

A New Roman Imperial Relief Said to Be from Southern Spain: Problems of Style, Iconography, and Marble Type in Determining Provenance

Pollini, John; Lapuente, Pilar; Nogales-Basarrate, Trinidad; Podany, Jerry

Source / Izvornik: **ASMOSIA XI, Interdisciplinary Studies on Ancient Stone, Proceedings of the XI International Conference of ASMOSIA, 2018, 413 - 425**

Conference paper / Rad u zborniku

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

<https://doi.org/10.31534/XI.asmosia.2015/02.26>

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:123:775329>

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

Download date / Datum preuzimanja: **2025-04-02**



Repository / Repozitorij:

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





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

PRESENTATION	15
NECROLOGY: NORMAN HERZ (1923-2013) by Susan Kane	17
1. APPLICATIONS TO SPECIFIC ARCHEOLOGICAL QUESTIONS – USE OF MARBLE	
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 th C.) and the Basilica of San Lorenzo (5 th 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 nd C. Bc – Late 1 st C. Ad) <i>Stefan Ardeleanu</i>	155
<i>Amethystus</i> : Ancient Properties and Iconographic Selection <i>Luigi Pedroni</i>	167
2. PROVENANCE IDENTIFICATION I: (MARBLE)	
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 th And 17 th 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 Ruppinié 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 Brillì 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 Garcia-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 Garcia-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
3. PROVENANCE IDENTIFICATION II: (OTHER STONES)	
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. Peréx 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
4. ADVANCES IN PROVENANCE TECHNIQUES, METHODOLOGIES AND DATABASES	
Grainautline – a Supervised Grain Boundary Extraction Tool Supported by Image Processing and Pattern Recognition <i>Kristóf Csorba, Lilla Barancsuk, 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 Previato and Arturo Zara</i>	597
5. QUARRIES AND GEOLOGY	
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 Denктаş</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
6. STONE PROPERTIES, WEATHERING EFFECTS AND RESTORATION, AS RELATED TO DIAGNOSIS PROBLEMS, MATCHING OF STONE FRAGMENTS AND AUTHENTICITY	
Methods of Consolidation and Protection of Pentelic Marble <i>Maria Apostolopoulou, Elissavet Drakopoulou, Maria Karoglou and Asterios Bakolas</i>	749
7. PIGMENTS AND PAINTINGS ON MARBLE	
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
8. SPECIAL THEME SESSION: „THE USE OF MARBLE AND LIMESTONE IN THE ADRIATIC BASIN IN ANTIQUITY”	
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
INDEX OF AUTHORS	1009

A NEW ROMAN IMPERIAL RELIEF SAID TO BE FROM SOUTHERN SPAIN: PROBLEMS OF STYLE, ICONOGRAPHY, AND MARBLE TYPE IN DETERMINING PROVENANCE

John Pollini¹, Pilar Lapuente², Trinidad Nogales-Basarrate³ and Jerry Podany⁴

¹ University of Southern California, Los Angeles, California, United States (pollini@usc.edu)

² Petrology and Geochemistry, Earth Sciences Department, Zaragoza University, Zaragoza, Spain / Institut Català d'Arqueologia Clàssica (ICAC), Tarragona, Spain¹ (plapuent@unizar.es)

³ National Museum of Roman Art, Mérida, Spain (trinidad.nogales@mecc.es)

⁴ J. Paul Getty Museum at the Villa, Malibu, United States, retired (jerrypodany@gmail.com)

Abstract

A very fine-grained white marble “historical” relief, featuring three figures and part of a Latin inscription, is said to be from Southern Spain. This privately owned relief, presently on loan to the J. Paul Getty Museum, represents the Emperor Tiberius being introduced by a female personification to an enthroned semi-nude figure holding a cornucopia. This article examines the style, iconography, and marble type in an attempt to determine if it may indeed originally have come from Southern Spain. Based on the combined petrographic, cathodoluminescence and a C and O isotopic analysis, the marble proved to be from the Luni-Carrara quarries. This prestige marble from Italy was used in Roman Hispania for different decorative sculptural programs, especially those of the Augustan and Julio-Claudian period. Explored here are various issues associated with this relief, its provenance, and date.

Keywords

Tiberius Relief, Hispania, imperial cult

Introduction

On loan to the J. Paul Getty Museum at the Villa in Malibu since 2010 is an exceptional, fine-grained white marble relief, featuring three figures and part of a Latin inscription (Fig. 1).² In this paper we present both the results of an analysis of marble used for this important ancient Roman relief, which is said to be from

southern Spain,³ and some observations about the various problems in determining an ancient object's provenance based on marble analysis and other factors, such as style and method of carving.

There are four specific questions that will be addressed in this article.⁴ 1): What can the iconography, style, and chronology tell us about the relief? 2): Was the relief carved in an Iberian marble or in one of the classical marble types? 3): Where was the relief carved? and 4): Where was it set up?

Physical description and iconographical and stylistic consideration

To the left in the relief appears a standing togate figure, identifiable as the Emperor Tiberius by his portrait features, hairstyle, and inscribed name.⁵ In his left hand he holds a book scroll, signifying his magisterial role. In the scene, the emperor is being introduced by a female divinity, most likely the goddess Concordia, to an enthroned, now headless, semi-nude figure holding a cornucopia, whose iconography identifies him in this context as a *genius*, or divine spirit, of some people or city in the Roman Empire.⁶ He is seated on a high-backed throne with footstool that is reminiscent of Macedonian style thrones of the 4th century B.C., like the marble throne of the so-called Eurydike Tomb in Vergina or that dedicated to Dione

1 I + D Spanish Projects HAR 2014-52958-P and HAR2015-65319-P (MINECO / FEDER).

2 We thank Dr. Claire Lyons, Curator of Antiquities at the J. Paul Getty Museum at the Villa, for this information and for her help with this project.

3 This relief was first published in POLLINI 2012, 97-101, and since it is relatively unknown to the scholarly world of classical art and archaeology, it was featured on the cover of this book.

4 Some of these were preliminarily considered in POLLINI 2012.

5 For the identification of Tiberius here, see the discussion in POLLINI 2012, 97-100.

6 For the more usual *genius* type figures of a private and imperial nature, see in general KUNCKEL 1974.

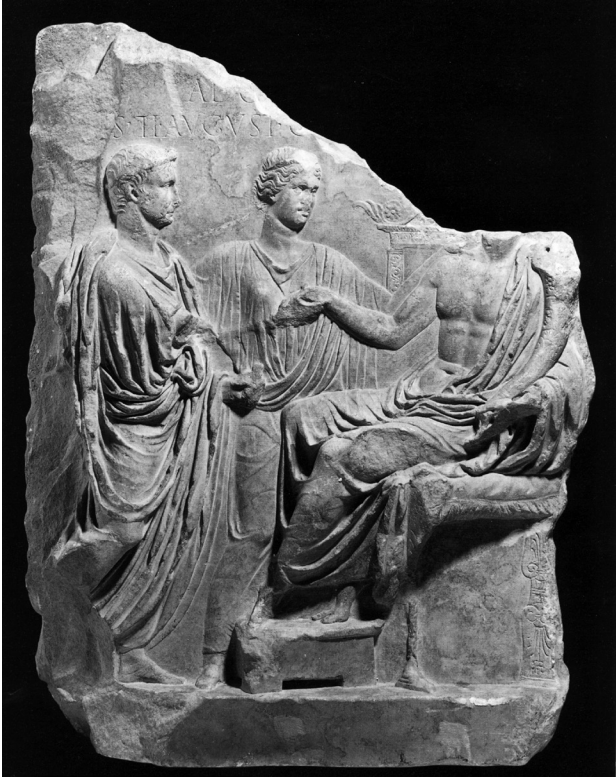


Fig. 1. Tiberius Relief (after POLLINI 2012, fig. II.31a)



