

# Calcitic Marble from Thasos and Proconnesos in Nea Anchialos (Thessaly) and Thessaloniki (Macedonia)

---

Barbin, Vincent; Herrmann, John J.; Mentzos, Aristotle; van den Hoek, Annewies

*Source / Izvornik:* **ASMOSIA XI, Interdisciplinary Studies on Ancient Stone, Proceedings of the XI International Conference of ASMOSIA, 2018, 311 - 320**

**Conference paper / Rad u zborniku**

*Publication status / Verzija rada:* **Published version / Objavljena verzija rada (izdavačev PDF)**

<https://doi.org/10.31534/XI.asmosia.2015/02.15>

*Permanent link / Trajna poveznica:* <https://um.nsk.hr/um:nbn:hr:123:161276>

*Rights / Prava:* [In copyright](#) / [Zaštićeno autorskim pravom.](#)

*Download date / Datum preuzimanja:* **2024-05-20**



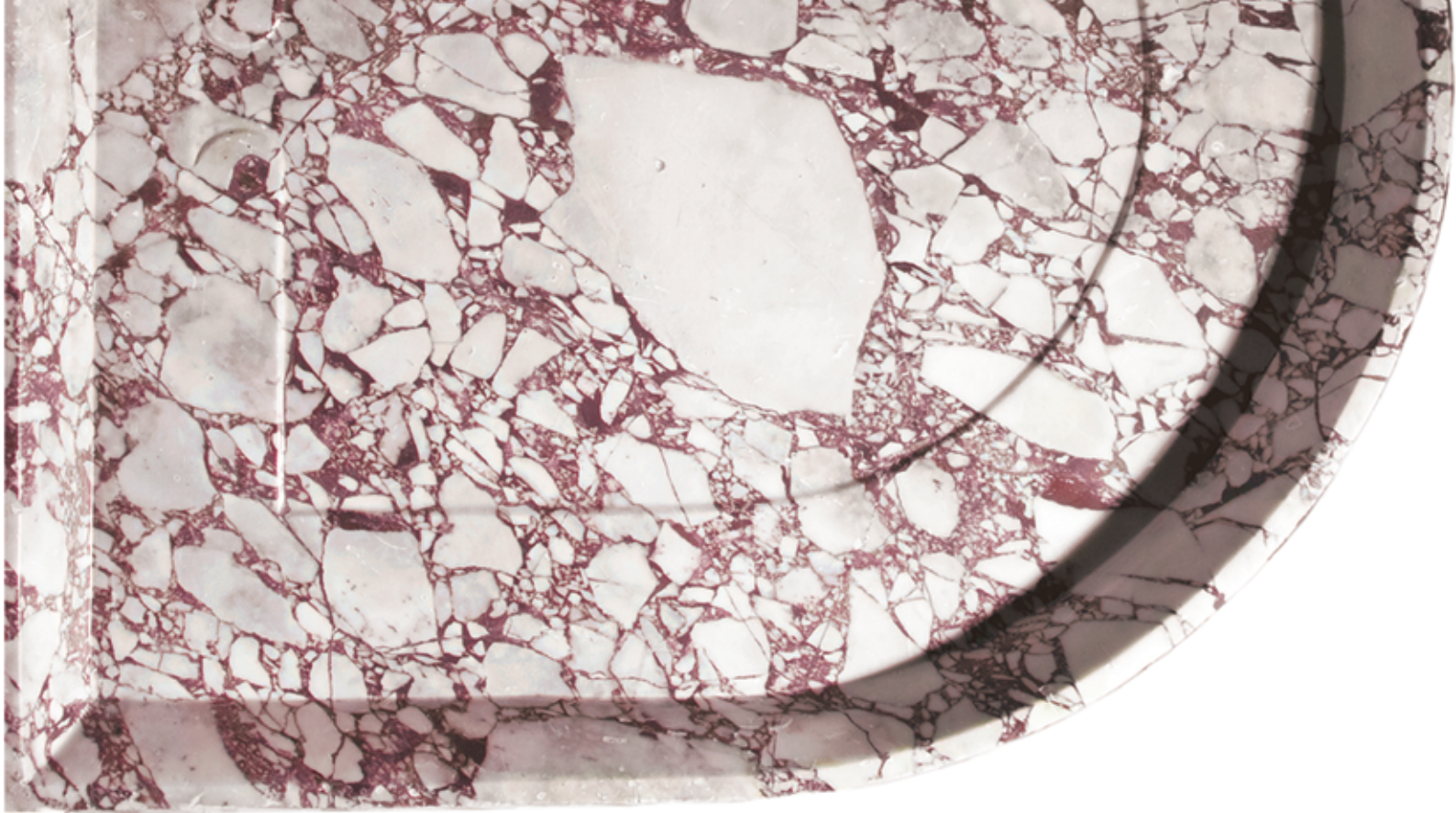
*Repository / Repozitorij:*

[FCEAG Repository - Repository of the Faculty of Civil Engineering, Architecture and Geodesy, University of Split](#)



UNIVERSITY OF SPLIT

  
DIGITALNI AKADEMSKI ARHIVI I REPOZITORIJI



# ASMOSIA XI

Interdisciplinary Studies on Ancient Stone

## PROCEEDINGS

of the XI ASMOSIA Conference, Split 2015

Edited by Daniela Matetić Poljak and Katja Marasović



Interdisciplinary Studies on Ancient Stone  
Proceedings of the XI ASMOSIA Conference (Split 2015)

Publishers:

ARTS ACADEMY IN SPLIT  
UNIVERSITY OF SPLIT

and

UNIVERSITY OF SPLIT  
FACULTY OF CIVIL ENGINEERING,  
ARCHITECTURE AND GEODESY

Technical editor:  
Kate Bošković

English language editor:  
Graham McMaster

Computer pre-press:  
Nikola Križanac

Cover design:  
Mladen Čulić

Cover page:

*Sigma shaped mensa of pavonazzetto marble from Diocletian's palace in Split*

ISBN 978-953-6617-49-4 (Arts Academy in Split)

ISBN 978-953-6116-75-1 (Faculty of Civil Engineering, Architecture and Geodesy)

e-ISBN 978-953-6617-51-7 (Arts Academy in Split)

e-ISBN 978-953-6116-79-9 (Faculty of Civil Engineering, Architecture and Geodesy)

CIP available at the digital catalogue of the University Library in Split, no 170529005

Association for the Study of Marble & Other Stones in Antiquity

# ASMOSIA XI

## Interdisciplinary Studies of Ancient Stone

Proceedings of the Eleventh International Conference of ASMOSIA,  
Split, 18–22 May 2015

Edited by  
Daniela Matetić Poljak  
Katja Marasović



Split, 2018

**Nota bene**

All papers are subjected to an international review.

The quality of the images relies on the quality of the originals provided by the authors.

