

The Different Steps of the Rough-Hewing on a Monumental Sculpture at the Greek Archaic Period: the Unfinished Kouros of Thasos

Braunstein, Danièle

Source / Izvornik: **ASMOSIA XI, Interdisciplinary Studies on Ancient Stone, Proceedings of the XI International Conference of ASMOSIA, 2018, 711 - 716**

Conference paper / Rad u zborniku

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

<https://doi.org/10.31534/XI.asmosia.2015/05.11>

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:123:780328>

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

Download date / Datum preuzimanja: **2024-07-04**



Repository / Repozitorij:

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



UNIVERSITY OF SPLIT

dabar

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

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 Bahadir 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 Ruppiniè 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 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>Marmorata</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
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

THE DIFFERENT STEPS OF THE ROUGH-HEWING ON A MONUMENTAL SCULPTURE AT THE GREEK ARCHAIC PERIOD: THE UNFINISHED KOUROS OF THASOS

Danièle Braunstein

Musée du Louvre, Paris, France (daniele.braunstein@louvre.fr)

Abstract

On the colossal unfinished kouros from Thasos (around VI B.C.) exhibited in the Archeological Museum of Thasos, the marks of one tool only can be seen: the point. But they are not all the same. In fact, there are four types of marks which correspond to four different ways of using the point. And each way of using the point corresponds to one step of rough-hewing the sculpture. After that, it is possible to deduce some hypotheses about the work in a quarry, the work in the place of exhibition or in the workshop, the order of operations on the statue and the different crafts (stone-cutters, sculptors, specialized sculptors).

Therefore, the study of the marks of just one tool on this unfinished kouros allows a much better understanding of the process of making a statue in the archaic period and the importance of the role of stone-cutters in the rough-hewing of sculptures.

Keywords

tools, rough-hewing, stone-cutters

I studied the colossal unfinished kouros exhibited in the Archeological Museum of Thasos in great detail by looking for the marks of tools on the Greek archaic marble sculpture¹. This specific study allowed me to suggest a restitution of the different steps from rough-hewing, started in the quarry after the extraction of the block, and finished in the place where the statue was exhibited and to suggest a theory to explain why the sculpture had been abandoned before being finished.

Discovered and partially removed in 1914 by Charles Picard² in a medieval part of the surrounding east wall of the Acropolis, the colossal unfinished kouros from Thasos was entirely extracted in 1920 (Fig. 1). Broken in five parts – head and shoulders, torso with beginning of the legs, each leg and the feet adhering to



Fig. 1. Part of the kouros, after the extraction from the east wall of the Acropolis (photo: EfA 1920)

the plinth – the kouros was reconstituted on the ground in the courtyard of the museum (Fig. 2), repaired and then stood upright again³. It was exhibited in a room in the Archeological Museum of Thasos especially built for it because of its 3.50 meter height with the plinth⁴.

It is dated around 600 B.C. and is registered under inventory number 1⁵.

Description (Fig. 4 and Fig. 5)

The kouros is presented front face view. The left leg is advanced, the right arm along the body, the left bent on the breast. He holds a ram vertically against the right part of the torso.

1 Subject of my doctoral thesis, accepted in 2007.

2 PICARD 1921, 88.

3 PICARD 1921, 113-127.

4 The plinth is 0,10 meter high.

5 POTTIER 1920, 218-223; HOLTZMANN 2000, 245-246.



Fig. 2. Kouros reconstituted in the courtyard of the museum (photo: EfA 1920)

Radiating from the crown of the head, the hair is arranging in long pearl locks, except on the forehead where the pearls are not yet carved. The hair is retained by a headband tied in the back and falls down on the back and on each side of the face in four parotid locks.

A big crack runs from the left ear to the breast.

Technique

On the unfinished kouros of Thasos the marks of only one tool can be seen: the point. But these marks are not all the same everywhere.

But to start, let us come back to the tool and its technical definition⁶.

A point is a metal rod with a circular or octagonal section. Its extremity has a pyramidal shape. It is used from the beginning of cutting stone, for extracting material surplus, from the biggest to the smallest, and for coarsely approximating the shape (Fig. 5).