Fig. 2. Bronze statuette of an enthroned Concordia from Pilistrello, National Archaeological Museum of Florence (photo: J. Pollini)

from the Athenian Acropolis.⁷ Such thrones are also used for divinities and imperial images in the Roman period⁸ as in the case of a small bronze mid-second century A.D. statuette of an enthroned Concordia from Pilistrello (Italy) in the Medici-Lorraine Collection in the National Archaeological Museum of Florence (Fig. 2).⁹

The somewhat idealized portrait features of

7 For the 4th century B.C. marble throne from the so-called Euridike Tomb at Vergina, see recently ANDRIANOU 2009, 30 (no.9) with further references. For the marble throne from the Acropolis (Acropolis Museum. Inv. 4047), see PALAGIA 2002, 176, fig. 6. The type of legs of such stools is also known earlier for Greek style *klines*. For ancient Greek furniture, see recently in general, ANDRIANOU 2009. I thank J. Herrmann for raising the question of the type of throne at the ASMOSIA conference in Split and both Olga Palagia and Dimitra Andrianou for their comments about the distinctive legs of the throne.

8 For thrones, see LA ROCCA 2007.

9 This figure (mus. inv. 311) was discovered in 1565 in Pilistrello near Vada (Rosignano Marittimo, Livorno): See ARBEID, IOZZO 2015, 142-45 (cat. 115, fig. 115). For other divinities, both male and female, seated on such elaborate thrones, see KAUFMANN-HEINIMANN 1998, 210 (fig. 145), 220 (fig. 166), 225 (fig. 173), 304 (fig. 270).

Tiberius, perhaps somewhat assimilated to those of his deified father Augustus, are expertly carved and show that the sculptor was a master and trained as a portraitist, whereas the head of the putative Concordia figure, which follows more idealized high Classical Greek models and appears slightly more provincial in its forms, may have been the work of an apprentice. The type of scene represented and the panel's dimensions suggest further that it was originally part of some now lost public monument most likely set up during the Tiberian period. The relief measures ca. 90cm in height, 68cm in width, and 15.5cm in depth. In its general high quality, style, and size the "Tiberius Relief" comes close stylistically to the Suovetaurilia Relief (also known as the "Grimani Relief") in the Louvre (Fig. 3), which comes from Rome and is generally dated to the Principate of Tiberius (i.e., 14-37 A.D.).¹⁰

In Augusta Emerita (Mérida), capital of the

10 Although some of the figures of the Suovetaurilia Relief are in higher relief, it is of comparable size, measuring some 88 cm in height. For this relief, see RYBERG 1955, 107, pl. 35, fig. 54a; FLESS 1995, cat. 17, pl. 43.1; TORTORELLA 1992, 81-104; LA ROCCA *et al.* 2014, 142-143 (cat. no. 90).

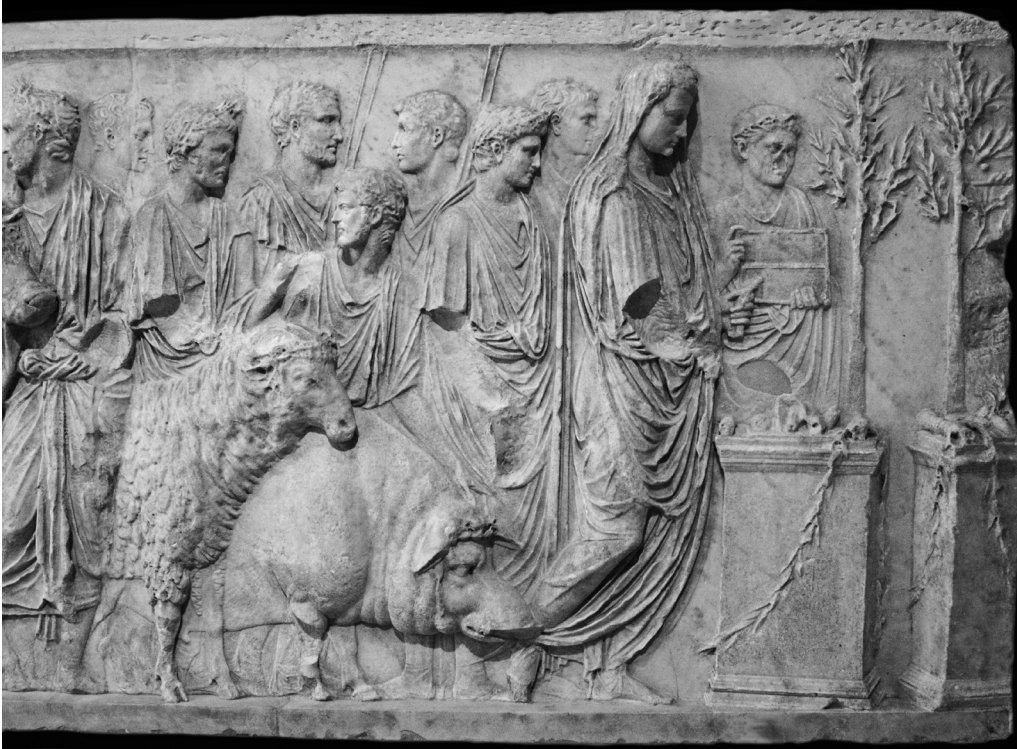


Fig. 3. Detail of the Suovetaurilia ("Grimani") Relief, Louvre, Paris (photo: J. Pollini)



Fig. 4. Composite photo by T. Nogales Basarrate of marble fragments that may be from an Ara Providentiae at Augusta Emerita, National Museum of Roman Art, Mérida, Spain, and inner altar precinct of the Ara Pacis (lower right) (after NOGALES BASARRATE 2007, fig. 12)



Fig. 5. Representation of the Ara Providentiae on a provincial coin of Tiberius (inv. CE27799) (photo: Archivo Fotográfico MNAR/José Luis Sánchez)



Fig. 6. Back of the Tiberius Relief (photo: courtesy of the J. Paul Getty Museum at the Villa, Malibu)

