Lambaesis. Both distant and local sources were used there. In the realm of figural sculpture, there was a strong presence of white marble from Greece: especially from Thasos but also Mt. Pentelicon. White marble from the quarries at Filfila played a significant role in figural sculpture, and it was usually the choice for figural reliefs. Sophisticated workshops of North Africa (Numidia or Proconsularis) produced careful replicas from imported plaster casts and made variations on famous or standard types. Prestigious works, including imperial portraits, images of gods, and sarcophagi were produced by local North African workshops and by sculptors from Rome. The cuirassed torso of Lucius Verus in the Curia could be by a sculptor from Asia Minor accustomed to working in Thasian marble. Local sculptors also carved clumsy versions of standard statue types out of rough local travertine, which was probably meant to be plastered and painted.

Filfila dominates strongly in the realm of architecture, but Carrara marble was apparently used on occasion. A travelling workshop from Filfila or the nearby city of Rusicade produced fine Corinthian capitals during the late Imperial period at Thamugadi. Spotted marble from Cap de Garde and banded travertine from Mahouna, were apparently used on rare occasions for pavements in the southern cities. The Mediterranean-wide trade in colored marbles seems to have also reached these cities, but color also came from local sources, which have not yet been identified with certainty. Colorful travertine may also have come from Keddel on the Tunisian coast.

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