# CONTENT

<b>PRESENTATION</b> .....	15
<b>NECROLOGY: NORMAN HERZ (1923-2013) by Susan Kane</b> .....	17
<b>1. APPLICATIONS TO SPECIFIC ARCHEOLOGICAL QUESTIONS – USE OF MARBLE</b>	
Hermaphrodites and Sleeping or Reclining Maenads: Production Centres and Quarry Marks <i>Patrizio Pensabene</i> .....	25
First Remarks about the Pavement of the Newly Discovered Mithraeum of the Colored Marbles at Ostia and New Investigations on Roman and Late Roman White and Colored Marbles from Insula IV, IX <i>Massimiliano David, Stefano Succi and Marcello Turci</i> .....	33
Alabaster. Quarrying and Trade in the Roman World: Evidence from Pompeii and Herculaneum <i>Simon J. Barker and Simona Perna</i> .....	45
Recent Work on the Stone at the Villa Arianna and the Villa San Marco (Castellammare di Stabia) and Their Context within the Vesuvian Area <i>Simon J. Barker and J. Clayton Fant</i> .....	65
Marble Wall Decorations from the Imperial Mausoleum (4 <sup>th</sup> C.) and the Basilica of San Lorenzo (5 <sup>th</sup> C.) in Milan: an Update on Colored Marbles in Late Antique Milan <i>Elisabetta Neri, Roberto Bugini and Silvia Gazzoli</i> .....	79
Sarcophagus Lids Sawn from their Chests <i>Dorothy H. Abramitis and John J. Herrmann</i> .....	89
The Re-Use of Monolithic Columns in the Invention and Persistence of Roman Architecture <i>Peter D. De Staebler</i> .....	95
The Trade in Small-Size Statues in the Roman Mediterranean: a Case Study from Alexandria <i>Patrizio Pensabene and Eleonora Gasparini</i> .....	101
The Marble Dedication of Komon, Son of Asklepiades, from Egypt: Material, Provenance, and Reinforcement of Meaning <i>Patricia A. Butz</i> .....	109
Multiple Reuse of Imported Marble Pedestals at Caesarea Maritima in Israel <i>Barbara Burrell</i> .....	117
Iasos and Iasian Marble between the Late Antique and Early Byzantine Eras <i>Diego Peirano</i> .....	123

Thassos, Known Inscriptions with New Data <i>Tony Kozelj and Manuela Wurch-Kozelj</i> .....	131
The Value of Marble in Roman <i>Hispalis</i> : Contextual, Typological and Lithological Analysis of an Assemblage of Large Architectural Elements Recovered at N° 17 Goyeneta Street (Seville, Spain) <i>Ruth Taylor, Oliva Rodríguez, Esther Ontiveros, María Luisa Loza, José Beltrán and Araceli Rodríguez</i> .....	143
<i>Giallo Antico</i> in Context. Distribution, Use and Commercial Actors According to New Stratigraphic Data from the Western Mediterranean (2 <sup>nd</sup> C. Bc – Late 1 <sup>st</sup> C. Ad) <i>Stefan Ardeleanu</i> .....	155
<i>Amethystus</i> : Ancient Properties and Iconographic Selection <i>Luigi Pedroni</i> .....	167
<b>2. PROVENANCE IDENTIFICATION I: (MARBLE)</b>	
Unraveling the Carrara – Göktepe Entanglement <i>Walter Prochaska, Donato Attanasio and Matthias Bruno</i> .....	175
The Marble of Roman Imperial Portraits <i>Donato Attanasio, Matthias Bruno, Walter Prochaska and Ali Bahadır Yavuz</i> .....	185
Tracing Alabaster (Gypsum or Anhydrite) Artwork Using Trace Element Analysis and a Multi-Isotope Approach (Sr, S, O) <i>Lise Leroux, Wolfram Kloppmann, Philippe Bromblet, Catherine Guerrot, Anthony H. Cooper, Pierre-Yves Le Pogam, Dominique Vingtain and Noel Worley</i> .....	195
Roman Monolithic Fountains and Thasian Marble <i>Annewies van den Hoek, Donato Attanasio and John J. Herrmann</i> .....	207
Archaeometric Analysis of the Alabaster Thresholds of Villa A, Oplontis (Torre Annunziata, Italy) and New Sr and Pb Isotopic Data for <i>Alabastro Ghiaccione del Circeo</i> <i>Simon J. Barker, Simona Perna, J. Clayton Fant, Lorenzo Lazzarini and Igor M. Villa</i> .....	215
Roman Villas of Lake Garda and the Occurrence of Coloured Marbles in the Western Part of “Regio X Venetia et Histria” (Northern Italy) <i>Roberto Bugini, Luisa Folli and Elisabetta Roffia</i> .....	231
Calcitic Marble from Thasos in the North Adriatic Basin: Ravenna, Aquileia, and Milan <i>John J. Herrmann, Robert H. Tykot and Annewies van den Hoek</i> .....	239
Characterisation of White Marble Objects from the Temple of Apollo and the House of Augustus (Palatine Hill, Rome) <i>Francesca Giustini, Mauro Brilli, Enrico Gallochio and Patrizio Pensabene</i> .....	247
Study and Archeometric Analysis of the Marble Elements Found in the Roman Theater at Aeclanum (Mirabella Eclano, Avellino - Italy) <i>Antonio Mesisca, Lorenzo Lazzarini, Stefano Cancelliere and Monica Salvadori</i> .....	255



Two Imperial Monuments in Puteoli: Use of Proconnesian Marble in the Domitianic and Trajanic Periods in Campania <i>Irene Bald Romano, Hans Rupprecht Goette, Donato Attanasio and Walter Prochaska</i> .....	267
Coloured Marbles in the Neapolitan Pavements (16 <sup>th</sup> And 17 <sup>th</sup> Centuries): the Church of <i>Santi Severino e Sossio</i> <i>Roberto Bugini, Luisa Folli and Martino Solito</i> .....	275
Roman and Early Byzantine Sarcophagi of Calcitic Marble from Thasos in Italy: Ostia and Siracusa <i>Donato Attanasio, John J. Herrmann, Robert H. Tykot and Annewies van den Hoek</i> .....	281
Revisiting the Origin and Destination of the Late Antique Marzamemi 'Church Wreck' Cargo <i>Justin Leidwanger, Scott H. Pike and Andrew Donnelly</i> .....	291
The Marbles of the Sculptures of Felix Romuliana in Serbia <i>Walter Prochaska and Maja Živić</i> .....	301
Calcitic Marble from Thasos and Proconnesos in Nea Anchialos (Thessaly) and Thessaloniki (Macedonia) <i>Vincent Barbin, John J. Herrmann, Aristotle Mentzos and Annewies van den Hoek</i> .....	311
Architectural Decoration of the Imperial Agora's Porticoes at Iasos <i>Fulvia Bianchi, Donato Attanasio and Walter Prochaska</i> .....	321
The Winged Victory of Samothrace - New Data on the Different Marbles Used for the Monument from the Sanctuary of the Great Gods <i>Annie Blanc, Philippe Blanc and Ludovic Laugier</i> .....	331
Polychrome Marbles from the Theatre of the Sanctuary of Apollo Pythios in Gortyna (Crete) <i>Jacopo Bonetto, Nicolò Mareso and Michele Bueno</i> .....	337
Paul the Silentiary, Hagia Sophia, Onyx, Lydia, and Breccia Corallina <i>John J. Herrmann and Annewies van den Hoek</i> .....	345
Incrustations from Colonia Ulpia Traiana (Near Modern Xanten, Germany) <i>Vilma Ruppinić and Ulrich Schüssler</i> .....	351
Stone Objects from Vindobona (Austria) – Petrological Characterization and Provenance of Local Stone in a Historico-Economical Setting <i>Andreas Rohatsch, Michaela Kronberger, Sophie Insulander, Martin Mosser and Barbara Hodits</i> .....	363
Marbles Discovered on the Site of the Forum of Vaison-la-Romaine (Vaucluse, France): Preliminary Results <i>Elsa Roux, Jean-Marc Mignon, Philippe Blanc and Annie Blanc</i> .....	373
Updated Characterisation of White Saint-Béat Marble. Discrimination Parameters from Classical Marbles <i>Hernando Royo Plumed, Pilar Lapeunte, José Antonio Cuchí, Mauro Brilli and Marie-Claire Savin</i> .....	379

