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THE USE OF MARBLE IN HISPANIC VISIGOTHIC ARCHITECTURAL DECORATION*

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*

Abstract

Marble was widely used in Visigothic architecture, although at that time many of the quarries formerly active in Early Imperial Roman period had already been abandoned. However, some evidence suggests that many of the marbles were purchased in storages and markets dedicated to selling architectural spolia: many of the Visigoth capitals using Luni marble, one of the most widely used in Early Imperial architecture, the production of which had fallen dramatically after the 3rd century AD, were located in areas close to major cities of the Roman period, where large abandoned buildings had marble decorations, and its presence had been increased since the 5th and 6th century AD, coinciding with the maximum spread of the practice of using spolia in Hispania.

Keywords

Architectonical decoration, marble, Visigothic

Introduction

Marble was a highly valued material along the entire antiquity, but because of its high cost (table 1)¹, they were only affordable for higher social classes. In fact, its use in Roman times was a symbol of wealth (Pensabene 2002, 5-15), and it remained so throughout the late Roman period, becoming almost an object of worship, and its acquisition could eventually become an obsession for some euergets: «Parietes vestitis, nudatis homines. Clamat ante domum tuam nudus, et neglegis: clamat homo nudus, et tu sollicitus es quibus marmoribus pavimenta tua vestias» (Ambr., Nab., 13, 56)². In fact, the Visigothic aristocracy, strongly attracted to anything of classical or Roman reminiscence, «Romanus miser imitatur Gothum, et utilis Gothum imitatur Romanum» (*Anonymous Valesianus*, 12, 61) (Arce 2011, 42), longed the use

of this material with almost the same intensity as the Roman aristocracy.

However, the decline in production in the marble quarries and the founding of Constantinople, which consumed a significant part of the new offering, made it increasingly difficult to acquire these stones. This, coupled with the progressive abandonment of many public buildings of the classical period, favored and encouraged the practice of dismantling and reuse of the marble of its ornaments, now reutilized in new late Roman and Visigoth buildings. Thus, the systematic plundering of old buildings balanced in part the decline of the marketing of marble and permitted the acquisition at a cost surely below market. This practice, as discussed below, was widespread in the late Roman and early medieval architecture of Spain and is one of the reasons that may explain the significant presence of marble in buildings of this period (Gurt, Diarte 2011, 7-22; DOMINGO 2012, 275-306).

Literary sources

Some literary sources show the importance of marble in architectural programs of the Visigothic period, of which little remains, if anything, in some cases. These texts describe buildings completely covered with marble, sometimes specifying the origin of each of the marble types used, as if to note the presence of particularly expensive varieties. In a letter written in 377 AD, describing the reforms in one of his villas, Q. Aurelio Simmaco says: «Audi igitur quantum in aedibus nostris cura promoverit. Scalis subpectus est honor marmoris; superiora conclavia crustis teguntur ea operis levitate, ut conpago solidum mentiatur. Columnas nihil amplius mercatus es, quam si tibi muneri contigissent. Eas Bithyno lapide caesas, si bene oculis utor, existimo» (Symm., *Epist.*, 1, 12)³.

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1. We know the price of marble primarily through *Edictum Diocletiani et Collegarum de pretiis rerum venalium*, written at the beginning of the 4th century A.D. The values contained therein are probably referring to cubic feet (ft³), (Barresi 2003, 166-168). In contrast, Corcoran, DeLaine 1994, 263-273.

2. «You dress the walls, you undress men. A poor naked man cries out in front of your house, and you don't pay him any attention: a naked man is crying, and you just care of what marble you use on your flooring», (Sfameni 2006, 174).

3. «The treads of the stairs are covered with marble, the rooms upstairs are covered by a coating of such lightness that it resembles a solid lattice. You appreciate your purchased columns as if they were endowed. If my eyes don't deceive me, I think they are made with a stone from Bithynia», (Sfameni 2006, 146-148).

Tab. 1. Price construction materials.

Type	Ancient name	Modern name	Provenance	Cost 1 st century AD (HS/p ³)	Cost 2 nd century AD (denarius/m ³)	Antonin time (denarius/p ³)	Cost 3 rd century AD (denarius/p ³)	Cost 4 th century AD (denarius/p ³)	Bibliography
Porfrite	Porfido rosso antico	Egypt (Mons Porphyrites)		96				250	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Lacedonio	Porfido verde antico	Greece (Stefanìà)		96				250	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Numidico	Giallo Antico	Tunisia (Simitthus)		77				200	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Docimeno	Pavonazzetto	Turkey (Docimium, Iscehisar, Afyon)		77				200	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Unknown	Breccia di settebasi	Greece (Skyros island)						200-150	Lazzarini 2010, 488
Tenario	Rosso Antico	Greece (peninsula of Mani)						200-150	Lazzarini 2010, 488
Iassense	Cipollino rosso	Turkey (Milas)						200-150	Lazzarini 2010, 488
Hekatomalithon	Centopietre	Egypt (Wadi Mammamat, Qena)						200-150	Lazzarini 2010, 488
Marble	Pario lychnites	Pario licnite	Greece (Stefani, island of Paros)					200-150	Lazzarini 2010, 488 <i>Edictum de pretiis</i>
Luculleo	Africano	Turkey (Siğacık)		58				150	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Tessalico	Verde Antico	Greece (Chasabali, Larisa)		58				150	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Calcídico	Fior di pesco	Greece (Eretria, Eubea)						150-100	Lazzarini 2010, 488
Chio	Portasanta	Greece (Latomi, island of Chio)						150-100	Lazzarini 2010, 488
Caristio	Cipollino verde	Greece (Karystos, Styra, Eubea)		38,5				100	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Pirropecilo	Sienite	Egypt (Siene, Assuan)		38,5				100	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Claudiano	Granito del foro	Egypt (Mons Claudianus, Gebel Fatra)		38,5				100	Barresi 2003, 168-169; <i>Edictum de pretiis</i>

(continua)

Tab. 1. (*segue*).