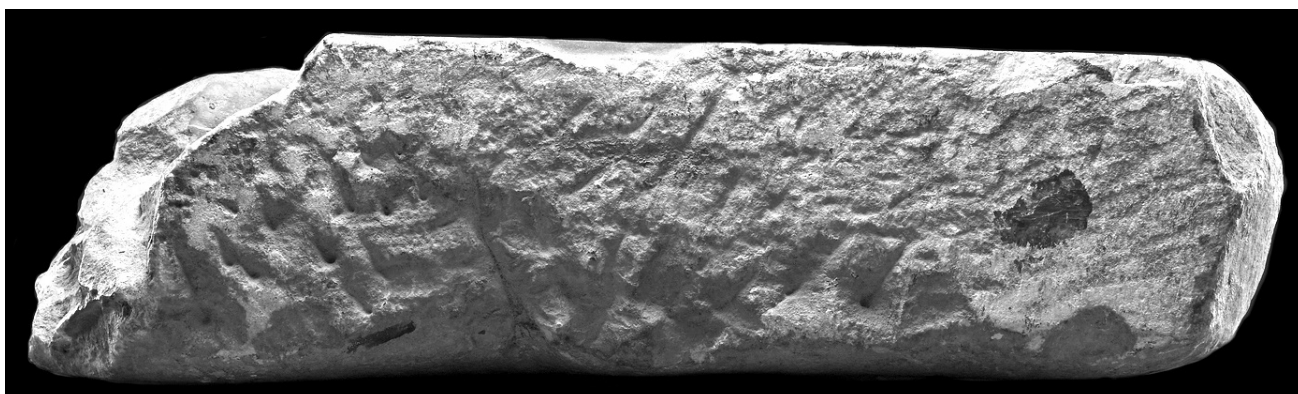


Fig. 7. Bottom of the Tiberius Relief (photo: courtesy of the J. Paul Getty Museum at the Villa, Malibu)

province of Lusitania in Roman Hispania, an “historical” relief and several associated decorative elements have been identified as belonging to an Ara Providentiae (Fig. 4) on the basis of colonial coins of Emerita that are of Tiberian date (Fig. 5)¹¹. Such a provincial altar, a *templum minus*, would appear to have been modeled on the Ara Providentiae Augustae that was set up in Rome by Tiberius and was itself influenced by the Ara Pacis Augustae¹². It is possible that this altar was once located in the Emerita colonial forum and represented the historical

founding of the colony by Marcus Vipsanius Agrippa, *patronus coloniae* and son-in-law of Augustus.

The back of the Tiberius Relief is smoothly finished rather than roughly worked, indicating that it was probably reused later on for some other purpose (Fig. 6).¹³ The relatively level bottom has been rough-worked with a pick (Fig. 7). The left side of the relief has been hacked at, or cut down, as evidenced by the large chips along most of its left edge (Fig. 8). At the top of the left side, however, enough of the finished vertical edge is preserved unchipped to indicate that this marks the end of the panel, which would have once abutted on another

11 NOGALES BASARRATE 2000a, 31-34, figs.1- 9 ; NOGALES BASARRATE 2000b.

12 For the Ara Providentiae Augustae set up in Rome by Tiberius and the Ara Pacis Augustae, see POLLINI 2012, 204-308, 354-357 with further bibliography.

13 According to Jerry Podany, the mount anchor-points on the back of the relief were installed by the private collector.



Fig. 8. Left edge of the Tiberius Relief (photo: courtesy of the J. Paul Getty Museum at the Villa, Malibu)



Fig. 9. Right edge of the Tiberius Relief (photo: courtesy of the J. Paul Getty Museum at the Villa, Malibu)



Fig. 10. Top right side of the Tiberius Relief with pre-existing drill hole: arrow by J. Podany, indicating area from which marble samples were taken (photo: J. Pollini)

relief panel to the immediate left. On the partially broken right side of the relief (Fig. 9) enough of the edge is preserved to indicate that it was beveled in at an angle to form a miter joint with another now missing relief panel. Along this beveled edge traces of rough picking are evident, suggesting that this was once the corner of a square or rectangular monument.

The broken section with the now missing head of the *genius*, the hacking along the left side of the relief, and the smoothly finished back of the panel indicate that the original monument may have been intentionally destroyed, probably in late antiquity by Christian fanatics, who destroyed a great deal of polytheistic material culture throughout the former Roman Empire.¹⁴ Subsequently, the relief was reused for some other purpose. The well preserved condition of the figural scene and the smoothly finished back suggest that at some point the panel may have been placed face down as a pavement stone, immured to form part of a wall revetment, or served as a marble screen. The concealment in this way of the figural scene is, therefore, likely to have contributed to its preservation.

As in the case of most high quality relief sculpture, the Tiberius Relief would have been carved in place after the roughly worked blank marble panels had been set on the monument that they were designed to decorate. This method of carving reliefs in place can be established in part by the fact that sculptors often had to carve figures over two adjoining panels, as can be seen, for example, in the case of the Actium, Ara Pacis, and Cancellaria Reliefs,¹⁵ as well as the relief associated with the Ara Providentiae in Augusta Emerita.¹⁶ Setting adjoining marble panels in place before carving prevented damage to the figural scenes along the joined edges of the relief panels. The principle is the same for cutting the flutes of

columns, once the drums have been set in place on top of one another.

Although no figures extend beyond the edges of the Tiberius Relief, there may have been figures or objects overlapping joins on other, now missing panels of the original monument that the relief once adorned. Given the subject matter represented here, it is likely that this monument was a statue base or altar, probably set up in the context of the “imperial cult,” a usage for which imported prestige marbles would have been especially appropriate.

The marble provenance: Iberian or classical?

The Tiberius Relief, once in a private collection in Seville and reported to be from southern Spain, was recently purchased by another private collector.¹⁷ Discussed in John Pollini’s book, *From Republic to Empire: Rhetoric, Religion, and Power in the Visual Culture of Ancient Rome* (Norman, Oklahoma, 2012) were the iconography of this relief, its inscription, its importance, and why it might have once decorated a monument in either of the two provincial capitals of southern Spain (Fig. 11), Colonia Augusta Emerita in Lusitania (modern Mérida) or Colonia Patricia or Corduba in Baetica (modern Córdoba).¹⁸

Although Pollini was inclined to accept the reported provenance of the relief as coming from southern Spain, he was also interested in trying to determine if the marble might be from the quarries of the Estremoz Anticline¹⁹ (labeled EA on the map: Fig. 11) or of the Almadén de la Plata district²⁰ (labeled AP on map: Fig. 11) in what is now Alto Alentejo in Portugal and in the Andalusia region of southern Spain. Marbles from these quarries were commonly used in the southwestern part of Spain, but were generally not widely exported elsewhere. Thus far several archaeometric analyses have

14 The amount of Christian destruction and mutilation of images of classical antiquity is truly astounding, though rarely recognized as such. Of the three monotheistic religions, Christianity proved to be the most destructive to the polytheistic peoples of the former Roman Empire, not to mention to the native inhabitants of the New World. See recently in general POLLINI 2013; KRISTENSEN 2013; POLLINI 2014 with earlier literature on the subject.

15 For the Actium Reliefs: LA ROCCA *et al.* 2014, 292-295 (266-276), which indicates that these reliefs were discovered in the Kingdom of Naples in the sixteenth century. They are to be published soon in a separate monograph by Thomas Schäfer. For the Ara Pacis: POLLINI 2012, 204-308; for the Cancellaria Reliefs: POLLINI 2012, 103, 309 with earlier literature.