Grey and Greyish Banded Marbles from the Estremoz Anticline in Lusitania <i>Pilar Lapuente, Trinidad Nogales-Basarrate, Hernando Royo Plumed, Mauro Brilli and Marie-Claire Savin</i> .....	391
New Data on Spanish Marbles: the Case of <i>Gallaecia</i> (NW Spain) <i>Anna Gutiérrez García-M., Hernando Royo Plumed and Silvia González Soutelo</i> .....	401
A New Roman Imperial Relief Said to Be from Southern Spain: Problems of Style, Iconography, and Marble Type in Determining Provenance <i>John Pollini, Pilar Lapuente, Trinidad Nogales-Basarrate and Jerry Podany</i> .....	413
Reuse of the <i>Marmora</i> from the Late Roman Palatial Building at Carranque (Toledo, Spain) in the Visigothic Necropolis <i>Virginia García-Entero, Anna Gutiérrez García-M. and Sergio Vidal Álvarez</i> .....	427
Imperial Porphyry in Roman Britain <i>David F. Williams</i> .....	435
Recycling of Marble: Apollonia/Sozousa/Arsuf (Israel) as a Case Study <i>Moshe Fischer, Dimitris Tambakopoulos and Yannis Maniatis</i> .....	443
Thasian Connections Overseas: Sculpture in the Cyrene Museum (Libya) Made of Dolomitic Marble from Thasos <i>John J. Herrmann and Donato Attanasio</i> .....	457
Marble on Rome's Southwestern Frontier: Thamugadi and Lambaesis <i>Robert H. Tykot, Ouahiba Bouzidi, John J. Herrmann and Annewies van den Hoek</i> .....	467
Marble and Sculpture at Lepcis Magna (Tripolitania, Libya): a Preliminary Study Concerning Origin and Workshops <i>Luisa Musso, Laura Buccino, Matthias Bruno, Donato Attanasio and Walter Prochaska</i> .....	481
The Pentelic Marble in the Carnegie Museum of Art Hall of Sculpture, Pittsburgh, Pennsylvania <i>Albert D. Kollar</i> .....	491
Analysis of Classical Marble Sculptures in the Michael C. Carlos Museum, Emory University, Atlanta <i>Robert H. Tykot, John J. Herrmann, Renée Stein, Jasper Gaunt, Susan Blevins and Anne R. Skinner</i> .....	501
<b>3. PROVENANCE IDENTIFICATION II: (OTHER STONES)</b>	
Aphrodisias and the Regional Marble Trade. The <i>Scaenae Frons</i> of the Theatre at Nysa <i>Natalia Toma</i> .....	513
The Stones of Felix Romuliana (Gamzigrad, Serbia) <i>Bojan Djurić, Divna Jovanović, Stefan Pop Lazić and Walter Prochaska</i> .....	523
Aspects of Characterisation of Stone Monuments from Southern Pannonia <i>Branka Migotti</i> .....	537

The Budakalász Travertine Production <i>Bojan Djurić, Sándor Kele and Igor Rižnar</i> .....	545
Stone Monuments from Carnuntum and Surrounding Areas (Austria) – Petrological Characterization and Quarry Location in a Historical Context <i>Gabrielle Kremer, Isabella Kitz, Beatrix Moshhammer, Maria Heinrich and Erich Draganits</i> .....	557
Espejón Limestone and Conglomerate (Soria, Spain): Archaeometric Characterization, Quarrying and Use in Roman Times <i>Virginia García-Entero, Anna Gutiérrez García-M, Sergio Vidal Álvarez, María J. Peréz Agorreta and Eva Zarco Martínez</i> .....	567
The Use of Alcover Stone in Roman Times ( <i>Tarraco, Hispania Citerior</i> ). Contributions to the <i>Officina Lapidaria Tarraconensis</i> <i>Diana Gorostidi Pi, Jordi López Vilar and Anna Gutiérrez García-M.</i> .....	577
<b>4. ADVANCES IN PROVENANCE TECHNIQUES, METHODOLOGIES AND DATABASES</b>	
Grainautline – a Supervised Grain Boundary Extraction Tool Supported by Image Processing and Pattern Recognition <i>Kristóf Csorba, Lilla Barancsik, Balázs Székely and Judit Zöldföldi</i> .....	587
A Database and GIS Project about Quarrying, Circulation and Use of Stone During the Roman Age in <i>Regio X - Venetia et Histria</i> . The Case Study of the Euganean Trachyte <i>Caterine Prevato and Arturo Zara</i> .....	597
<b>5. QUARRIES AND GEOLOGY</b>	
The Distribution of Troad Granite Columns as Evidence for Reconstructing the Management of Their Production <i>Patrizio Pensabene, Javier Á. Domingo and Isabel Rodà</i> .....	613
Ancient Quarries and Stonemasonry in Northern Choria Considiana <i>Hale Güney</i> .....	621
Polychromy in Larisaeon Quarries and its Relation to Architectural Conception <i>Gizem Mater and Ertunç Denktaş</i> .....	633
Euromos of Caria: the Origin of an Hitherto Unknown Grey Veined Stepped Marble of Roman Antiquity <i>Matthias Bruno, Donato Attanasio, Walter Prochaska and Ali Bahadır Yavuz</i> .....	639
Unknown Painted Quarry Inscriptions from Bacakale at <i>Docimium</i> (Turkey) <i>Matthias Bruno</i> .....	651
The Green Schist Marble Stone of Jebel El Hairech (North West of Tunisia): a Multi-Analytical Approach and its Uses in Antiquity <i>Ameur Younès, Mohamed Gaied and Wissem Gallala</i> .....	659
Building Materials and the Ancient Quarries at <i>Thamugadi</i> (East of Algeria), Case Study: Sandstone and Limestone <i>Younès Rezkallah and Ramdane Marmi</i> .....	673

The Local Quarries of the Ancient Roman City of <i>Valeria</i> (Cuenca, Spain) <i>Javier Atienza Fuente</i> .....	683
The Stone and Ancient Quarries of Montjuïc Mountain (Barcelona, Spain) <i>Aureli Álvarez</i> .....	693
<i>Notae Lapidinarum</i> : Preliminary Considerations about the Quarry Marks from the Provincial Forum of <i>Tarraco</i> <i>Maria Serena Vinci</i> .....	699
The Different Steps of the Rough-Hewing on a Monumental Sculpture at the Greek Archaic Period: the Unfinished Kouros of Thasos <i>Danièle Braunstein</i> .....	711
A Review of Copying Techniques in Greco-Roman Sculpture <i>Séverine Moureaud</i> .....	717
Labour Forces at Imperial Quarries <i>Ben Russell</i> .....	733
Social Position of Craftsmen inside the Stone and Marble Processing Trades in the Light of Diocletian's Edict on Prices <i>Krešimir Bosnić and Branko Matulić</i> .....	741
<b>6. STONE PROPERTIES, WEATHERING EFFECTS AND RESTORATION, AS RELATED TO DIAGNOSIS PROBLEMS, MATCHING OF STONE FRAGMENTS AND AUTHENTICITY</b>	
Methods of Consolidation and Protection of Pentelic Marble <i>Maria Apostolopoulou, Elissavet Drakopoulou, Maria Karoglou and Asterios Bakolas</i> .....	749
<b>7. PIGMENTS AND PAINTINGS ON MARBLE</b>	
Painting and Sculpture Conservation in Two Gallo-Roman Temples in Picardy (France): Champlieu and Pont-Sainte-Maxence <i>Véronique Brunet-Gaston and Christophe Gaston</i> .....	763
The Use of Colour on Roman Marble Sarcophagi <i>Eliana Siotto</i> .....	773
New Evidence for Ancient Gilding and Historic Restorations on a Portrait of Antinous in the San Antonio Museum of Art <i>Jessica Powers, Mark Abbe, Michelle Bushey and Scott H. Pike</i> .....	783
Schists and Pigments from Ancient Swat (Khyber Pukhtunkhwa, Pakistan) <i>Francesco Mariottini, Gianluca Vignaroli, Maurizio Mariottini and Mauro Roma</i> .....	793
<b>8. SPECIAL THEME SESSION: „THE USE OF MARBLE AND LIMESTONE IN THE ADRIATIC BASIN IN ANTIQUITY”</b>	
Marble Sarcophagi of Roman Dalmatia Material – Provenance – Workmanship <i>Guntram Koch</i> .....	809