Type	Ancient name	Modern name	Provenance	Cost 1 st century AD (HS/p ³)	Cost 2 nd century AD (denarius/m ³)	Antonin time (denarius/p ³)	Cost 3 rd century AD (denarius/p ³)	Cost 4 th century AD (denarius/p ³)	Bibliography
Sagario	Breccia corallina	Turkey (Bilecik)						100-75	Lazzarini 2010, 488
Troadense	Granito violetto	Turkey (Ezine)		29				100-75	Barresi 2003, 168-169; Lazzarini 2010, 488
Unknown	Granito misio	Turkey (Bergama)						100-75	Lazzarini 2010, 488
Alabastresio	Alabastro cotonigno	Egypt (Zawiet Sultan, etc.)		29				75	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Eracleotico	Unknown	Turkey (Eraclea of Latmos)		29				75	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Triponitico	Occhio di pavone	Turkey (Kutluca, Izmit)		29				75	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Pentelic	Pentelic	Greece (Pentelico mount, Athens)		29				75-50	Barresi 2003, 168-169; Lazzarini 2010, 488
Pario	Pario	Greece (Lakkoi, island of Paros)						75-50	Lazzarini 2010, 488
Marble	Euridemiano	Unknown	Unknown					60	<i>Edictum de pretiis</i>
Lunense	Carrara	Italy (Alpi Apuane, Carrara)		4-5				60-40	Lazzarini 2010, 488; Pensabene 1978-79, 17-38
Lesbio	Bigio antico	Greece (Moria, island of Lesbos)		19				50	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Tasio	Tasio	Greece (Aliki, island of Taso)		19				50	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Unknown	Greco scritto	Algeria (Cap of Gade, etc.)						50-40	Lazzarini 2010, 488
Anacasteno	Unknown	Unknown	Unknown	15,5				40	Barresi 2003, 168-169; <i>Edictum de pretiis</i>
Sciriano	Scirio	Greece (Kolones, island of Skyros)		15,5				40	Barresi 2003, 168-169; <i>Edictum de pretiis</i> ; Pensabene 2003, 361
Procnesio	Marble greco fetido	Turkey (island of Marmara)		15,5	0,8			40	Pensabene 2003, 361
	Limestone of Leptis Magna	Leptis Magna				0,2			Soler (in press), 204
Local stone	Red travertine of Mula	Carthagena		1,5 - 2					Mar, Pensabene 2010, 515
	El Mèdol	Tarragona		1					
	Limestone of Zerhoun	Volubilis						1,5	
	Limestone of Dougga	Dougga						1,5	

However, there aren't many literary references about the decoration of buildings in Hispania. One of the most prominent describes the *tumulus* erected in the 4th century A.D. above the tomb of the patron saint of Mérida, Saint Eulalia. The author of this description, Prudencius, remarks the presence of marble columns of various types, probably reused, the golden roof and pavement decorated with floral motifs (Prud., *Hym.* III, 191-200)⁴: «Hic, ubi marmore perspicuo / atria luminat alma nitor / et peregrinus et indigena / reliquias cineresque sacros / seruat humus ueneranda sinu. / Tecta corusca super rutilant / de laquearibus aureolis, / saxe aque caesa solum uariant, / floribus ut rosulenta putes / prata rubescere multimodis»⁵.

Another description appears in the *Vitas Sanctorum Patrum Emeritensium*, mentioned in the restoration of the Episcopal palace of the Bishop Fidel of Mérida, fortuitously collapsed in the 6th century A.D. (VSPE, IV, 6, 24-32): «Post non multum uero temporis interuallo sedis dirute fabricam restaurauit ac pulcrius Deo opitulante patrauit. Ita nimirum ipsius edificii spatia longe lateque altis culminibus erigens pretiosaque atria columnarum ornatibus suspendens ac pauimentum omne uel parietes cunctos nitidis marmoribus uestiens miranda desuper tecta contexuit»⁶.

Finally, towards the end of the 7th century A.D., the *Passio Mantii* was drafted, which describes the two basilicas built in the place of martyrdom of Mancius, killed for refusing to convert to the Jewish faith professed by the owners and buried at the same plot, located between the towns of Beja and Évora. Shortly after the property passed into the hands of an elderly Christian, Julia, who built two basilicas and a baptistery there persuaded by Julianus. One basilica was made for the faithful and the other one for the catechumens. The author of the *Passio* describes in detail the decoration of both buildings, including a special mention of the columns of superb craftsmanship, the marble cladding that covered the walls, mosaics covering the floors, and gold and sil-

ver from the ceilings (*Passio Mantii*, 910): «Construitur baselica fidelium, iunguntur beati fontis edifica, per hoctagonum columnarum admirabili opere disponuntur; caticuminum quoque basilicam subter adiungitur. Sancti martiris corpus sub beato altario consecratur. Non illic terrenum formatur aliquid, sed infinite edis longe lateque spatha celsis culminibus educuntur. Pretiosa atria columnarum suspenduntur hornatibus; parietes cuncti marmoribus uestiuntur; solum musiuo ridenti decoratur; mirandis cratibus tecta texuntur; et ne inonorum in tam pretiosi altaris fabricam quisque credret ligna, camara ipsa metallis auri et argenti in sublime decorator»⁷. More belatedly, the *Chronica* by A. Morales regards jasper and marble tiles that decorated the interior of the basilica dedicated on January 3, 661 A.D.⁸ in San Juan de Baños (Palencia), disappeared nowadays⁹.