Points with a large section allowed the removal of big fragments of marble. They produce coarse marks with deep grooves. As the rough-hewing continues, smaller points, taking out little fragments of material, are used to approximate the shape little by little. The marks become thinner, with smaller grooves, longer and deeper, ending in impacts, and then with short grooves ending in impacts, almost like pricking. In the very last step, thinner points⁷, used with a strike angle of nearly 90°, create the “pricking”.

So, according to the size of the tool and the ways of working the material, we have different marks from the same tool. As stated earlier, the unfinished kouros of Thasos shows all of them. They can be classified in four types:

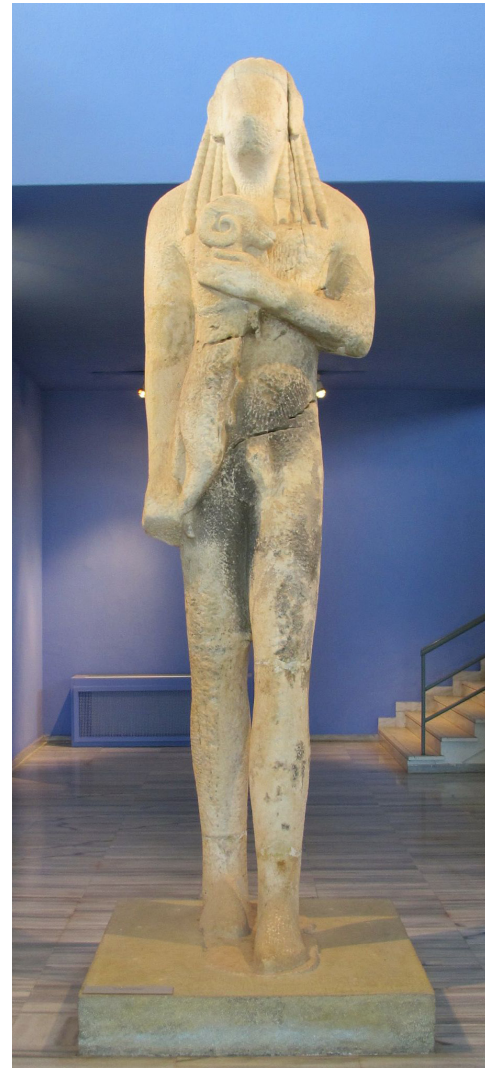


Fig. 3. Kouros, front face view, Thasos 1 (photo: D. Braunstein)

1. coarse marks with deep grooves
2. thinner marks with smaller grooves, longer and deeper, ending in impacts
3. marks almost like pricking, with short grooves ending in impacts
4. finally, pricking marks, perfectly clear.

And each type of mark matches a particular step of rough-hewing:

1. From the right heel, the ankle and above the foot (Fig. 6), the obvious thickness of the material shows the very first rough-hewing of the sculpture: the marks are coarse and big; the grooves are short, closer together (Fig. 7). We notice this kind of mark on the back of the right leg, corresponding to the same step. They are probably made with a pickaxe in the quarry, after the extraction of the block.

⁶ BESSAC 1986, 108-115.

⁷ A “needle” in French stone-cutter language.



Fig. 4. Kouros, back view, Thasos 1
(photo: D. Braunstein)

2. Marks located on the inner face and top of the right foot, on the profile of the right leg (Fig. 8), on the inner face of the left leg, on the back of the right hand and the throat too correspond to the following step of rough-hewing. The point used for this work is probably a big one. The marks from the profile of the right leg are characteristic of a stone-cutter's work: the angle formed by the two sides of the block has been cut down (Fig. 9). The same applies for the back of the right hand. This work could have been done in the quarry.
3. The third type of mark, sometimes close to pricking, is located on the top of the right foot, the profile of the right leg and the entire left thigh (Fig. 10), the left hand and the ram (Fig. 11). The shape is beginning to appear and the point, now smaller, is often used with an angle of more than 45°. At this step, we can notice that the left leg is thinner than



Fig. 5. Points with different sizes
(photo: D. Braunstein)

the right: the work is more advanced (Fig. 12). We can also see that by observing the point marks.

4. At last, a tight pricking, nearly imperceptible, located essentially on the hair (Fig. 13 and Fig. 14), constitutes the last step of rough-hewing. The shape appears.

Analysis

Analyzing all this technical information, it is possible to arrive at some hypotheses about the work in the quarry, the work in the place of exhibition or in the workshop, the order of operations on the statue and the different crafts (stone-cutters, sculptors, specialized sculptors).