Funerary Monuments and Quarry Management in Middle Dalmatia <i>Nenad Cambi</i> .....	827
Marble Revetments of Diocletian's Palace <i>Katja Marasović and Vinka Marinković</i> .....	839
The Use of Limestones as Construction Materials for the Mosaics of Diocletian's Palace <i>Branko Matulić, Domagoj Mudronja and Krešimir Bosnić</i> .....	855
Restoration of the Peristyle of Diocletian's Palace in Split <i>Goran Nikšić</i> .....	863
Marble Slabs Used at the Archaeological Site of Sorna near Poreč Istria – Croatia <i>Đeni Gobić-Bravar</i> .....	871
Ancient Marbles from the Villa in Verige Bay, Brijuni Island, Croatia <i>Mira Pavletić and Đeni Gobić-Bravar</i> .....	879
Notes on Early Christian Ambos and Altars in the Light of some Fragments from the Islands of Pag and Rab <i>Mirja Jarak</i> .....	887
The Marbles in the Chapel of the Blessed John of Trogir in the Cathedral of St. Lawrence at Trogir <i>Đeni Gobić-Bravar and Daniela Matetić Poljak</i> .....	899
The Use of Limestone in the Roman Province of Dalmatia <i>Edisa Lozić and Igor Rižnar</i> .....	915
The Extraction and Use of Limestone in Istria in Antiquity <i>Klara Buršić-Matijašić and Robert Matijašić</i> .....	925
Aurisina Limestone in the Roman Age: from Karst Quarries to the Cities of the Adriatic Basin <i>Caterina Previato</i> .....	933
The Remains of Infrastructural Facilities of the Ancient Quarries on Zadar Islands (Croatia) <i>Mate Parica</i> .....	941
The Impact of Local Geomorphological and Geological Features of the Area for the Construction of the Burnum Amphitheatre <i>Miroslav Glavičić and Uroš Stepišnik</i> .....	951
Roman Quarry Klis Kosa near Salona <i>Ivan Alduk</i> .....	957
Marmore Lavdata Brattia <i>Miona Miliša and Vinka Marinković</i> .....	963
Quarries of the Lumbarda Archipelago <i>Ivka Lipanović and Vinka Marinković</i> .....	979

Island of Korčula – Importer and Exporter of Stone in Antiquity <i>Mate Parica and Igor Borzić</i> .....	985
Faux Marbling Motifs in Early Christian Frescoes in Central and South Dalmatia: Preliminary Report <i>Tonči Borovac, Antonija Gluhan and Nikola Radošević</i> .....	995
<b>INDEX OF AUTHORS</b> .....	1009

# CALCITIC MARBLE FROM THASOS AND PROCONNESOS IN NEA ANCHIALOS (THESSALY) AND THESSALONIKI (MACEDONIA)

Vincent Barbin<sup>1</sup>, John J. Herrmann<sup>2</sup>, Aristotle Mentzos<sup>3</sup> and Annewies van den Hoek<sup>4</sup>

<sup>1</sup> Université de Reims Champagne-Ardenne, GEGENAA: EA 3795, Centre de Recherches Agronomiques, Reims, France (Vincent.barbin@univ-reims.fr)

<sup>2</sup> Museum of Fine Arts, Boston, Massachusetts, United States (jherrmannjr@gmail.com)

<sup>3</sup> Department of History and Archaeology, University of Thessaloniki, Thessaloniki, Greece (mentzos@hist.auth.gr)

<sup>4</sup> Harvard University, Cambridge, Massachusetts, United States (annewies\_vandenhoeck@harvard.edu)

## Abstract

Late Roman and Early Byzantine architectural elements from northern Greece are analyzed isotopically and under optical cathodoluminescence microscopy to determine their quarry of origin. Thirteen pieces come from Nea Anchialos, two from Thessaloniki, and one from Philippi. Marble is assigned to the quarries of Proconnesos, Thasos, and Philippi. On the basis of their marble, typology and style, the sculptures are attributed to sculptors from northern Greece or from Constantinople. The sculptors may have exported their works fully finished or carved them at the building sites in northern Greece. Sculptors from Constantinople clearly established workshops in northern Greece and made use of Thasian marble.

## Keywords

cathodoluminescence microscopy, Proconnesian marble, Thasian marble, Philippi marble, Late Roman, Early Byzantine, architectural decoration

## Introduction

Northern Greece, centered on Thessaloniki, was the site of major campaigns of construction in Roman and Early Byzantine times and was richly endowed with marble quarries, located in the Vermio mountains of central Macedonia, in the mountains around Philippi, and on the island of Thasos. Nonetheless Constantinople and northwest Asia Minor, with its vast marble quarries on Proconnesos (Marmara Island), has long been recognized as the dominant artistic influence and a primary source of material for the architectural decoration of the northwestern shores of the Aegean (Fig 1). Art historical analysis and optical examination of architectural decoration have made the Asiatic role clear.<sup>1</sup> On



Fig. 1. Map of Aegean area with sites mentioned in text

the other hand, the northern Greek quarries were active enough to penetrate the international market; Thasos, for example, exported unfinished Ionic capitals to Italy and other parts of the Mediterranean.<sup>2</sup> Archaeometric studies have identified Thasian marble in Early Byzantine chancel screens of Constantinopolitan type at Delphi.<sup>3</sup> In recent years we have undertaken archaeometric studies that further confirm the use of Thasian and other local northern Greek marbles in northern Greece by workshops of a Proconnesian character.<sup>4</sup> These Asiatic-style pieces in northern Greek marble must have been carved by travelling sculptors from Proconnesos or Constantinople or else by their branch offices in northern Greece. Central and southern Greece also developed workshops that were influenced by Constantinople but had some