Use of marble in the late Roman and Visigoth Hispanic capitals

The analysis of the production of capitals allows us to clearly assess the presence of marble in peninsular architecture, since for its manufacture, marble blocks of considerable dimensions were often required, unlike what happens with the cladding plates.

The large number of late Roman and Visigoth capitals made from this material, despite the decline in production and marketing at the moment, is in fact surprising: marble is present in about half of the 743 documented capitals between the 4th and 7th centuries A.D. (table 2); in 51 % of the capitals from the 3rd and 4th centuries A.D. (table 3); in 70 % of the capitals from the 5th and 6th centuries A.D. (table 4), in 41% of the capitals from the 6th and 7th centuries A.D. (table 5).

By analyzing geographic dispersion, we can draw some initial conclusions:

- The use of marble in the capitals of the Visigothic period was greater in those areas near the ancient Ro-

4. Some authors prefer to be cautious with this description by Prudencius, since he's considered to be quite a rhetorical author, (Arce 1982, 220). About the controversy on the interpretation of this hymn: Mateos Cruz 1999, 19-21; Navarro del Castillo 1971, 399-459.

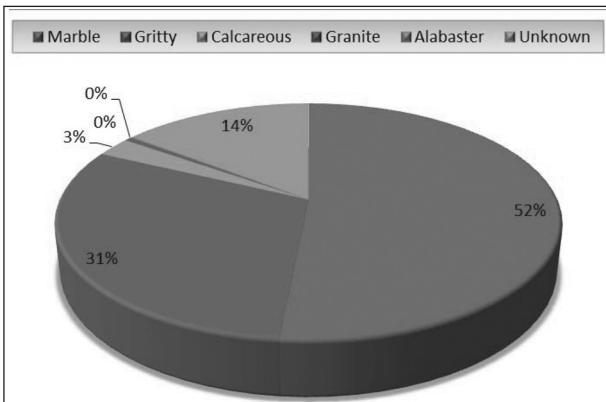
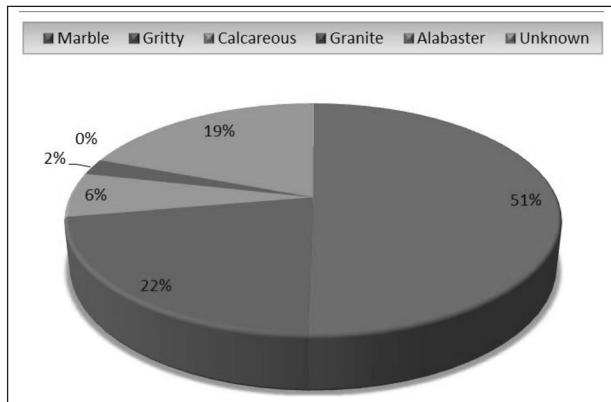
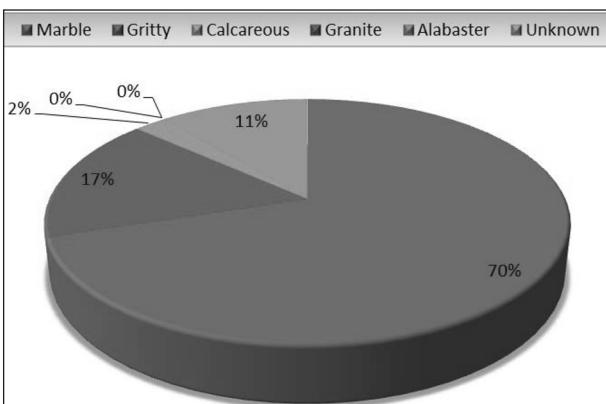
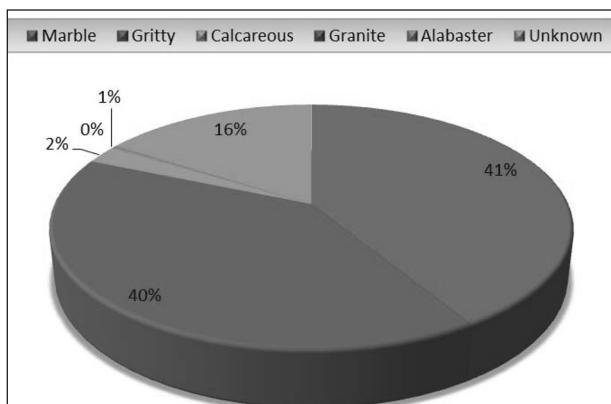
5. «Here, where brightness of shiny marbles brought from outside and within the country, fill with splendor the holy temple, the venerable floor treasures relics and sacred ashes. The gleaming roofs also shine red hot from the gilded coffered ceilings, mosaics fill the pavement with colour, so you could take them as fields of roses among a number of other flowers», Prudencius, in BAC 427.

6. «After a not so long interval, he rebuilt the masonry of the ruined palace, and with God's help, he still made it more beautiful. So he highly raised the vast expanse of the building, surrounded by sumptuous atriums of ornamental columns, by coating the entire floor and walls of well-carved marble, and he covered it with magnificent coffering», (González 2009, 26).