16 NOGALES BASARRATE 2000a,b.

17 According to Christie’s, the relief was formerly owned by D. Arturo Moya Moreno of Seville, Spain, and was acquired by him in the 1950s. According to Trinidad Nogales Basarrate, after Mr. Moya Moreno’s death, the reliefs were sold. The Spanish export license for the relief from the Ministry of Culture is no. 237/2008. The relief was illustrated in the 10 June 2010 issue of *Antiquities*, Christie’s NY (NY), sale 2323, lot 135. We thank Molly Morse Limmer, Vice President, Business Development, Midwest Regional Office of Christie’s, for this information.

18 See POLLINI (above n. 2).

19 For the geology, see LAMBERTO, CAETANO 2008; for a look into the updated characterization of the Estremoz Anticline versus Almadén de la Plata marbles, see LAPUENTE *et al.* 2014.

20 BELTRÁN *et al.* 2011.

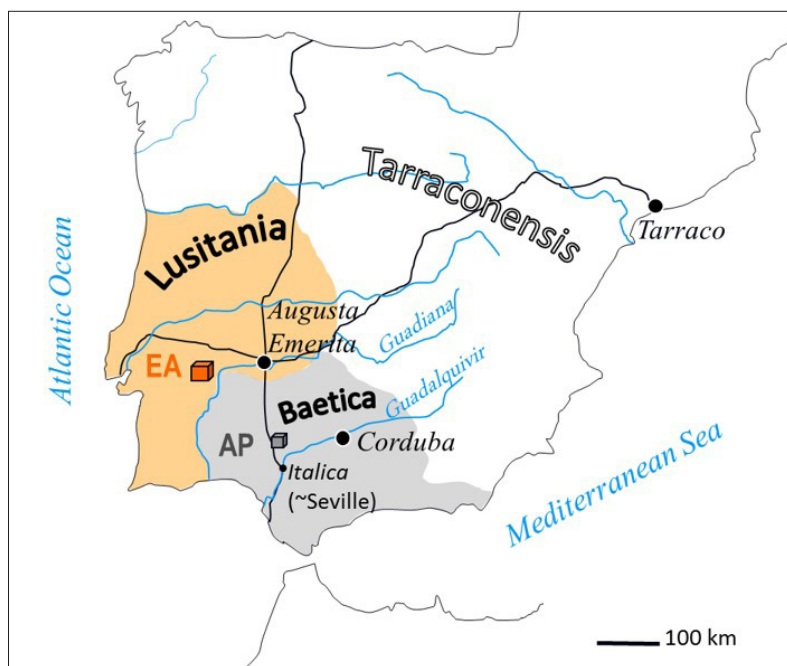


Fig. 11. Map of Hispania with the location of the Roman provinces and their capitals. Principal marble quarry districts are located: EA (Estremoz Anticline, Alto Alentejo, Portugal) and AP (Almadén de la Plata, Seville province, Andalusia) (photo: P. Lapuente)

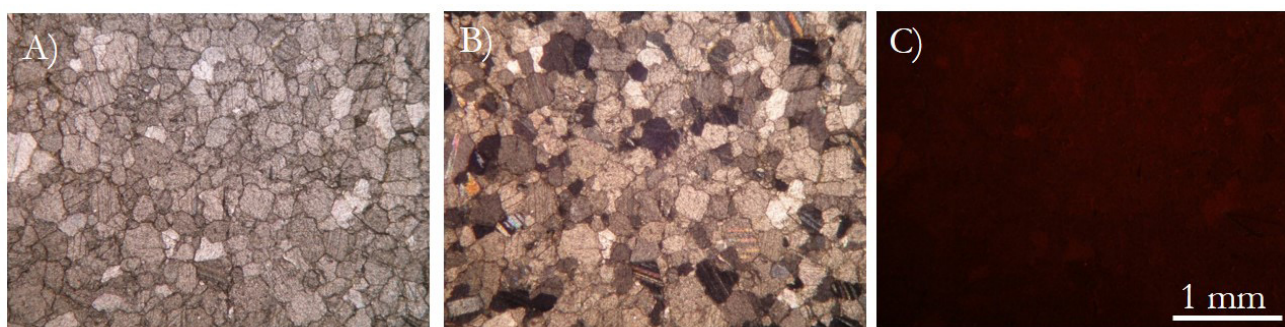


Fig. 12. Photomicrographs in plane (A), crossed polarized light (B) and cathodoluminescence (C) (photo: H. Royo)

revealed their use only in places in the northern part of Africa²¹ and more recently in Caesar Augusta (northeastern Hispania) in the case of a portrait carved in marble from Estremoz Anticline²².

Accordingly, Pollini requested and received permission in 2014 from the present owner of the relief to have marble samples taken from it for scientific analysis.

21 Several cases in the province of Mauretania Tingitana detected the use of Iberian marbles: ANTONELLI *et al.* 2009, found Estremoz marbles in Volubilis (Morocco) and ORIGLIA *et al.* 2011, and ANTONELLI *et al.* 2015, identified Almadén de la Plata in Thamusia and Banasa, respectively, which were jointly used together with dolomitic marbles from the current Málaga province (Andalusia), those of Mijas-Coín and Alhaurín el Grande marbles.

22 The analyses are in LAPUENTE *et al.* 2016; and in NOGALES, LAPUENTE, RODÀ 2017, where the possible Tiberian portrait is also discussed.

Two small samples were taken by Jerry Podany at the Getty Villa in Malibu, California, from the area of a pre-existing drill hole at the top of the relief, where there was prior fracture damage (Fig. 10: see arrow). Taking two samples of the same piece was necessary in order to compare their microstructure and texture, as some Hispanic marbles have the characteristic of being highly variable even on a microscopic scale. These marble samples were analytically studied to try to establish whether the marble was from quarries in southwestern Spain and Portugal or, instead, from one of the classical marble quarries.

Analytical study of the marble type

Both samples were photographed and embedded in an epoxy resin to facilitate their manipulation. The small blocks were cut, and the resulting mounted slices were then ground down to the standard thickness of 30µm. The uncovered thin sections were used for both petrographic and cathodoluminescence studies (CL).