1 SODINI 1977; VEMI 1989, 9, 211; MARANO, *forthcoming*.

2 HERRMANN, SODINI 1977; HERRMANN 1988.

3 DÉROCHE *et al.* 1989, 409.

4 HERRMANN *et al.* 2002; MENTZOS *et al.* 2002.



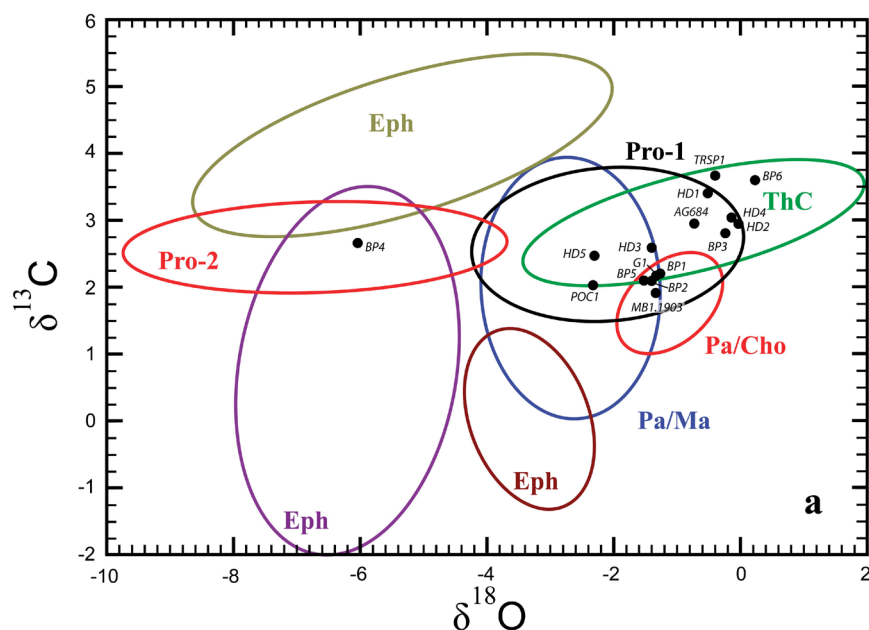


Fig. 2.  
Isotopic ratios of carbon and oxygen for the architectural decoration sampled. Eph = Ephesos; Pa/Cho = Paros, Chorodaki; Pa/Ma = Paros, Marathi; Pro = Proconnesos; ThC = Thasos, calcitic. Isotopic diagram based on Attanasio, ASMOSIA IX, 348

distinctly local features<sup>5</sup> and usually made use of fine-grained local marble (macroscopic observation).

The city of Nea Anchialos (province of Magnesia) offers a fine opportunity to explore the relationship between craftsmanship in marble and sources of supply in the borderlands between central and northern Greece. Excavation has produced a series of five basilicas with columns, church furniture, and magnificent capitals,<sup>6</sup> some of which are obviously of Proconnesian marble and most of which are of types and styles known from Constantinople. Some Early Byzantine products of southern or central Greece have also reached the city.<sup>7</sup> Georges Soteriou, the excavator of many of the richly decorated churches in Nea Anchialos thought that the marble they used was local.<sup>8</sup> This study attempts to distinguish on a scientific basis the different sources for the marble and the workmanship of thirteen pieces from Nea Anchialos, two from Thessaloniki, and one from Philippi.

### Methodology

Proconnesian marble is well known for its strongly marked dark gray bands, which were particularly appreciated in column shafts. Northern Greek marbles from Thasos and Philippi tend to have less emphatic banding and coarser grain. Conspicuously Proconnesian pieces were generally excluded from our sampling, but pieces that seemed to have relatively coarse grain, as well as some

cases that seemed particularly interesting, were sampled for laboratory analysis. Multimethod testing based on optical cathodoluminescence microscopy (CL) and analysis of stable isotopes of carbon and oxygen (Fig. 2), conducted at the Université de Reims Champagne-Ardenne, has been the primary technique used to determine marble sources. Study of the quarries has shown that marble from Proconnesos has blue CL,<sup>9</sup> marble from Cape Vathy red CL, and marble from Aliko and Cape Fanari orange CL of varying strengths.<sup>10</sup> In practice, the distinctions in color are not always as sharp as this terminology might suggest, and in some of these cases optical determination of grain size has also been used. In some cases the analysis would have supported a provenance from Paros, but such a result has been excluded on archaeological grounds; research on Paros makes it very unlikely that the island exported marble in Early Byzantine times.<sup>11</sup> Some sculptures in our analyses had CL that appeared to be northern Greek but did not fit easily into the various quarries on Thasos. More research is required for quarries at Philippi, in the Vermio mountains near Veria, and at Sendoukia near Dion.

In approaching issues involving workshops, we have adopted the approach of Jean-Pierre Sordini in classifying architectural sculptures on the basis of motifs and decorative schemes.<sup>12</sup>

5 SODINI 1977.

6 ASIMAKOPOULOU-ATZAKA 1982, 132-145.

7 SODINI 1977.

8 SOTERIOU 1929, 52; SODINI 1977, 443.

9 BARBIN *et al.* 1992.

10 BARBIN *et al.* 1989, 863-65, fig 2.

11 HERRMANN *et al.* 2008, 732.

12 SODINI 1977.



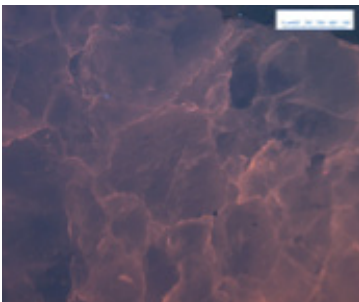


Fig. 3.  
BP3, photo and  
CL: chancel barrier  
with peacock, crater  
and grapevine, Nea  
Anchialos, 6<sup>th</sup> century,  
Proconnesian marble

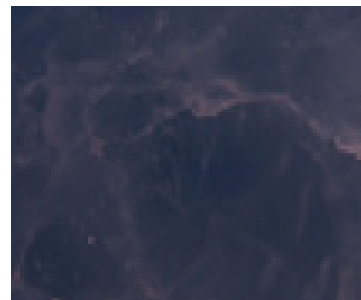


Fig. 4.  
BP4, photo and  
CL: chancel barrier  
with lamb, cross,  
and vine, Nea  
Anchialos, 6<sup>th</sup> century,  
Proconnesian marble

### Constantinopolitan workshops and Proconnesian marble: prefabricated imports or travelling workshops

Nea Anchialos presents a number of sixth-century chancel barriers with rich designs of a Constantinopolitan character, and several have proven to be made of Proconnesian marble. They could either have been sent in a finished state or been carved by workmen travelling from Proconnesos to Magnesia. A barrier in Basilica C features peacocks flanking vines growing out of a crater (BP3, Fig. 3); the lobed and dotted crater is closely related to similar craters of the church of Hagios Polyuktos in Constantinople (524–527).<sup>13</sup> A panel with cross, vines, and peacock, BP4, is similar and likewise early Justinianic (Fig. 4). Another panel has interlocking rows of palmettes (BP2, Fig. 5). There are several examples of similar palmette panels in Greece, and it has been thought that the design may have originated there.<sup>14</sup> The analysis of the marble of BP2, however, indicates a Proconnesian origin for its marble and probably a Constantinopolitan origin for its design as well.

An Ionic impost capital in Hagios Demetrios, Nea Anchialos makes use of Proconnesian marble (HD3, Fig. 6),<sup>15</sup> and the cross-and-acanthus decoration on its impost

block can be almost perfectly matched on an impost block in the garden of Istanbul Museum. In all probability the sculptor of HD3 came from Proconnesos or Constantinople.

A Corinthianizing pier capital in Hagios Demetrios with four acanthus leaves (HD5, Fig. 7) is a long-established type in the Asiatic/Proconnesian repertory, and, in spite of its very coarse grain, is made of Proconnesian marble; its isotopic ratios are suitable for the Cape Fanari quarry on Thasos, but the CL seems decisively Proconnesian. The nicely curved volutes indicate a date around the middle of the fifth century. A similar pier capital in Amphipolis is, in fact, made of marble from Cape Fanari, Thasos<sup>16</sup> and could have been made by the same Macedonian- or Thasian-based Constantinopolitan workshop.