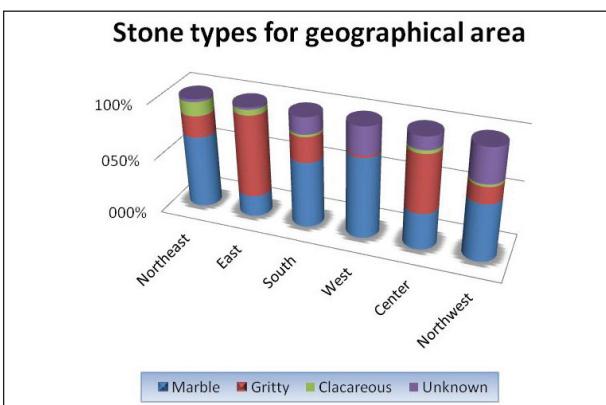
7. «The basilica of the faithful is built, attached rises the octagonal baptistery on columns of superb craftsmanship. On the back side, a basilica for catechumens is also added. The body of the holy martyr is solemnly buried under the altar. Nothing there is built with earth, but the spaces throughout the vast temple are covered with high ceilings. The beautiful atriums are supported on ornamental columns. All the walls are lined with marble. The floor is decorated with colourful mosaics, roofs are built with impressive coffered ceilings, and to make sure noone took wood as an inappropriate material in the construction of such a precious altar, even the vaulted ceiling is covered of gold and silver to the top. In no way we can describe what offerings of sacred vessels, gemstone jewellery, how many chalices and patens for altar service were here accumulated, since there's no way to count the favours and gifts received», (González 2009, 25-26). R. González assumes this description does not correspond with reality, but with a will of exaltation, (González Salinero 1998, 437-450).

8. About the problems around the chronology of this church, see: Caballero, Feijoo 1998, 223; Arbeiter 2000, 254-255; Barroso, Morín 2000, 303-304; Caballero 2000, 238-240.

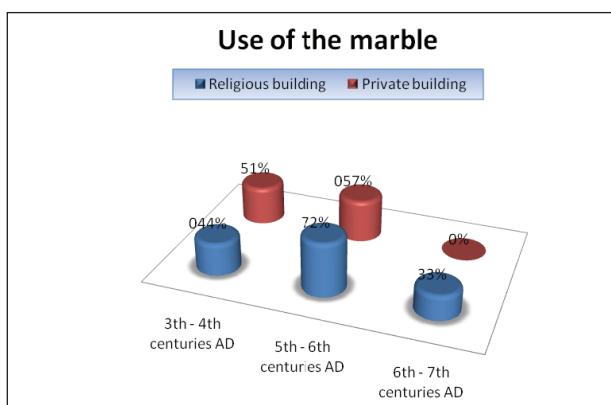
9. Morales 1577. See also: Olaguer-Feliú 1998, 84.

Tab. 2. Stone type: 3th – 7th centuries AD.Tab. 3. Stone type: 3th – 4th centuries AD.Tab. 4. Stone type: 5th – 6th centuries AD.Tab. 5. Stone type: 6th – 7th centuries AD.

Tab. 6. Use of the marble.



Tab. 7. Stone types for geographical area.



man provincial capitals (table 6): Tarraco, located in the northeast of the peninsula, where the capitals in marble represent 65% of the total preserved; Córdoba, in the south, where marble units reach 60% of the total, and Mérida, in the west, where marble units represent 73% of the total.

- During the 3rd and 4th centuries A.D., the presence of marble is documented in approximately 50% of the capitals, with no significant differences in use among building types either private/residential or

religious (table 7). This equivalence is interrupted since the 5th century AD, when 72% of the capitals from religious buildings were made of marble, while in private/residential buildings these were only 57%. By the end of the 6th and 7th centuries A.D. almost all the capitals in marble belonged to religious buildings.

In fact, since the 5th and 6th centuries A.D., many villas experienced a process of impoverishment and abandonment, becoming places mainly for production

and storage activities. It is also possible that the owners of these villas had changed their lifestyle, by showing less appreciation for the presence of fine materials in their homes (Lewit 2003, 260-274), but yet retaining a certain admiration for these stones. In fact, certain parts of some villas were transformed into churches (Chavarria 2004; Chavarria 2005; Ripoll, Arce 2001), some of them funded by members of the lay aristocracy¹⁰ who spared no expense in their decorations, full of marble.

The origin of marbles:

Regarding the origin of the marble used in Hispania, there are some evidences of the predominant use of *spolia*. Even so, the 4th century A.D. was still a remarkable moment for the production and marketing of these stones, as shown by the long list of varieties mentioned in the *Edictum Diocletiani et Collegarum de pretiis rerum venalium*¹¹, or the enactment of certain laws: those adopted by Constantine in order to facilitate the opening of new quarries in North Africa (Albana 2010, 381-391), or the law enacted by Julianus in 363, aimed to stimulate the opening of new quarries, thereby to emphasize the significant increase in the cost of marble experienced along the 4th century A.D.: «*Imp. Julianus A. ad Rufinum com. Orientis. Quoniam marmorum cupiditate in immensum quoddam saxorum pretia acuta sunt, ut sumptuosa voluptas copia relaxetur, permittimus omnibus, ut qui volunt caedere habeant licentiam attributam: fore enim arbitramur, ut etiam complures saxorum nitentium venae in lumen usumque perveniant*», (*Cod. Theod.*, X, 19, 2). This initiative must have been fairly successful, since a few years later, in 393, the emperors had to close private quarries, thus stimulating production in their own imperial quarries: «*Imp. Valentianus, Theodos. et Arcad. A.A.A. Rufino Pf. P. Privatorum manus ab exercendo quolibet marmoreo metallo prohiberi praecipimus, ut fiscalibus instantia locis liberior relaxetur*», (*Cod. Theod.*, X, 19, 13) (Pensabene 1974-75, 188).