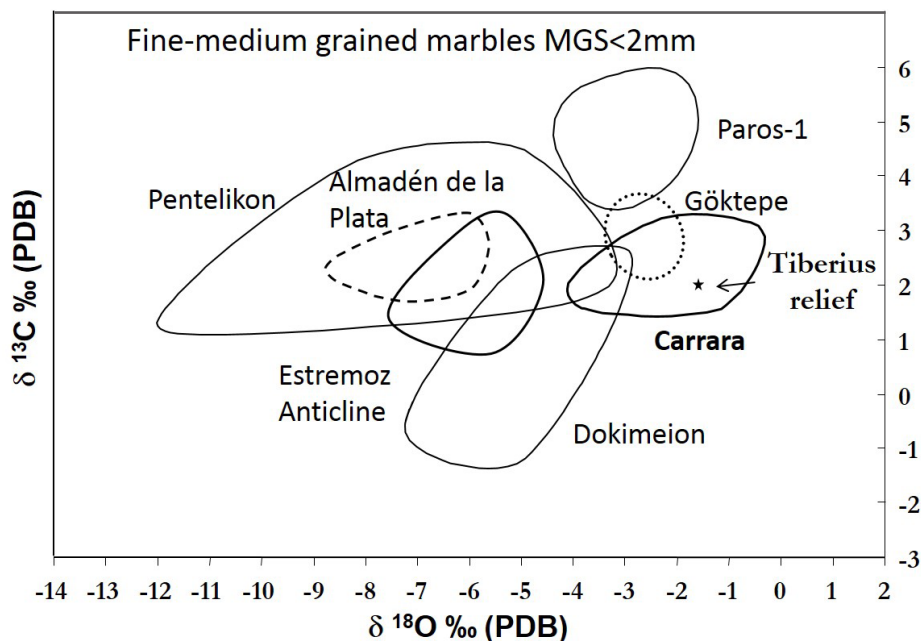


Fig. 13. Isotopic diagram originally according to GORGONI *et al.* (2002) for the fine-grained classical marbles, modified with the Göktepe isotopic field compared with data from ATTANASIO *et al.* (2009), and the updated Iberian isotopic fields (quarries of Estremoz Anticline district and Almadén de la Plata) (LAPUENTE *et al.* 2000, 2014)

Optical microscopy (NIKON Eclipse 50iPOL) was used to examine the mineralogy, fabric, texture, and grain-boundary shape and to determine the maximum grain size (MGS). CL microscopy was carried out with CL8200 Mk5-1 cold equipment coupled to the optical microscopy.²³ The electron energy was 15-20kV and the beam current was operated at 250-300 μ A. The observed luminescent colors, their intensity and distribution, were recorded with an automatic digital NIKON COOL-PIX 5400 camera. These images were automatically controlled (29mm focal length, f/4.6 aperture, 1s exposure, ISO-200) to obtain comparative images of the CL intensity. The color of calcite and dolomite under CL microscopy is usually distinguished by the combination of yellow, orange, and red. While dolomite exhibits a red luminescence, calcite is typically yellow-orange.

The same CL microphotographs were also taken in parallel and crossed polarizers (Fig. 12 A, B), which were checked with those available from several classical marble quarries²⁴ and from ancient Iberian ones.²⁵ In order to verify the absence of dolomite crystals, both thin sections were later stained with S Red Alizarin.

After a petrographic and a CL examination, both samples were shown to exhibit the same mineralogical and textural characteristics, confirming their compositional and textural homogeneity. The samples turned out to be a calcitic marble, very fine-grained in size with an MGS <0.6 mm in length. They are also of an isotopic fabric and granoblastic with mainly straight to curved boundaries, which form an almost polygonal texture.

These microscopic features match well those of Luni-Carrara marbles, from the ancient quarries of Luna (modern Luni), although some other varieties from local Iberian quarries such as Borba in the Estremoz Anticline and some types of Göktepe marble exhibit similar characteristics.

CL microscopy showed a homogeneously dark orange color, with a faint intensity (Fig. 12C). This is also true of Carrara marble, but is not typical of the other marbles already mentioned. However, with only the results of petrographic and CL analyses, it is risky to eliminate from consideration other possible marble sources, for which reason it is also necessary to make use of isotopic data. Prior to this study, C and O isotopic analyses had been performed by Marc Walton, formerly of the Getty Conservation Institute, and Jerry Podany, formerly of Getty Villa Conservation.

The provided isotopic values are: 2.02 ‰ ($\delta^{13}\text{C}$) and -1.65 ‰ ($\delta^{18}\text{O}$). These data were plotted on the corresponding isotopic diagram (Fig. 13) for fine-grained calcitic marbles, which are distinctive. They clearly plot outside any of the fine-grained calcitic marbles of Iberia, but fall within the Carrara isotopic field. This isotopic diagram for fine classical marble types was modified to include both the Göktepe and the most important Iberian isotopic fields; namely, the quarries of the Estremoz

23 The analyses were performed at ICAC (Institut Català d'Arqueologia Clàssica, Tarragona, Spain) within the I+D+i HAR2011-25011 research project funded by the Ministerio de Ciencia e Innovación of the Spanish Government. We thank H. Royo for his help.

24 BARBIN *et al.* 1989; 1992; LAPUENTE *et al.* 2012; 2014.

25 LAPUENTE *et al.* 2000; 2014; LAPUENTE, BLANC 2002; ÁLVAREZ *et al.* 2009.

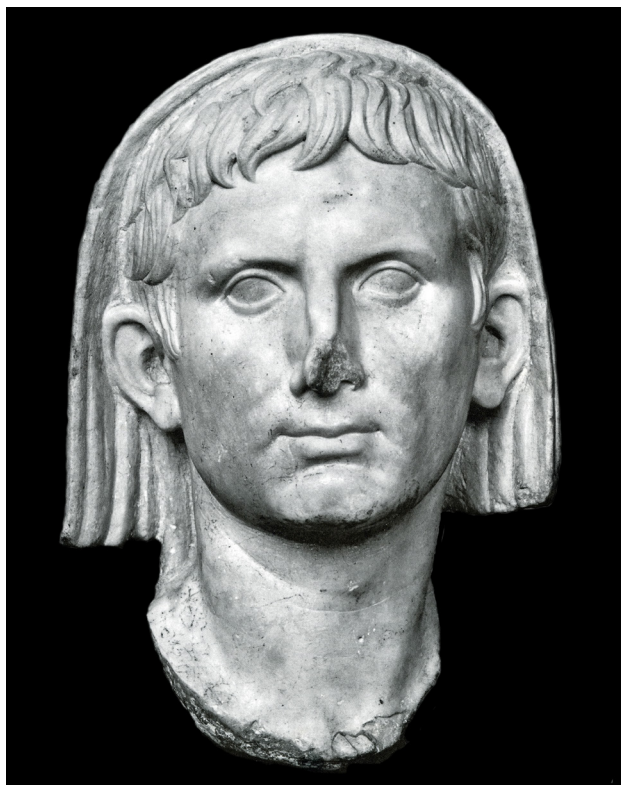


Fig. 14. Head of Augustus *capite velato*, National Museum of Roman Art, Mérida, Spain (photo: courtesy of DAI, Madrid)

Anticline and Almadén de la Plata districts in the province of Seville.

Results and discussion

By employing a multi-method approach, Iberian marble quarries can now be definitively ruled out as the source of the marble type of the Tiberius Relief. The marble provenance is undoubtedly Luni-Carrara²⁶. As already noted, the Tiberius Relief was in a Spanish collection in Seville and is reported to be from Southern Spain. Since our analysis has shown that the relief is carved in Luni-Carrara marble, can we determine whether it was originally set up in the Roman province of Lusitania or Baetica (Fig. 11), based on our present state of knowledge about the use of imported marbles in Roman Spain?