13 HARRISON 1989, figs. 126–128.

14 SODINI 1977, 443, figs. 38–40.

15 VEMI 1989, cat.101.

16 HERRMANN *et al.* 2002, 336–337, fig. 18.





Fig. 5. BP2, photo and CL: chancel barrier with interconnected palmettes, Nea Anchialos, 6<sup>th</sup> century, Proconnesian marble

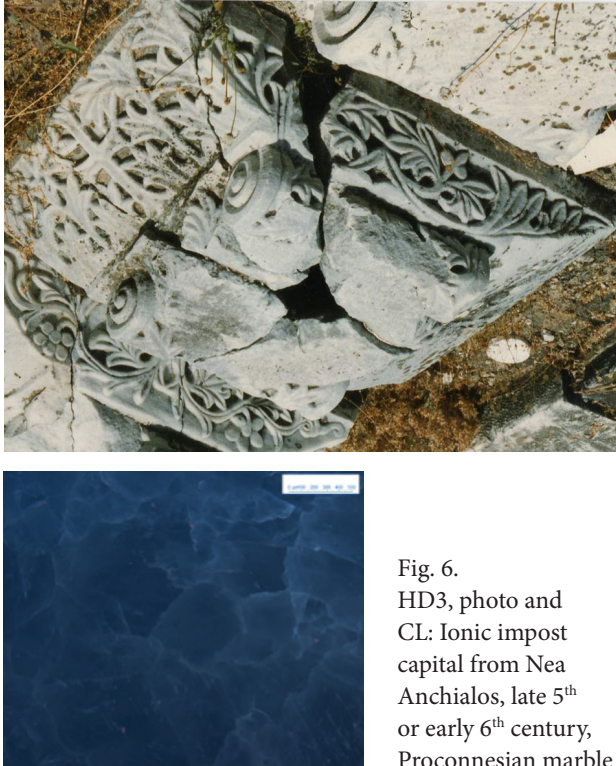


Fig. 6.  
HD3, photo and  
CL: Ionic impost  
capital from Nea  
Anchialos, late 5<sup>th</sup>  
or early 6<sup>th</sup> century,  
Proconnesian marble



Fig. 7. HD5, photo and CL: Corinthianizing capital from Nea Anchialos, mid-5<sup>th</sup> century, Proconnesian marble





Fig. 8. TRSP1, photo and CL: Cornice, Thessaloniki, Rotunda Museum, 3<sup>rd</sup> century, marble from Alikı, Thasos

### Branch offices of Constantinopolitan-Proconnesian workshops in northern Greece: Proconnesian designs in Thasian marble

Eastern sculptors came to Macedonia and used local marble by the 3<sup>rd</sup> century at least. A cornice (a *cyma recta*) decorated with a row of palmettes in Thessaloniki is made of marble from the Alikı quarries on Thasos (TRSP1, Fig. 8). *Cymatia* like this with a row of palmettes mounted on scrolls linked by horizontal bars and with petals that curl alternately up and down are typical of Asiatic workshops from the second century onward.<sup>17</sup> Several similar cornices made of conspicuously banded Proconnesian marble are in Istanbul; one is in the garden around Hagia Sophia, and two are in the garden of the Archaeological Museum.<sup>18</sup> In TRSP1 and the piece at Hagia Sophia, the petals that curl downward are lobed and acanthus-like, a detail that is not easy to parallel elsewhere. Therefore except for its northern Greek material, TRSP1 is thoroughly Asiatic and the product of a transplanted workshop.

Among the sixth-century chancel barriers with rich designs of Constantinopolitan character at Nea Anchialos there is one made of Alikı marble (BP1, Fig. 9). It has interlacing squares and circles, and in spite of its Thasian marble, its design probably originated in Constantinople; a fine openwork chancel barrier with this basic pattern in Ravenna is made of Proconnesian marble<sup>19</sup>, and it must have been sent there from the capital. The piece in Nea Anchialos was apparently made by a Constantinopolitan workshop established in northern Greece.

Two Ionic impost capitals in Nea Anchialos present Proconnesian designs executed in marble from Alikı,



Fig. 9.  
BP1, photo and CL:  
Chancel barrier with  
interlaced squares  
and roundels, Nea  
Anchialos, 6<sup>th</sup>  
century, Thasian  
marble

Thasos. One is from Hagios Demetrios (HD2, Fig. 10)<sup>20</sup>. The other is from Basilica C (BP6, Fig. 11). The decoration on the impost block of BP6 virtually reproduces the ornament on an Ionic impost capital made of Proconnesian marble in the Lechaion Basilica of Corinth, even to the rare detail of pomegranates emerging from the acanthus.<sup>21</sup> The design was probably transmitted by a Proconnesian workshop in its travels through Greece.

In general, these transplanted and mobile workshops based in northern Greece produced work that can scarcely be distinguished from that found in their area of origin in Proconnesos and Constantinople. The sculptures in marble from Thasos, however, may have

17 STRONG 1953, 144, fig. 6, pl. 33b.

18 MENDEL 1914, 433, from Cyzicus.

19 Arcidiocesi di Ravenna-Cervia: [http://www.webdiocesi.chiesacattolica.it/pls/cci\\_dioc\\_new/v3\\_s2ew\\_consultazione.mostra\\_pagina?id\\_pagina=32667](http://www.webdiocesi.chiesacattolica.it/pls/cci_dioc_new/v3_s2ew_consultazione.mostra_pagina?id_pagina=32667).

20 VEMI 1989, cat. 99.

21 VEMI 1989, cat. 52.



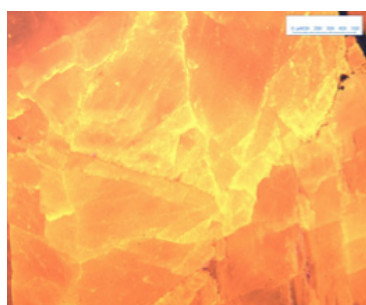


Fig. 10.  
HD2, photo and CL:  
Ionic impost capital,  
Nea Anchialos, late  
5<sup>th</sup> or early 6<sup>th</sup> century,  
marble from Alikí,  
Thasos

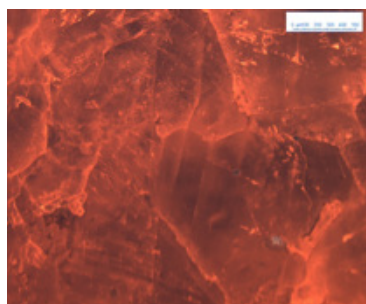


Fig. 11.  
BP6, photo and CL:  
Ionic impost capital,  
Nea Anchialos,  
late 5<sup>th</sup> or early 6<sup>th</sup>  
century, marble from  
Alikí, Thasos

a slightly different flavor; they can seem a little looser, softer, and less deeply cut, which could in part be due to the coarser-grained material. In the case of the Ionic impost capital HD2, the movement of the vines seems a little more awkward, aggressive, and spontaneous than in pieces made of Proconnesian marble; the sculptor could have been availing himself of a bit of freedom in the provinces.

### Local Greek workshops using Thasian marble

Jean-Pierre Sodini has described a distinct regional style of architectural decoration in marble of southern and central Greece, and this style reached northwards to Thessaly and Nea Anchialos.<sup>22</sup> Sodini's analysis is based on motifs rather than nuances of carving, and some of the characteristic motifs and compositions of southern Greece turn up among the pieces made of Thasian marble at Nea Anchialos.

A colonnette capital from Basilica C in marble from Cape Fanari is decorated with four very stylized acanthus leaves (BP5, Fig. 12). Since it lacks volutes, it could be considered an impost capital. Colonnette capitals with four leaves and without volutes appear at Delphi,<sup>23</sup> and leaves with veins that curve from one point to the next are very common in southern Greece.<sup>24</sup> The Nea Anchialos piece seems heavily influenced by the mainland Greek environment and is probably the product of a local (northern or central Greek) sculptor.