Some Hispanic buildings from that period show a significant access to large number and variety of marbles, such as the villa of the late 4th century A.D. in Caranque (Toledo): some *lesena* capitals made of *pavonazzetto* marble, some columns of peninsular marble from Estremoz, and a large amount of cladding plates made of



Fig. 1. Ostia Antica (Italy), partially worked Pavonazzetto shafts. (Photo: author).

porfido rosso, verde egiziano, granito verde della sedia di San Lorenzo, granito bianco e nero, breccia verde pavonazza minuta, granito rosso de Asuán, serpentino, verde antico, cipollino, portasanta, pavonazzetto, breccia corallina, marmor africano y giallo antico, as well as some peninsular typologies such as Estremoz, Almadén and Espejón¹². This variety is similar to those found in the villa from the 4th century A.D. in Piazza Armerina (Sicily), origin of some elements made of *cipollino, breccia di Sciro, granito misio, bigio antico, sienite, cipollino grigio, rosso antico, verde antico, serpentino, pavonazzetto, africano de Teos, giallo antico, nero antico, portasanta, lunense, tasio, proconnesio*, etc. (Pensabene, Di Vita 2008).

Anyway, many of the marbles extracted from the quarries were used for the manufacture of decorative architectural elements, often transported and marketed as semi-finished parts (fig. 1) or even as finished pieces. This follows from the shipment of some shipwrecks¹³, or the presence in Western cities of decoration motifs crafted in Eastern workshops: just think of the Corinthian capitals with stylized acanthus in the Basilica of S. Paolo f.l.m.¹⁴, the *tasio* marble shafts from S. Maria Maggiore, the facade shafts of S. Giovanni e Paolo (Pensabene 2011, 1063) or, finally, some capitals from the church of S. Stefano Rotondo, produced at an Eastern workshop (Brandenburg 1995, 543-572). Outside Rome we can cite the import of semi-finished or completed items in the 4th and 5th centuries A.D. in Ostia Antica (as those preserved in the storage next to the temple of *Fabri Navales* – from which 46 shafts, 21

10. For example, some members of the aristocracy of Rome preferred to invest their financial resources in the construction of places of worship: senator *Pammachius* founded a *xenodochium* and a basilica dedicated to S. Giovanni e Paolo on mount Celio; *Vestina* founded a basilica and a *titulus*; senator *Longinianus*, friend of Saint Augustine and *praefectus urbi* by 401-402 A.D., founded the baptistery of Santa Anastasia; the patrician *Marinianus*, praetorian prefect in 422 and consul in 423, together with his wife *Anastasia* and his son *Gallus*, cooperated in the embellishment of the Basilica of St. Peter in the Vatican, etc., (Guidobaldi 1993, 69-83).

11. Giacchero 1974, 305-306; *Edictum Diocletiani*, 31.

12. García-Enterro, Vidal Álvarez 2007, 53-69; García-Enterro, Galán, Vidal 2008, 197-211.

13. Some of the best known shipwrecks are those of Marzamemi, (Kapitän 1969), or Mahdia, (Merlin, Poinsot 1956, 59-124; Martin, Lézine 1959, 141-155).

14. Deichmann, Tschira 1939, 99-111; Brandenburg 2005-2006, 237-276.



Fig. 2. The church of San Cebrián de Mazote (Valladolid, Spain), a Proconnesian marble capital exported to Hispania between the end of the 4th century and middle of the 5th century AD. (Photo: author).

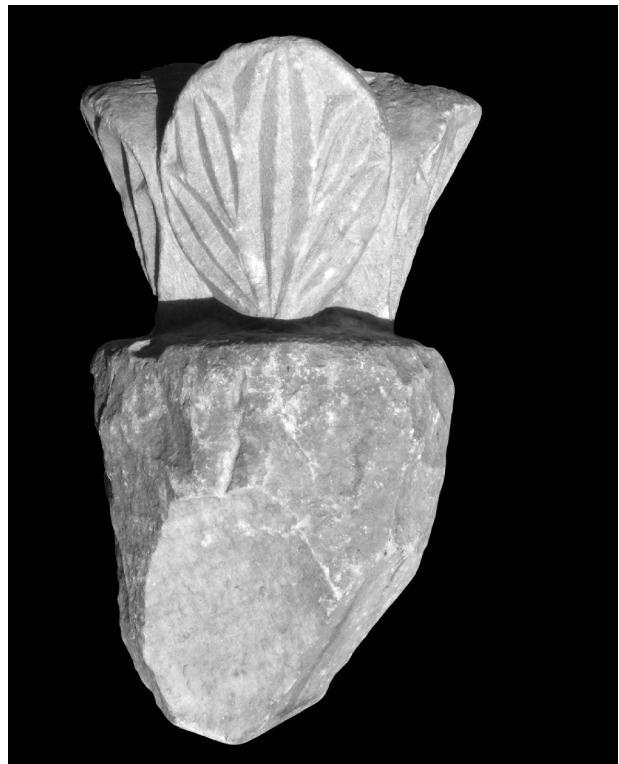


Fig. 3. Tarragona (Spain), fragment of a capital or screen crown carved from a reused Luni marble shaft. (Photo: author).

bases, 5 ionic capitals, and 4 capitals to be eventually finished in some sort of corinthian style, made with marble from *Thasos* and from *Proconneso*¹⁵ – or pieces from the storage in Fiumicino¹⁶ –, and in cities like Ravenna, Siponto, Durazzo, Filippi, etc., origin of a number of decorative elements from the 5th and 6th centuries A.D. made of Proconneso marble¹⁷.