I suggest the following hypothesis:

- In the quarry, a big block of marble is extracted and cut into the form of an approximate parallelepiped;
- There, *in situ*, the first rough-hewing is done with pickaxes and big points. Stone-cutters work the faces and geometric forms, in order to reduce the weight of the block and facilitate transport;
- Then the block is carried horizontally to the place where it will be exhibited⁸. There, it is stood up and a scaffolding is built.
- Some parts of the body, such as the shoulders, arms, legs, are left deliberately for the end because of the large planes which are easily workable with abrasives.

⁸ On the Acropolis of Thasos.



Fig. 6. Right ankle, coarse marks
(photo: D. Braunstein)



Fig. 9. Right leg, edge formed by two sides of the block cut down (photo: D. Braunstein)



Fig. 7. Side profile of the right foot, thickness of material
(photo: D. Braunstein)



Fig. 10. Left thigh, short grooves ended by impacts
(photo: D. Braunstein)

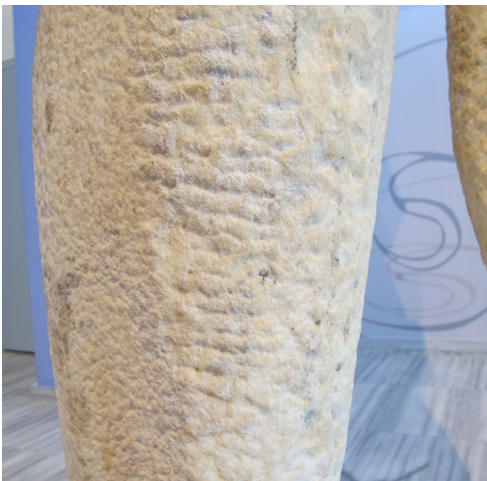


Fig. 8. Right leg, deep and long grooves ended by impacts (photo: D. Braunstein)



Fig. 11. Ram's head, very short grooves, close to pricking
(photo: D. Braunstein)



Fig. 12. Left leg thinner than the right one: more advanced work (photo: D. Braunstein)



Fig. 15. Left part of the head, big crack (photo: D. Braunstein)



Fig. 13. Hair on the left shoulder, pricking (photo: D. Braunstein)



Fig. 16. Top of the head, crack on the left (photo: D. Braunstein)



Fig. 14. Hair locks and headband bow, back view, pricking (photo: D. Braunstein)

- On site, given the size of the sculpture and the tightness of the base, the work begins at the top. In this way, there is less weight on the top so a better balance is achieved. Some specialists, probably stone masters, work in the shape of the hair and the ram with thin points, very precisely.
- The work of the face and the final work too are left to the sculptor, master of the project.

And at this moment, an accident probably happened: the sculpture fell face down and broke in five pieces. The tightness in addition to the imposing height has probably made the sculpture unstable, despite the scaffolding. The unfinished kouros was left and discarded.

We used to say that the kouros was left because of the big crack going through the left part of the head (Fig. 15 and Fig. 16). If the argument of an accident can be supported, another theory can be suggested: the fragments were big enough to be re-used for building materials. Locked into the surrounding east wall of the Acropolis, at the mercy of the damp climate of Thasos, the cold winters and hot summers, the fragments have suffered damage from erosion and fragile parts, such as micro-cracks or veining, became true cracks over the course of time.

BIBLIOGRAPHY

- BESSAC J.C. 1986: *L'outillage traditionnel du tailleur de pierre de l'Antiquité à nos jours*, Paris, 1986, 9, 108-115.
- BRAUNSTEIN D. 2007: Unpublished Ph.D Thesis, "Les techniques de la sculpture grecque avant 450 av. J. - C. : l'apport des traces d'outils", Nanterre-Paris X, 2007.
- HOLTZMANN B. 2000: *Guide de Thasos*, 2^e éd., Sites et monuments 3, 2000, 245-246, n°1, fig. 171 a, b, c.
- PICARD C. 1921: "Fouilles de Thasos", in *Bulletin de correspondance hellénique*, vol. 45, 1921, 86-173.
- POTTIER E. 1920: "Un colosse "criophore" archaïque découvert à Thasos", in *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 64^e année, N. 3, 1920, 218-223.