Chancel pillars from Basilica C are made of Alikí marble and are decorated with tall crosses with incised borders (HD4, Fig. 13). The border might be an imitation of Constantinopolitan crosses that are overlaid with a second cross in relief, as in BP4 (Fig. 4),<sup>25</sup> but the incised border could also be a local feature. Crosses in fifth century Asia Minor have a single central incision, while incised borders seem to be common in southern Greece from the early fifth century onward.<sup>26</sup> Therefore the Nea Anchialos piers were probably designed and carved by local Greek sculptors.

A richly ornamented section of trabeation in the Rotunda Museum in Thessaloniki stands somewhat by itself, with no strong links to either southern Greece or Asia Minor (TRM, Fig. 14). The trabeation (an Ionic

22 SODINI 1977.

23 SODINI 1977, fig. 6.

24 SODINI 1977, figs. 5, 8-9, 12-13, 15-16.

25 BARSANTI, GUIGLIA 2010, figs. 66-69.

26 SODINI 1977, figs. 4-5, 7, 12, 21, 26-27, 43-45. The Ionic impost capital at Skripou is even dated to the late fourth century: VEMI 1989, cat. 18.



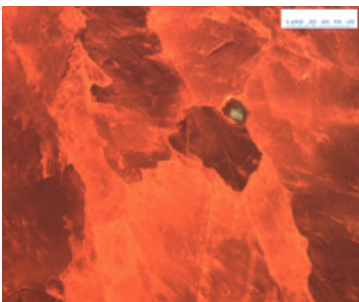


Fig. 12.  
BP5, photo and CL:  
Colonnette with  
impost capital, Nea  
Anchialos, mid to late  
6<sup>th</sup> century, marble  
from Cape Fanari,  
Thasos

entablature: i.e., without frieze) is made of Alikí marble, and its shallow cutting, its defective astragal, and its stylized cymation make it clear that it is Late Antique if not Early Byzantine (4<sup>th</sup> or 5<sup>th</sup> century). The braided astragal orients it toward the Asiatic tradition, but it is so individual that it is almost certainly an independent product of a local Macedonian workshop.

A chancel slab made of a northern Greek marble, perhaps from Cape Fanari, Thasos, in the Martyrion Basilica, Nea Anchialos is decorated with a roundel of meanders (MB1, Fig. 15). The design is probably of Constantinopolitan origin. There is a richly worked out example in Veria, Macedonia (unpublished?) that has many mainland Greek details, but a splendid example also appears on a chancel barrier in Siponto, Apulia, (south Italy) and is apparently made of Proconnesian marble. The Siponto piece is therefore very likely to be an import from Constantinople,<sup>27</sup> and it is also likely that the design emanated from the capital city. In any case, the incised technique, the heavy frame, and the central pinwheel brand MB1

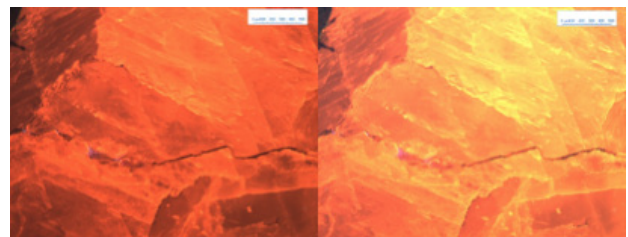


Fig. 13. HD4, photo and CL: Chancel pillars with crosses, Nea Anchialos, 2<sup>nd</sup> half 6<sup>th</sup> century, marble from Alikí, Thasos

as an independent production by a local workshop not directly connected with the Proconnesos.

A chancel barrier is decorated with incised vines and a pair of peacocks flanking an amphora in a very sketchy style that belongs more to the Dark Ages than to Early Byzantine times (HD1, Fig. 16).<sup>28</sup> The piece is marble from the Alikí quarries and exhibits no evident signs of being reused. The composition, a crater with descending vines flanked by peacocks, is that used in the chancel barrier from Basilica C (BP3, Fig. 3a), but the stylization of forms and the shallow carving is clearly much later. The carving of HD1 seems to have more to do with the ambos on Paros<sup>29</sup> than with Constantinople. Even the ambos on Paros, as well as a sarcophagus of Alikí marble

27 BARSANTI 1999; MARANO, *forthcoming*, fig. 5.

28 ASIMAKOPOULOU-ATZAKA 1982, fig. 30.

29 In the Hekatontapyliani and Treis Ekkliseis: ALIPRANTIS 1993, 134-135, figs. 101-103 114, 115, 140.



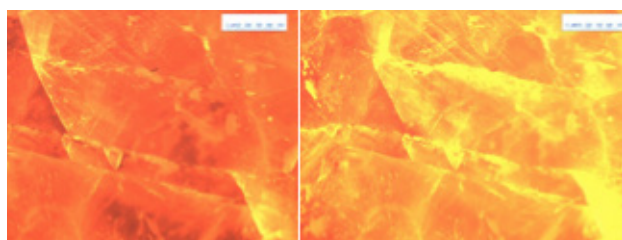


Fig. 14. TRM, photo and CL: Chancel barrier entablature, Thessaloniki, 4<sup>th</sup> or 5<sup>th</sup> century, marble from Alik, Thasos

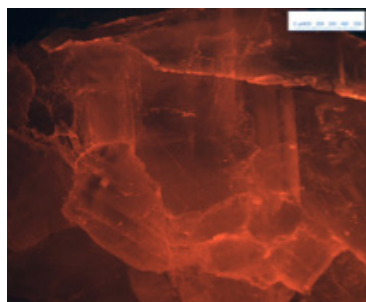


Fig. 15.  
MB1, photo and  
CL: Chancel barrier,  
Nea Anchialos, 6<sup>th</sup>  
century?, marble  
from northern  
Greece, probably  
Cape Fanari, Thasos

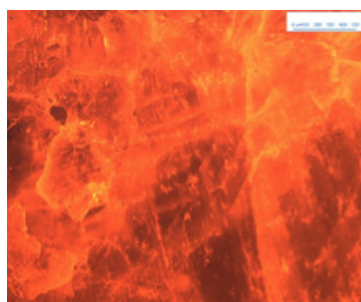
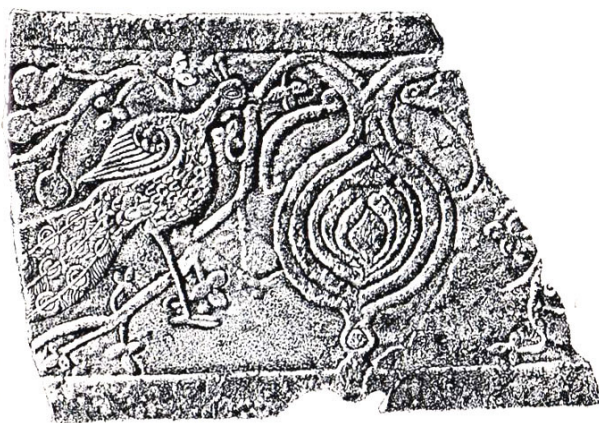


Fig. 16.  
HD1, drawing and CL:  
Chancel barrier, Nea  
Anchialos, 7<sup>th</sup> century,  
marble from Alik,  
Thasos. (drawing:  
ASIMAKOPOULOU-  
ATZAKA 1982,  
fig. 30)

in Siracusa, all probably datable around 600,<sup>30</sup> have more sculptural relief than HD1, which could be even later. Thasos is thought to have been “destroyed” in the Slavic invasions of ca. 620,<sup>31</sup> but this chancel barrier could be evidence for a return to activity after that date.