In the last two decades, research on the type of marble used in Roman Spain has made great progress²⁷. As a first step, research based on petrographic features was carried out in more than 400 archaeological artifacts stored or

exhibited at the most important museums in Spain located especially close to the ancient quarry areas of the Southwest Iberia.²⁸ Through CL and isotopes, our knowledge of the use of local Hispanic and imported marbles has been refined. Over the last ten years, the collaboration of various interdisciplinary groups²⁹ has helped to advance research in this area of study. However, there are still many ancient sculptural works waiting to be analyzed by a combination of techniques or a multi-method approach.

Recent multi-method analyses of the marble of about 50 objects in the National Roman Art Museum of Mérida³⁰ showed that the vast majority of architectural relief sculpture and a great deal of three-dimensional statuary from Lusitania were carved in the local marble of the Estremoz Anticline. Nevertheless, the presence of sculptures carved in Luni-Carrara marble is also attested from the outset of the Roman colony (i.e., after 25 B.C.), partly for reasons of prestige³¹ and, in many cases, because of this marble's close association with the imperial cult³². For example, the high quality portrait head of Augustus with head veiled (*capite velato*) from an imperial cult room at Augusta Emerita was carved in Luni-Carrara marble (Fig. 14)³³. It is often assumed that some high quality works carved in imported marble, like this portrait of Augustus, were produced elsewhere, most notably in Rome or Italy, and imported into southern Spain.³⁴ Although this is certainly possible in the case

26 PENSABENE 2004, where the distribution of Luni-Carrara marble in western Roman provinces is considered.

27 See, e.g., NOGALES BASARRATE, BELTRÁN FORTES 2008; ÁLVAREZ *et al.* 2009.

28 LAPUENTE *et al.* 1988; 1999; 2000 and unpublished reports; NOGALES, GONÇALVES, LAPUENTE 2008.

29 Collaboration first with Bruno Turi and Maria Preite-Martinez (from the Laboratory of Stable Isotopes of "La Sapienza", Rome), and Mauro Brillì (Istituto de Geologia Ambientale e Geoingegneria, CNR, Rome); and secondly with Philippe Blanc (Quantitative CL-SEM at the Université "Pierre et Marie Curie", Paris); Hernando Royo (CL equipment at the Catalan Institute of Classical Archaeology).

30 NOGALES, GONÇALVES, LAPUENTE 2008; LAPUENTE *et al.* 2014.

31 PENSABENE 2004; NOGALES BASARRATE 2007, 446.

32 NOGALES BASARRATE 2007, 455-456.

33 This head, one of the oldest imperial portraits found in Mérida, came from the so-called *aula sacra* in the portico of the theater at Mérida: LAPUENTE *et al.* 1999; NOGALES BASARRATE 2007, 461-463, fig. 2.

34 For this head of Augustus, see, e.g., BOSCHUNG 1993, 163 (cat. 130) pl. 74, 165.5, who assumes this and many other marble portraits found in the Roman West would have been imported from Rome or Italy (85-86). See also n. 18 above. Cf., however, POLLINI 1999, 728-729; NOGALES BASARRATE 2007, 461-463, fig. 2.

of relatively small works like the head of Augustus, they could also have been produced locally in an imported marble. A well trained portrait specialist in a leading provincial workshop would have been capable of closely copying official models in plaster or clay commissioned in Rome and distributed throughout the Empire via the art market.³⁵

Because high quality sculpture was produced in southern Spain from the late first century B.C. in Luni-Carrara, Parian, Pentelic, and Docimium marble, as well as in local Iberian marbles, from the first century A.D., we can only assume that sculptors from Rome, or some other major Italian or provincial centers, set up workshops in Roman colonies and used marbles with which they were long familiar.³⁶ However, to meet the growing demand for Greco-Roman style sculpture in prosperous provincial Roman cities like Augusta Emerita and Corduba, sculptors would also have naturally looked for new local sources of high quality white marbles, especially the finer-grained varieties, whose physical and compositional properties were similar to those classical marbles that artists were already accustomed to using. Readily accessible local marbles would obviously have been less expensive because it did not need to be transported over long distances³⁷. In southern Roman Spain, the quest for high quality marble led to the discovery and exploitation of the marbles from the Estremoz Anticline and Almadén de la Plata districts³⁸ (Fig. 11).

Despite these new local marble sources, classical marble types continued to be imported, even into late Roman times³⁹, probably in part because of their symbolic and prestige value, especially in the context of the imperial cult. This continued usage of classical alongside local Iberian marbles has been demonstrated by a number of sculptural works in the National Museum

of Roman Art in Mérida.⁴⁰ As demand for sculpture increased, first-generation sculptors from abroad would have undoubtedly trained local craftsmen⁴¹. By the time of Tiberius' Principate (from 14-37 A.D.) the colonial forum of Augusta Emerita and its statuary, which followed models at Rome, were made entirely of marble, mostly from local quarries.⁴² Among the classical marbles imported into Lusitania, Luni-Carrara was the most used⁴³, but from marble analyses carried out thus far, this type of marble appears to have been employed more for three-dimensional sculptures and architectural elements than for figural relief sculptures like the Tiberius Relief.

Based on more recent marble analyses of different Spanish researchers, it appears that Luni-Carrara marble was far more commonly used in Baetica, especially during and after the Augustan period.⁴⁴ The fact that a number of colored stones and granites were imported into Baetica, along with classical marbles from around the Mediterranean,⁴⁵ suggests that Baetica was more accessible to the Mediterranean Sea than the Romanized areas of Lusitania. Also, unlike Lusitania's capital Augusta Emerita, which lies along the only partially navigable Guadiana River, Baetica, with its capital of Corduba, and other towns like Italica benefited from being on the highly navigable Guadalquivir River.

Conclusions

In conclusion, based on petrographic and CL features, as well as Carbon to Oxygen isotopic values, it can be conclusively established that the Tiberius Relief is carved in a fine-grained calcitic marble from the ancient quarries of Luni-Carrara. Secondly, because of its subject matter, method of carving, and physical features, the Tiberius Relief was carved in place and was undoubtedly only one of several figural panels that once decorated some now lost monument, probably a statue base or altar connected with the imperial cult. And thirdly, although we cannot rule out that the Tiberius Relief was originally set up in a prominent city like Augusta Emerita in

35 On the matter of distribution via the art market, see POLLINI 1999, 731 with further literature on this subject; for provincial markets and *officinae* in Hispania: PENSABENE 2006; NOGALES BASARRATE 2009; NOGALES, RODÀ, 2011.

36 See preceding note and POLLINI 2012, 100 with n. 147 with further references.

37 BELTRÁN 2012.

38 See MAYER, RODÀ 1998; NOGALES BASARRATE, BELTRÁN FORTES 2008, with further literature on this subject; RODRÍGUEZ *et al.* 2012.

39 For a late sculpture program in Aphrodisian marble from a Lusitanian Roman Villa: NOGALES, CARVALHO, ALMEIDA 2004; NOGALES BASARRATE 2013.