However, these imports were very rare in Hispania (fig. 2): hardly 8 column capitals crafted in Eastern workshops, with the addition of a few pieces of *lesena*, such as those from the villa of Carranque, made with *pavonazzetto*¹⁸, or from the site in Gabia la Grande (Granada), possibly an underground baptistery from the 5th century A.D. It doesn't seem like the marble quarries of Hispania continued active beyond the 3rd and 4th centuries A.D. either: the quarries in Mijas (Málaga) could still be operating in the 4th century A.D.¹⁹, as well as those in Estremoz (Portugal), the marble of which was used in making a cornice and soffit for the restoration of the theatre in Mérida in the 4th century A.D. (Cisneros 1988, 114), and in column capitals in the villa of Carranque. The Pyrenean quarries of Saint-Béat²⁰ did survive longer, at least until the 6th century A.D. The marble from those quarries was used in some capitals located in the north-east of the peninsula (Domingo 2011, n° 15, 26, 27, 32). Also, many Hispanic late Roman capitals used Luni mar-

ble, a typology widely present in the great Hispanic early Imperial architecture, but the production and marketing of which suffered a sharp decline the 3rd century A.D. (Dolci 2003, 77-104).

For all these reasons – shortage of marble imports from the late Roman period, cessation of production in most of peninsular quarries, and massive use of Luni marble on pieces from the 3rd-7th centuries A.D. – it is likely that most of the marble used in the peninsula during that period was recovered from the systematic dismantling of early Imperial buildings, a fairly common practice in Hispania at that time (Gurt, Diarte 2011, 7-22), which also explains, at least in part, the massive presence of coloured marbles in the villa of Piazza Armerina (Pensabene, Gasparini 2008, 79-93; Pensabene 2008, 32).

Several evidences support this fact: the existence in Tarragona of a semifinished fragment of a capital from the 6th century A.D., carved by reusing a column shaft of Luni from the early Imperial period (fig. 3) (Domin-

15. Pensabene et al. 1999, 147-156; Pensabene 2007, 407-417.

16. Pensabene 1994, 33-52; Pensabene, Bruno 1998, 1-22; Pensabene 2007, 389-430.

17. Pensabene 2007, 433. About exports of decorative elements made of Thasio marble, see: Herrmann, Sodini 1977, 471-511.

18. We could add some shafts from the mentioned Basilica, mostly made of *pavonazzetto*: seven shafts were carved with this marble, but one was carved with *marmor numidicum*, (García-Enterro, Vidal Álvarez 2007, 59). The schematic configuration of the *scapos* would prove their importation also at that time, (Pensabene 2006, 135).

19. Cisneros 1988, 87-114. This decline in production, which is documented in other parts of the empire, agrees with the statement by Ciprianus, died in 258 A.D., in his *Epistula ad Demetrianum*, whereby many of the problems of the empire had to do with the fact that “one can not extract so many marble plates from overexploited and exhausted quarries, nor get so much silver and gold from used-up mines that, increasingly impoverished, have fewer veins», (Canto 1977-78, 170).

²⁰ About this marble, see: Costedoat 1995, 101-118; Schenck 1995, 169-196.

²¹ Onians 1988, 60-62; Pensabene 1993, 752-756; Ciranna 2000, 90-91; Brandenburg 1995, 552; Gurt, Diarte 2011, 7-22.

go 2005, 149, 162, n° 11, fig. 12); the concentration of a larger number of marble capitals precisely in the geographic areas closer to the big cities of the Roman period, where many buildings were abandoned and systematically dismantled for reusing their building materials²¹; the increase in number of capitals using marble from the 5th-6th centuries A.D., coinciding with the explosion of the practice of recovering *spolia* in Hispanic architecture (DOMINGO 2012, 275-306).

Conclusions

The use of marble is extensive in late Roman and Visigothic Hispanic capitals: documented in over 50% of preserved pieces, with an increase in the 5th-6th centuries A.D., reaching 70%. This fact shows how important this stone was for the people of that time. On the other hand, the decreasing availability of marble in the market fostered the practice of reusing it: many of the marble capitals in Hispania use marble of Luni, one of the most widespread in the early Imperial period, were located in areas close to major cities of the Roman era, and its presence was increased from the 5th-6th centuries A.D, coinciding with the maximum spread of the practice of using *spolia* in the peninsula. Those *spolia* that must have been systematically kept in storages located near those large cities. One of these repositories has been recently identified in Tarraco (AROLA, DOMINGO, GASULL 2012, 190-195).