## Conclusions

Using CL and stable isotopes of C and O, it has been possible to distinguish “imported” Proconnesian marble from northern Greek marble (mainly from Thasos) in architectural decoration in Nea Anchialos and Thessaloniki. Constantinopolitan workshops exported finished pieces in Proconnesian marble to northern Greece, but they also traveled there, as Constantinopolitan-type pieces in Thasian marble prove. Some Thasian marble pieces in Nea Anchialos also reveal motifs from southern Greece and are products of local northern Greek workshops. A block of marble in a church at Philippi proved to be from the city’s own quarries.

30 ATTANASIO *et al.* in this volume.

31 GRANDJEAN, SALVIAT *et al.* 2000, 33.

#	Description	Marble source	workshop
Nea Anchialos, Basilica C : Church of Bishop Petros, ca. 460-500, restored ca. 540*			
BP1	Chancel barrier with interlaced squares and roundels L2185	T1 or T2?	migrant
BP2	Chancel barrier with interconnected palmettes L2096	Pr1	Migrant or Cpl
BP3	Chancel barrier with peacocks, crater, and grapevines L3880	Pr1	Constantino- ple
BP4	Chancel barrier L3932 with lamb, cross, and vine	Pr2	Constantino- ple
BP5	Colonnade with foliate impost capital L2092 or L2098,(6 <sup>th</sup> century)	T 2	N. Greek
BP6	Ionic impost capital in room 16	T1	migrant
Nea Anchialos, guardhouse by Basilica A			
G1	Chancel barrier with acanthus and vines L50	Pr1	Constantino- ple
Nea Anchialos, Basilica A (Hagios Demetrios, ca. 470-500)*			
HD1	L48, Chancel (?) barrier with peacocks and kantharos, 7 <sup>th</sup> century	T1	N. Greek
HD2	Ionic impost capital in atrium	T1?	migrant
HD3	Ionic impost capital from north gallery (matroneum)	Pr1	Migrant or Cpl
HD4	Colonnade of north wall	T1	N. Greek
HD5	Small Corinthianizing capital on NE threshold.	P1	Migrant
Nea Anchialos, Martyrion Basilica (431 CE)			
MB1	Chancel barrier with meander roundel L903	Pr1 or T2	N. Greek
Philippi, Octagonal Church			
POC1	North propylon pier (ca. 500 CE)	Philippi	N. Greek
Thessaloniki, Rotunda Museum			
TRM	Trabeation AG684 (4 <sup>th</sup> -5 <sup>th</sup> century)	T1	N. Greek
Thessaloniki, Rotunda, South Propylon			
TRSP1	geison slab in front of South propylon (ca. 3 <sup>rd</sup> century)	T1	migrant
P = Paros, Ph = Philippi, Pr = Proconnesos; T1 = Thasos, Alik; T2 = Thasos, Cape Fanari			
Migrant = workshop from Constantinople/Proconnesos established in Greece. Cpl = Constantinople			
* Dates based on SPIRO 1978.			

Table 1. Samples: context, quarry, and workshop attribution

## BIBLIOGRAPHY

- ALIPRANTIS TH. 1993: Η ΕΚΑΤΟΝΤΑΪΤΥΛΙΑΝΗ ΤΗΣ ΠΑΡΟΥ/Paros Ekatontapyliani, Municipality of Paros, Thessaloniki.
- ASIMAKOPOULOU-ATZAKA P. 1982: "Early Christian and Byzantine Magnesia," in M. HOURMOU-ZIADIS, P. ASIMAKOPOULOU, K. MAKRI (eds.): *Magnesia: The Story of a Civilization*, Athens, 107-175.
- ATTANASIO D., HERRMANN J., VAN DEN HOEK A. in this volume: "An Early Byzantine Sarcophagus of Calcitic Marble from Thasos in Siracusa", in *ASMOSIA XI*.
- BARBIN V., RAMSEYER K., DECROUEZ D., BURNS S. J., CHAMEY J., MEYER J. L. 1992: "Cathodoluminescence of white marbles: an overview," *Archaeometry* 34, 175-184.
- BARBIN V., RAMSEYER K., DECROUEZ D., HERB R. 1989: "Marbres blancs: caractérisation par cathodoluminescence", *Comptes rendus de l'Académie des Sciences*, Paris 308, II, 861-866.
- BARSANTI C. 1999: "Una nota sui plutei di Siponto, Monte Sant'Angelo e Benevento", in M. MAZZEI (ed.): *Siponto antico*, Foggia, 225-229.
- BARSANTI C., GUIGLIA A. 2010: *The Sculptures of the Ayasofya Müzesi in Istanbul: A Short Guide*, Ege Yayinlari, Istanbul.
- DÉROCHE V., MANDI V., MANIATIS Y., NIKOLAOU A. 1989: "Identification des marbres antiques à Delphes", *Bulletin de correspondance hellénique* 113, 403-416.
- GRANDJEAN Y., SALVIAT F. *et al.* 2000: *Guide de Thasos*, École Française d'Athènes, Paris.
- HARRISON M. 1989: *A Temple for Byzantium: The Discovery and Excavation of Anicia Juliana's Palace-Church in Istanbul*, University of Texas Press, Austin.
- HERRMANN J., SODINI J.-P. 1977: "Exportations de marbre thasien à l'époque paléochrétienne: le cas de chapiteaux ioniques", *Bulletin de correspondance hellénique*, 101.2, 473-509.
- HERRMANN J. 1988: *The Ionic Capital in Late Antique Rome*, Giorgio Bretschneider, Rome.
- HERRMANN J., VAN DEN HOEK A. 2002: "Parian Marble in Nola: Historical Reality or Literary Fiction," in *ASMOSIA V*, 340-346.
- HERRMANN J., BARBIN V., MENTZOS A., REED R. 2002: "Architectural decoration and marble from Thasos: Macedonia, Central Greece, Campania and Provence," in *ASMOSIA VI*, 329-350.
- HERRMANN J., TYKOT R., VAN DEN HOEK A. 2008: "Parian Marble in Early Christian Times", in *ASMOSIA VIII*, 723-737.
- MARANO Y. *forthcoming*: "The circulation of Proconnesian marble in the Adriatic Sea in the Age of Justinian", in J. HERRIN, J. NELSON (eds.): *Proceedings of the Workshop, Institute for Historical Research London*, 8<sup>th</sup> June 2013, London.
- MENDEL G. 1914: *Musées Impériaux Ottomans: Catalogue des sculptures grecques, romaines et byzantines*, Constantinople, vol. 3.
- MENTZOS A., BARBIN V., HERRMANN J. 2002: "Cathodoluminescence and isotopic analysis of Roman and Early Byzantine architectural decoration in the Rotunda Museum, Thessaloniki", in *ASMOSIA V*, 316-327.
- SODINI J.-P. 1977: "Remarques sur la sculpture architecturale d'Attique, de Béotie et du Péloponnèse à l'époque paléochrétienne", *Bulletin de Correspondance hellénique* 101.1, 432-450.
- SPIRO M. 1978: *A Critical Corpus of the Mosaic Pavements on the Greek Mainland, Fourth/Sixth Centuries*, Garland Publishing, New York and London, 2 vols.
- STRONG D. 1953: "Late Hadrianic Architectural Ornament in Rome", *Papers of the British School at Rome* 21, 118-151.
- VEMI V. 1989: *Les chapiteaux ioniques à imposte de Grèce à l'époque paléochrétienne*, École Française d'Athènes, Paris.