40 These statues have already been analyzed and published: See LAPUENTE *et al.* 2014; NOGALES BASARRATE *et al.* 2015.

41 NOGALES BASARRATE 2009; 2011.

42 NOGALES, ÁLVAREZ 2006; NOGALES BASARRATE 2007; 2009.

43 PENSABENE 2004.

44 PENSABENE 2004; ÁLVAREZ *et al.* 2009; RODRÍGUEZ 2008; BELTRÁN *et al.* 2011; GUTIÉRREZ GARCIA-M., RODÀ, 2012, 295-296.

45 DE NUCCIO *et al.* 2002; GNOLI 1971; 1988.

Lusitania,⁴⁶ it is perhaps more likely that it came from an important, but less land-locked colonial city like Corduba in the Roman province of Baetica.

BIBLIOGRAPHY

- ADRIANOU D. 2009: *The Furniture and Furnishings of Ancient Greek Houses and Tombs*, Cambridge.
- ÁLVAREZ A., DOMÈNECH A., LAPUENTE P., PITARCH À., ROYO H. 2009: *Marbles and Stones of Hispania (Exhibition Catalogue)*, Tarragona.
- ANTONELLI F., LAZZARINI L., CANCELLIERE S., DESSANDIER D. 2009: "Volubilis (Meknes, Morocco): archaeometric study of the white and coloured marbles imported in the Roman age", *Journal of Cultural Heritage* 10, 116-123.
- ANTONELLI F., LAPUENTE M. P., DESSANDIER D., KAMEL S. 2015: "Petrographic characterization and provenance determination of the crystalline marbles used in the Roman town of Banasa (Morocco): New data on the import of Iberian marble in Roman North Africa", *Archaeometry* 57, 405-425.
- ARBEID B., IOZZO M. (eds.) 2015: *Piccoli grandi bronzi: Capolavori greci, etruschi e romani delle Collezioni Mediceo-Lorenesi nel Museo Archeologico Nazionale di Firenze*, Florence.
- ATTANASIO D., BRUNO M., YAVUZ A. B. 2009: "Quarries in the Region of Aphrodisias: the Black and White Marbles of Göktepe (Muğla)", *Journal of Roman Archaeology* 22, 312-348.
- BARBIN V., RAMSEYER K., DÉCROUEZ D., HERB R. 1989: "Marbres blancs: caractérisation par cathodoluminescence", *Comptes Rendus Acad. Sci. Paris* 308, II, 861-866.
- BARBIN V., RAMSEYER K., DÉCROUEZ D., BURNS S. J., CHAMAY J., MAIER J. L. 1992: "Cathodoluminescence of White Marbles: an Overview", *Archaeometry*, 34, 175-183.
- BELTRÁN J., LOZA M. L., ONTIVEROS E., RODRÍGUEZ O., TAYLOR R. 2011: "The Quarrying and Use of Marmora in Baetica. An Archaeometry-based Research Project", *Itálica, Journal of Andalusian Classical Archaeology* 1, 220-229.
- BELTRÁN J. 2012: "Explotación y rutas de comercialización de los marmora béticos", in S. KEAY (ed.) *Rome, Portus and the Mediterranean*, 21 *Archaeological Monographs of the British School at Rome*, London, 281-291.
- BOSCHUNG D. 1993: *Die Bildnisse des Augustus, Das römische Herrscherbild 1.2*, Berlin.
- DE NUCCIO M., UNGARO L., PENSABENE P., LAZZARINI L. (eds.) 2002: *I Marmi colorati della Roma imperiale*, Rome.
- FLESS F. 1995: *Opferdiener und Kultmusiker auf stadtrömischen historischen Reliefs: Untersuchungen zur Ikonographie, Funktion und Bedeutung*, Mainz.
- GNOLI R. 1971: *Marmora romana 1*, Rome.
- GNOLI R. 1988: *Marmora romana 2*, Rome.
- GORGONI C., LAZZARINI L., PALLANTE P., TURI B. 2002: "An Updated and Detailed Mineropetrographic and C–O Stable Isotopic Reference Database for the Main Mediterranean Marbles Used in Antiquity", in *ASMOSIA V*, 115-131.
- GUTIÉRREZ GARCIA-M. A., RODÀ I. 2012: "El mármol de Luni-Carrara en la fachada Mediterránea de Hispania", in S. KEAY (ed.): *Rome, Portus and the Mediterranean*, *Archaeological Monographs of the British School at Rome*, Rome, 293-312.
- KAUFMANN-HEINIMANN A. 1998: *Götter und Lararien aus Augusta Raurica: Herstellung, Fundzusammenhänge und sakrale Funktion figürlicher Bronzen in einer römischen Stadt*. Augst.
- KRISTENSEN T. M. 2013: *Making and Breaking the Gods: Christian Responses to Pagan Sculpture in Late Antiquity (Aarhus Studies in Mediterranean Antiquity 12)*, Aarhus.
- KUNCKEL H. 1974: *Der römische Genius*, Heidelberg.
- LAMBERTO V., CAETANO P. S. 2008: "Marbles stones from Lusitania: the quarries of the Estremoz anticline", in T. NOGALES, J. BELTRÁN (eds.): *Marmora Hispana: explotación y uso de los materiales pétreos en la Hispania Romana*, *Hispania Antigua*, (Serie Arqueológica 2), *L'Erma di Bretschneider*, Rome, 467-482.
- LAPUENTE P., BLANC P. 2002: "Marbles from Hispania: Scientific Approach Based on Cathodoluminescence", in *ASMOSIA V*, 143-151.
- LAPUENTE M. P., CISNEROS M., ORTIGA M. 1988: "Contribución a la identificación de mármoles españoles empleados en la antigüedad (Estudio histórico y petrológico)", *Noticiario Arqueológico Hispánico* 30, 255-274.
- LAPUENTE P., NOGALES-BASARRATE T., ROYO H., BRILLI M. 2014: "White Marble Sculptures from the National Museum of Roman Art (Mérida, Spain): Sources of Local and Imported Marbles", *European Journal of Mineralogy* 26, 333-354.
- LAPUENTE P., LÉON P., NOGALES-BASARRATE T., ROYO H., PREITE-MARTINEZ M., BLANC PH. 2012: "White Sculptural Materials from Villa Adriana: Study of Provenance", in *ASMOSIA IX*, 364-375.