Bibliography

- ALBANA M. 2010: "Costantino e le cave di marmo d'Africa: note su CTb., 10, 19, 1", *L'Africa Romana. Atti del XVIII Convegno di Studio. I luoghi e le forme dei mestieri e della produzione nelle provincie africana*, (Olbia 2008), Roma, 381-391.
- ARBEITER A. 2000: "Alegato por la riqueza del inventario monumental hispanovisigodo" in L. CABALLERO ZOREDA, P. MATEOS CRUZ (eds.), *Visigodos y Omeyas. Un debate entre la Antigüedad Tardía y la Alta Edad Media*, Anejos de AEspA, XXIII, 249-263.
- ARCE J. 1982: *Mérida tardorromana*, Homenaje a Sáenz de Buruaga, Mérida, 209-226.
- ARCE J. 2011: *Esperando a los árabes. Los visigodos en Hispania (507-711)*, Madrid.
- AROLA R., DOMINGO J. Á., GASULL N. 2012: "The imported marmora from the Jaume I school: an assemblage from the Provincial Forum of Tarraco", in *ASMOIA IX*, 190-195.
- BARRESI P. 2003: *Provincie dell'Asia Minore. Costo dei marmi, architettura pubblica e committenza*, Roma.
- BARROSO R., MORÍN J. 2000: "Fórmulas y temas iconográficos en la plástica hispanovisigoda (siglos VI-VIII). El problema de la influencia oriental en la cultura material de la España tardoantigua y altomedieval", in L. CABALLERO, P. MATEOS (eds.), *Visigodos y Omeyas. Un debate entre la Antigüedad Tardía y la Alta Edad Media*, Anejos de AEspA XXIII, 279-306.
- BRANDENBURG H. 1995: *Spolia ed elementi architettonici originari nella chiesa di S. Stefano Rotondo e nell'architettura tardoantica a Roma*, in *Ravenna, Costantinopoli, Vicino Oriente. XLI Corso di Cultura sull'Arte Ravennate e Bizantina*, Ravenna, 543-572.
- BRANDENBURG H. 2005-2206: "Die Architektur der Basilica San Paolo fuori le mura", *RM*, 112, 237-276.
- CABALLERO L., FEIJOO S. 1998: "La iglesia altomedieval de San Juan Bautista de Baños Cerrato (Palencia)", *AEspA*, 71, 181-242.
- CABALLERO L. 2000: "La arquitectura denominada de época visigoda ¿es realmente tardorromana o prerrománica?", in L. CABALLERO ZOREDA, P. MATEOS CRUZ (eds.), *Visigodos y Omeyas. Un debate entre la Antigüedad Tardía y la Alta Edad Media*, Anejos de AEspA, XXIII, 207-247.
- CABRÉ J. 1923: *Monumento cristiano bizantino de Gabia la Grande (Granada)*, Madrid.
- CANTO A. M. 1977-78: "Avances sobre la explotación del mármol en la España romana", *AEspA*, 50-51, 165-188.
- CHAVARRÍA A. 2004: "Interpreting the transformation of late roman villas: the case of Hispania", in N. CHRISTIE (ed.), *Landscapes of Change: The Evolution of the Countryside in Late Antiquity and the Early Middle Age*, Aldershot, 67-102.
- CHAVARRÍA A. 2005: "Dopo la fine delle ville: le campagne ispaniche in epoca visigota (VI-VIII secolo)", in G. P. BROGIOLI, A. CHAVARRÍA, M. VALENTI (eds.), *Dopo la fine delle ville: le campagne dal VI al IX secolo*, Mantua, 263-285.
- CIRANNA S. 2000: *Spolia e caratteristiche del reimpiego nella basilica di San Lorenzo fuori le mura a Roma*, Roma.
- CISNEROS M. 1988: *Mármoles Hispanos. Su empleo en la España romana*, Zaragoza.
- CORCORAN S., DE LAINE J. 1994: "The Unit measurement of Marvel in Diocletian's Proces Edict", *JRA*, 7, 263-273.
- COSTEDOAT CH. 1995: "Recherches sur les marbres pyrénéens", in *Les marbres blancs des Pyrénées. Approches scientifiques et historiques*, Saint-Bertrand-de-Comminges, 101-118.
- DEICHMANN F. W., TÁCHIRA A. 1939: "Die frühchristlichen Basen und Kapitelle von S. Paolo fuori le Mura", *RM*, 54, 99-111.
- DOLCI E. 2003: "Luna, un emporio del marmo in epoca romana: aspetti produttivi, commerciali e sociali", in A. GIUSTI (a cura di), *Eternità e nobiltà di materia. Itinerario artistico fra le pietre policrome*, Firenze, 77-104.
- DOMINGO J. Á. 2005: "Similitudes entre los capiteles catalanes y franceses en época palocristiana y visigoda. Una aproximación a través del análisis de los capiteles con cuatro hojas angulares", *BA*, 27, 131-174.
- DOMINGO J. Á. 2011, *Capiteles tardoromanos y visigodos en la península Ibérica (siglos IV-VIII d. C.)*, Tarragona.
- DOMINGO J. Á. 2012: "Revalorización de lo clásico en la España tardoantigua y altomedieval. Un análisis a través de la decoración arquitectónica", *AnTard*, 20, 275-306.
- DOMINGO J. Á. 2012: "L'Africa e la Spagna: due realtà diverse nell'occupazione bizantina e nell'importazione di capitelli orientali", in *L'Africa Romana. XIX Convegno Internazionale si Studi*, Sassari, 2010, 8, 1261-1278.
- GARCÍA-ENTERO V., VIDAL ÁLVAREZ S. 2007: "Marmor from the roman site of Carranque (Toledo, Spain)", *Marmor*, 3, 53-69.
- GARCÍA-ENTERO V., GALÁN M. M., VIDAL S. 2008: "El marmo en el yacimiento de Carranque (Toledo). Algunas consideraciones sobre las marcas de herramientas", in T. NOGALES, J. BELTRÁN (eds.), *Marmor Hispana: explotación y uso de los materiales pétreos en la Hispania Romana*, Roma, 197-211.
- GIACCHERO M. 1974: *Edictum Diocletiani et Collegarum de pretiis rerum venalium*, Genova.