46 See, for example, the discussion in POLLINI 2012, 100-101.

- LAPUENTE M. P., ROYO H., BRILLI M. CUCHÍ J. A. 2016: "Mármoles escultóricos romanos del patrimonio de Aragón. Nuevas aportaciones arqueométricas", *Actas I Congreso CAPA. Arqueología y Patrimonio Aragonés*. Zaragoza, 24-25 Noviembre 2015, 539-548.
- LAPUENTE P., TURI B., BLANC PH. 2000: "Marbles from Roman Hispania: Stable Isotope and Cathodoluminescence Characterization", *Applied Geochemistry* 15, 1469-1493.
- LAPUENTE P., TURI B., LAZZARINI L., NOGALES T. 1999: "Provenance Investigation of White Marble Sculptures from Augusta Emerita, Hispania," in *ASMOSIA IV*, 111-116.
- LA ROCCA E. 2007: "I troni dei nuovi dei", in T. NOGALES BASARRATE, J. GONZÁLEZ (eds.): *Culto Imperial: Política y Poder, Hispania Antigua (Serie Arqueológica 1)*, L'Erma di Bretschneider, Rome, 75-104.
- LA ROCCA E., GIROIRE C., MONACO A., PARISI PRESICCE C., ROGER D. (eds.) 2014: *Auguste (Exhibition Catalogue)*, Paris.
- MAYER M., RODÀ I. 1998: "The use of marble and decorative stone in Roman Baetica", *The Archeology in Early Roman Baetica*, *JRA. Suppl. Ser. 29*, Portsmouth, 217-234.
- NOGALES BASARRATE T. 2000a: "Un altar en el foro de Augusta Emerita", in P. LEÓN, P., T. NOGALES (eds.), *Actas de la III Reunión sobre Escultura romana en Hispania*, Madrid, 25-46.
- NOGALES BASARRATE T. 2000b: "El relieve histórico de M. Agrippa, los relieves de Pan Caliente y el altar del foro emeritense", *Espacio, Tiempo y Forma serie II*, 2000. U.N.E.D., 391-423.
- NOGALES BASARRATE T. 2007: "Culto imperial en Augusta Emerita: imágenes y programas urbanos", in T. NOGALES, J. GONZÁLEZ (eds.): *Culto Imperial: Política y Poder (Hispania Antigua, Serie Arqueológica 1)*, L'Erma di Bretschneider, Rome, 447-539.
- NOGALES BASARRATE T. 2009: "Talleres de escultura de Augusta Emerita y su papel en Lusitania romana", in V. GAGGADIS-ROBIN, A. HERMARY, M. REDDÉ, C. SINTES (eds.): *Les ateliers de sculpture régionaux: techniques, styles et iconographie (Actes du X^e Colloque International sur l'art provincial romain. Arles et Aix-en-Provence 2007)*, Arles, 467-483.
- NOGALES BASARRATE T. 2013: "Late Antique sculpture in Augusta Emerita and its territorium (Hispania): officinae, patterns and circuits", S. BIRK, T.M. KRISTENSEN Y B. POULSEN (edd.): *Using Images in Late Antiquity*, Oxford.
- NOGALES BASARRATE T., BELTRÁN FORTES J. 2008: "Marmora Hispana: explotación y uso de los materiales pétreos en la Hispania Romana", *Hispania Antigua (Serie Arqueológica 2)*, L'Erma Di Bretschneider.
- NOGALES T., CARVALHO A., ALMEIDA M. J. 2004: "El programa decorativo de la Quinta das Longas (Elvas, Portugal): un modelo excepcional de las villae de la Lusitania", in T. NOGALES, L. J. R. GONÇALVES (eds.): *Actas de la IV Reunión sobre escultura romana peninsular*, Lisboa 2002, Madrid, 103-156.
- NOGALES BASARRATE T., GONÇALVES L., LAPUENTE P. 2008: "Materiales lapídeos, mármoles y talleres en Lusitania", in T. NOGALES, J. BELTRÁN (eds.): *Marmora Hispana: explotación y uso de los materiales pétreos en la Hispania Romana, Hispania Antigua (Serie Arqueológica 2)*, L'Erma di Bretschneider, Rome, 407-466.
- NOGALES T., LAPUENTE P., RODÀ I. 2017: "Dos nuevos retratos de Caesar Augusta (Zaragoza)", *Actes IV Colloque International sur l'Art Provincial Romain, June 2015, Dijon, France. Iconographie du quotidien dans l'art provincial romain: Modèles régionaux. 44^e suppl. à la Revue Archéologique de l'Est*, 261-270.
- NOGALES BASARRATE T., LAPUENTE P., ROYO H., PREITE-MARTINEZ M. 2015: "Stone materials in Lusitania Reflecting the Process of Romanization", in *ASMOSIA X*, 253-262.
- NOGALES BASARRATE T., RODÀ I. 2011 (eds.): *Roma y las provincias: modelo y difusión. Hispania Antigua Arqueológica 3, vol. I-II*, Mérida.
- ORIGLIA F., GLIOZZO E., GANDIN A., MECCHERI M., SPANGENBERG J.E., TURBANTI MEMMI I. 2012: "Marbles and carbonate rocks from central Morocco: a petrographic, mineralogical and geochemical study", *Environmental Earth Sciences* 66, 1, 209-222.
- PALAGIA O. 2002: "Ζευς Νάιος και Διώνη στην Ακρόπολη των Αθηνών", in *Αφιέρωμα στη μνήμη του γλύπτη Στέλιου Τριάντη*, Μουσείο Μπενάκη Supplement 1, 171-180.
- PENSABENE P. 2004: "La diffusione del marmo lunense nelle province occidentali", in: S. F. Ramallo (ed.), *La decoración arquitectónica en las ciudades romanas de occidente (Cartagena, 2003)* Cartagena, Universidad de Murcia, 421-423.
- 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 antiguo, Homenaje a la Profesora Pilar León Alonso*, Córdoba, 103-141.

- POLLINI J. 1999: "Review article of D. BOSCHUNG, *Die Bildnisse des Augustus, Das römische Herrscherbild* 1.2, Berlin," *Art Bulletin* 81, 723-735.
- POLLINI J. 2012: *From Republic to Empire: Rhetoric, Religion, and Power in the Visual Culture of Ancient Rome*, Norman, Oklahoma.
- POLLINI J. 2013: "The Archaeology of Destruction: Christians, Images of Classical Antiquity, and Some Problems of Interpretation," *The Archaeology of Violence: Interdisciplinary Approaches* (IEMA Proceedings 2), S. RALPH (ed.): (Albany 2013) 241-65. [republished with corrigenda and addenda in *Chaos e Kosmos XIV* (2013). 1-29: www.chaosekosmos.it/pdf/2013_19.pdf.
- POLLINI J. 2014: "Review of T. M. Kristensen, *Making and Breaking the Gods: Christian Responses to Pagan Sculpture in Late Antiquity*, in *Bryn Mawr Classical Review* (bmcr.brynmawr.edu/2014/2014-08-61.html).
- RODRÍGUEZ O. 2008: "Los marmora en el programa arquitectónico y decorativo del Teatro Romano de Itálica: antiguas hipótesis, nuevas propuestas y posibles certezas a la luz de las aportaciones de los análisis de microscopía óptica de polarización", in T. NOGALES, J. BELTRÁN (eds.): *Marmora Hispana: explotación y uso de los materiales pétreos en la Hispania Romana, Hispania Antigua* (Serie Arqueológica, 2), 231-260, Rome.
- RODRÍGUEZ O., BELTRÁN J., LÓPEZ P., ONTIVEROS E., TAYLOR R. 2012: "The quarries of Almadén de la Plata (Seville, Spain): New Data from the Recent Archaeological Interventions," in *ASMOSIA IX*, 645-650.
- RYBERG, I. S. 1955: *Rites of the State Religion in Roman Art*, *Memoirs of the American Academy in Rome* 22, Rome.
- TORTORELLA S. 1992: "I rilievi del Louvre con Suovetaurile: Un documento del culto imperiale", *Ostraka* 1, 81-104.