- GONZÁLEZ SALINERO R. 1998: "Los judíos y la gran propiedad en la Hispania tardoantigua: el reflejo de una realidad en la vida cotidiana", in L. CABALLERO ZOREDA, P. MATEOS, M. Á. UTRERO (eds.), *El siglo VII frente al s. VII. Arquitectura*, Madrid, 11-30.
- GUIDOBALDI F. 1993: "Roma. Il tessuto abitativo, le domus e i tituli", in *Storia di Roma. Vol. 3. L'età tardoantica. II. I luoghi e le culture*, Torino, 69-83.
- GURT J., DIARTE P. 2011: "Spolia et Hispania: alcuni esempi peninsulari", in *Spolia in Late Antiquity and the Middle Ages – Ideology, Aesthetics and Artistic Practice*, (Hortus Artium Medievalium ,17), 7-22.
- HERRMANN J. J., SODINI J.-P. 1977: "Exportations de marbre Thasien à l'époque paléochrétienne: le cas des chapiteaux ioniques", *BCH*, II, 471-511.
- KAPITÄN G. 1969: "The church wreck off Marzamemi", *Archaeology*, 22,2, 122-133.
- LEWIT T. 2003: "Vanishing villas: what happened to élite rural habitation in the West in the 5th-6th c?", *JRA*, 16, 260-274.
- MARTIN R., LÉZINE A. 1959: "A propos des éléments architecturaux trouvés à Mahdia", *Karthago*, X, 141-155.
- MATEOS CRUZ P. 1999: *La basílica de Santa Eulalia de Mérida. Arqueología y urbanismo*, Anejos de AEspA, XIX, Madrid.
- MERLIN A., POINSSOT, L. 1956: "Éléments architecturaux trouvés en mer près de Mahdia", *Karthago*, VII, 59-124.
- MORALES A. 1577: *Chronica General de España*, Alcalá de Henares.
- NAVARRO DEL CASTILLO V. 1971: "Estudio histórico-crítico del Peristefano y de las actas apócrifas o pasión de sta. Eulalia", *RevEstExtr*, 399-459.
- OLAGUER-FELIÚ F. 1998: *Arte medieval español hasta el año 1000*, Madrid.
- ONIANS J. 1988: *Bearers of meaning. The classical orders in Antiquity, the Middle Ages and the Renaissance*, Princeton.
- PENSABENE P., BRUNO M.: "Aggiornamenti, nuove acquisizioni e riordino dei marmi di cava dal canale di Fiumicino", in P. PENSABENE (a cura di), *Marmi Antichi II. Cave e tecnica di lavorazione, provenienze e distribuzione*, (Studi Miscellanei 31), Roma, 1-22.
- PENSABENE P., SEMERARO T., LAZZARINI L., TURI B., SOLIGO M. 1999: "The provenance of the marbles from the depositary of the temple of the Fabri Navales at Ostia", *AS-MOSIA* 4, 147-156.
- PENSABENE P., GASPARINI E. 2008: "Il contributo degli elementi architettonici per la definizione volumetrica degli ambienti della villa", in P. PENSABENE, C. BONANNO (a cura di), *L'insediamento medievale sulla Villa del Casale di Piazza Armerina. Nuove acquisizioni sulla storia della Villa e risultati degli scavi 2004-2005*, 79-93.
- PENSABENE P., DI VITA P. D. 2008 (a cura di): *Marmi colorati e marmi ritrovati della villa Romana del Casale, Catalogo Mostra Archeologica*, Piazza Armerina.
- PENSABENE P. 1974-75: "Sull'impiego del marmo di Cap de Garde. Condizioni giuridiche e significato economico delle cave in età imperiale", *Studi Miscellanei* 22, 177-190.
- PENSABENE P. 1993: "Il reimpiego nell'età costantiniana a Roma", in *Costantino il Grande. Dall'Antichità all'Umanesimo. Colloquio sul Cristianesimo nel mondo antico*, Macerata, 1990, Macerata, 749-768.
- PENSABENE P. 1994: *Le vie del marmo. I blocchi di cava di Roma e di Ostia: il fenomeno del marmo nella Roma antica*, (Itinerari Ostiensi VII), Roma.
- PENSABENE P. 2002: "Il fenomeno del marmo nel mondo romano", in M. DE NUCCIO, L. UNGARO (a cura di): *I marmi colorati della Roma imperiale*, Roma, 3-67.
- PENSABENE P. 2006: "Mármoles y talleres en la Bética y otras áreas de la Hispania romana", in D. VAQUERIZO, J. F. MURILLO (eds.), *El concepto de lo provincial en el mundo romano. Homenaje a la profesora Pilar León Alonso*, Córdoba, 103-141.
- PENSABENE P. 2007: *Ostiensium Marmorum Decus et Decor. Studi architettonici, decorativi e archeometrici*, Roma.
- PENSABENE P. 2008: "Marmi bianchi e colorati nella Villa del Casale", in P. PENSABENE, P. D. DI VITA (a cura di): *Marmi colorati e marmi ritrovati della villa Romana del Casale, Catalogo Mostra Archeologica*, Piazza Armerina, 31-33.
- PENSABENE P. 2011: "Provenienza e modalità di spogliazione e di reimpiego a Roma tra tardoantico e medioevo", in O. BRANDT, PH. PERGOLA (a cura di), *Marmoribus Vestita. Miscellanea in onore di Federico Guidobaldi*, Città del Vaticano, 1049-1088.
- PRUDENCIO, *Hymnus in Honorem Passionis Eulaliae, Beatissimae Martyris*, BAC 427, 1981, 529-544.
- RI POLL G., ARCE J., 2001: "Transformación y final de las villae en Occidente (siglos IV-VIII): problemas y perspectivas", *Arqueología y Territorio Medieval*, 8, 21-54.
- SCHENCK J.-L. 1995: "Métamorphisme et métamorphoses, essai d'identification d'un atelier de taille: les marmorarii de Saint-Béat", in *Les marbres blancs des Pyrénées. Approches scientifiques et historiques*, Saint-Bertrand-de-Comminges, 169-196.
- SCHLUNK H. 1964, "Byzantinische Bauplastik aus Spanien", *MM*, 5, 234-254.
- SFAMENI C. 2006: *Ville residenziali nell'Italia tardoantica*, Bari.
- SOTOMAYOR M., PAREJA E. 1979: *El yacimiento de Gabia la Grande (Granada)*, Madrid.

